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# Annual Report

## 2006

Inter-University Research Institute Corporation, National Institutes for the Humanities
Research Institute for Humanity and Nature

# *Annual Report 2006*

Inter-University Research Institute Corporation
National Institutes for the Humanities

Research Institute for Humanity and Nature (RIHN)

## Drawing up of 2006 Annual Report

1. This brochure provides an overview of results of research projects at the Research Institute for Humanity and Nature (RIHN), covering the period April 1, 2006 to March 31, 2007. It also contains results obtained by RIHN staff over the same period. The results of the staff included in this brochure, however, are taken as covering the past five years.
2. Toshitaka Hidaka's term as director-general of RIHN came to an end on March 31, 2007. Narifumi Tachimoto was subsequently appointed as the new director-general on April 1, 2007. Accordingly, Toshitaka Hidaka's personal research achievements are included as the director-general's results, and the new director-general Narifumi Tachimoto's message is used as the director-general's message.
3. The RIHN's results in terms of publications are listed in the order of solo-authored publications in Japanese; joint publications in Japanese; solo-authored works in English; joint publications in English; solo-authored works in other languages; and joint works in other languages. All of these results in each category are further divided by publication date.
4. The five research projects that were initiated together with the establishment of the RIHN in 2001 all came to an end in March 2006. With the completion of these Full-Research (FR) projects, their results have now been included in this year's brochure as a general overview of this five-year period.

**Explanation of Cover Photos**

**Front:** The Patagonian ice fields known as the largest mountain glacier on Earth, reaches to Patagonia, at the southernmost tip of the South American continent. It is recommended to excavate ice cores to recreate ancient environments when the valuable good weather visits Patagonia, which is covered in bad weather nearly all year round. (Photo: Takayuki Shiraiwa)

**Back:** The glacier at the peak of the Wrangell Mountains (elev. 4,317m), which is located in the state of Alaska at the northernmost point of North America, is a natural deep freeze that records the various anthropogenic materials that cross the North Pacific and spatter from continental Asia. To drill ice cores at the summit, the aim is to reach the drill site at the peak while acclimatizing to the altitude over three days. (Photo:Takayuki Shiraiwa)

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# Preface

RIHN took its first step on 1 April 2001, and entered its seventh year in 2007. The concrete results have been announced in various forms such as project reports, but the annual report is a summing up of the activities recorded in each fiscal year. The first issue was published in 2003, collating both FY2001 and FY2002, and this annual report 2007/08 therefore comprises the fifth issue.

FY2006 was an important year for RIHN. It has been three fiscal years since we became a member of the National Institutes for the Humanities in 2004, concomitant with our incorporation as an Inter-University Research Institute. At the same time, this is also the year in which five of the research projects (out of 14 research projects being pursued in FY2006) were finalized. We completed our move to new premises in Kamigamo in February 2006. In all likelihood, this is a period in which the results brought forth by RIHN, which aims for a fusion of human and natural sciences, will be called into close scrutiny.

RIHN, however, has not merely focused on this so-called fusion of humanities and sciences, but pursues research across a wide range of fields in or among natural sciences, hard sciences, humanities, and social sciences to contribute to core solutions to global environmental problems. In other words, this is fusion by consilience (becoming one while maintaining separate standpoints), or being one in diversity. RIHN is a place where people of different backgrounds gather together to communicate and, through communication, endeavour to construct a new academic field of study regarding global environmental problems. It is a place where people, objects, buildings, scenery, and research environments correlatively function as catalysts, leading to transformations in the people gathered together there.

While there are various ways to read this record of the past year's activities by the researchers at our institute, I would be delighted if you could absorb the efforts of the individual projects and researchers. Constructive criticisms and comments are most welcome.

Narifumi TACHIMOTO,
Director-General
RIHN

# History

Fiscal Year

1995 A proposal of Japan Science Council of Ministry of Education, Science, Sports and Culture: "On the promotion of the global environmental sciences" (April). "It is necessary to examine the founding of a central research organization that will promote integrated cooperative research toward the solution of global environmental problems."

1997 Investigation of the possible forms that the proposed research organization for the global environmental sciences may take. The Ministry of Education, Science, Sports and Culture established the Chosa-kyoryokusha-kaigi (Committee of Investigation Collaborators) for the establishment of a central research organization and made a budget for the concrete investigations.

The Ministerial Council for the global environmental conservation made an agreement on the "Provisional measure for global environmental conservation", in preparation for the UN General Assembly' s Special Session on the Environment and Development (June). "The Council will investigate the means of possible adjustments necessary for the research organization to carry out integrated research in broad academic fields in addressing global environmental problems".

1998 Preparatory work for the establishment of the "Research Institute for the Global Environment Sciences" (tentative).

1999 The preparation Committee of the Institute compiled a report in March 2000 and proposed the foundation of the "Research Institute for the Global Environment Sciences" (tentative) for promoting integrated research projects, by amalgamating various broad disciplines from humanity and social sciences to natural sciences and using a network to be formed among workers in universities and research institutes within and outside the country.

2000 Investigation for the founding of the Research Institute for Humanity and Nature (tentative). Report "On the Fabric of the Research Institute for Humanity and Nature (tentative)" was completed in February.

2001 Foundation of the Research Institute for Humanity and Nature. Following the execution of the government ordinance (No. 151 of the year 2001) amending part of the ordinance on the law concerning the establishment of national schools (Kokuritsu-gakko-setchi-ho-shikorei), the Research Institute for Humanity and Nature was founded (Director-General: Professor Toshitaka Hidaka). The Institute commenced its research activity on the campus of Kyoto University.

2002 The Institute moved to the site of the old Kasuga Primary School of Kyoto City.

2004 Inter-University Research Institution Corporation, National Institute for the Humanities (NIHU) established on April 1st based on the National University Corporation Law. RIHN became one of the member institutes of the NIHU.

2005 New facility was completed in December 2005, and relocated in February 2006.

2006 RIHN New Facilities Inaugural Ceremony was held on May 26, 2006.

# Introduction

## RIHN's Mission

Along with the development of civilization, human activities have expanded and the population has increased. These trends have accelerated in recent years. As a result, the consumption of energy and resources continues to rise and the demand for food goes on increasing relentlessly. This means that human activities have imposed a far greater load on the environment.

The Research Institute for Humanity and Nature (RIHN) was founded in April 2001. This inter-university research institute, under the jurisdiction of the Ministry of Education, Culture, Sports, Science, and Technology, the Government of Japan, conducts integrated research to develop innovative countermeasures that address global environmental issues.

Environmental issues, such as global warming, loss of biodiversity, and depletion of water resources are said to be the consequences of humanity-nature interactions and these consequences are now manifesting themselves in various parts of the world. It is fundamentally a problem of human lifestyle, or "human culture" in the broadest sense of the word.

One of the difficulties in assessing global environmental issues stems from the fact that many of them appear across vast regions of the globe in a highly unpredictable manner. A number of the problems confronting us seem to be caused by factors, for which the causes are, in space and time, far away from the regions where the problems manifest themselves. We have come to realize that such problems are strongly influenced by not only physical and chemical mechanisms, but, in a broader sense, by cultural factors as well.

It is now evident that these multi-faceted problems cannot be solved by conventional approaches. In fact, the measures taken hitherto were based on the idea of controlling nature, an approach that has yielded few solutions, and even resulted in the environmental problems being exacerbated by generating a vicious cycle.

Our first and most fundamental task is to define what is meant by global environmental issues and to re-examine the conventional ways of thinking that were developed during the 20th century.

First, we examine how humans interact with nature, a highly intricate and complex matter that requires intensive examination. However, tackling this complex interaction is our primary mission. Second, working from this perspective, we need to consider how we can maintain the global environment so that it has "Futurability", and what kinds of lifestyles we need to adopt.

To achieve these goals, a new academic approach is called for. RIHN is undertaking a new project as described in the message from the Director-General. We will inform the public how everyone can benefit from our research, while building academic "knowledge" to further contribute to resolving global environmental issues.

The Inter-University Research Institute Corporation National Institutes for the Humanities (NIHU) was established on April 1st, 2004, based on the National University Corporation Law. RIHN became part of NIHU along with the following institutes, the National Museum of Ethnology, International Research Center for Japanese Studies, National Museum of Japanese History, National Institute of Japanese Literature, all of which are involved in examining the different viewpoints surrounding cultural problems. As part of this group, RIHN is committed to solving global environmental issues, which it sees as being deeply rooted in human culture.

## Roles and Function of RIHN

### ■Research Project System

RIHN has carried out cross-disciplinary and integrated studies using a project-based format, without dividing research activities into traditional disciplinary areas. This project-based research has been organized by the establishing 5 research axes that represent integrated perspectives of global environmental problems; each research project

follows the direction of the relevant research axis. Each project is advanced and developed in a step-wise manner: the potential project leader first conducts an Incubation Study (IS). If the outcome of the IS is positive, the leader will then develop a Feasibility Study (FS), which takes about one year. Then, the FS will be upgraded to a full-scale 5-year study (including 1 year of pre-research), subject to results of the assessment by the Evaluation Committee for Research Projects, and approval by the Advisory Committee. For each of the research projects, most of the evaluation criteria are based on the degree of integration, fluidity, internationality and leadership.

**[Integration]**

In recent years, many studies were aimed at devising countermeasures that could effectively address global environmental problems, but we have now reached a point where new directions are needed. We are faced with such questions as, what kinds of lifestyles will be viable in the future, and what land area and distribution of tropical forest should be retained? To answer these simple, but socially demanding questions, we have developed a new integrated approach, bringing together different disciplines from the natural sciences, social sciences, humanity studies, engineering, land and food sciences, medical sciences, and others. At RIHN, truly cross-disciplinary integrated research is conducted through a "project-based format" that does not differentiate between existing academic fields and research activities.

**[Fluidity]**

It is very important to maintain a high degree of fluidity within the research system in order to emphasize a cross-disciplinary, integrated approach towards environmental issues. RIHN is a research institute that demonstrates the highest possible level of fluidity in its operations, which is ideal for the "project-based format" it has adopted

**[Internationality]**

Adoption of a cross-disciplinary and integrated approach towards global environmental issues naturally requires an international vision. RIHN will develop tight links with both national and international research organizations, promote overseas-based research projects, and participate in the planning and operation of international research projects. RIHN will also appoint many non-Japanese as research staff.

**[Leadership]**

Strong leadership enables us to carry out integrated research in such a fluid organization. With collaborative networks of researchers and institutions, RIHN will provide the leaders to head up multi-disciplinary research projects as full-time staff members.

## RIHN's Role as an Inter-University Research Institute Corporation

RIHN, as an inter-university research institute corporation, has the following three distinctive features.

1. RIHN as a co-operative think-tank

Since April 2006, we have implemented 14 ongoing, funded research projects. They have been supported by more than 1,000 researchers comprising RIHN staff and external collaborators. In line with our basic concept, "global environmental issues as human culture", the research projects cover diverse academic disciplines and fields including the natural sciences, social sciences and humanities. Moreover, we have invited experts and researchers from universities and institutional corporations as well as from governmental agencies and commercial sectors.

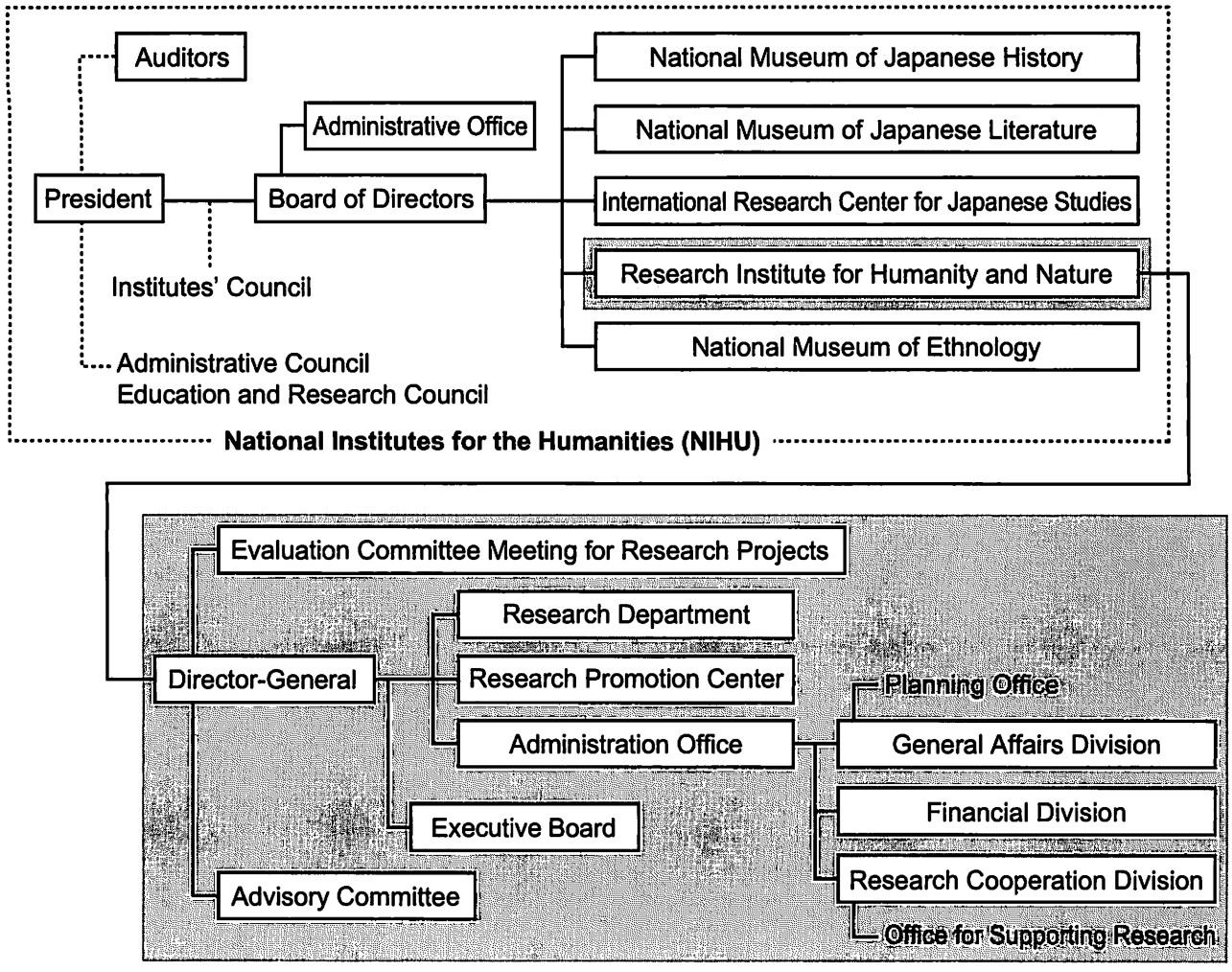
2. RIHN as interface between field sites and research correspondents

More than 30 field sites are being investigated as part of the research projects. These sites extend across a wide geographical area including Japan and much of Eurasia. We are constantly engaged in collaborative research activities with research correspondents and local staff. Each field site has been set up in the country in which the field investigation is being conducted under the authority of the relevant academic institutions, through an MOA (Memorandum Of Agreement) and MOU (Memorandum Of Understanding) agreed between RIHN and the local institutions. The agreements have enabled us to enhance the academic competency of young researchers in the country, and are promoting academic exchange programs between RIHN and the local institutions.

3. RIHN uses high-tech equipment to investigate the nature of global environmental problems

RIHN has already installed brand new, state-of-the-art analytical apparatuses in the mass spectrometer (mineral and metal) and stable isotope (tracer) laboratories and in the labs where DNA analyses (genetic phylogeny and ancient genotype) are carried out. We intend to develop new analytical tools and to promote scientific research activities between RIHN staff and external collaborators.

# Organization




## Partner Organizations for Fluid Association (Fiscal Year 2006)

- Center for Ecological Research, Kyoto University (2001–)
- Hydrospheric-Atmospheric Research Center, Nagoya University (2001–)
- Arid Land Research Center, Tottori University (2001–)
- Institute of Industrial Sciences, University of Tokyo (2002–)
- National Museum of Ethnology, NIHU (2002–)
- Graduate School of Science, Tohoku University (2002–)
- Institute of Low Temperature Science, Hokkaido University (2003–)
- Tropical Biosphere Research Center, University of Ryukyus (2003–)

# Boards and Committees (in alphabetical order)

## Advisory Committee

Deliberates on important matters relative to personnel, planning, administration and operation of the institute.

| | |
|---|---|
| FUJII, Yoshiyuki | Director-General, National Institute of Polar Research, Research Organization of Information and Systems |
| FURUSAWA, Iwao | President, Tottori University of Environmental Studies |
| IWASAKA, Yasunobu | Research Professor, Kanazawa University Frontier Science Organization |
| SHIRAHATA, Yozaburo | Senior Research Coordinator, Research Department, International Research Center for Japanese Studies, NIHU |
| TACHIMOTO, Narifumi | Dean, College of International Studies, Chubu University |
| UEDA, Hiroshi | Director, Hydrospheric Atomospheric Research Center, Nagoya University |
| WASHIDA, Kiyokazu | President, Osaka University |
| YAMAMURA, Norio | Professor, Center for Ecological Research, Kyoto University (–06.9.30) |
| AKIMICHI, Tomoya | Professor, Research Institute for Humanity and Nature, NIHU |
| FUKUSHIMA, Yoshihiro | Professor, Research Institute for Humanity and Nature, NIHU |
| HAYASAKA, Tadahiro | Professor, Research Institute for Humanity and Nature, NIHU |
| NAKAWO, Masayoshi | Professor, Research Institute for Humanity and Nature, NIHU |
| SAITO, Kiyoaki | Director, Research Promotion Center, Research Institute for Humanity and Nature, NIHU |
| SATO, Yo-Ichiro | Professor, Research Institute for Humanity and Nature, NIHU |

## Evaluation Committee

Undertakes eveluations of the feasibility studies and selects research projects to be forwarded to full-scale research; interim and post-evaluation of the research subjects under full-scale research.

| | |
|---|---|
| EHLERS, Echkart | Emeritus Professor, University of Bonn, Germany |
| FURUSAWA, Iwao | President, Tottori University of Environmental Studies |
| HEINTZENBERG, Jost | Director, Institute for Tropospheric Research, Germany |
| IKAWA-SMITH, Fumiko | Former Associate Vice Principal, McGill University, Canada |
| IWASA, Yo | Professor, Graduate School of Sciences, Kyushu University |
| IWASAKA, Yasunobu | Professor, Kanazawa University Frontier Science Organization |
| KIKKAWA, Jiro | Professor Emeritus, The University of Queensland, Australia |
| LEGENDRE, Louis | CNRS Research Professor Director, Villefranche Oceanography Laboratory, France |
| MURAKAMI, Yo-ichiro | Professor, International Christian University |
| NIWA, Masako | Professor Emeritus, Nara Women's University |
| OHMURA, Atsumu | Professor, Swiss Federal Institute of Technology, Switzerland |
| OHTSUKA, Ryutaro | President, National Institute for Environmental Studies |
| SASAKI, Toshihiro | Executive Director, The Asahi Shimbun Social Welfare Organization |
| SAWA, Takamitsu | Director, Institute of Economic Research, Kyoto University |
| SUN, Honglie | Professor, Institute of Geographical Science and Natural Resources Research, Chinese Academy of Science, P. R. China |
| TANAKA, Koji | Director, Center for Integrated Area Studies, Kyoto University |
| TANAKA, Masayuki | Vice-President, Tohoku Institute of Technology |

## Executive Board

Discusses important matters of the institute.

| | |
|---|---|
| AKIMICHI, Tomoya | Program Director, Research Institute for Humanity and Nature, NIHU |
| FUKUSHIMA, Yoshihiro | Program Director, Research Institute for Humanity and Nature, NIHU |
| FURUYA, Isamu | Director, Administration Office, Research Institute for Humanity and Nature, NIHU |
| HAYASAKA, Tadahiro | Program Director, Research Institute for Humanity and Nature, NIHU |
| HIDAKA, Toshitaka | Director-General, Research Institute for Humanity and Nature, NIHU |
| NAKAWO, Masayoshi | Program Director, Research Institute for Humanity and Nature, NIHU |
| SAITO, Kiyoaki | Director, Research Promotion Center, Research Institute for Humanity and Nature, NIHU |
| SATO, Yo-Ichiro | Program Director, Research Institute for Humanity and Nature, NIHU |

RIHN organizes other committees, if necessary, for smooth operation.

# Financial Information

## ■Segmental Financial Information (Fiscal Year 2006)

| Operating Expenses | | Operating Expenses | |
|---|---|---|---|
| Category | Amount (Yen in thousands) | Category | Amount (Yen in thousands) |
| Operating Expenses | 2,236,859 | Subsidy for Operation | 2,171,024 |
| Inter-University/Joint Research | 1,120,735 | Contract Research, etc. | 84,681 |
| Educational/Research Aids | 51,905 | Contract Operations, etc. | 7 |
| Outsourced Studies | 71,384 | Donations | 22,800 |
| Outsourced Operations | 7 | Miscellaneous | 251,409 |
| Personnel | 992,827 | | |
| General Management | 149,636 | | |
| Financial Expenses | 83,153 | | |
| Miscellaneous | 34 | | |
| Total Expenses | 2,469,683 | Total Earnings | 2,529,923 |

**Operational Balance** 60,240

## ■External Sources of Funding (Fiscal Year 2006)

| Category | Amount (Yen in thousands) |
|---|---|
| Fund for Promotion of Academic and Industrial Collaboration* | 84,682 |
| Grants-in-Aids for Scientific Research | 120,010 |
| Donations for Research | 33,200 |

* Fund for promotion of Academic and Industrial Collaboration is the sum of Contract Research and joint research expenses.

# Staff Members

| | | | |
|---|---|---|---|
| **Director-General** | HIDAKA, Toshitaka | | |
| **Professor Emeritus** | NAKANISHI, Masami | WADA, Eitaro | |

**—RESEARCH DEPARTMENT—**

| | | | |
|---|---|---|---|
| ◇Program Directors | AKIMICHI, Tomoya | FUKUSHIMA, Yoshihiro | HAYASAKA, Tadahiro |
| | NAKAWO, Masayoshi | SATO, Yo-Ichiro | |
| ◇Professors | AKIMICHI, Tomoya | FUKUSHIMA, Yoshihiro | HAYASAKA, Tadahiro |
| | KAWABATA, Zen'ichiro | KINOSHITA, Tetsuya | NAKANO, Takanori |
| | NAKAWO, Masayoshi | OSADA, Toshiki | SATO, Yo-Ichiro |
| | TAKASO, Tokushiro | WATANABE, Tsugihiro | YUMOTO, Takakazu |
| ◇Associate Professors | ICHIKAWA, Masahiro | KANAE, Shinjiro | KUBOTA, Jumpei |
| | NONAKA, Kenichi | OKUMIYA, Kiyohito | SHIRAIWA, Takayuki |
| | TANIGUCHI, Makoto | UCHIYAMA, Junzo | UMETSU, Chieko |
| | YACHI, Shigeo | YOSHIOKA, Takahito | ZHENG, Yuejun |
| ◇Assistant Professors | ENDO, Takahiro | KATO, Yuzo | KAWAMOTO, Kazuaki |
| | SAEKI, Tazu | YATAGAI, Akiyo | |
| ◇Visiting Professors | INOUE, Takashi (Executive Producer, NHK Special TV Program Center) | | |
| | MOJI, Kazuhiko (Professor, Nagasaki University) | | |
| | SHIRAISHI, Noriyuki (Professor, Niigata University) | | |
| | SUGIMOTO, Takashige (Professor, Tokai University) | | |
| | YAMAMURA, Norio (Professor, Kyoto University) (06.10.1–) | | |
| ◇Visiting Associate Professors | HONDA, Yoshiaki (Associate Professor, Chiba University) | | |
| | SATO, Tadashi (Associate Professor, Tohoku University) | | |
| ◇Invited Research Fellows | BAUSCH, Ilona (06.7.13–) | | |
| | BURNETT, William Craig (06.4.15–06.7.14) | | |
| | CHEN, Jianyao (06.6.16–06.9.30) | | |
| | CHEN, Jing (06.12.20–07.3.19) | | |
| | HARRISON, Rhett Daniel (–06.8.31) | | |
| | HIDE, Robin Lamond (06.11.27–07.2.26) | | |
| | KHANTASHKEEVA, Tamara V. (06.5.1–06.12.31) | | |
| | KRECEK, Josef (06.10.2–) | | |
| | MISHINA, Natalya (06.4.17–06.9.30) | | |
| | PARPOLA, Asko (06.7.1–06.12.31) | | |
| | SHINDE, Vasant Shivram (–06.6.30) | | |
| | SIRINGAN, Fernando P. (06.10.15–) | | |
| | TEZCAN, Levent (06.8.4–06.11.8) | | |
| | VELLINGIRI, Geethalakshmi (06.5.01–06.7.31) | | |
| | WU, Yong (06.5.24–06.8.23) | | |
| | YILMAZ, Kemal Tuluhan (06.7.7–06.10.6) | | |
| ◇Project Senior Researchers | FUKUNAGA, Kenji | HANDOH, Itsuki (06.7.1–) | HATADA, Aya |
| | KATAGIRI, Shuichiro | KATSUYAMA, Masanori | KIMOTO, Yukitoshi |
| | KUME, Takashi | LEKPRICHAKUL, Thamana (06.8.1–) | |
| | MATSUI, Kazuaki | MIYAZAKI, Chihiro | MIYOSHI, Takao |
| | MORI, Wakaha | MURATA, Fumie (–06.12.31) | ONISHI, Akio |
| | ONISHI, Takeo | SATO, Yoshinobu | TAKAHASHI, Atsuhiro |
| | TANNO, Ken-ichi | UMEZAWA, Yu (06.5.22–) | YAMASHITA, Satoshi |
| ◇Project Researchers | HASHIMURA, Osamu | HAYASHI, Naoki | HONJO, Mie (06.8.1–) |
| | HYODO, Fujio | IGETA, Akitake | INOUE, Mitsuyuki |
| | KASHIO, Tamaki | KAWAMOTO, Haruko (07.3.1–) | KURATA, Takashi |
| | MATSUKAWA, Taichi | MIYAWAKI, Chie (–06.5.15) | MURAKAMI, Yumiko |
| | NAGATANI, Chiyoko | NAKAGAWA, Masato | NOMURA, Naofumi |

| | | | |
|---|---|---|---|
| | OGAWA, Akiko | OISHI, Taro | ŌNISHI, Hideyuki |
| | SAITO, Haruo | SASAKI, Naoko | SEO, Akihiro |
| | TAKEUCHI, Yayoi | TANAKA, Katsunori | TANAKA, Takuya |
| | UEKI, Masaya (-06.12.31) | WATANABE, Mitsuko | YAMAGUCHI, Kensuke |
| ◇Project Research Assistants | ANDO, Atsushi | ARIMURA, Makoto | BORRE, Caroline (06.10.18-) |
| | HOSOI, Mayumi | IBUKI, Naomi | ISHITOBI, Tomotoshi |
| | JAGO-ON, Karen Ann Blanet | KAWAGUCHI, Tamaki | KAWAMURA, Mika |
| | KUROKAWA, Naoko (06.10.1-) | LINDSTRÖM, Kati | MATSUMURA, Ayako |
| | MIYAJIMA, Toshiaki | NAKATSUKASA, Michiko | OKITA, Hiroko |
| | SASAKI, Noriko | SHIMIZU, Hiromi | TAKAHASHI, Keiko |
| | TAKEZAWA, Fumika | TAKINO, Kayoko | YAMAZAKI, Kahori (06.6.1-) |
| | YASUDA, Keiko | ZABALLOS VELARDE, Carlos Renzo (06.6.1-) | |
| ◇Researchers (Part-time) | MORIYA, Kazuki | NISHIMOTO, Futoshi | TERASHIMA, Motoki |
| ◇Research Fellow (RR) | HOSHIKAWA, Keisuke | | |
| ◇Research Fellows (JSPS) | CHENG, Zhi | FUJIHARA, Yoichi | HOSONO, Takahiro |
| | NAGANO, Takanori | NAKAGAWA, Michiko (-06.9.30) | SATAKE, Shinsuke |
| | TSUJINO, Riyou | YOSHIDA, Takehito (-06.9.30) | |
| ◇Visiting Researchers | MARCHANT, Adam | MORISHITA, Akiko | SHIBAUCHI, Sachiko |
| ◇Clerks | AKEDO, Masako | FUKETA, Yoshimi | HASE, Noriko |
| | ICHIDA, Koichiro | IWATA, Atsuko | KITA, Yukiko |
| | KOBORI, Masako | KUDO, Aiko | MURATA, Nao (06.6.1-) |
| | NAGAOKA, Kumiko | SUGIYAMA, Chikako | SUZUKI, Rieko |
| | TAIRA, Hiroyo | YOSHIOKA, Tomomi | |
| ◇Technicians | KAWAGUCHI, Hiromi | NISHI, Emi | OGURA, Asayo |
| | UENO, Aki | | |

**—RESEARCH PROMOTION CENTER—**

| | | | |
|---|---|---|---|
| ◇Director | SAITO, Kiyoaki | | |
| ◇Professors | NAKANO, Takanori | SAITO, Kiyoaki | |
| ◇Associate Professors | MOMOKI, Akiko | SEKINO, Tatsuki | YOSHIMURA, Mitsunori |
| ◇Assistant Professor | KOHMATSU, Yukihiro | | |
| ◇Technicians | IGI, Setsuko | ISEKI, Naomasa (06.6.1-) | KOBAYASHI, Toshinori |

**—ADMINISTRATION OFFICE—**

| | | | |
|---|---|---|---|
| | Director | FURUYA, Isamu | |
| ◇General Affairs Division | Head | INOUE, Akio | |
| | Deputy Head | ISHII, Koji | |
| General Affairs Section | Head | MURATA, Satoshi | |
| | Clerk | OKITA, Masaki | |
| | Secretary | MURATA, Chiyo | |
| Personnel Section | Head | MIZUTANI, Yukihiro | |
| | Chief | NAKANISHI, Shizuharu | |
| | Clerk | SETA, Yoriko | |
| | Clerical Assistant | IKEDA, Yasuyo | IWASAKI, Rie |
| Planning & Assessment Section | Head | ISHII, Koji | |
| | Chief | OOSUGI, Akira | |
| | Clerk | SHIBUTANI, Ichiro (06.10.1-) | |
| Information Section | Head | ISHII, Koji | |
| | Technical Assistants | FUJITA, Masanobu | KANEMATSU, Takako |
| | | MATSUDA, Kaeko | |
| ◇Accounting Division | Head | MORI, Takashi | |

| | | | |
|---|---|---|---|
| | Deputy Head | NISHIGAKI, Muneharu | |
| Budgeting Section | Head | URASHIMA, Shinji | |
| | Chief | SHINTANI, Tomohiro (-06.9.30) | |
| | Clerk | YANO, Tetsuya (06.10.1-) | |
| | Clerical Assistant | KIMURA, Minako | |
| Accounting Section | Head | SATO, Fumiaki | |
| | Chief | MATSUKI, Toshiyuki (-06.9.30) | |
| | Clerical Assistant | AKAI, Chihiro (-06.7.1) | TAMEISHI, Miki (-06.6.30) |
| | Janitor | ONISHI, Kazuma | |
| Facility & Management Section | Head | SHINO, Ayumi | |
| ◇Research Cooperation Division | Head | MATSUDA, Mitsunori | |
| | Deputy Head | MAENO, Masayo | |
| Research Cooperation Section | Head | MATSUURA, Yukihiro | |
| | Chief | OHSHIMA, Minako | |
| | Clerk | HORIKOSHI, Yasuko | |
| International Affairs Section | Head | SUMIKURA, Mariko | |
| Section for Supporting Research | Head | MAENO, Masayo | |
| Supporting Research Section | Head | TANAKA, Yoshiro | |
| | Clerk | IMAI, Masatoshi | ISEMOTO, Takashi |
| | Clerical Assistant | ARAKI, Keiko | MORI, Masayo |
| | | OHMOTO, Emi | OMAE, Yoko (-07.1.31) |
| | | YAMAZAKI, Yasuko (07.2.1-) | |

# Research Activities

**Research Axes and Research Projects**

Each project will be organized through the period of incubation study (IS) and tested in the feasibility study (FS) of about one year. Then the result of the feasibility study will be evaluated and, if assessed as suitable, will proceed to the full-scale study of about 5 years. In this process the evaluation of the project is given by the Evaluation Committee and approval by the Advisory Committee.

**Full-Research (Completed Research)**



**Full-Research**

**Feasibility Study**

**Incubation Studies**

1. Histories of Economic Activities and Environmental Protection Policies and Their Impacts on the Ecosystem in the Caspian Sea
   KITAZAWA, Daisuke (Institute of Industrial Science, The University of Tokyo)
2. Complex Urban Environmental Analysis and Study of Future Impact upon the Earth's Potential Based on Multidimensional Historical Time Axis
   MURAMATSU, Shin (The University of Tokyo)
3. A Study of Human Subsistence Ecosystems among Arab Societies: To Combat Livelihood Degradation
   NAWATA, Hiroshi (Arid Land Research Center, Tottori University)
4. How is it Thought about Rapid Increase and Decrease of Cormorant Populations?
   TAKAHASHI, Shinji (National Institute for Environmental Studies)
5. Collapse and Restoration of Ecosystem Networks with Human Activity
   YAMAMURA, Norio (Kyoto University)
6. Environmental Problems and Human Security for Children as Our Future: Asia-Pacific Children and the Environment (ACE) Project
   YAMAUCHI, Taro (Hokkaido University)

# Research Projects

**Full-Research**

**Research axis:** Environmental Change Impact Assessment
**Project number:** 1-1FR
**Project name:** Impacts of Climate Changes on Agricultural Production System in Arid Areas
**Project leader:** WATANABE, Tsugihiro (RIHN)
**Core members:** see Table 1 attached at the end
**URL:** http://www.chikyu.ac.jp/iccap/
**Key words:** global warming, climate change, agricultural production system, land and water managemane, Turkey



## ■ Research Objectives and Topics

### 1. Objectives and results

#### a. Original objectives and their attainment

The original research objectives include the following four points:

(1) To examine and diagnose the structure of land and water management in agricultural production systems in arid areas, especially to evaluate quantitatively the relationship between cropping systems and hydrological cycle and water balance in farmland and its environs.

(2) To develop the methodology or model for integrated assessment on impacts of climate change and adaptations for it on agricultural production systems, mainly on the aspect of the land and water management.

(3) To assist the development and improvement of the Regional Climate Model (RCM) for more accurate prediction with higher resolution of future changes in regional climate.

(4) To assess the vulnerability of agricultural production systems from natural change and to suggest possible and effective measures for enhancing sustainability of agriculture, through integrated impact and adaptive assessment of climate changes.

The research goals attained in the above original research plan are outlined below with the reasons for those portions not addressed:

(1) Quantitative evaluation of relationship among land, water and other elements in the fields and river basin: By developing the models on water movement, the water dynamics in the field and basin were evaluated quantitatively, while the factors that decide land use and soil condition were not analyzed due to limited basin survey and lack of basic basin information and data.

(2a) Generation of future regional climate scenarios: The generated scenarios are the best available at this moment for assessing the impacts on agriculture production systems. Two General Circulation Models (GCMs) were used as planned, but only one RCM was used for downscaling their outputs.

(2b) Analysis of mechanism, degree and extent of impacts and adaptation of climate change on agricultural production systems: The mechanism, degree and extent of impacts were made clear to the expected extent. On the other hand, adaptation was not projected in relation with basic policy of agriculture and environmental conservation.

(3) Review of the relation of agriculture with regional environment and resources: Analysis of the basic relation among agriculture, natural condition including climate, and socio-economic condition including history in the case study area were not studied satisfactorily due to insufficient availability of research organization and resources.

(4) Preparation of adequate information for improvement of the agricultural production and future measures for climate change: The present and future possible problem on land and water management were identified and methodology for quantitative analysis of climate change impacts was developed with primary outputs, while the actual requests or feedbacks from personnel or organizations tackling these problem and making decision for them did not materialize.

**b. Specific research findings**

This project was implemented in Turkey in cooperation with TÜBİTAK (Turkish Scientific and Technological Research Council) selecting the Seyhan River Basin located in the Mediterranean Region of Turkey having a catchment area of 25,000 $m^2$. Since the study area was changed from Israel to Turkey in the final stage of the Feasible Study, this project had to be initiated without any past research experiences or foundations, and consequently it took time and cost to organize the research team in Turkey and to acquire basic information. Against these constraints, the efforts of collaborative researchers and their organizations developed a process to realize the project objectives through trial and error, and finally produced the expected results.

The major findings and outcomes are outlined as follows.

(1) On future changes in climate and hydrology

(a) As the method to generate future regional climate for assessing the climate change impacts, the pseudo-warming experiment method was developed that utilized the re-analyzed climate archive and the GCMs.

(b) According to the output of the RCM that operates with nesting with GCMs for Turkey in the 2070 years, air temperature will increase by 2 to 3.5 degree C in all seasons, and precipitation amount will be decreased by about 20% except during the summer season.

(c) In the Seyhan River Basin, precipitation is projected to be decreased as in the whole of Turkey.

(2) Water resource availability

(d) In the 2070s, less precipitation will reduce the inflow to the huge reservoirs that provide a stable water supply to the downstream water demand.

(e) Future rise in the elevation of sea water will trigger drainage problems in the lower delta region of the basin. Sea water intrusion into groundwater basins will not be so serious with low permeability of the geological profile of the delta.

(3) On wheat production

(f) The developed crop model predicts future increase of wheat yields with higher temperature and increased $CO_2$ in the 2070s.

(g) The projected decrease of precipitation will not affect the yield of wheat significantly. On the other hand, the amount and intensity of rain in the beginning of the rainy season may affect the production of wheat.

(h) There could be higher temperature damage on wheat production. Admission of Turkey to the European Union may affect the future changes of production and price of wheat that was estimated by an economic regression model.

(4) Agriculture and water use in the irrigated region of the delta

(j) If the current cropping pattern continues, water for irrigation requirements in the 2070s under the projected climate could be met.

(k) If the irrigated area is expanded in the upper basin and the area for vegetable and fruits are increased in the delta, the irrigation period will start in earlier season and some water shortages may occur.

(l) Much increase in groundwater use to compensate water shortage will result in lower groundwater table and seawater intrusion into the aquifer in the delta area.

(m) Much seepage losses from irrigation canals occur presently due to decrepit structures and unconsciousness on water saving, and its significance in the 2070s will increase the water shortage condition. However, managing seepage losses may reduce shortages considerably.

(5) Findings on agriculture and environment through climate change impacts assessment

(o) Since wheat is a staple food crop and suitable for natural resources and environment in Turkey, its future changes in yield and quality are to be studied and monitored.

(p) Effects of higher temperature with higher $CO_2$ concentration on crop production, even of major crop like wheat, are not clear presently and basic research on this issue is one of the urgent research topics related to global

warming.

(q) In the Seyhan River Basin, water resources are developed to a considerable extent with huge reservoirs constructed in the mid-stream and are utilized effectively for domestic use, irrigation and power generation.

(r) The large scale irrigation scheme in the lower basin has not modified basin hydrological cycle much and has not led to serious environmental issues.

(s) Restructuring of irrigation management organizations and improvement of their functions are needed for more efficient water use and water conservation measures as well as for management cost.

(t) When the irrigation facilities are rehabilitated, future possible changes in cropping pattern should be taken into account, including expansion of fruit production.

(u) To prepare the counter measures for changes in natural condition and resources including climate change due to global warming, it is important to collect and compile useful information continuously, and participation of all stake holders in the field of agriculture, water resources, and metrology, including farmers.

(v) To establish sustainable land and water use even with global warming, it is imperative to identify better adaptation or management with future projection by the state-of-the art technology like the latest climate models. Adaptive management is to be one of the alternatives for sustainability.

**c. Research findings outside of original expectations**

(1) A new downscaling method of the GCM outputs called "pseudo-warming technique" was developed. In this method, reanalysis data is used as the boundary condition for the RCM and climate change bias of the GCM is added to reanalysis data for downscaling. The output has much better agreement with observed data compared to the ones of conventional downscaling so that end user can use it without further elaborate corrections.

(2) For precise hydrological analysis, grid daily precipitation is indispensable. This project contributed to the establishment of a new project for generating grid daily precipitation record for the middle-east region, by means of data collection and human resources.

(3) It was found out that climate change would affect growth and mating season of small ruminants. Consequently agro-ecological relation between the farmland and cattle (fodder production, pasturage, cattle-dung use as organic manure, etc) was projected to change considerably. But unfortunately, we could not carry out elaborate research to quantify this issue within project period.

**d. Important issues that remain to be addressed and plans to deal with them in the future**

(1) Land use and water use have large influence on regional climate system. Therefore, before evaluating the impacts of climate change there is a need to assess the response of the regional climate to change in land and water use, too.

(2) A systematic model for projecting possible adaptations of farmers or the region towards climate change should be developed.

(3) Geologist, hydrologist and soil scientist should work inter-disciplinary to quantify the impact of climate change on environmental quality dynamics of the basin and agricultural region.

(4) Consciousness, value and behavior of farmers towards land and water management have large influence to their capacity for adaptation. This human aspect should receive more research attention.

**2. Relevance of research findings to RIHN's philosophy**

**a. How deeply have these findings delved into a chosen form of "human-nature interaction" that you believe constitutes a global environmental problem?**

The main focus of this project was to study how humans have utilized and managed regional resources and environment including climate, and how deeply human society depends on these conditions. This means implication of agriculture as the interface between natural system and human society. Though agriculture has been long-lasting and local activity, in these decades, it has become controlled by the global market with rapid world-wide expansion of pro-

duction and trade of food. In this process, agriculture has been loosing its specific features matching local conditions, and water and material cycle has shifted from their original natural situation. These changes are inducing world-wide issues to a large extent in terms of spatial scale and number of people and human elements, and consisting of the global environmental problems. Especially in arid areas, where water and other natural resource are limited, agriculture and its land and water use intensely controls life and production, and there is a need to identify the problem structure and to prepare better solutions for them.

Climate change due to global warming will affect natural condition for agriculture like land and water resources and consequently impacts agricultural production. With these impacts, humans may act to adapt to the changes or to mitigate the damages caused by climate change. These human reactions may result in other changes in the environmental problems mentioned above. Therefore, for better solution of the problems, it is essential to understand and project the impacts of climate change on agricultural production, and to let local knowledge and system react to the changes. In other words, it is important to recognize the local events in local points of view in a region and to prepare and select the best ways to treat the anticipated problems.

In this project, a method to diagnose the problems on land and water use and identify the crucial points was developed. In Turkey, where the case study area is located, the project provided the opportunity to establish new research organizations and cross-disciplinary approach to the problem, and promoted to enhance the consciousness on importance of impact assessment of global warming on basin hydrology and agriculture.

**b. How well has the process of achieving "better human life in the future" been revealed?**

In this project, "better human life in the future" is defined as the life or society with the system and its performance to realize, maintain and improve the life and production with a certain quality and level, taking historical and regional aspects into account. According to this definition or context, in agricultural production, especially in land and water management that was mainly studied in this project, the foundation of the regional system was identified that could sustain agricultural land and water management under the local conditions and constraints essential to the "better human life in the future".

In this viewpoint, the project succeeded in identifying the elements that should be included into the condition of agriculture, land and water for "better human life in the future". On the other hand, studies on water and material dynamics and mechanism of problem occurrence in agriculture were not completed including the dynamics of soil salt, fertilizers and agrochemicals. Thus, in the future, studies on these dynamic and the way to establish sustainable land and water management for sound and safe life based on these process studies are necessary.

In addition, regarding impacts of global warming of main aspect of the project, the next research subject is to be prediction of impacts on agriculture, land and water management, evaluation of the extent of these impacts, and prepare the way to control the impacts to an acceptable level.

**c. To what degree have requirements concerning integratedness, internationality, and leadership been fulfilled?**

(1) Through generation of social scenario and exchange of qualitative and quantitative outputs, fair integration was obtained among climatology, hydrology, vegetation ecology, irrigation science, crop science, livestock science and agricultural economics. However the project lacked participation of history, geography, sociology and pathology.

(2) As the project was initiated as a bilateral academic collaboration, we paid a lot of effort to establish interchange of knowledge and experiences. However, apart from Japan-Turkey relation, substantial partnership or collaboration with on-going international research projects was not obtained. Our research outcomes are lately attracting attention at many international conferences and we will continue to submit our research outcomes to journals and international societies.

(3) The members of secretariat office at RIHN worked very diligently and maintained good leadership over collaborators of Japan. However, there was a delay in establishment of research team in Turkey and this had an adverse effect in the progress of the project. Mission, responsibility and the way of collaboration should have been described

more explicitly from the beginning.

**d. What has this research project done to accumulate knowledge that will help improve global environmental problems?**

(1) We have established a methodology to assess impact of climate change on agricultural production system at a regional (basin) scale, combining climatic and social scenarios. We have found that integration of social scenario (obtained through dialogue of experts) with quantitative physical models for generation of quantitative projections is the only way to assess possible changes more than 50 years in the future.

(2) A-pseudo-warming technique developed in the course of this project would contribute significantly to raising the accuracy of projection of regional climate changes.

(3) This project contributed to establishment of a new project for generating grid daily precipitation record for the middle-eastern region, by means of data collection and human resources.

**e. What has been achieved through cooperation with other research projects?**

(1) We shared basic methodology for assessment of agricultural system with project P1-2FR (RR2002 on Yellow River). Irrigation Management Performance Assessment Model (IMPAM) was developed through analysis of the Lower Seyhan Irrigation Project and it is now being applied to irrigation districts in Yellow River Basin.

(2) We shared basic idea of resilience of agro-ecological and social system with project P1-3FR and contributed to establishing its objective at its early stage.

(3) Traceability concept of project P2-6FS could bring large technical breakthrough in analyzing environment quality dynamics in the agricultural production system. We have started employing some of their techniques.

**3. Communication of research findings**

**a. Communication to general society**

(1) The project leader and collaborative researchers of the project have introduced the outcomes on local environment land and water management in the books published for the general public. Books based on the project findings are in preparation in Japan and Turkey.

(2) The project leader and collaborative researchers of the project have given lectures and talks in symposium or other events for ordinary people, NPO, university and high school students, and engineers.

(3) In the case study area in Turkey, the research outcomes are reported to the farmers and governmental organizations related to agriculture and water management and to be reflected to identifying the future tasks and measures (planned to be held in February, 2007).

(4) In Japan, project findings supported the TV Program on water in agriculture in the world of NHK in 2005, and in Turkey, the documentary program "Global Warming" is going to be broadcasted by TRT (Turkish Radio Television) in three series, which are to be "Climate" "Water" and "Land" under the scientific consultancy of some Turkish collaborators of the project with project findings.

(5) Some project outcomes were presented at international conferences and initiatives related to environmental issue including IHDP and ESSP.

(6) The project leader provided the Cabinet Office and the Science Council of Japan with the outcomes and suggestions of the project as the references of their master plans and tasks.

**b. Communication to academic circles**

The project has disseminated the results to the academic society in the following ways.

(1) Many scientific papers were published and presented in the international and national journals and conferences, and more are ready to be submitted. At the end of February 2007, 33 books and book chapters, 91 peer reviewed papers, 71 non reviewed or conference papers, and 68 other articles were published.

(2) Books on impacts of climate change for researchers, engineers and students are under planning in Japan and Turkey.

(3) In April 2006, the project and RIHN co-organized the International Symposium in Adana in the case study area on land and water management and discussed the methodology and research results of the project in the international context.

(4) Based on the outputs and experiences of this project, the project leader supported to establish the Working Group on Global Climate Change and Irrigation of ICID (International Commission of Irrigation and Drainage) in 2006, and is disseminating the project outcomes to the international organizations and institutions including FAO, IWMI, ICARDA, and IPCC.

**■Project leader and collaborators: see the table attached at the end.**

**■Major output of the project (April 2006 to March 2007)**

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**Magazines, newspaper and other media reports**

| | |
|---|---|
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| December 19, 2006 | Yatagai, A. "Focus on Precipitation Data" Mainichi Shinbun. |
| December 25, 2006 | Tsujii, H. "Creating Liveliness of the Aged: Pursuing Phantasmal Yuwaku Turnip" Hidden Vegetables, Hokkoku Shinbun. |

**Symposium and workshop presentations**

| | |
|---|---|
| April 11, 2006 | Tsujii, H. Hiroshima prefecture symposium "Evaluating the Future of Food and Agriculture" Hiroshima. |
| November 25, 2006 | Yatagai, A. Climate Colloquium "On the APHRODITE project" Japan University. |
| December 3, 2006 | Tsujii, H. Panel discussion "Oasis of Urban Area: What to Do about Suburban Agriculture?" Osaka. |
| December 3, 2006 | Watanabe, T. "Rprojection of Future Climate and Impact of Climate Changes on Agriculture" CASA (Citizens' Alliance for Saving the Atmosphere and the Earth) Symposium on "Global Warming and Issues on Agriculture and Food" (Business Innovation Center Osaka, Osaka City, Osaka Prefecture). |

December 19, 2006 Watanabe, T. "Irrigation Management and Basin Environment in the Yellow River Basin". Special Lecture of the Department of Regional Environment, College of Agriculture, Kyoto University (Kyoto University, Kyoto City, Kyoto Prefecture).

January 17, 2007 Nagano, T. "Can we predict effects of global warming at regional scale?" Research Frontier seminar, Faculty of Agriculture, Tottori University.

January 26, 2007 Watanabe, T. "Water Use of Agriculture and Environmental Problem in the World". Hanshin Senior College of Hyogo Prefecture (Center for Medium-sized and Small Companies of Amagasaki (Amagasaki City, Hyogo Prefecture).

February 3, 2007 Watanabe, T. "Impacts of Global Warming on Turkish Agriculture—Introduction t0 RIHN Research Project". 84th Topcapi Saloon of The Japan-Turkey Culture Society (Kyodai Kaikan, Kyoto City, Kyoto Prefecture).

February 8, 2007 Watanabe, T. "Perspetives of Knowledge on Water and Land for Global Environment", 4th Research Meeting of Research Group of Land and Water Culture, JSIDRE (Toranomon Pastoral, Minato-ku, Tokyo).

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March 18, 2006 "Water Use Reform and Environment Resource Conservation in Australia" Kagatsume, M. Regional Conference of Association of Australian Studies, Ohtemon University.

April 4–8, 2006 "Potential Impacts of Climate Change on the Hydrology and Water Resources of the Seyhan River Basin" Fujihara, Y., K. Tanaka, T. Watanabe, and T. Kojiri. The International Symposium on Water and Land Management for Sustainable Irrigated Agriculture, Cukurova University, Adana, Turkey.

April 4–8, 2006 "Integrated approach for assessment of an irrigation system in Lower Seyhan Plain, Turkey" Nagano, T., Donma, S., Hoshikawa, K. Kume, T., Umetsu, C., Akça, E., Önder, S, Berberoğlu, S., Özekici, B., Watanabe, T., Kapur, S. and Kanber, R. International Symposium on Water and Land Management for Sustainable Irrigated Agriculture, Çukurova University, Adana, Turkey.

April 4–8, 2006 "The Examination of Water Pricing System at the Some Groundwater Irrigation Cooperatives under Amik Plain in Turkey" Önder, S. and D. Önder. International Symposium on Water and Land Management for Sustainable Irrigated Agriculture, Adana, Turkey.

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April 4–8, 2006 "Global warming impacts on hydrological regime in Adana, Turky" Yatagai, A. The International Symposium on Water and Land Management for Sustainable Irrigated Agriculture, Cukurova University, Adana, Turkey.

April 8, 2006 "Development of a model for assessing the performance of irrigation management systems and evaluation of impact of climate changes on the Lower Seyhan Irrigation Project" Hoshikawa, K., Nagano, T., Kume, T., Watanabe, T. International Symposium on Water and Land Management for Sustainable Irrigated Agriculture, Cukurova University, Adana, Turkey.

April 23–24, 2006 "Economic Growth, Constraints of Natural Resources and Its Beyond-Focus on Fresh Water Resources, Food Production and Natural Environment" Tsujii, H. The 22nd Asian Parliamentarians Meetings on Population and Development Programme, Population in the Globalizing

Society—Focusing Asia and the Pacific, New Delhi, India.

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July 3–7, 2006 "Economic Impacts of Climate Change on Israeli Agriculture" David, H., M. Shechter, and P. Berliner David. The Third World Congress of Environmental & Resource Economists, Kyoto, Japan.

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August 8, 2006 "Long-term Changes of Shallow Groundwater Level and Salinity in the Lower Seyhan Plain, Turkey" Donma,S. Nagano,T., Hoshikawa, K, KUME, T. and WATANABE, T. Annual meeting of The Japanese Society of Irrigation, Drainage and Reclamation Engineering, Utsunomiya, Japan.

August 8, 2006 "Issues and Future Perspectives of Interdisciplinary Study" Kume, T. Annual meeting of The Japanese Society of Irrigation, Drainage and Reclamation Engineering, Utsunomiya, Japan.

August 8–10, 2006 "Impacts of climate change on the water resources of the Seyhan River Basin and adaptation" Fujihara, Y., K. Tanaka, T. Kojiri, T. Watanabe. The Japanese Society of Irrigation, Drainage and Reclamation Engineering Annual Meeting, Utsunomiya University, Ustunomiya.

August 9, 2006 "For those who are interested in Global Environment Study" Nagano, T. Annual meeting of The Japanese Society of Irrigation, Drainage and Reclamation Engineering, Utsunomiya, Japan.

August 10, 2006 "Regional Salinity Assessment Based on Relationship Between Land Use and Salinity" Kume T., Nagano T., Hoshikawa K., Akça E., Donnma S., Kapur S., Berbeloğlu S., Watanabe T. Annual meeting of The Japanese Society of Irrigation, Drainage and Reclamation Engineering, Utsunomiya, Japan.

August 10, 2006 "Impact assessment of global warming on Lower Seyhan Irrigation Project, Turkey" Hoshikawa, K., Nagano, T., Kume, T., Watanabe, T. The Japanese Society of Irrigation, Drainage and Reclamation Engineering Annual Meeting, Utsunomiya University, Utsunomiya Tochigi Prefecture.

August 28–September 1, 2006 "Validation by a New Gauge-based Daily Grid Precipitation Dataset of Daily Precipitation Climatology over Monsoon Asia Simulated by MRI/JMA 20-km-mesh AGCM" Yatagai, A., P. Xie and A. Kitoh. 12th Conference on Mountain Meteorology, AMS (American Meteorological Society), Santa Fe, NM.

August 31, 2006 "Development of distributed water balance model with irrigation management information" Hoshikawa, K., Nagano, T., Watanabe, T. The Japan Society of Hydrology and Water Resources Annual Meeting 2006, Okayama University, Okayama, Okayama Prefecture.

September 26, 2006 "Estimation of Water Balance of Hetao Irrigation District by Model Application" Hoshikawa, K., Kume, T., Nagano, T., Watanabe, T. The International Symposium on Land and Water Management in Arid Regions, Inner-Mongolia Agricultural University, Hohhot, Inner-Mongolia Province, China.

October 6–7, 2006 "Evaluation of Lower Seyhan Irrigation Project" Özekici, B., Donma, S., Önder, S. and Nagano, T. International Conference on Renewable Energies and Water Technologies, Almeria, Spain.

October 17, 2006 "Evaluation of climate change impacts on the Lower Seyhan Irrigation Project, Turkey" Hoshikawa, K., Nagano, T., Kume, T., Watanabe, T. The 3rd conference of Asia Pacific Association of Hydrology and Water Resources (APHW), Bangkok, Thailand.

October 17–20, 2006 "Development of the dail grid precipitation dataset: Towards evaluation of the global warming

effects on water resources over the East Mediterranean". Yatagai, A., P. Xie and P. Alpert. EGU (European Geophysical Union) 8th Plinius conference, Dead Sea, Israel.

October 18, 2006 "Macroscopic Handling of a large irrigation district by the Irrigation Management Performance Assessment Model" Nagano, T., Hoshikawa, K., Donma, S., Kume, T. and Watanabe, T. *Third APHW Conference on "Wise Water Resources Management Towards Sustainable Growth and Poverty Reduction"* Bangkok.

October 25–27, 2006 "Pseudo global warming experiments in Japan using regional climate model and rice yield changes" Iizumi, T., Y. Hayashi, and F. Kimura. 2006 Meteorological Society of Japan Fall Meeting, Nagoya, Japan.

October 25–27, 2006 "Impact of global warming on precipitation in Turkey: Downscaling of MRI-CGCM2 using regional climate model" Kimura, F., and A. Kitoh. 2006 Meteorological Society of Japan Fall Meeting, Nagoya, Japan.

October 25–27, 2006 "Impact of global warming on snow water eqivalent in Turkey" Kimura, F. and A Kitoh. 2006 Meteorological Society of Japan Fall Meeting, Nagoya, Japan.

November 7–11, 2006 "Conflicts on the Sustainable Management of Coastal and Marine Areas Around İskenderun Bay" İzcankurtaran, Y., K.T. Yılmaz. VI. National Congress on Coastal and Marin Areas of Turkey, Muğla University, Muğla.

November 7–11, 2006 "Evaluation of the Draft of Biodiversity and Nature Conservation Law" Yalçın, K., K.T. Yılmaz. VI. National Congress on Coastal and Marin Areas of Turkey, Muğla University, Muğla.

November 9–12, 2006 "Irrigation and drainage canal properties as important indices for assessing adaptive capacity of large irrigation districts towards climate change and social change" Nagano, T., Hoshikawa, K., Donma, S., Kume, T. and Watanabe, T. An Earth System Science Partnership Global Environmental Change Open Science Conference, Beijing, China.

November 14, 2006 "Utilization of a rain-gauge-based daily precipitation dataset over Asia for validation of precipitation derived from TRMM/PR and JRA-25" Yatagai, A., P. Xie. SPIE (Society of Photo-Optical Instrumentation Engineering), Goa, India.

November 16–17, 2006 "Impacts of Global Warming on the Water Resources of the Seyhan River Basin, Turkey" Fujihara, Y., K. Tanaka, T. Watanabe, T. Kojiri. Symposium on Hydrology and Water Environment, Shimane University, Matsue.

November 26–December 5, 2006 "Agriculture and Rural Future in Asia: Roundup comment" Tsujii, H. JASS'06: JSPS Asian Science Seminar on Development Strategy for Sustainable Food System, Organized by Nihon University College of Bioresource Science (NUBS) and Japan Society for the Promotion of Science, Fujisawa, Japan.

December 5, 2006 Watanabe T. and others "Assessment of Climate Change Impacts on Irrigated Agriculture Using IMAPAM", Annual Meeting of Joint Research of Arid Land Research Center of Tottori University (Arid Land Research Center of Tottori University, Tottori Prefecture, Japan).

February 7–10, 2007 "Climate Change and Alternative Cropping Patterns in Lower Seyhan Irrigation Project: A Simulation Analysis" Umetsu, C., K. Palanisami, Z. Coskun, S. Donma, T. Nagano, Y. Fujihara, and K. Tanaka. The 3rd International Groundwater Confrence (IGC2007), Water, Environment and Agriculture: Present Problems and Future Challenges, Tamilnadu Agricultural University, Coimbatore, India.

February 14, 2007 "Assessing adaptive capacity of large irrigation districts towards climate change and social change with Irrigation Management Performance Assessment Model" Nagano, T., K. Hoshikawa, S. Donma, T. Kume, S. Önder, B. Özekici, R. Kanber, T. Watanabe. *International Conference,*

*Water Saving in Mediterranean Agriculture & Future Research Needs*, Valenzano, Italy.

February 19–24, 2007 "Data inventory and monitoring in the coastal dunes of Kazanlı/Türkiye, A case study for conservation planning" Yılmaz, K. T., S. Berberoğlu, H. Çakan, H. Alphan, Y. İzcankurtaran. International Conference on Environment: Survival and Sustainability, Near East University, Nicosia, Northern Cyprus.

March 6–8, 2007 "Uncertainties in Global Warming Impacts on Water Resources" Fujihara, Y., T. Kojiri. Annual Meeting of Hydraulic Engineering, Hosei University, Koganei.

March 22–24, 2007 "Assessing the Impact of Climate Change on the Water Resources of the Seyhan River Basin, Turkey" Fujihara, Y., K. Tanaka, T. Watanabe, and T. Kojiri. International Congress on River Basin Management, Gloria Golf Resort Hotel, Antalya, Turkey.

March 28, 2007 "Climate Change and Alternative Cropping Patterns in Lower Seyhan Irrigation Project: A Simulation Analysis with MRI-GCM and CCSR-GCM" Umetsu, C., K. Palanisami, Z. Coskun, S. Donma, T. Nagano, Y. Fujihara, and K. Tanaka. The TEA (Theoretical Economics and Agriculture) Spring Meeting, Okinawa International University.

March 29–30, 2007 "Climate Change and Alternative Cropping Patterns in Lower Seyhan Irrigation Project: A Simulation Analysis" Umetsu, C., K. Palanisami, Z. Coskun, S. Donma, T. Nagano, Y. Fujihara, and K. Tanaka. The Agricultural Economics Society of Japan Annual Meeting, Okinawa International University.

August 10, 2007 "Water Management of Paddy Fields for Conserving Wildlife Habitats" Watanabe, T. 5th International Conference on Management of Paddy and Water Environment for Sustainable Rice Production (II), Utsunomiya, Japan.

September 14, 2007 "Assessment of Climate Change Impacts on Irrigation Management Using a Performance Assessment Model" Watanabe, T. 3rd Asian Regional Conference of ICID, Kuala Lumpur, Malaysia.

## Main research meetings

Main activities of the project can be summarized as below.

**1) International Workshop**

a. International Symposium on Water and Land Management for Sustainable Irrigated Agriculture, April 4–8, 2006. Çukurova University, Adana, Turkey
Participants about 250 (Japanese: 10, Turkish: 200, other countries: 40)

b. Impact of Climate Change on Agricultural Production System in Arid Areas (ICCAP) "Kyoto Workshop" November 2, 2006. RIHN, Kyoto
Participants: 37 (Japanese: 30, Turkish: 7)
Research paper presentation: 14.

c. RIHN 1st International Symposium—Satellite Symposium "Sali-grapy" RIHN, November 11–12, 2006. Kyoto
Participants: 50
Research paper presentation: 10

d. Impact of Climate Change on Agricultural Production System in Arid Areas (ICCAP) "Kyoto Symposium", January 30–31, 2007. RIHN, Kyoto
Participants: 40 (Japanese: 30, Turkish: 9, other countries: 1)
Research paper presentation: 23.

e. Impact of Climate Change on Agricultural Production System in Arid Areas (ICCAP) "Adana Symposium" February 12–13, 2007. Cukurova University, Adana, Turkey
Participants: 55 (Japanese: 12, Turkish: 40, other countries: 3)

Research paper presentation: 27

**2) Project Research Meeting**

Six times; May, June, July, September, November, 2006, and March 2007

**3) Sub-Group Research Meeting**

Many (properly)

**Table 1 Project Member: Project Leader and Collaborators**

**[Japan]**

| | |
|---|---|
| **Project Leader** | |
| WATANABE, Tsugihiro** | Research Institute for Humanity and Nature |
| **Adviser** | |
| MATSUBARA, Masatake | Osaka University of Foreign Studies |
| **Project Member** | |
| ABE, Ayako | Center for Climate System Research, University of Tokyo |
| ADACHI, Fumihiko | Faculty of Life and Environmental Science, Shimane University |
| ANDO, Makoto | Field Science Education and Research Center, Kyoto University |
| AODA, Tadao | Faculty of Agriculture, Niigata University |
| ASAMI, Atsuyuki | Graduate School of Agriculture, Kyoto University |
| ASANUMA, Jun | Terrestrial Environment Research Center, University of Tsukuba |
| FUJIHARA, Yoichi | Research Institute for Humanity and Nature |
| FUJINAWA, Katsuyuki* | Faculty of Engineering, Shinshu University |
| FURUKAWA, Masanao | Graduate School of Science and Technology, Shinshu University |
| HARAGUCHI, Tomokazu | Faculty of Agriculture, Saga University |
| HIRATA, Masahiro | School of Agriculture, Obihiro University of Agriculture and Veterinary Medicine |
| HOSHIKAWA, Keisuke | Research Institute for Humanity and Nature |
| HOSHIYAMA, Sachiko | Kinjo-Gakuin University |
| IIZUMI, Toshichika | Graduate School of Life and Environmental Sciences, University of Tsukuba |
| KAGATSUME, Masaru | Graduate School of Agriculture, Kyoto University |
| KAMEYAMA, Hiroshi | Faculty of Agriculture, Kagawa University |
| KATO, Keisuke | Graduate School of Agricultural Studies, Tottori University |
| KIMURA, Fujio* | Graduate School of Life and Environmental Sciences, University of Tsukuba |
| KITOH, Akio | Meteorological Research Institute, Japan Meteorological Agency |
| KOBATA, Tohru* | Faculty of Life and Environmental Science, Shimane University |
| KOJIRI, Toshiharu* | Disaster Prevention Research Institute, Kyoto University |
| KORIYAMA, Masumi | Faculty of Agriculture, Saga University |
| KUME, Takashi | Research Institute for Humanity and Nature |
| KUSADOKORO, Motoi | Graduate School of Agriculture, Kyoto University |
| MARU, Takeshi | Graduate School of Agriculture, Kyoto University |
| NAGANO, Takanori* | Research Institute for Humanity and Nature |
| NAKAGAWA, Hiroshi | Faculty of Bioresources and Environmental Sciences, Ishikawa Prefectural University |
| NAKANO, Yoshisuke | Faculty of Agriculture, Kyushu University |
| ODANI, Hiromichi | School of Environmental Science, University of Shiga Prefecture |
| SANDA, Akinori | Graduate School of Agriculture, Kyoto University |
| SANO, Junji | Faculty of Agriculture, Tottori University |
| SUMI, Akimasa | Center for Climate System Research, University of Tokyo |

| | |
|---|---|
| TAKEUCHI, Shinichi | Faculty of Engineering, Kyushu Kyouritsu University |
| TAMAI, Shigenobu* | Arid Land Research Center, Tottori University |
| TANAKA, Kenji | Disaster Prevention Research Institute, Kyoto University |
| TANIGUCHI, Makoto | Research Institute for Humanity and Nature |
| TSUJII, Hiroshi* | Faculty of Bioresources and Environmental Sciences, Ishikawa Prefectural University |
| UMETSU, Chieko* | Research Institute for Humanity and Nature |
| YANO, Tomohisa* | Professor Emeritus, Tottori University |
| YATAGAI, Akiyo* | Research Institute for Humanity and Nature |

**[Turkey]**

**Project Coordinator**

| | |
|---|---|
| KANBER, Rıza ** | Faculty of Agriculture, Çukurova University |

**Adviser**

| | |
|---|---|
| KILINÇER, Neşet | The Scientific and Technological Research Council of Turkey |

**Project Member**

| | |
|---|---|
| AKCA, Erhan | Faculty of Agriculture, Çukurova University |
| AKTOKLU, Ekrem | Faculty of Agriculture, Mustafa Kemal University |
| AKYATAN, Adil | DSİ. VI. Regional Directorate |
| ALPHAN, Hakan | Faculty of Agriculture, Çukurova University |
| ALTAN, Türker * | Faculty of Agriculture, Çukurova University |
| ARTAR, Mustafa | Faculty of Agriculture, Çukurova University |
| ATİK, Meryem | Faculty of Agriculture, Akdeniz University |
| ATMACA, Mustafa | Faculty of Agriculture, Mustafa Kemal University |
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**Full-Reserch**

**Research axis:** Human Activity Impact Assessment

**Project number:** 2-1FR

**Project name:** Emissions of Greenhouse Gases and Aerosols, and Human Activities in Eastern Asia

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**Key words:** macro-economy, fossil fuel, land use, greenhouse gas, aerosol, East Asia



**1. Background and Objectives**

Most of human activities have been based essentially on the individual climate, culture, and social economic system, but recently they are being changed drastically by the influences of the globalization and developing market of economy and global-scale climate change. The human activities affected by the various global phenomena give rise to various environmental issues and emissions of greenhouse gases and aerosols, which again bring about many problems in large area or over the world. In this research project, the atmospheric constituent is studied, taking account of global warming issues. Therefore, it is not a mere local air pollution study, but the study on the relationship between human activities and climate change through emissions of greenhouse gases and aerosols.

The recent growth of economy in East Asian region is being watched with keen interest. The relationship between human activities and emissions of greenhouse gases and aerosols in this region are studied with collaboration of socioeconomic analysts and atmospheric scientists. This research project consists of macro-analysis of economy, development of emission inventory, analysis of atmospheric transport by using model and satellite data, and ground-based observation around Japan and China.

The objectives of the present research project are to investigate

1) the relationship between changes in economy, industry, social system under the globalization and changes in anthropogenic emissions of greenhouse gases and aerosols, and
2) influences of these greenhouse gases and aerosols emitted in Asian region on the global-scale atmospheric environment and climate change.

**2. Strategy**

While most of studies similar to this research project are mainly carried out by atmospheric scientists, viewpoints from human activities are emphasized in this study.

1) Socioeconomic analyses on the anthropogenic emissions are carried out. Changes in land use, consumption, quality, and transport process of energy for the past 20 years in Asia are analyzed.
2) Regional emissions of greenhouse gases and aerosols due to human activities are estimated through the analysis of observed data with atmospheric transport model.
3) The effects of greenhouse gases and aerosols emitted by human activities in Asia are evaluated synthetically.

### 3. Relation with the Research Program

In the past few decades, socioeconomic situations in Eastern Asia have been changing largely. It is consistent with the purpose of research axis 2 to study the relationship between those changes and emissions of greenhouse gases and aerosols, which are major anthropogenic factors in recent climate changes.

### 4. Outcomes in 2006

Economic development by industrialization in the East Asian countries has increased the energy consumption, the emissions of greenhouse gases, and aerosols. The amount of $SO_2$ emission has not increased by the expectation. The emission density of $CO_2$ is almost a level-off according to the rise of the energy efficiency or it decreases. This desirable tendency has been promoted by the direct investment, the technology transfer through the development aid, and the rise in environmental consideration in the "Late-started" countries. However, the amount of the $CO_2$ emission will keep increasing any more when the economic growth rate is too large even if the energy efficiency is improved. The increase in $CO_2$ emission depends on a competition between the economic growth rate and the decrease rate in the emission density if the east Asian nations, especially China continue the economic growth through industrialization in the future. Nevertheless, it is remarkable enough that the decreasing tendency of the emission density has continued except part of nations under the present situation. The importance of the technology transfer will grow more and more in the future.

The amounts of energy consumption and emissions of material ($SO_2$, NOx, CO, BC, OC, NMVOC, $NH_3$, $CH_4$, $N_2O$, $CO_2$) were estimated in Asian region for 1980–2003. The energy consumption in an Asian region increased double during about 20 years (1980–2000), and the emissions of aerosols and gases in the atmosphere increased by 1.2 (BC)–2.3 (NOx) times accordingly. Especially, the increasing tendency in China is remarkable, and the increase of the NOx emission for 20 years was triples. It is thought that the increase in the emissions to the atmosphere has brought a big influence on an atmospheric environment in the Asian region.

It was suggested from the model analysis of long-term $CO_2$ observation over Japan that the $CO_2$ concentration in the atmospheric layer of 2–4 km above the planetary boundary layer over Japan is much influenced by the emission from China. This result is not consistent with the energy consumption data reported by Chinese government for the period after middle of 1990's. Moreover, the observations of $CO_2$ and $CH_4$ were carried out at 7 locations in China, and it was shown that the annual average of $CO_2$ concentration was several ppm higher than that in Japan, and the seasonal amplitude was also larger than Japan. The seasonal variation of $CO_2$ was estimated to be influenced by the $C_4$ plant from the analysis of carbon isotope of $CO_2$. It is thought that this result is related to the land use change according to the man activity.

The observations of aerosols were carried out at Fukuejima, Amami-Ohshima, and Okinawa. The results have shown black carbon (BC) abundant composition and strong light absorption property. Especially, the aerosols observed at Fukuejima consist of much organic compounds. It seems that the aerosols of the biomass burning origin are transported from the continent, and are related also to coal and the biomass fuel in China. Aerosol concentration had increased over China for the period around 1960–1990, but leveled off since then. On the other hand, the total cloud amount decreases while the cloud droplet size of low clouds became smaller by the indirect effect of aerosol. The temperature increased after 1960 though the surface shortwave irradiance is in a long-term decreasing tendency. The change in the amount of evaporation, which is important for the surface energy budget, might be important because precipitation has been decreasing in northern part of China.

### 5. Publication list in 2006

ARAO, K., M. NISHIKAWA, S. HATAKEYAMA, A. TAKAMI, S. MATSUYAMA, T. HAYASAKA

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**Full Research**

**Research axis:** Spatial Scale

**Project number:** 3-1FR

**Project name:** Multi-Disciplinary Research for Understanding Interactions between Humans and Nature in the Lake Biwa-Yodo River Watershed

**Project leader:** YACHI, Shigeo (RIHN)

**URL:** http://www.chikyu.ac.jp/rihn/pro/e2004_3-1.html

**Key words:** watershed management, hierarchy, governance, interdisciplinary partnership (teamwork), environmental diagnosis, adaptive management, communication, hierarchical watershed management, Lake Biwa-Yodo River watershed, agricultural turbid water problem, global environmentology (new synthesis of global environmental studies)

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## ■Objectives, Results

### a. Original objectives and their attainment

This project aims to develop a methodology for environmental diagnosis and consensus formation for the purpose of watershed management based on governance, founded on the understanding that the difference in problem consciousness among the various stakeholders that arises from the watershed "hierarchy" is a serious issue for watershed management.

We assumed three hierarchies: (1) macroscale—Lake Biwa watershed (Shiga Prefecture); (2) mesoscale—Inae area, Hikone City, Shiga Pref.; and (3) microscale—communities in the Inae area, as examples of the agricultural turbid water problem in the Lake Biwa watershed based on the system of "hierarchical watershed management." The four objectives were designed to be achieved through interdisciplinary partnership and local execution in each hierarchy: (1) clarification of the entire problem; (2) development of environmental diagnostic indexes for each hierarchy and research on a method to support adaptive management; (3) establishment of a methodology for the promotion of inter-hierarchical communication; and (4) for the Yodo River watershed, which constitutes the downriver reaches of Lake Biwa, the identification of important problems related to the water environmental problem, based on the research activities related to the Lake Biwa watershed. Based on these case studies, we intended to provide appropriate proposals for the watershed management of the Lake Biwa-Yodo River watershed and to contribute to the establishment of global environmentology.

The first objective was achieved by coordinating social science, science and engineering, during which process important findings were obtained related to the execution of cross-disciplinary research. The second objective was satisfactorily fulfilled. For the third objective, we held the workshops at researcher level and developed the GIS-based scenario method prototype. Only this much was achieved because it took longer than expected to clarify the entire problem and achieve the objectives for each hierarchy. The fourth objective was satisfactorily achieved.

Important results were also obtained in terms of the contribution to the ultimate goal of establishing global environmentology by RIHN.

### b. Specific research findings

#### 1. Clarification of an integrated picture of the agricultural turbid water problem in the Lake Biwa watershed

(1) A series of land improvement projects was carried out under Japanese postwar agricultural policies in the area facing the eastern part of Lake Biwa, which included field development, the mechanization of rice cultivation, the prevalence of chemical fertilizers, irrigation with water drawn through a pipeline from Lake Biwa, and the complete separation of irrigation water from drainage water. Consequently the problem of agricultural water turbidity has become a major issue as a result of the deteriorating quality of water management caused by various changes including a shift in water-controlling entity from communities to individuals, water-use increase in the irrigation systems, an increase in the number of farmers assuming non-farming jobs as their main source of income, the aging of farmers, and the lack of farming successors.

(2) Coordinated social science-science research focused its attention on hierarchy and revealed that the agricultural turbid water problem is a "complicated problem" consisting of various different environmental problems. These factors combine to form an "autoregressive" environmental problem that develops in farming communities where farmers themselves damage the water environment in irrigation channels. This occurs in lakeside areas as a "victimizer/victimized" problem where there is a clear separation as regards fisheries damage between the victimizers,

namely farmers, and the victimized, namely fishery operators; and in the entire lake as a "global environmental problem" where a risk of the rapid eutrophication of the lake arises as a result of intricate relationship between those who cause the problem and those who suffer from it. These differences in how the problem develops depending on the hierarchy are a detrimental factor with respect to inter-hierarchical communication about watershed management.

**2. Development of an environmental diagnostic technique that matches each hierarchy and research on methods to support adaptive management**

(1) Establishment of stable isotope diagnostic technique, relationship between inflow rivers and Lake Biwa and assessment of impact of agricultural turbid water

1) The stable isotopic ratio of sulfur (S) and strontium (Sr) was investigated for 41 rivers flowing into Lake Biwa, and it was revealed that small rivers in the eastern lakeside area, where agricultural activities are very prosperous, are the main cause of recent water quality (isotopic ratio) changes in Lake Biwa.

2) A field experiment evaluated the environmental load of agricultural turbid water and revealed that "forced drainage," which is a typical rough water management technique, causes an outflow of 117 kg of paddy field soil, 0.605 kg of nitrogen and 0.146 kg of phosphorus from every 0.3 ha of paddy field. When this result is applied to the entire paddy field area in the catchment area of the North basin of Lake Biwa, 11.4% of nitrogen and 27.1% of phosphorus in terms each nutrient contained in the total household wastewater, flow out in a single forced drainage event. When we consider that the south basin of the lake is likely to suffer rapid eutrophication (regime shift) and that phosphorus is the rate-limiting substance for the lake, agricultural turbid water potentially has a large impact on the progress of eutrophication. It is also found that soil silt from paddy fields deposited in smaller rivers causes a reduction in the dissolved oxygen concentration at the river bottom, the generation of methane gas, and other factors that lead to water pollution.

These typical results indicate that agricultural activities related to smaller rivers flowing into the eastern part of the lake have a potentially large impact on the water quality and eutrophication of Lake Biwa, and that fine-tuned water management and water channel cleaning by local residents through a bottom-up approach is both effective and necessary for the environmental preservation of Lake Biwa.

(2) Method to support local residents' voluntary environmental preservation activities

1) 35 residents' unions including villages in the research area were interviewed about water environment management and water use, and detailed data about the investigation area and its surroundings and data related to the Lake Biwa watershed were integrated into a GIS database. Based on the results, workshops were held in three villages where the residents themselves discussed the local water environment and its future prospects using maps, and a method was developed to support residents in the preparation of local environmental targets.

2) With an eye to supporting the adaptive management of agricultural turbid water, practical workshops were held in six villages in the research area. The goal was to confirm how the provision of information related to the current status of the water environment or measures for water environmental preservation compiled from the research results in the research area would affect the farmers' awareness of environmental considerations or their actions. The outcome of the workshops was the finding that: (1) the provision of scientific information (rational persuasion) reinforced a "general attitude" that "we have to protect our environment"; (2) the provision of the kind of information that arouses affection for the past environment (emotional persuasion) promotes "actual activities (behavioral intention); and that (3) the provision of both kinds of information encourages the general attitude and behavioral intention.

3) An principal components analysis using the Agricultural Census showed that the current conditions for restructuring the agricultural management of the 29 villages and of their agricultural leaders can be categorized into three types: (1) leader-dependent large-scale management; (2) autonomous farmland-maintaining management; and (3) external-dependent management, and that the level of the future possibility of developing farming varies

from community to community.

These typical results indicate the need to develop a communication method on the assumption of the individuality of the community and the importance of the conditions that allow such a method to work effectively.

**3. Establishment of methodology to promote inter-hierarchical communication**

We proposed GIS workshops intended the stakeholders of every hierarchy to look for solutions to inter-hierarchical conflicts using the GIS database based on their own problem consciousness, and researchers verified the validity of the workshops. The GIS and the turbid water outflow simulation were combined to show the future scenario of the agricultural area and the state of Lake Biwa in a mutually interrelated manner, and a software prototype was developed to promote communication among hierarchies on the scenario level.

**4. Identification of important problems related to the water environment problem in the Yodo River watershed**

The development of a complicated network of waterworks and sewage works, land reclamation along the Osaka Bay coast, and the creation of artificial beaches have been promoted in the Yodo River watershed covered by urbanized areas because of a rise in the demand for water caused by industrial development and the increased population and the resultant rise in drainage and wastewater. This process has resulted in a vicious circle, namely an increasing distance between people and the water environment (invisibility), a growing dependence on technical measures (sewage treatment) and the resultant difficulty in reducing loads at the drainage source level. As a starting point to break this circle and promote a reduction in the load discharge level, the overall water intake and drainage conditions downstream of the Yodo River were consolidated and visualized as an intake and drainage load database on the network map to make it possible to estimate the water and material circulation conditions.

**c. Research findings outside of original expectations**

As regards the mesoscale, a research project was conducted that involved the participation of residents in the Akanoi area, Moriyama city, Shiga prefecture, on a water system for comparison with that of the Inae area, Hikone city. As regards the macroscale, a water quality survey of a water system in Kagawa prefecture was conducted to provide a comparison with the Lake Biwa watershed (Shiga prefecture).

Coordinated research using stable isotopes and environmental indexes was conducted jointly with the CREST Project of Kyoto University. The CREST Project has also started research on foreign water systems, for example in Mongolia, in addition to that on domestic systems including the Lake Biwa-Yodo River watershed.

In the Inae area, a more practical research activity was launched by volunteer project members in the form of action research designed to continue after completion of the project.

**d. Important issues that remain to be addressed and plans to deal with them in the future**

As regards environmental diagnosis, since local residents, administrators and researchers have their own environmental diagnostic techniques and indexes, the task involved combining these approaches to realize a monitoring system that connects the results of diagnoses for each hierarchy of the watershed and to contribute to better governance. For adaptive management, the main task is to determine how the local community should apply the technique, which involves holding workshops in the local area, and what initiative the local community should take to achieve this. For the promotion of inter-hierarchical communication, the main problem is to achieve a more specific materialization of the techniques so far developed, including GIS or the scenario approach proposed by the Project. Solving these problems requires the development of techniques related to the establishment of a type of study that is based on social science-science coordination and coordination with local communities over an extended time scale during the actual implementation process. To achieve this, we must coordinate with research institutes that can study themes closely related to the local community and a system that realizes communication among NPOs, residents and administration.

## ■Relevance of Research Findings to RIHN's Philosophy

**a. How deeply have these findings delved into a chosen form of "human-nature interaction" that you believe constitutes a global environmental problem?**

Focusing on the agricultural turbid water problem of Lake Biwa, this Project completely clarified the present problem through comprehensive investigational research and the historical development of the problem based on a review mainly of past research. The Project revealed that the turbid water problem has occurred as a composite problem combining spatially different environmental problems and that heterogeneity of spatial development is a major cause of communication difficulty that hinders the governance of watershed management.

The period of high economic growth, which is closely related to the theme of the Project, was a short but critical phase that dramatically changed the interaction between people and the natural environment in Japan. In particular, for the Lake Biwa-Yodo River watershed, a typical Japanese watershed, the stabilization of water capacity fluctuations and the rising demand for water use downstream of the Yodo River watershed turned Lake Biwa into a multi-purpose dam, and in exchange for its status change, widespread development was undertaken upstream of the Lake Biwa watershed. These changes caused a major shift in the human-nature interactive system. The agricultural turbid water problem affecting Lake Biwa is only one of the problems that appeared as a result of the changes to the water supply/drainage system in the Lake Biwa-Yodo River watershed in the rice-growing areas.

Thus, even a small portion of the human-nature interactive circle on the watershed scale takes on complicated forms in terms of history and space. Considering this, it is reasonable to say that the Project successfully indicated in a specific way the need to grasp the entire picture of a problem, particularly the global environmental problem on a global scale, in terms of various scales and various stakeholders. It is also revealed that we can provide integrated diagnostic examples together with Japanese examples of changes in human-nature interactive systems.

To solve the problem, we need to know how the human-nature interactive system will change in the future. Then, we have to know the degree of resilience of human society and natural and ecological systems, as a total system. The outcome of the Project indicates that with respect to rural areas agriculture and local society are at a major turning point and that a regime shift could be occurring in the ecosystem of Lake Biwa. Intuitively speaking, the resilience of both systems is decreasing.

**b. How well has the process of achieving "better human life in the future" been revealed?**

This Project proposed an integrated diagnostic method for clarifying the status of human-nature interaction, which became a starting point for achieving "better human life in the future". Then, a "hierarchical watershed management" mechanism was proposed to overcome the inter-hierarchical differences in terms of problem consciousness, promote adaptive management in each hierarchy and carry out environmental diagnosis and monitoring that connects those different hierarchies. The Project was thus engaged in the practical trial and development of techniques to promote communication.

Sustainability, when defined for the purpose of the Project and taken as a requirement for future potential, is the coexistence of Lake Biwa as an ecosystem with rural communities, which are the local society, and Shiga prefecture over the long term both socially and economically. To realize such sustainability it is insufficient to treat the turbid water problem simply as an environmental problem. In addition, the various stakeholders in the watershed must redefine the problem in the context of a problem for local society, understand it as such, build a vision that aims at improving the resilience of both local society and the watershed under the appropriate governance, and write a specific scenario for the fulfillment of the objectives.

To preserve the environment of Lake Biwa, this Project specifically demonstrated the importance of fine-tuned environmental activities with local residents taking the initiative in a bottom-up approach now that it is known that smaller rivers, which cannot be handled by the administration, have a big impact. The Project was also engaged in the development of a method to support (empower) local citizens' voluntary environmental preservation activities based

on the prerequisite of coordination with local individualities and problems unique to the specific local community. In other words, we were engaged in practical research that includes the development of a mechanism to realize governance. To complete such tasks as the development of a future vision or writing a specific scenario, it is essential to enlist the participation of academic fields closer to policy proposals, such as local economy, finance, or integrated local databases and simulation technology, which could not be covered by the Project.

**c. To what degree have requirements concerning integratedness, internationality, and leadership been fulfilled?**

As regards integratedness, we were able to clarify the entire problem by combining the upstream issues of the agricultural turbid water problem (socioeconomic system, historical background and human activities) with the downstream issues (effects of the problem) through cooperation between social science and science. The results of local investigation involved researchers in social science and those in science and engineering cooperating with each other and preparing workshops or local reporting events.

For internationality, since the main field is the Lake Biwa-Yodo River watershed of Japan, we simply held an international workshop and a symposium at the Research Institute for Humanity and Nature, and made presentations on the research results at an international academic conference. When carrying out this Project, we considered that the important factors related to its practical execution in a community-centered manner was the establishment of a relationship of trust with local residents and a relationship with prefectural research institutes and the Shiga prefectural government. We therefore spent a lot of time and energy on establishing a relationship with the local people. We intend to disclose the results of our research to internationally circulated journals in the future.

As regards leadership, core members from the Research Institute for Humanity and Nature and its cooperating research institute, the Center for Ecological Research, Kyoto University, took strong leadership roles, supervised the four groups and promoted social science-science coordination.

**d. What has this research project done to accumulate knowledge that will help improve global environmental problems?**

There are two important issues that must be dealt with if we are to solve global environmental problems: (1) a watershed area that may include a big city is an important problem in terms of scale. Dealing with it not only solves regional environmental problems but also constitutes a test bed for specific solutions to global environmental problems; and (2) in that respect, models for research on global environmental problems, including a typical IPCC approach, is incapable of fully handling the problem if it covers such a scale as a watershed. This makes it essential to appropriately coordinate various entities with various patterns of involvement in the environment that are deeply rooted to the areas.

Although this Project has the methodology for watershed management as its main theme, we believe the Project provided a prototype methodology based on social science-science coordination and is connected to the way we consider and solve the global environmental problem.

To be specific, we revealed that the differences in problem consciousness among various stakeholders occurring from "hierarchy" could be a major hindrance to governance and clarified its mechanism based on an investigation of the spatial development of the impact of the agricultural turbid water problem and the past research on the historical development of the problem. We also proposed a system of "hierarchical watershed management" to promote governance by overcoming the restrictions derived from hierarchical characteristics. Based on the environmental diagnostic method for each hierarchy, we then suggested the importance of adaptive management, monitoring to connect hierarchies, and inter-hierarchical communication through the development of the practical application of a method using workshops.

**e. What has been achieved through cooperation with other research projects?**

At an early stage, we conducted a study meeting on the use of agricultural water in the area facing the eastern part of Lake Biwa, Shiga prefecture, jointly with irrigation agriculture-related projects (P1-1FR, P3-1FR, P4-1FR) (May, 2003). For the research methodology, we extended cooperation on a questionnaire survey (P5-2FR) and an environmental diagnosis project (P2-6FS).

We also cooperated, mainly in terms of database development, with a project undertaken by the Research Promotion Center named "How to archive and reuse the results of interdisciplinary studies" and concerned with how to pass on the obtained results and attempts made in individual projects to future projects.

We regularly held discussions and presented proposals beyond the boundary of project about how to apply the outcome of each project to the establishment of global environmentology, which is the target of the Research Institute for Humanity and Nature, and considered the required mechanisms.

The researchers of the Project made a significant contribution to the development and maintenance of the experimental facilities of the Research Institute and the research jointly conducted with the National Institute for the Humanities.

## ■Communication of Research Findings

**a. Communication to general society**

In Shiga prefecture, we made our Project known to related organizations and held research meetings. In the Inae area, in particular, we announced the research results to the local people from time to time. In the final year, we held the "Inae Waterfront Environmentology Salon" to provide a report on the research results to the people and deepen the mutual relationship.

Other activities included holding a Research Institute for Humanities and Nature civic seminar and presenting lectures at 10 universities and private environmental NPOs.

For publication, we prepared a final year result report on the Project and we plan to deliver copies to the relevant organizations in Shiga prefecture and to university libraries throughout the country. Next year, we are planning to publish a book on the results of the Project on a commercial basis through Kyoto University Press as part of the Institute's library.

**b. Communication to academic circles**

We gave oral presentations, held symposiums, and presented academic papers at: the Japanese Society of Limnology; the Ecological Society of Japan; the Tohoku Sociology Society; the Society of Environmental Science, Japan; the Japan Geoscience Union; and at other academic societies. For the Ecological Society of Japan, we held a symposium jointly with the Center for Ecological Research of Kyoto University, one of our cooperating institutes, and introduced the Institute's projects at free gatherings.

In terms of overseas exposure, we gave presentations at the International Association for Ecology (INTECOL) and the Asia Oceania Geoscience Society (AOGS).

Within the framework of "the Research on Symbiosis-with-Nature Type Watershed Area and Urban Restoration" of the Council for Science and Technology Policy, we announced the results of the Project in a workshop jointly held with the National Institute for Land and Infrastructure Management of the Ministry of Land, Infrastructure and Transport in October 2003 at the Research Institute and a joint symposium with three related projects of the Society of Environmental Sciences in September 2006.

The books that have been produced are "Earth Ecology," by Eitaro Wada published by Iwanami Shoten, and the "Material Dynamic Process of Ecosystem and its Time-space Scale" by Eitaro Wada, pp. 254–267, in the "Science of Land Ecosystem—Global Environment and Ecosystem", edited by Takeda and Urabe, published by Kyoritsu Shuppan.

## ■Progress of the Project (from April 2006 to March 2007)

We conducted our project products and communications of research findings and attained the objectives as above.

## ■Publications (from April 2006 to March 2007)

### Books

[In Japanese]

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Wada, E. (2006) Material cycling process and spatial & temporal scales of ecosystems. *Land Ecosystem Science under Global Change*, Kyoritsu Syuppan: 254–267.

[In English]

Kohyama, T., Urabe, J., Hikosaka, K., Shibata, H., Yoshioka, T., Konohira, E., Murase, J., and Wada, E. (2006) Terrestrial ecosystems in monsoon Asia: scaling up from shoot module to watershed. *Terrestrial Ecosystems in a Changing World*, Springer: 285–296.

### Articles

[In Japanese]

Kato, J., Nonami, H., Yachi, S., Wakita, K. and Tanaka, T. (2006) Action research for empowering environment-cautious agriculuture. *Proceedings of the 47th Annual meeting of the Japanese Social Psychology*: 776–777.

Shimada, D., Ohno, T., and Mitsumata, G. (2006) Positioning and perspective of social capital issues on commons research. *Finance and Public policy (Zaisei to Koukyo-seisaku)* 28: 51–56.

Nonami, H., and Kato, J. (2006) Maintenance of local canals as collective environmentally cautious behavior. *Proceedings of the 47th Annual meeting of the Japanese Social Psychology*: 46–47.

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Mitsumata, G., Shimada, D., Ohno, T. (2006) Commons-governance-social capital approach to the problems on resource management. *The review of the Kobe University of Commerce* 57: 19–62.

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Yamada, Y., Igeta, A., Nakajima, S., Mito, Y., Ogasawara, T., Wada, S., Ohno, T., Ueda, A., Hyodo, F., Iamada, M., Yachi, S., Tayasu, I., Hukuharam S., Tanaka, T., Wada, E. (2006) The runoff of suspended substance, nitrogen and phosphorus by the enforced draining in the padding season—the experiment in the paddy field—. *Japanese Journal of Limnology* 67: 105–112.

Yamada, Y., Igeta, A., Mito, Y., Ogasawara, T., Nakajima, S., Yachi, S. and Wada, E. (2006) Oxidation-reduction environment of the river sediments in the Lake Biwa watershed. *71st Annual meeting of the Japanese society of Limnology abstract*: 234.

[In English]

Hyodo, F., Tayasu, I. and Wada, E. (2006) Estimation of the longevity of C in terrestrial detrital food web using radiocarbon (14C): how old are diets in termites? *Functional Ecology* 20: 385–393.

Miyasaka, H., Dzyuba Y. V., Kato, G. M., Ito, S., Kohzu, A., Anoshko, P. N., Khanayev, I. V., Shubenkov, S. G., Melnik, N. G., Timoshkin, O. A., and Wada, E. (2006) Feeding ecology of two planktonic sculpins, Comephorus baicalensis and Comephorus dybowskii (Comephoridae). *Lake Baikal. Ichthyological Research* 53: 419–422.

Timoshkin, O. A., Grygier, M. J., Nishino, M., Wada, E., and et al. (2006) Biodiversity of Lake Biwa: New discoveries

and future potential. *Journal Berliner Palaobiologische Abhandlungen* 9: 61.

## Reports, reviews and other articles

[In Japanese]

Lake Biwa-Yodo River project ed. (2006) *Comment workshop Report.* Lake Biwa-Yodo River project Office.

Lake Biwa-Yodo River project ed. (2007) *Hierarchical watershed management for creation of a watershed as a public space: Report of the Lake Biwa-Yodo River 2nd International workshop.* Lake Biwa-Yodo River project Office.

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Lake Biwa-Yodo River project ed. (2007) *Final Report: Multidisciplinary research for understanding interactions between humans and nature in the Lake Biwa-Yodo River watershed.* Lake Biwa-Yodo River project Office.

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July 29, 2006 Nakano, T. "Environmental Health of Japan [in Japanese]". *Mainichi-Shinbun Newspaper*

August 5, 2006 Yachi, S. "On watershed management methodology—An example of Lake Biwa agricultural turbid water problem [in Japanese]". *Mainichi-Shinbun Newspaper*

October 28, 2006 Nakano, T. "Expanding complex air pollution in East Asia [in Japanese]". *Mainichi-Shinbun Newspaper*

February 17, 2007 Tanaka, T. "Public space for river environment communication from the watershed scale [in Japanese]". *Mainichi-Shinbun Newspaper*

Yachi, S. (2006) "Why paying attention to hierarchy is important for watershed management? [in Japanese]". *Humanity & Nature Newsletter* 3, 4–5.

Yachi, S. (2007) "A first step towards a new synthesis of watershed management studies [in Japanese]". *Humanity & Nature Newsletter* 7, 6–7.

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Tayasu, I. (2006) "An introduction to Isotope ecology [in Japanese]" *CER News* 91, 15–16.

## Audio-Visual Materials

[In Japanese]

Lake Biwa-Yodo River project Social & Cultural WG ed (2006) "Inae waterfront (DVD)". Lake Biwa-Yodo River project Office (Japanese).

## Symposium and workshop presentations

May 17, 2006 'Comment Workshop' (RIHN, Kyoto)

June 24, 2006 'GIS Scenario Workshop' (RIHN, Kyoto)

September 23–24, 2006 'International Workshop 2006 "Hierarchical watershed management for creation of a watershed as a public space—a research integration challenge on the Lake Biwa agricultural drainage problem—" (RIHN, Kyoto)

September 24, 2006 'Workshop on Yodo River-Osaka Bay environmental regeneration' (RIHN, Kyoto)

## Oral Presentations

September 5, 2006 "RIHN's approach on the Lake Biwa-Yodo River watershed management Studies [in Japanese]". Yachi, S., Tanaka, T., Nakano, T., Tayasu, I., Wakita, K., Hara, Y. & Wada, E. Annual meeting of the Society of Environmental Science, Sophia University, Tokyo, Japan.

November 8, 2006 "A hierarchy-based approach to the problem of agricultural water turbidity in the lake Biwa watershed". Yachi, S. (RIHN). RIHN 1st International symposium—water and better life in the future—, KICH, Kyoto, Japan.

**Social Activity**

August 5–6, 2006 Lake Biwa-Yodo River project Inae District Water Environment Meeting
Yachi, S., Tanaka, T., Ishii, R., Yamada, Y., Nakano, T., Wakita, K. and other members
Mizuho Bunka Center, Hikone, Shiga prefecture

September 9, 2006 Nakano, T. and Yachi, S. NPO Mizu-Kankyou Salon "Water quality map of River water in Akanoi District"
NPO Biwako-Houjyo-no-sato office, Moriyama, Shiga Prefecture

**Full-Research**

**Research axis:** History and Time Scale
**Project number:** 4-1FR
**Project name:** Historical Evolution of the Adaptability in an Oasis Region to Water Resource Changes
**Project leader:** NAKAWO, Masayoshi
**URL:** http://www.chikyu.ac.jp/oasis/
**Key words:** water resources, history, oasis, Heihe basin, arid region



**Project Members Excluding Members in Foreign Institutions**

| | | |
|---|---|---|
| ◎NAKAWO, Masayoshi | RIHN | supervision |
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| ○KATO, Yuzo | RIHN | historical reconstruction |
| ○KUBOTA, Jumpei | RIHN | process studies |
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| | | |
|---|---|---|
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| Kicengge | RIHN | historical reconstruction |
| SHIRAISHI, Noriyuki | Niigata University | historical reconstruction |
| SHIRAIWA, Takayuki | RIHN | historical reconstruction |
| Shinjilt | Kumamoto University | process studies |
| SUGIYAMA, Kiyohiko | Komazawa University | historical reconstruction |
| SEGAWA, Takahiro | Tokyo Institute of Technology | historical reconstruction |
| TAKAHASHI, Shigehiro | Nagoya University | process studies |
| TAMAGAWA, Ichiro | Gifu University | process studies |
| TSUJIMURA, Maki | Tsukuba University | process studies |
| NAITO, Nozomu | Hiroshima Institute of Technology | process studies |
| NAKAZAWA, Fumio | Shinshu University | historical reconstruction |
| NAKATSUKA, Takeshi | Hokkaido University | historical reconstruction |
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| NAKAMURA, Kenji | Nagoya University | process studies |
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| HORI, Sunao | Kohnan University | historical reconstruction |
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| YAMAMURO, Shin'ich | Kyoto University | historical reconstruction |
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| YOSHIDA, Setsuko | Shikoku Gakuin University | process studies |
| YOSHIMOTO, Michimasa | Kyoto University | historical reconstruction |
| WATANABE, Mitsuko | RIHN | historical reconstruction |

(◎: Project leader, ○: core members)

## ■Objectives and Results

### 1. Original objectives and their attainment

The Heihe River, which straddles the provinces of Qinghai and Gansu in western China, as well as of the Inner Mongolia Autonomous Region, is a typical inland river that starts in the Qilian Mountains fed by glaciers, and flows north across the Silk Road, where it is distributed into numerous oases from the foothills of the mountains, crosses the desert region and continues to the plains, before finally flowing into and being absorbed by the terminal lakes. Recently, the underground water levels around the downstream area centered on Ejina in particular have fallen dramatically. Wells that have always been in use before have suddenly run dry. Nearby vegetation is also on the verge of crisis. Juyanze is also a shadow of its former self. These facts are major problems for the people who live in the Ejina region in particular. In order to get a clue to solve those problems of water shortages, the Oasis Project aimed at reconstructing the history of the interaction between people and nature for the last 2000 years in a Chinese arid region. It was hoped that we may learn something important for creating our new manner of living that could assure future capability.

It was found that the basin has experienced intermittent water shortages, and people's adaptation for the water problems in the last 2000 years. Global climate change caused changes in water resources in the mountains, the source area of water, at sometime in the history. At the same time, however, people's activities including how to distribute water among the people contributed significantly the water shortages. These findings, however, were obtained mainly for eras of Xixia-Yuan Dynasties, and Qing Dynasty. For the periods of Han and Tang Dynasties, relatively poor understanding was made, because of poor historical documents left, and natural proxies covering this long time period were less abundant.

### 2. Specific research findings

The Heihe Basin is a region where farming was developed by numerous colonial soldiers sent there to confront the Xiongnu during the Han Dynasty 2000 years ago. At that time, the area of the Juyanze Lake was as large as 1600 $km^2$. The lake area has started decreasing thereafter, and this is considered due to the development of irrigation farmland. Also, this is the start of the formation of a lake called Sogo-noor Lake. Thereafter, the region's population fell temporarily, but increased during each of the following dynasties: Tang, and Xixia·Yuan. In the latter period, it also became clear that the flow path of the Heihe River, which pours into a lake at the end, moved westwards from Kara Khoto at that time, and present Gashon-noor Lake started to form, which, although dried up today, still existed until several decades ago.

Three-dimensional views were created of photos from a satellite called "Corona" of the ruins of the agricultural lands that extend around Kara Khoto, and their geographic extent was determined by combining the photos with on-site investigations. As a result, the agricultural lands around Kara Khoto during the Xixia and Yuan Dynasties in the period that Kara Khoto flourished, were determined to be of approximately twice large than the modern Ejina Oasis.

Further, the results of analyzing the ice cores extracted from the Qilian Mountains showed that the air temperature from the end of the Yuan through the early Ming dynasties gradually fell. This era contrasts favorably with the modern era of global warming. In other words, the volume of river flow per annum became less than the total annual precipitation concomitant with the growth of the glaciers due to the cooling effect.

Which water canals were created during which periods can be understood by matching the names of the irrigation routes at the Zhangye Oasis in Gansu Province. Many of the original water routes are still in use today. As a result, it is clear that many large-scale water routes were constructed during the Yuan Dynasty, and were used to develop vast tracts of agricultural land. This development of farmland definitely increased the volume of water drawn from the river around the oases, and consequently the downstream region of Kara Khoto was visited with water shortages.

That from the end of the Yuan Dynasty through to the start of the Ming Dynasty, the once proud and prosperous Kara Khoto become buried in the sand can be considered to be due to the multiplied effects of both so-called natural

phenomena such as a reduction in glacial runoff due to the period of cooling and human activities such as drawing an excess of water from the oasis region. There are also written reports left by bureaucrats who performed on-site inspections that during the Qing Dynasty as well, downstream areas frequently suffered water crises due to excessive water drawing midstream. It is thought that a similar phenomenon also occurred during the Qing Dynasty.

At present, water shortages are evident. Recently, the underground water levels around the downstream area centered on Ejina in particular have fallen dramatically. Wells that have always been in use before have suddenly run dry. Nearby vegetation is also on the verge of crisis. Juyanze is also a shadow of its former self. The cause, basically, is the increase in the volume of water consumption for irrigation farming at the oases located midstream, such as Zhangye and Jiuquan in upstream Gansu Province, since water supply from the mountains has increased lately.

Two countermeasures to this problem have been established: forestation, and limits to the water drawn from the river in the mid-flow basins. The volume of the flow downstream has increased due to the limits on water that can be taken, but oasis farmers, for whom the volume of water they can take has been reduced, have come to dig wells to use the subterranean aquifers to augment their shortages in order to maintain their arable land. For forestation, a policy of "Ecological Relocation", in which herdsmen from the foothills of the mountains are moved to the area around the oasis, has been adopted. The displaced herdsmen, however, have to develop fresh arable land to graze their animals. Although only natural, their fresh farming regions need water. Hence, the oases need more water now than ever, and shallow wells in the downstream area and even around midstream region of Zhangye have started to dry up. To supplement this, an abundance of deep wells are now being dug.

The cultivation of deep underground aquifers takes an unconscionable amount of time. In that sense, old aquifers are better thought of as natural resources that, once lost, are extremely difficult to regain, in the same way as oil. The water has started to be used in abundance. This is considered the major problem at the moment.

The regions described above experienced repeatedly the phenomenon similar today of the increase in acute water consumption due to a rapid artificial increase in the population and the concomitant agricultural development in addition to natural fluctuations. Furthermore, it is clear that the modern phenomenon of downstream water shortages also occurred many times in the past. The only thing to say is that history has been repeating itself.

**3. Research findings outside of original expectations**

"Ecological Relocation" is the first to be mentioned. Most of people, excluding Chinese officials who promoted this Chinese policy, were not aware of the policy; we were not either when the project started. Realizing the importance of the policy, as a result of our field studies, we have published a book entitled "Ecological Relocation—Chinese Environmental Policy" was published in Japanese. It was translated into Chinese, and published in China, and is going to be published in English shortly by a Swiss publisher.

On modern satellite pictures of the Hexi Corridor, we found lines of the entrance to the shafts of underground conduits. They appeared to be a proof for the presence of so called Qanat or Karez, which has been considered to distribute with an eastern limit of Taklamakan Desert. Field investigations were made, and it was found that underground canals were actually constructed, and the construction technique was quite similar to that of the Qanat. The existence of the underground conduits indicates people's development of water resources, extending farther and farther.

**4. Important issues that remain to be addressed and plans to deal with them in the future**

In the history over the arid and semiarid regions of central Eurasia, relations between agrarians and nomads have played a very important role. This is attributed to the people's way of living with settlements or mobility. The relations of the life manner with the natural environment are of importance. When and where they are not in accordance, environmental problems appear to have created. This is considered a big issue, and it is considered difficult to make clear within the flame work of the Oasis Project. A new project was, hence, launched, which entitled "Historical interactions between hybrid society of ethnic groups and the natural environment in a semi-arid region, central Eurasia" as

a new project of RIHN. The project is in the stage of "Pre-research Project", and will be a full scale research project from next fiscal year.

Analyses of huge amount of documents, collected from the First Historical Archives of China, have not been completed. A research proposal was, hence, submitted to the Japan Society for the Promotion of Science for further research.



## ■Relevance of Research Findings to RIHN's Philosophy

**1. How deeply have these findings delved into a chosen form of "human-nature interaction" that you believe constitutes a global environmental problem?**

People would realize a problem when it happens. When it happens, people would react to the problem, hoping to solve it. People, however, are not wise enough to predict all the results of their reaction. Some results are led by natural reaction, and the others by human's subsequent reactions. In many cases, the reaction itself would produce new problems, and people react to overcome those new problems. This has been repeated for long, and I would say that the link of those relations would be called "human-nature interaction".

People have tried to solve problems by extending their system, and at present, the range of the system on which people's livelihoods depends has expanded to a global scale. This can also be rephrased as meaning that the methods used by people to solve their problems under the idea of expanding the scale of the system have reached their final destination. The meaning of so-called "globalization" lies herein.

There are, however, limits to the global system. This is the era of globalization, in which the whole world is used as part of the system. When a problem occurs, the system has no room into which to expand further to solve the problem, even if an attempt at further expansion is made. Expansion to the Moon and to Mars is still a far-off conversation. That is to say, our system has expanded as far as it can go, and it can only be said that we have now reached an era in which existing methods for solving problems by expanding the range of the system can no longer be used.

**2. How well has the process of achieving "better human life in the future" been revealed?**

First of all, it is most crucial to understand that present situation is a result of the past changes. For considering the future, it is the only way that we learn from the past, since we can only be dependent on empirical relations. In the study area of "history", less attention was paid to studies to delve into the "human-nature interaction".

"History" should be studies to examine what has happened in the past, utilizing all the information that we can get. However, a bunch of people who only knows how to read old documents have kept an exclusive possession. It is of importance, therefore, to promote studies to examine past changes not only by historians but by expertise of all academic disciplines. This is the way to achieve "better human life in the future".

We have just examined the history only in a specific river basin of the Heihe River located in an arid area, central Eurasia.

Similar studies, first of all, should be conducted at varieties of places all over the world, in order to understand how the present situation has been created. Based on these results, we have to consider how we can shift to a new paradigm required at present. This is what we left for further studies.

**3. To what degree have requirements concerning integration, internationality, and leadership been fulfilled?**

As expected, integration of results from multi-disciplinary areas resulted in new understandings, which would not have been achieved by studies of a single discipline. Inter collaboration between data of dendro-chronological analysis, ice core analysis, sediment core analysis, and documents records is one of the examples. When some found a lines of the entrance to the shafts of underground conduits, another found old documents which mention the contribution of historical person in detail. These are just two examples of fruitful results with multi-disciplinary approach. Foreign researchers participating in the international symposium on the Humanity and Nature in Khara Khoto Region, held in

Ejina in last September, appeared to have surprised how we have obtained many information, which were presented by our project members at the symposium. The secret lies only in the multi-disciplinary approach.

We have organized another international symposium, in addition to the above one, in Lhasa, also in China. In those symposia, many mass media came, and reported to general public, and they were good opportunities for us to have Chinese people realize what we have achieved.

Also, NHK made a documentary film introducing our activities as one of their Silk Road series, and it was on air in 2005. Publications not only in Japanese but Chinese and English contributed to disseminate our activities. This was followed by a further chance for publish our research results in a series of publications (8 volumes are planed to publish at present) which UNESCO plans to promote: History of Water and Civilization.

**4. What has this research project done to accumulate knowledge that will help improve global environmental problems?**

As for data for further use, enormous amount of old documents of Qing Dynasty from the First Historical Archives of China should be mentioned. Not so many people are aware of those data, which have been just stored in a huge storage of the institute. Our use of those documents would stimulate the other researchers for the use of the documents in their future studies.

What we say as a conclusion of the project, as for the conceptual flame work, is what we can say based upon our research results only. What we say may not be true or may not be applicable at another region, because what people do depends on the culture of the people, which is different from place to place. We do have to promote further research at different places, but with the same approach, hoping to understand fully what the global environmental problems are.

**5. What has been achieved through cooperation with other research projects?**

Roughly speaking, inter-project cooperation has not been good, because each project was planed, and started independently. Certainly a kind of cooperation has been promoted when required, in such an occasion as that we had a inter-project session in RIHN pre-Symposium held in 2005. Real cooperation, however, has to be accomplished by discussing together from the initial planning of the project, and by managing the project in the stage of the progress. A criticism for series of RIHN projects that they have no link to each other is considered correct, since no system is established for managing all RIHN projects.

With this situation, a good cooperation is to be made only when a new issue to be examined is proposed as a result of a project, and a project to tackle with the issue is implemented, succeeding the previous project.

## ■Communication of Research Findings

**1. Communication to general society**

The forum, symposia, and the other meetings organized by RIHN are excluded here.

A couple of occasions were provided to address our results to general public, which include lectures and open discussions at Club meetings, at Training course of UNESCO, UNESCO meeting, symposia relating with Silk Road.

General books for non-researchers have been published: three from Kodansha Publishing Co. Ltd., two from Showado Publishing Co. Ltd, one form NHK Publisher. Another book has been published, which describes the last 50 years history of the Heihe Basin, from the view point of local people.

DVDs were created: one introduced the project, and the other reported the progress of the project. They were presented at several meetings, and copies were distributed to eight countries by request. A DVD, which reports the final results, has been completed.

**2. Communication to academic circles**

Academic papers, publications, presentations of specific aspect attracted by only specialists of individual research disciplines are excluded here, because the project aims at integrating research results from multi-disciplines, although specific results for a single research area has been certainly obtained.

Even at meetings of a single field, several presentations were made, stressing that integrated approach with many disciplines would produce such and such results for example, which has never been achieved by studies of a single discipline. The meetings included of academic societies, university lectures, special seminars etc. In most cases, the approach has been appreciated. In particular, in the organized two symposia held in China, a series of presentations made by members of the project appears to have given a strong impact to the other participants. The proceedings of the Khara Khoto symposium has been published, and distributed. DVDs introducing the project, and the progress report of the project were highly appreciated, and many request came to distribute the copies of the DVDs. They were hence distributed to those who placed a request, although we are not sure if they were shown at each country.

**■Progress from April 1st, 2006 to March 31st, 2007**

In situ observations has been mostly completed in last year, but such additional observations has been carried out as the identification of past agricultural land, and follow up studies on *Populus euphratica* trees. Also, the presence of underground water conduits like Qanat or Karez was suggested on satellite images, and a field observation was made. As the result, water source of the water conduits was not groundwater but river water. The construction technique, however, are very similar to those for Qanat or Karez. The underground water systems were introduced at least in Ming era, and have been basically used till today.

Based on those data so far obtained from old documents and natural proxies, the change of the terminal lake(s) of the Heihe River, in area has been analyzed. The result indicated that the lake area change is attributed to the development of farmland rather than to climate changes.

An international symposium on "the Humanity and Nature in Khara Khoto Region" was organized at Ejina, the terminal oasis of the Heihe River. About 60 papers were presented of which roughly half were by members of the Oasis Project.

**■Outcome from April 1st, 2006 to March 31st, 2007**

The output of the project includes Project Report on an Oasis-region Vol. 6 (No. 2) and two volumes of Special Issue of the Project Report, in addition to individual publications, which are not listed here. Several books have been published to disseminate the research results to general public. A movie entitled "Where did the oasis water go?" was also produced, either with Japanese, Chinese or English narrations. They are available as DVDs. The proceedings of the Khara Khoto symposium are now available.

**Full-Research**

**Research axis:** Conceptual Framework for Global Environmental Issues
**Project number:** 5-1FR
**Project name:** Global Water Cycle Variation and the Current World Water Resources Issues and Their Perspectives
**Project leader:** KANAE, Shinjiro (RIHN)
**Core member:** see item No. 3
**Key words:** water crisis, virtual water

### 1. Research Objectives and Topics

It is alleged that the 21st century is the "century of water." Wars over water might happen like over oil that occurred in the last century. The rapid increase in population and the coming global climate change could be cause of water scarcity. This project attempts to develop global perspectives of such water resource issues by integrating field observations, predicting natural water cycles and human's water usage in the future, and by establishing guidelines for sustainability development from the viewpoint of water resource issues.

The population increase, expected mainly in developing countries, increases water demand, resulting in more intense use of water resources in the world. For Japan or European countries, water resources issues will also be serious; for example, decreased water resources due to global climatic change, inappropriate water management and deteriorated water quality. Therefore, water issues are currently considered to be one of the most critical problems in the world.

Although much information about water issues is now available, it seems there is no academic conclusion of the information. And it is also a problem that only a little information is dispatched by Asian countries including Japan; most information is actually dispatched by the U.S. and European countries.

This project aims at clarifying the true nature of world water issues mentioned above and showing perspectives of the current situation of global water cycles and resources, and making projections of future global water resources and stress". Also it aims "to pursue an integrated approach between social and natural sciences to deal with some specific water issues considered as a part of world water crisis.

### 2. Relation with Research Program

The "Conceptual Framework for Global Environmental Issues" is a relatively new axis which was changed from "Integration" in this institute. Since this project has been attempting to develop a new concept and new information related to global water issues, this change is very relevant for us. Quantification of "virtual water", one of the main outcomes of this project, needs to be investigated more in deep from the viewpoint of its concept. It will be a next subject in near future, and probably will be a good topic among the projects in the program.

### 3. Leader Name Concerned with the Project, Joint Researcher Name (Affiliation)

(Researchers were so many that joint researchers' name ware excluded except core members)
◎KANAE, Shinjiro (RIHN)

* ARAMAKI, Toshiya (Research Center for Advanced Science and Technology, The Univ. of Tokyo): Demand analysis and modelization of urban water
* ENDO, Takahiro (RIHN): A policy analysis of water resource management in California
* HIRAKAWA, Yukiko (Graduate School for International Development and Cooperation, Hiroshima University): International political governance with respect to water
* HIRABAYASHI, Yukiko (Faculty of Engineering, Yamanashi University): The impact of global warming on hydrological cycles

* KAWASHIMA, Hiroyuki (Graduate Schoolof Agricultural and Life Sciences, The Univ. of Tokyo): Agricultural water demand model considering an international grain price
* KIM, Wonsik (National Institute for Agro-Environmental Science): Observation of water cycles in Asia
* KITSUREGAWA, Masaru (Institute of Industrial Science, The Univ. of Tokyo): Development of global environmental water information library
* KURAJI, Kooichiro (Graduate School of Agricultural and Life Sciences, The Univ. of Tokyo): Water management in forest are and local community
* MATSUMOTO, Jun (Graduate School of Science, The Univ. of Tokyo): Seasonal change of Asian monsoon and the relation with society
* MATSUMOTO, Mitsuo (Faculty of Humanities and Economics, Kochi University): Water laws in Asia
* OKI, Taikan (Institute of Industrial Science, The Univ. of Tokyo): Global water cycles and virtual water trade
* OHTE, Nobuhito (Graduate School of Agriculture, Kyoto Univ.): Observation and modelization of water cycle process in forest area
* SATOMURA, Takehiko (Graduate School of Science, Kyoto Univ.): Modelization of water cycle in mesoscale
* SHIBAZAKI, Ryosuke (Center for Spatial Information Science, The Univ. of Tokyo): Land use change model considering water and provision demand
* SHIRAKAWA, Naoki (College of Engineering System, Tsukuba University): Demand analysis and modelization of environmental water
* YASUOKA, Yoshifumi (Institute of Industrial Science, The Univ. of Tokyo): Remote sensing for hydrology and vegetation
* Hansa VATHANANUKIJ (Kasetsart University): Analysis on water problems in Southeast Asia
* Thada SUKHAPUNNAPHAN (Royal Irrigation Department, Thailand): Flood management in Southeast Asia
* Yang DAWEN (Tsinghua University): Analysis on water resources problems in China

(◎: Project leader, *: Core member)



**4. Progress of the Project**

Regarding the primary goal, we have succeeded in positing our research as cutting-edge in the world with the finest estimation and projection of global water cycles and resources. As a result, Dr. Taikan Oki, the former leader and a currently core member, was chosen as a lead author of the IPCC AR4 and the Millennium Assessment. Also our paper in *Science* has promoted effectively the achievement of this project (Oki and Kanae 2006).

We, hereafter, describe the details. First, regarding the global water circulation, we successfully reproduced the daily fluctuation of land hydrological cycles through the past 100 years for the first time in the world (Hirabayashi et al., 2005). Second, we made a projection of land hydrological cycles for the next 100 years. Third, current and future water demands were estimated. In making projections, we mostly apply the grid scale of 1 degree or 0.5 degree as horizontal resolution at a global scale. Then we calculate the current and future water stress in a global scale through an integration of all the estimations above (Oki and Kanae, 2006).

As a result, the following three points are shown: (i) over 2 billion people are under physically high water stress; (ii) the number of people under the stress will increase in the future. What is more important, however, is that we can control the rate of increase; and (iii) as long as water stress, the current or the near future in the next several decades is more critical than the distant future.

Conventional water resources assessment did not include the trade in virtual water, i.e. the amount of water that is embedded in food or other products needed for its production. We successfully estimated the amount of virtual water trade of the world for the previous several decades. Here, two main findings are addressed (Oki and Kanae, 2004): (i) the amount of virtual water trade accounts for no less than 10% of the total direct water intake; and (ii) Japan imports the largest amount of the virtual water in the world. The implication of findings is so influential in Japan that it has

taken a sort of leading role through several mass media and trade books in the enlightenment about global water problem in its public sphere. Perhaps, the projection of virtual water would be expected. At this moment, however, we skip the projection to avoid an infeasible projection.

And moreover, we conducted specific case studies on Asia and California. Particularly it should be noted that the latter case provides us a fruitful outcome, which tend to be overlooked in global scale analysis. California is one of the water-deficient areas that we estimate "the hot spot". We paid attention to water management policy in California to look for a countermeasure for global water crisis. Among others, we put focus on a system of water transaction named "water bank" that had been introduced in 1991 to cope with severe drought, with special reference to the legal framework, effectiveness, and problems. As a result, we concluded that "soft-path" solution such as law and institution as well as "hard-path" solution such as dam can be effective tools against water deficit problem.

## 5. Outcome

### (1) Outline

See 4. Progress of the Project

### (2) Publication

Qiuhong T., T. Oki, S. Kanae (2006) A distributed biosphere hydrological model (DBHM) for large river basin, *Annual Journal of Hydraulic Engineering*, 50, no. 7.

Oki, T., S. Kanae (2006) Global hydrological cycles and world water resources, *Science*, 313: 1068–1072.

Hanasaki, N., S. Kanae, T. Oki (2006) A reservoir operation scheme for global river routing models, *Journal of Hydrology*, 327: 22–41.

Yoshimura, K., S. Miyazaki, S. Kanae, T. Oki (2006) Iso-MATSIRO, a land surface model that incorporates stable water isotopes, *Global Planetary Change*, 51: 90–107.

Kanae, S., Y. Hirabayashi, T. Yamada and T. Oki (2006) Influence of "realistic" land-surface wetness on predictability of seasonal precipitation in boreal summer, *J. Climate*, 19: 1450–1460.

P. A. Dirmeyer, X. Gao, M. Zhao, Z. Guo, T. Oki, and N. Hanasaki (2006) The Second global soil wetness project (GSWP-2): Multi-model analysis and implications for our perception of the land surface, *Bull. Amer. Meteor. Soc.*, 87: 1381–1397.

Murata, F., M. D. Yamanaka, H. Hashiguchi, S. Mori, M. Kudsy, T. Sribimawati, B. Suhardi, and Emrizal (2006) Dry intrusions following eastward-propagating synoptic-scale cloud systems over Sumatera Island, *J. Meteor. Soc. Japan,* 84: 277–294.

Kodama Y.-M., M. Tokuda, and F. Murata (2006) Convective activity over the Indonesian maritime continent during CPEA-I as evaluated by lightning activity and Q1 and Q2 profiles, *J. Meteor. Soc. Japan*, 84a: 133–149.

Shibagaki Y., T. Kozu, T. Shimomai, S. Mori, F. Murata, Y. Fujiyoshi, H. Hashiguchi, and S. Fukao (2006) Evolution of a super cloud cluster and the associated wind fields observed over the Indonesian maritime continent during the first CPEA campaign, *J. Meteor. Soc. Japan*, 84a, 19–31.

Areki, R., M. D. Yamanaka, F. Murata, H. Hashiguchi, Y. Oku, T. Sribimawati, M. Kudsy, and F. Renggono (2006) Seasonal and interannual variations of diurnal cycles of wind and cloud activity observed at Serpong, West Jawa, Indonesia, *J. Meteor. Soc. Japan*, 84a, 171–194.

Komatsu H., Y. Kang, T. Kume, N. Yoshifuji and N. Hotta (2006) Transpiration from a Cryptomeria japonica plantation, part 2: responses of canopy conductance to meteorological factors. *Hydrol. Process.* 20: 1321–1334.

Komatsu H,. Y. Kang, T. Kume, N. Yoshifuji and N. Hotta. (2006) Transpiration from a Cryptomeria japonica plantation, part 1: aerodynamic control of transpiration. *Hydrol. Process.* 20: 1309–1320.

M. S. Islam, T. Oki, S. Kanae, N. Hanasaki, Y. Agata, and K. Yoshimura (2007) A grid-based assessment of global water scarcity including virtual water trading, *Water Resources Management*, 21: 19–33.

**Full-Research**

**Research axis:** Environmental Change Impact Assessment
**Project number:** 1-2FR
**Project name:** Recent Rapid Change of Water Circulation in the Yellow River and Its Effects on the Environment
**Project leader:** FUKUSHIMA, Yoshihiro (RIHN)
**URL:** http://www.chikyu.ac.jp/rihn/pro/2004_1-2.html & http://www.chikyu.ac.jp/yris/
**Key words:** dry-up of the Yellow River, change of water circulation by global warming, effects of human activities against environment



## ■Outline of Research Project

### 1. Objective

Environmental problems related to the water resources and management have been occurring all over the world. Since 1990, the frequency with which river water in the Yellow River does not reach to the Bohai Sea has rapidly increased due to uptake of river water for irrigation in the upper- and midstream areas. In the lower reaches area of the Yellow River basin, people suffer water shortages for irrigation, industrial and drinking water. In addition to these, the shortage of river water induces a decrease of groundwater level and increase of water pollution. Due to the increase in population and food demand on the earth, such cases seem to be increasing and are likely to spread much further in the near future worldwide. How we can recognize and resolve this problem is one of the most important and urgent issues for humanity. The recent crisis that occurred in the Yellow River basin is complicated because natural climate fluctuation, global warming and change of land utilization may affect each another. This research will be made based on: recently acquired knowledge of the effects of climate change and human impacts on the water cycle in the Yellow River Basin, and ancient Chinese ideas on water management.

### 2. Contents

Five sub-teams are established for the project and Sub-team (5) is to synthesize the results derived from other sub-teams in the final year;

(1) Observation and Analysis of Atmospheric Boundary Layer structure in Loess Plateau
(2) Observation and Analysis of groundwater and sea water in the mouth of the Yellow River
(3) Observation and Analysis on Variability of Marine Biology in Bohai Sea
(4) Statistical analysis between economical development and water resources
(5) Prevention from flood disasters from Chinese long-term history
(6) Analysis of both water cycle and water resources by the establishment of a high-resolution hydrological model

## ■Project Members

◎FUKUSHIMA, Yoshihiro: RIHN, Professor, Synthesized Understanding from each sub-study component and analysis of both water cycle and water resources by the establishment of a High-resolution Hydrological Model (SU & HHM)
○CHEN, Jianyao: Zhongshan University, Professor, CHINA (HHM)
○GUO, Xinyu: Ehime University, Associate Professor (MBB)
○HIYAMA, Tetsuya: HyARC, Nagoya University, Associate Professor, Observation and Analysis of Atmospheric Boundary Layer structure in Loess Plateau (ABL)
○IMURA, Hidefumi: Nagoya University, Professor, Statistical analysis between Economical development and Water resources (SEW)
○KINOSHITA, Tetsuya: RIHN, Professor, Chinese Philosophy

○LIU, Changming: Institute of Geographical Sciences and Natural Resources Research, CAS, Professor, CHINA (HHM)
○MA, Xieyao: Frontier Research Center for Global Change (FRCGC), Senior Research Scientist (HHM)
○ONODERA, Shin-ichi: Hiroshima University, Associate Professor (GSI)
○TANIGUCHI, Makoto: RIHN, Associate Professor, Observation and Analysis of Groundwater and Sea water Interaction in the mouth of the Yellow River (GSI)
○YANAGI, Tetsuo: Research Institute for Applied Mechanics, Kyushu University, Professor, Observation and Analysis on Variability of Marine Biology in Bohai Sea (MBB)
HAYASHI, Mitsuru: Kobe University, Associate Professor (MBB)
HAN, Ji: Nagoya University, Graduate Student (SEW)
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IIJIMA, Yu: Chiba University, Graduate Student (ABL)
ISHITOBI, Tomotoshi: RIHN, Research Associate (GSI)
KANEKO, Shinji: Hiroshima University, Associate professor (SEW)
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KUME, Takashi: RIHN, Senior Researcher (HHM)
MATSUOKA, Masayuki: Kochi University, Lecturer (HHM)
MIYAOKA, Kunihide: Mie University, Associate Professor (GSI)
NISHIKAWA, Masanori: Nagoya University, Graduate Student (ABL)
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YAMAGUCHI, Hitomi: Ehime University, Research fellow (MBB)
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BURNETT, William: Florida State University, Professor, USA (GSI)
GAO, Huiwang: Ocean University of China, Professor, CHINA (MBB)
HAO, Mingde: Institute of Soil and Water Conservation, CAS, Vice Director, CHINA (ABL)
HALLDIN, Sven: Uppsala University, Professor (HHM)
KRECHEK, Josef: Czech Technical University at Prague, Associate Professor, Outreach of project research
LIU, Guanquan: Ocean University of China, Associate Professor, CHINA (MBB)
LIU, Jinshi: Institute of Tibetan Plateau Research, CAS, Professor, CHINA (HHM)

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XIA, Jun: Institute of Geographical Sciences and Natural Resources Research, CAS, Professor, CHINA (HHM)
XIE, Pingping: NOAA, USA, Principal Scientist, USA (HHM)
ZHENG, Hongxing: Institute of Geographical Sciences and Natural Resources Research, CAS, Associate Professor, CHINA (HHM)
(◎: Project leader, ○: Core member)



**■Status**

Environmental problems related to the water resources and management have been occurring all over the world. Since 1990, the frequency with which river water in the Yellow River does not reach to the Bohai Sea has rapidly increased due to uptake of river water for irrigation in the upper- and midstream areas. In the lower reaches area of the Yellow River basin, people suffer water shortages for irrigation, industrial and drinking water. In addition to these, the shortage of river water induces a decrease of groundwater level and increase of water pollution. Due to the increase in population and food demand on the earth, such cases seem to be increasing and are likely to spread much further in the near future worldwide. How we can recognize and resolve this problem is one of the most important and urgent issues for humanity. The recent crisis that occurred in the Yellow River basin is complicated because natural climate fluctuation, global warming and change of land utilization may affect each another. This research will be made based on: recently acquired knowledge of the effects of climate change and human impacts on the water cycle in the Yellow River Basin, and ancient Chinese ideas on water management.

**■Changes on project contents, if there are**

1. A study group which analyzes flood control methods in the downstream of the Yellow River was included to the project.
2. Other plans and contents have been carrying out on schedule.

**■Attained results and some issue on following year, if there are**

The dry-up of the Yellow River mainly occurred during the 1990's due to over-use of river water from upstream to downstream for maintaining irrigated areas, coupled with a slight decrease of precipitation. Remarkable decreases of river discharge were not detected in the upstream area during the 40 years from 1960 to 2000. The reason why a severe dry-up occurred among 1970–1990, and particularly in 1997, was analyzed by the hydrological water budget method. With simulated discharge using land classifications from 2000, it became clear that almost 15 billion $m^3$ was lost between the first year and 2000 in those 40 years from 1960 to 2000 in the midstream area, in spite of annual water budgets in the upstream area satisfying the observed discharge. It was an unexpected result, in the beginning. But, we became aware that previously the Loess Plateau might have been deforested. We experienced increased annual river discharge from devastated mountains in Japan, and the magazine "People's China" published on June 1973 described devastated slopes and reforestation work done on the Loess Plateau. If these considerations are true, high discharge in 1960–1980 and low discharge in 1980–2000 can be easily understood. Finally, it was conclusive against the dry-up of the Yellow River that low amount of precipitation has continued during 1990s.

Thanks to a new Water Law promulgated in 2002, dry-ups no longer occur in the downstream region of the Yellow River. It is because the Yellow River Commission (YRC) became able to completely control amount of the water use against provincial decisions. The YRC has asked each province to save water and has arranged intake periods in order to avoid drying up of the river. However, total water diversion from the Yellow River still seems not to have changed.

As flood discharge is controlled in reservoirs, sediment transportation energy seems to decrease. Therefore, the river-bed in the downstream region continues to rise up. It will increase the danger of disastrous floods downstream.

Meanwhile, recent satellite data and numerical simulation models show the decrease of water exchange between the Bohai Sea and the Yellow Sea. We will evaluate the relationship between the decrease of Yellow river discharge and the decrease of water exchange between the Bohai Sea and the Yellow Sea. The observed results of interaction between the land surface and atmosphere at the Loess Plateau show a drastic vertical exchange of air between the land surface and atmosphere. We will develop a model to explain this unexpected new phenomenon.

## ■Expected results

We aim to understand how land use changes affect the water cycle over the Yellow River drainage basin and what kind of effect the decrease of groundwater levels will have on the downstream to marine environment over the five year course of this research. This study may prove to be at the forefront of ecological studies in the coastal zones where many people live, and we may also be able to evaluate the effects on marine products in the Sea of Japan through studying the Bohai Sea and Yellow Sea. We will evaluate the problems under consideration, which if unchanged could cause worse environmental damage, by use of written documents more than 3000 years old and recent data from the Yellow River basin.

## ■Achievements in the period from April 2006 to March 2007

### Books

FUKUSHIMA, Y.: The role of Forest in forested wetland. Environmental Role of Wetlands in Headwaters. NATO Environmental Series, Vol. 63, *Springer*, 17–48, 2006.

### Papers

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WANG, Genxu, Jingqi LIU, Jumpei KUBOTA, Ling CHEN: Effects of Landuse Changes on Hydrological Processes in the Middle Basin of the Heihe River, Northwest China. Hydrological Processes, published Online: 12 Oct 2006, DOI: 10.1002/hyp.6308. 2006.

AKIYAMA, Tomohiro, Akiko SAKAI, Yusuke YAMAZAKI, Genxu WANG, Koji FUJITA, Masayoshi NAKAWO, Jumpei KUBOTA, Yuki KONAGAYA: Surfacewater-groundwater Interaction in the Heihe River basin, Northwestern China, Bulletin of Glacier Research, 2007.

TANG, Q., T. Oki, S. Kanae, H. Hu: The Influence of Precipitation Variability and Partial Irrigation within Grid Cells on a Hydrological Simulation, J. Hydrometeor., 2007.

TANG, Q., T. Oki, S. Kanae, H. Hu: A Spatial Analysis of Hydro-Climatic and Vegetation Condition Trends in the Yellow River Basin, Hydro. Proc., 2007.

WATANABE, T., Keisuke HOSHIKAWA, Takashi KUME and Takanori NAGANAO: Assessment of Climate Change Impacts on Irrigation Management Using a Performance Assessment Model, Proceedings of 3rd Asian Regional Conference of ICID, Kuala Lumpur, Malaysia, 2006.

ENDO, T.: The Role of Government in the Water Rights Market, Proceedings of 3rd International Conference on Hydrology and Water Resources in Asia Pacific Region (APHW), Bangkok, Thailand, October 16–18, 2006.

HOSHIKAWA, K., Takanori Nagano, Takashi Kume, Riza Kanber and Tsugihiro Watanabe: Evaluation of climate change impacts on the Lower Seyhan Irrigation Project, Turkey, Proceedings of the 3rd International Conference

of Asia Pacific Association of Hydrology and Water Resources (APHW), Bangkok, Thailand, October 16–18, 2006, 2006. (CD-ROM)

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## Other Activities

We have already published News Letter written in English through web site of http://chikyu.ac.jp/yris/. Up to now, volume No. 7 was putted on the site.

14–15 February 2007

Holding the 3rd International Workshop on Yellow River Studies at RIHN, Kyoto

Totally 121 pages of proceedings written in English was published on March 26, 2007.

16–17 May 2006

What does it mean the Yellow River problems? NSFC-JST Bilateral Workshop on Environmental Assessments and Promotion Technologies for Watershed & Ecosystems Sustainability (Beijing, China)

**Full-Research**

**Research axis:** Human Activity Impact Assessment
**Project number:** 2-2FR
**Project name:** Sustainability and Biodiversity Assessment on Forest Utilization Options
**Project leader:** ICHIKAWA, Masahiro (RIHN)
**Core members:** see No. 3
**Key words:** biodiversity, land use change, ecological function, ecological service, sustainability, socio-economic evaluation



**1. Research objectives and topics**

In this project, we try to evaluate the sustainability of forest utilization in various aspects, with particular emphasis on biodiversity aspects. The goods and ecosystem services that may be lost with decreasing biodiversity should be identified. Also the evaluations from the aspects of socio- and environmental economy will be assessed for various forest utilization systems including the traditional, and so-called sustainable systems in the region. The driving forces and incentives to cause the recent change in forest utilization system are also to be studied. Finally we try to present new criteria or ways of thinking to evaluate the forest utilization systems. The target research sites are, 1) Tropical rainforest area around Lambir Hills National Park, Sarawak, Malaysia, 2) Tropical forest areas in Saba, Malaysia, 3) Temperate evergreen forest area in Yaku Island, Japan and 4) Temperate deciduous forest area in Abukuma Mts., Japan. Research items below are to be studied in all the site above and compared; 1) The historical change in forest utilization and its drivers are to be studied by socio-economical analyses, 2) Effects of forest change on biological diversity is to be studied, 3) The ecological services critically associated with biodiversity are to be studied, and 4) Social and economical requirements for sustainable forest-utilization are examined.

**2. Relation with research program**

The anthropogenic factors caused by socio-economic, and/or political change have been greatly affected forest change. This project will elucidate the socio-economic drivers caused such changes in ecosystems and biodiversity, as well as the evaluating ecological services which are provided by biodiversity. This approach meets the direction of the Program-2 of the RIHN.

**3. Project members**

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KAGAYA, Etsuko (Forestry and Forest Products Research Institute)
GOTO, Hideaki (Forestry and Forest Products Research Institute)
MIYAMOTO, Asako (Forestry and Forest Products Research Institute)
YAGIYHASHI, Tsutomu (Forestry and Forest Products Research Institute)
YASUDA, Masatoshi (Forestry and Forest Products Research Institute)
NAGAIKE, Takuo (Forest Reseach Institute, Yamanashi Prefecture)
KONDO, Toshiaki (Hiroshima University)
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* SATO, Jin (University of Tokyo): Sociological analyses on forest utilization
ABE, Rhuichiro (University of Tokyo)
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YAMASHITA, Izumi (University of Tokyo)
HIRANO, Yuichiro (University of Tokyo)
IWASAKI, Aki (University of Tokyo)
ASAO, Mariko (University of Tokyo)
OH, Tomohiro (University of Tokyo)
BABA, Takeshi (Kyoto University)
* AKAO, Ken-ichi (Waseda University): Ecological and economic model of forest use
SATAKE, Akiko (Kyoto University)
ONUMA, Ayumi (Keio University)
(◎: Project leader, *: Core member)

**4. Research schedule**

Apr. 2002–Mar. 2003 (Feasibility study)
– Collect the information on each study site
– Screen the utilization options
– Screen the target organisms for biodiversity studies
– Establish the protocol methods of the studies

Apr. 2003–Mar. 2004 (First year)
– Establish GIS in each site

- Evaluate biodiversity in the target utilization options
- Study the mechanisms to maintain biodiversity
- Study the relationships between taxonomic groups and their roles in the ecosystem
- Retrospective study on the past utilization of forests

Apr. 2004–Mar. 2005 (2nd year)

- Evaluate biodiversity in the target utilization options
- Study the mechanisms to maintain biodiversity
- Study the relationships between taxonomic groups and their roles in the ecosystem
- Retrospective study on the past utilization of forests

Apr. 2005–Mar. 2006 (3rd year)

- Study the mechanisms to maintain biodiversity
- Study the mechanisms to maintain biodiversity
- Detect the driving forces and incentives to cause utilization change
- Economic value of each utilization options

Apr. 2006–Mar. 2007 (4th year)

- Summarize the mechanisms to maintain biodiversity
- Summarize the relationships between taxonomic groups and their roles in the ecosystem
- Detect the driving forces and incentives to cause utilization change
- Economic value of each utilization options

Apr. 2007–Mar. 2008 (5th year)

- Integrate the evaluation
- Develop better evaluation methods to evaluate sustainability
- Social and economical requirements for sustainable forest-utilization

**5. Modification on the original research plan**

The research has been progressed as the original research plan.

**6. Progress of the project**

(a) Historical change in forest utilization and its social- and economic backgrounds

- The land use changes were shown as same format of matrix and figure, which will be base of comparison study between the 4 study sites. Main findings are shown as follows:
- Changes of forest uses in 4 sites were clarified from field work and document survey. Results of ethnobotanical study were coming out.
- In Abukuma and Yakushima, before 1950s traditional forest uses were still observed, but after then, affected by commercial cutting and industrial planting, the traditional uses were abandoned.
- In the tropical forest areas, also after 1950s affected by economic development such as road constructions and plantation development, the land use was drastically changed.
- Local people's institutions related forest uses and their changes were studied (Lambir).

(b) Evaluating impacts of forest utilization on biodiversity, ecological functions and ecological services

- The studies on changes of biodiversity and ecological functions following forest changes, such as decrease of broad leaf forests and forest fragmentation, were continuously conducted. Changes of biodiversity, depending on fauna and flora and forest types, were found.
- Regarding ecological services, data on relationship between changes of forests and the services were shown, for example natural enemies of vermin grow in the young forest which created by industrial rotation logging (Abukuma). It is found that forest product uses by local people in different forests type are different (Lambir).

- Biodiversity maps in 4 sites were drawn. Ecological function map and ecological service map also would be drawn as a product of this research project.
- Results from field study on impacts from forest changes on culture which local people possess were coming out (Lambir).

(c) Economic evaluation of each forest option

- Results from anthropological field research show importance of forest products to gain subsistence and maintain household of local people (Lambir).
- Economic values of forests, using CVM method, were calculated (Kinabaru).

(d) Development of ecological and economic models concerning biodiversity conservation

- Relationship between forest policy changes and relating actors, such as international organizations, local politicians, logging companies and NGOs were analyzed (Lambir).
- Regarding forest resource use in high biodiversity forest areas, it was theoretically suggested the commons theory is not necessarily applicable.

(e) Development of education materials

- A power-point slide set (11 volume, in Japanese) as an education material was under development.

**7. Problems for implementation or points need to change plan**

- Base of comparison of forest changes between 4 sites were provided, so that the comparison and generalization will be further subject.
- Biodiversity map will be developed up to maps showing ecological functions and ecological services.
- An education material (power-point slide set) will be completed.
- In the rest of the project period, consideration to publish the project results must be paid.

**8. Outcomes (2006)**

**Original paper**

[International]

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**Full-Research**

**Research axis:** Human Activity Impact Assessment
**Project number:** 2-3FR
**Project name:** Human Activities in Northeastern Asia and Their Impact to the Biological Productivity in North Pacific Ocean
**Project leader:** SHIRAIWA, Takayuki (RIHN)
**Core member:** see No. 3
**Key words:** fish-breeding forest, land-use, land surface disturbance, material circulation, dissolved iron, phytoplankton, Sea of Okhotsk, Amur river, Oyashio current, Asian dust

**Research Objectives and Topics**

**1. Research objectives**

The object of the project is to elucidate role of the Amur river on the primary productivity in the Sea of Okhotsk and northern North Pacific, then to evaluate possible human impacts such as land surface disturbances in the Amur river basin on the marine ecosystem of the ocean. In this study, we try to answer following five questions; 1) How the dissolved iron is transported from the Amur river basin to the Sea of Okhotsk and the northern North Pacific through the Amur river and by ocean current?; 2) To what extent the supply of dissolved iron is regulating the primary production in the Sea of Okhotsk and the northern North Pacific?; 3) How the land surface disturbance affects on the material circulation in the Amur-Okhotsk system?; 4) How the human impacts will change the system in the future?; and 5) How we can conserve this environmental system which expands across the international boundaries? By solving these five questions, we will propose a new global environmental concept "*Giant*" *Fish-Breeding Forest* to conserve the system as collaborative efforts between China, Russia, Mongolia and Japan.

**2. Research Topics**

The Amur-Okhotsk Project consists of nine research groups; 1) physical oceanographic processes; 2) chemical and biological oceanographic processes; 3) biogeochemical process in river; 4) biogeochemical process at land surface; 5) sociological and economical background behind land-use changes; 6) land-use monitoring; 7) atmospheric transport; 8) hydrological processes; and 9) numerical modeling of marine ecosystem. Research groups 1–4 and 7–9 study the production, transport and utilization of the dissolved iron. The groups 5 and 6 analyze historical processes in the land-use changes and background behind the land-use changes occurring in the Amur river basin.

The main target of the project is lower half of the 1.88 million km$^2$ basin of Amur river and the Sea of Okhotsk plus western part of the northern North Pacific (so-called Oyashio region). The project conducts various types of field observation/research, analyses on biogeochemical samples, satellite monitoring and image interpretation, analyses on historical data, and interviewing from local residents. The collected data will be used for terrestrial hydrogeochemical and marine ecosystem models to simulate how the changing land use affects on the marine ecosystem through iron flux for the future.

The Amur-Okhotsk Project is trying to create a new global environmental concept "*Giant*" *Fish-Breeding Forest* by expanding Japanese indigenous idea called "Uotsuki-Rin (Fish Breeding Forest)" which relates upstream forest with coastal ecosystem both physically and spiritually. The idea called "Uotsuki-Rin" has been developed in Japan first as material linkage between the upstream forest and the coastal ecosystem. The idea was then expanded further to the linkage in humanities inside the system which included fisherman in the coast and forester and farmer in the upstream. With this idea in mind, fishermen started afforestation in their drainage basin to protect their fishery zone. This movement expanded all over Japan and now it is well known as one of the social movement to conserve local environment.

The physical linkage inside the "Uotsuki-Rin" has not fully established yet, although the humanistic aspects of "Uotsuki-Rin" has been developed further since 1970s. The Amur-Okhotsk Project tries to establish the physical linkage between the Amur river basin and the Sea of Okhotsk and the northern North Pacific with respect to the transport of dissolved iron. The outcome of the project is significant because this will be the first attempt to relate nearly 2 million square km of land surface with open ocean ecosystem much beyond the scale of "Uotsuki-Rin". The proposed system encompasses international boundaries such as Russia, China, Mongolia and Japan. People living in and depending on the system have deferent perspectives on their natural environment. Our project will seek a way how we conserve this vast linkage by studying various flows in the system, which include export and import in economics, cultural interaction, information, and governmental regulations.

**3. Member of the Project**

◎SHIRAIWA, Takayuki (Research Institute for Humanity and Nature, Land-use and Ice core analyses)

**Group 1: Physical oceanographic conditions**

○OHSHIMA, Keiichiro (Institute of Low Temperature Science, Hokkaido Univ., Physical oceanographic conditions)

○WAKATSUCHI Masaaki (Institute of Low Temperature Science, Hokkaido Univ., Physical oceanographic conditions)

FUKAMACHI, Yasushi (Institute of Low Temperature Science, Hokkaido Univ., Physical oceanographic conditions)

KITAGAWA, Hiromitsu (Faculty and Graduate School of Engineering, Hokkaido Univ., Physical oceanographic conditions)

YASUDA, Ichiro (Graduate School of Frontier Science, Univ. of Tokyo, Physical oceanographic conditions)

**Group 2: Geochemical and biological conditions**

○NAKATSUKA, Takeshi (Institute of Low Temperature Science, Hokkaido Univ., Oceanic geochemistry / biogeochemical transport from river to ocean)

○KUMA, Kenshi (Graduate School of Fisheries Science, Hokkaido Uni., Iron analyses in ocean)

○NISHIOKA, Jun (Institute of Low Temperature Science, Hokkaido Univ., Rare metal analyses in ocean)

MATSUNAGA, Katsuhiko (Yokkaichi Univ., River-ocean interaction)

SEKI, Satoshi (Institute of Low Temperature Science, Hokkaido Univ., Sediment analysis in ocean)

SOURIN, Rumi (Faculty of Science, Shizuoka Univ., Biological plankton)

SUGIE Kouji (Graduate School of Environmental Science, Hokkaido Univ., Ocean biogeochemistry)

SUZUKI Koji (Graduate School of Environmental Earth Sciences, Hokkaido Univ., Ocean biogeochemistry)

TUDA, Atsushi (Graduate School of Frontier Science, Univ. of Tokyo, Iron analyses in North Pacific)

YOSHIMURA, Takeshi (Environmental Science Research Laboratory, Central research Institute of Electric Power Industry, Oceanography, Biogeochemistry)

TAKADA, Hyoe (Graduate School of Fisheries Science, Hokkaido Uni., Oceanic geochemistry)

NAKAMURA, Yohei (Graduate School of Environmental Earth Sciences, Hokkaido Univ., biogeochemistry)

**Group 3: Transport of biogeochemical materials**

○NAGAO, Seiya (Graduate School of Environmental Earth Sciences, Hokkaido Univ., Organic matters analyses)

KODAMA, Hiroki (Kyoto Prefectural Univ., Biogeochemistry from land to river)

TERASHIMA, Motoki (Research Institute for Humanity and Nature, Organic matters analyses)

**Group 4: Biochemical transport from terrestrial ecosystem**

○SHIBATA, Hideaki (Field Science Center for Northern Biosphere, Hokkaido Univ., Biogeochemistry from land to river)

○YOH, Muneoki (Environmental Conservation, Tokyo Univ. of Agriculture & Technology, Biogeochemistry from

land to river)
GUO, Yingyu (Environmental Conservation, Tokyo Univ. of Agriculture & Technology, Biogeochemistry)
ISHII, Yoshiyuki (Institute of Low Temperature Science, Hokkaido Univ., Hydrological analyses in Siberia)
KOMIYA, Keiji (Field Science Center for Northern Biosphere, Hokkaido Univ., Biogeochemistry)
OUJI, Baku (Environmental Conservation, Tokyo Univ. of Agriculture & Technology, Biogeochemistry from land to river)

**Group 5: Background of the anthropogenic impacts**

○KAKIZAWA, Hiroaki (Graduate School of Agriculture, Hokkaido Uni., Forest management analyses)
ENDOU, Takahiro (Research Institute for Humanity and Nature, Politics in area management)
HARA, Toshihiko (Institute of Low Temperature Science, Hokkaido Univ., Dynamics of Forest)
ICHIKI, Takateru (Graduate School of Agriculture, Hokkaido Univ., Agricultural Economics and its history)
IWASHITA, Akihiro (Slavic Research Center, Hokkaido Univ., Political analyses on China/Russia)
OONISHI, Hideyuki (Research Institute for Humanity and Nature, Minority people in Siberia)
PAKU, Kou (Graduate School of Agriculture, Hokkaido Univ., Agricultural Economics and Land-use changes)
SAKASHITA, Akihiko (Graduate School of Agriculture, Hokkaido Univ., Agricultural Economics and its history)
YAMAZAKI, Midori (Graduate School of Agriculture, Hokkaido Uni., Forest management analyses)
YAMANE, Masanobu (Kanagawa Prefectural Nature Conservation Center, Forest change background analysis)

**Group 6: Spatial and historial monitoring of land-use changes**

○HARUYAMA, Shigeko (Graduate School of Frontier Science, Univ. of Tokyo, Land-use change monitoring)
○KONDO, Akihiko (Tiba Univ. Environmental Remote Sensing Center, Land-use change monitoring)
HIMIYAMA, Yukio (Hokkaido Univ. of Education, Asahikawa, Land-use changes and the background)
SUGA Yoshito (School of Engineering, Univ. of Tokyo, Land-use changes)
MASUDA, Yoshitaka (Graduate School of Frontier Science, Univ. of Tokyo, Land-use change monitoring)
MUROOKA, Mizue (Hokkaido Abashiri Fisheries Experimental Station, land alteration analysis by Satellite)
YAMAGATA Kotaro (Joetsu University of Education, Land form development)

**Group 7: Estimate of atmospheric transports of terrestrial materials**

○MATOBA, Sumito (Institute of Low Temperature Science, Hokkaido Univ., Trace metal analyses in ice cores)
○UEMATSU, Mitsuo (Ocean Research Institute, Univ. of Tokyo, Aerosol analyses)
AZUMA-GOTO, Kumiko (National Institute of Polar Research, Chemistry of ice core)
HONDOH, Takeo (Institute of Low Temperature Science, Hokkaido Univ., Physical analyses in ice core)
KOSHIMA, Shiro (Tokyo Institute of Technology, Biomass in ice core)
NAKAWO, Masayoshi (Research Institute for Humanity and Nature, Dust variation reconstruction)
NARITA, Hideki (Institute of Low Temperature Science, Hokkaido Univ., Ice core analyses)
NARITA, Yasushi (Graduate School of Frontier Science, Univ. of Tokyo, Aerosol observation)
MINAMI, Hideki (Hokkaidou Tokai Univ., Aerosol analyses)
SATO, Tatsuru (Graduate School of Environmental Science, Hokkaido Univ., Ice core analyses)
SASAKI, Akihiko (Graduate School of Environmental Science, Hokkaido Univ., Ice core analyses)
SHINBORI, Kunio (Institute of Low Temperature Science, Hokkaido Univ., Ice core drilling technic)
TAKEUCHI, Nozomu (Dept. of Earth Science, Chiba Univ., Biomass in ice core)
TOIDA, Takeshi (Graduate School of Environmental Science, Hokkaido Univ., Ice core analyses)

**Group 8: Natural variability of the hydro-metrological and hydro-chemical conditions**

○TACHIBANA, Yoshihiro (Liberal Arts Education Center, Tokai Univ. Tokai Univ., Natural variability analyses)
HAYASHI, Ryuma (Graduate School of Agriculture, Kyoto Prefectural University., Pollen analysis)
KUBOTA, Jyunpai (Research Institute for Humanity and Nature, Hydrological modeling)
ONISHI, Takeo (Research Institute for Humanity and Nature, Hydrological modeling)

TAKAHARA, Hikaru (Kyoto Prefectural Univ., Pollen analysis)

**Group 9: Modeling of biomass production**

○MATSUDA, Hiroyuki (Graduate School of Environment and Information Sciences, Yokohama National Univ., Biomass modeling)

○KISHI, Michio (Graduate School of Fisheries Science, Hokkaido Univ., Marine ecosystem model)

ARAI, Nobuo (Slavic Research Center, Hokkaido Univ., Sea product analyses in the Far East)

MUKAI, Hiroshi (Field Science Center for Northern Biosphere, Hokkaido Univ., Marine ecosystem analyses)

SAITO, Seiichi (Graduate School of Fisheries Science, Hokkaido Univ., Satellite monitoring of phytoplankton)

KRASNENKO, Andrey (Graduate School of Fisheries Science, Hokkaido Univ., Oceanic geochemistry)

(◎: Project leader, ○: Core member)



**4. Progress of the Project**

The project aims at clarifying linkage between the Amur river basin and the ocean ecosystem with respect to dissolved iron transport. Role of humanities is essential to conserve this system. We discussed this point in 2006 and decided to consider this topic under the new concept "*Giant*" *Fish-Breeding Forest*. Because the materials including dissolved iron flow downward only and there is no transport towards reverse direction. Therefore, the lower end of this system suffers every impact from upward regions. In such one-way flows system, benefit and risk tend to be distributed unevenly. Such inequality can be compensated by introducing different flows beside materials. By looking at various flows among stakeholders in the system, we will propose a conceptual background on which every stakeholder can collaborate for the conservation of the system.

Detailed progresses in each research topic will be given in the next chapter.

**5. Full-Research Activity in 2005**

**(1) Group 1 and 2**

These groups conducted a research cruise in the Sea of Okhotsk in August/September. They succeeded in measuring concentrations and distributions of various types of iron in the Sea of Okhotsk. The observed results showed that "Intermediate-Water Iron Hypothesis" was basically the main mechanism how the dissolved iron from the Amur river was transported to the Sea of Okhotsk and even to Oyashio region. It was supposed in the beginning that transported iron was once deposited in the estuary area of Amur river. However, our bottom-sea coring showed that the transported iron can hardly deposit on the estuary and continental shelf region due to strong tidal current there. This suggests that the transported iron through the Amur river can immediately be transported into intermediate water layer in offshore region of the Sea of Okhotsk together with dense shelf water.

It was also confirmed that most of the dissolved iron in the Amur river was actually precipitated in the estuary area before penetrating into offshore intermediate layer as particulate iron. We speculated that some part of dissolved iron could be transported to the surface water of the Sea of Okhotsk directly as a complex with terrestrial organic matters, but this direct input of riverine dissolved iron into surface water of the Sea of Okhotsk might not be significant as we anticipated at least in the southern region of the Sea of Okhotsk. Long-range transport into the North Pacific Intermediate Water (NPIW) was found to be the most important process carrying the iron from Amur river to the Sea of Okhotsk and Oyashio region.

**(2) Group 3 and 4**

These groups conducted routine measurements on the concentration of iron in river water, soil water and ground water at Great and Little Khingan Mountains, Sanjyan Plain, Ghasi Lake basin, and Anuy river basin, respectively. Spatial distribution of the concentrations in the dissolved iron was also measured in the Ghasi Lake drainage basin where the concentrations of the dissolved iron in the lake and the adjacent wetland was significantly higher than those observed in nearby streams in forested area.

We studied the impact of land-use changes on the production of dissolved iron. In Sanjyan Plain, concentrations of dissolved iron in the interstitial water in the soil horizons were measured repeatedly from May to November in 2006. The highest concentration was always found in natural wetland whereas the lowest was in cultivated dry land. Paddy field showed intermediate concentrations. The concentration of dissolved iron was found to be related with water table too even in the same land-use type. In paddy field, water table solely decides the concentration.

We succeeded in carrying out a research cruise at Amur Liman (mouth of the Amur river) for the first time for foreigners since the beginning of 1800. The team collected water samples at various points of the Amur Liman and Sakhalin Bay. The samples are stored at the Institute of Water and Ecological Problems at Khabarovsk for future analyses.

**(3) Group 5**

Group 5 studied mechanism on forest management and forest industry in Russia and their impacts on the present situation of the mixed forest in the Far East. It was found that the Far Eastern timber cutting is now accelerated by investments both from Russia and overseas and the illegal cutting of deciduous forest was still a serious problem. They also compiled a statistics on export of timber at trading stations between China and Russia.

In order to know the present situation of farming in the Sanjyan plain, group 5 made extensive interview to 76 farmers in Sanjyan plain. Preliminary results show that the farming in this region is not fully sustainable due to shortage of irrigated water, lowering of ground water table, and employment problems. These factors will be examined when we simulate how possible land-use changes affect on the marine ecosystem for the future.

**(4) Group 6**

This group succeeded in compiling electric layers on landform, geology, hydrology, vegetation and land-uses for the whole Amur river basin with a scale of 1/1,000,000. The basic GIS products tell us the present situation of the land surface of the basin. It also shows anthropogenic land-surface disturbances such as dry lands, paddy fields, deforestation, forest fires, huge dams all of which may affect the production of dissolved iron. They also made several field observations as ground-truth for their monitoring of land-use changes by satellite data interpretations. By combining the GIS products and satellite observations, we were able to show recent land-use changes in the Amur river basin.

**(5) Group 7**

Atmospheric transport of iron was quantified from the continuous monitoring by Automatic Aerosol sampler installed at Kamchatka peninsula. We also made an 131-m ice core drilling at the summit of Ichinsky volcano in Kamchatka to reconstruct a longer time record of iron deposition from the atmosphere over the Sea of Okhotsk. The samples are under analyses at present.

**(6) Group 8**

This group started to construct a numerical model to simulate the production and transport of dissolved iron in the Amur river basin. The model consists of three sub-models describing soil water movement, solutes transport and chemical equilibrium. In 2006, we started to develop the sub-model of soil water movement by using a commercial software "GETFLOWS". This model simulates both water velocity and residence time in the Amur river basin.

**(7) Group 9**

Group 9 developed a numerical model to simulate primary production in the Sea of Okhotsk and Oyashio region with special reference to the dissolved iron. They succeeded to simulate distribution of biomass productivity in these regions. However, the ocean model lacks the process of intermediate water transport of iron and thereby the model failed to simulate the actual distributions which are mainly determined by the contributions of intermediate water transport of iron. They will revise the model by including the process in the following years.

**(8) International Workshop and Symposium**

Neither International Symposium nor Workshop was held this year. We held domestic meetings as well as international discussions with co-researchers in Russia and China.

**(9) Project Meetings**

A total of 5 project meetings were held at Kyoto and Sapporo during the fiscal year 2006. They are the meetings for "GIS on Amur River basin" (April 21–22 at Kyoto), "Land-Use Changes" (May 8th and December 3–4 at Sapporo), and for "The Amur—Ohkhotsk Project Leader meeting" (December 4–5 at Sapporo) and "annual meeting for the Amur—Ohkhotsk project" (March 9–10 2007 at Kyoto). Beside these meetings, numerous group meetings were held this year. Followings are showing member's activities on abroad.

| Itinerary | Destination | Purpose | Member |
|---|---|---|---|
| 2006.4.25–27 | China, Sangjyang | Discussion on research on Sangjyang plain with Institute of Applied Ecology, Chinese Academy of Sciences | You, Kaku |
| 2006.5.21–31 | China, Sangjyang | Research trip to Sangjyang plain | You, Onishi, Kaku |
| 2006.5.26–6.26 | Russia, Kamchatka | Ice drilling on Ichinsky Mountain at Kamchatka peninsula | Shiraiwa, Matoba, Shinbori, Sato, Toida, Sasaki |
| 2006.7.14–23 | Russia, Khabarovsk | Research trip to the wetland and forest land on Amur river basin | You, Ouji |
| 2006.7.24–30 | Russia, Khabarovsk | Discussion with Far Eastern Branch of Russian Academy of Sciences | Kakizawa, Yamagata |
| 2006.7.26–8.4 | China, Sangjyang | Research trip to Sangjyang plain | Kaku |
| 2006.8.2–13 | China, Beijin, Dairen | Discussion on timber trade with Far East Russian Customs | Yamane |
| 2006.8.4–28 | Russia, Kamchatka | Ice drilling on Ichinsky Mountain at Kamchatka peninsula | Matoba, Shinbori, Sasaki |
| 2006.8.4–18 | Khabarovsk Nikolaevsk na Amur | Research trip for water sampling in Amur River basin with R/V LADOGA | Nagao, Terashima, Takada |
| 2006.8.27–9.6 | China, Sangjyang | Research trip to Sangjyang plain | Kaku |
| 2006.8.12–9.14 | Okhotsk Sea | Research Expedition to Okhotsk Sea with the R/V Professor Khromov (the Vessel) | Nakatuka, Nishioka etc (13 people) |
| 2006.8.30–10.11 | China, Haerbin | Research trip to Chinese national Farm and collecting data | Sakashita, Paku, Ichiki |
| 2006.9.4–15 | Russia, Khabarovsk | Research trip to the land in Amur river basin | You, Onishi, Ouji |
| 2006.9.18–29 | China, Haerbin, Sangjyang, Changchun | Research trip to Sònghuājiāng basin. Ground truth in the Sangjyang plain and Amur river basin | Haruyama, Yamagata, Masuda, Murooka |
| 2006.10.5–15 | China, Sangjyang | Research trip to Sangjyang plain | Onishi,Kaku |
| 2006.10.25–29 | Russia, Vladiostok | Join the International Symposium at Pacific Geographical Institute | Haruyama |
| 2007.3.12–23 | Russia, China | Visit the 5 joint research Institutes in China and Russia | Shiraiwa |

## 6. Outcome

### Books

P. J. Harrison, P. W. Boyd, M. Levasseur, A. Tsuda, R. S. Rivkin, S. O. Roy and W. L. Miller (2006) Canadian SOLAS: Subarctic Ecosystem Response to Iron Enrichment (SERIES), Deep-Sea Res. II 53 No. 20–22 Eds.

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### Articles

Boyd, P. W., T. Jickells, C. S. Law, S. Blain, E .A. Boyle, K. O. Buesseler, K. H. Coale, J. J. Cullen, H. J. W. de Baar, M. Follows, M. Harvey, C. Lancelot, M. Levasseur, N. P. J. Owens, R. Pollard, R. B. Rivkin, J. Sarmiento, V. Schoemann, V. Smetacek, S. Takeda, A. Tsuda, S. Turner, A. J. Watson (2007) Mesoscale iron enrichment experiments 1993–2005: Synthesis and future direction. *Science*, 315: 612–617.

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## Full-Research

**Research axis:** Human Activity Impact Assessment
**Project number:** 2-4FR
**Project name:** Human Impacts on Urban Subsurface Environments
**Project leader:** TANIGUCHI, Makoto (RIHN)
**URL:** http://www.chikyu.ac.jp/USE/
**Key words:** subsurface environment, groundwater, urbanization, heat island, contamination, development stage

### ■Research objectives and topics

**1. Research Objectives**

Securing water resources and preventing contamination of water caused by human activities in urban areas are global environmental issues in the 21st century. Heat island phenomena caused by human activities is also a big environmental problem in addition to global warming. These global environmental issues which are caused by urbanization, should be addressed strongly and prevented as population and density increases occur rapidly in urban areas.

Most global environmental studies have long been focused on the environmental issues above ground, such as air pollution, global warming, seawater pollution, and decrease in biodiversity. Subsurface environmental issues are also important for human life in the present and future, but have been largely ignored because of the invisibility of the phenomena and difficulty of evaluations.

Subsurface environmental problems such as subsidence due to excessive pumping and groundwater contamination, have occurred repeatedly in Asian major cities with a time lag depending on the development stage of urbanization. Therefore, we may be able to assess future scenarios if we can evaluate the relationships between subsurface environmental problems and the development stage of the city.

**2. Research Content**

This project deals with; (1) Relationships between the development stages of the cities and subsurface environmental problems which will be assessed by socio-economic analyses and reconstructions of urban areas using historical records; (2) Serious problems in subsurface environments and changes in reliable water resources which will be studied after evaluations of groundwater flow systems and changes in groundwater storage using hydrogeochemical data and in-situ/satellite-GRACE gravity data; (3) Evaluation of accumulation of materials (contaminants) in subsurface and their transport from land to ocean including groundwater pathways using chemical analyses of subsurface water, sediments and tracers; and (4) Subsurface thermal contamination due to the "heat island" effect in urban areas by reconstruction of surface temperature history and urban meteorological analyses.

Tokyo, Osaka, Bangkok, and Jakarta are targeted as main study cities, and Taipei, Manila and Seoul are selected as secondary study cities, depending on the four sub-themes. The project will focus on the urban subsurface environments however, we will treat the problems on a basin scale, because subsurface water, heat, and material transports are interconnected on this scale. We will assess the relationships between subsurface environmental changes and human activities during the past 100 years.

### ■Project member (Affiliation・Position・Role)

◎TANIGUCHI, Makoto (Research Institute for Humanity and Nature・Associate Professor・Project Leader)
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○ONODERA, Shin-ichi (Graduate School of Integrated Arts and Sciences, Hiroshima University・Associate Professor・Analysis of material transports)

○KANEKO, Shinji (Graduate School for International Development and Cooperation, Hiroshima University・Associate Professor・Socio-economic analysis)

○SHIMADA, Jun (Faculty of Science, Kumamoto University・Professor・Groundwater analysis, Isotope analysis)

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Water circulation in Asia)

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SUZUKI, Kazuya (JICA Thailand Office•Assistant Resident Representative•Groundwater analysis)

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TANAKA, Katsuya (Graduate School for International Development and Cooperation, Hiroshima University• Assistant Professor•Socio-economic analysis)

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UMEZAWA, Yu (Research Institute for Humanity and Nature•Project Senior Researcher•Chemical analysis)

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WANG, Chung-Ho (Institute of Earth Sciences, Academia Sinica, Taiwan•Chief Researcher•Isotope Analyses)

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(◎: Project leader, ○: Core member)

## ■Progress of the project

### 1. Outline of results

(1) Field surveys at Seoul, Taipei, Bangkok, Jakarta, Manila, Tokyo and Osaka have been made.

(2) The MOUs between RIHN and Chulalongkorn University, and RIHN and Department of Groundwater Resources, Thailand, became effective.

(3) GIS group has been established to integrate the data and assess existing data in the study areas.

(4) Preliminary model developments for GRACE (Gravity Recovery and Climate Experiment) data to evaluate the changes in groundwater storage have been made.

(5) Preliminary evaluations of material transports by groundwater discharge have been made in Bangkok, Thailand and Manila, Philippines.

(6) Cooperations with international research agencies (UNESCO-GRAPHIC, Apr.2006), United Nation University (August, 2006) have been made.

### 2. Major publications

#### Scientific paper

Suryantini, Ehara, S. and Nishijima J. (2006) Preliminary Geothermal Gradient and Heat Flow Compilation from Western Java, Indonesia, *Geothermal Resources Council Transactions,* Vol. 30, pp. 699-703.

Saibi, H., Nishijima, J., Ehara, S. and Aboud, E. (2006) Integrated Gradient Interpretation Techniques for 2D and 3D Gravity Data Interpretation, *Earth Planets Space*, Vol. 58, No. 7, pp. 815–821.

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Taniguchi, M., T. Ishitobi, J. Shimada, and N. Takamoto (2006) Evaluation of spatial distribution of submarine groundwater discharge, *Geophys. Res. Lett,* 33, doi:10.1029/2005GL025288.

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Burnett, W. C., P. K. Aggarwal, A. Aureli, H. Bokuniewicz, J. E. Cable, M. A. Charette, E. Kontar, S. Krupa, K. M. Kulkarni, A. Loveless, W. S. Moore, J. A. Oberdorfer, J. Oliveira, N. Ozyurt, P. Povinec, A. M. G. Privitera, R. Rajar, R. T. Ramessur, J. Scholten, T. Stieglitz, M. Taniguchi, J. V. Turner (2006) Quantifying submarine groundwater discharge in the coastal zone via multiple methods, *STOTEN*, 367: 498–543.

Harmoko, U., Fujimitsu, Y. and Ehara, S. (2007) Shallow Ground Temperature Anomaly and Thermal Structure of Merapi Volcano, Central Java, Indonesia, *J. Geotherm. Res. Soc.* Japan, 29: 25–37.

Yamamoto, K., Fukuda, Y., Nakaegawa T. and Nishijima J. (2007) Landwater variation in four major river basins of the Indochina peninsula as revealed by GRACE, *Earth Planets Space*, 59, 193–200.

Mahara, Y., Habermehl, M. A., Jiyakawa, K., Shimada, J. and Mizuochi, Y. (2007) Can the $^{4}He$ clock be calibrated by $^{36}Cl$ for groundwater dating? Nuclear Instruments and Methods in Physics Research B 259(1): 536–546 Doi:10.1016/j.imb.2007.01.198.

Taniguchi, M., T. Ishitobi, W. C. Burnett, and G. Wattayakorn (2007) Evaluating ground water—sea water interactions via resistivity and seepage meter, Ground Water, DOI: 10.1111/j.12745-6584.2007.00343.

Burnett, W. C., G. Wattayakorn, M. Taniguchi, H. Dulaiova, P. Sojisuporn, S. Rungsupa, and T. Ishitobi (2007) Groundwater-derived nutrient inputs to the Upper Gulf of Thailand, *Continental Shelf Research*, 27: 176–190.

### 3. Oral presentation and others

**Oral presentation**

April 2006 "Variation in contaminant transport with urbanization: Comparison of some Asian cities", Onodera, S., International Symposium on GRAPHIC, RIHN, Kyoto, Japan.

April 2006 "Introduction of UNESCO-GRAPHIC project", Taniguchi, M., International Symposium on GRAPHIC, RIHN, Kyoto, Japan.

May 2006 "Monitoring of the groundwater variation in urban area, by combining GRACE data and in-situ gravity measurements", Fukuda, Y., Yamamoto, K., Nakaegawa, T., Nishijima, J., Japan Geoscience Union Meeting 2006, Makuhari Messe International Conference Hall, Chiba, Japan.

June 2006 "Urban Development and Its Impact on Subsurface Environment: Focus on Groundwater Situation in Selected Asian Cities" Jago-on, K., 2nd GWSP-Asia meting, Guangzhou, China.

June 2006 "GWSP-Asia Database—Dam, Coastal zone, and Land use/cover changes" Taniguchi, M., 2nd GWSP-Asia meting, Guangzhou, China.

June 2006 "Anthropogenic and fluid flow effects on subsurface temperature in Asian cities" Taniguchi, M., International Heat Flow conference, Czech Republic.

July 2006 "Effect of tidal change and climate factor on submarine groundwater discharge", Ishitobi, T., Taniguchi, M. and Hayashi, M., 3rd AOGS annual meeting, the Singapore Suntec City Convention Centre, Singapore.

July 2006 "Variation in contaminant load and transport at Mega-cities in Asia: comparison of some cities." Onodera, S. and Saito, M., 3rd AOGS annual meeting, the Singapore Suntec City Convention Centre, Singapore.

July 2006 "Effects of urbanization and land-use change on the groundwater chemistry at the Seoul city area", Saito, M., Onodera, S., Shimada, J., Ikawa, R., Nakano, T., Hosono, T., Miyakoshi, A., Taniguchi, M. and Lee, K., 3rd AOGS annual meeting, the Singapore Suntec City Convention Centre, Singapore.

July 2006 "Distributions and trends of total hours exposed to high temperature in Japan", Ichinose, T. and K. Kataoka , IGU 2006 Brisbane Conference, Brisbane, Australia (*Conference Proceedings*, CD-ROM).

August 2006 "The Use of Temperature Data from Geothermal Wells for Heal Flow Study: A Lesson from Heat Flow Determination from Geothermal Wells in West Java, Indonesia", Suryantini and Ehara, S., The 3rd International Symposium and Exhibition on Earth Resources and Geological Engineering.

August 2006 "Managing Groundwater Resources for Human Security in Changing Climate and Human Intervention" Taniguchi, M., UNU—GRAPHIC joint symposium, RIHN, Kyoto.

August 2006 "Detection and quantification of groundwater flow; a case study in Indonesia", Lubis, R. F., Sakura, Y., and Delinom, R., 15th Indonesian Scientific Meeting in Japan, ISA Japan, Hiroshima, Japan.

September 2006 "Heat as groundwater tracer in Jakarta and Bandung groundwater basin, Indonesia", Lubis, R. F., Sakura, Y., and Delinom, R., International Symposium on Mineral Exploration IX, Bandung, Indonesia.

October 2006 "Shallow subsurface thermal regimes and hydrodynamics in Jakarta groundwater basin, Indonesia", Lubis, R. F., Sakura, Y., and Delinom, R., 34th Congress of International Association of Hydrogeologists, Beijing, China.

October 2006 "Subsurface thermal environment around Tokyo Bay", Monyrath, V., Sakura, Y., and Miyakoshi, A., 34th Congress of International Association of Hydrogeologists, Beijing, China.

October 2006 "Subsurface temperature profiles in Jakarta groundwater basin", Lubis, R. F., Sakura, Y., and Delinom, R., Fall meeting of Japanese Association of Groundwater Hydrology 2006, Kurashiki, Japan.

October 2006 "The Development of Optimized Ground Coupled Heat Pump System in Fukuoka City, Japan", Fukuoka, K., Ehara, S., Morita, K., Kuroda, T. and Sakemi, K., International Symposium on Sustainable Habitat—What is Sustainable Habitat and How Can We Accomplish—.

November 2006 "Human impacts on groundwater flow and quality in the Seoul city, deduced by multiple isotopes (δD, T, $\delta^{18}O$, $\delta^{34}S$, and $^{87}Sr/^{86}Sr$)", Hosono, T., Ikawa, R., Shimada, J., Nakano, T., Saito, M., Onodera, S., RIHN 1st international symposium, Kyoto, Japan.

November 2006 "Submarine groundwater discharge in the coastal zone of the Asian cities", Ishitobi, T., Taniguchi, M. and Umezawa, Y., RIHN international symposium, Kyoto International Conference Center, Kyoto, Japan.

November 2006 "Urbanization and Its Implications on Water Supply Systems in Asia", Jago-on, K., Kaneko, S. and Taniguchi, M., RIHN 1st international symposium, Kyoto, Japan.

November 2006 "Monthly Characteristics on Frequency and Amount of Heavy Precipitation in Japan by Typhoon", Kumi Kataoka, RIHN 1st international symposium, Kyoto, Japan.

November 2006 "Subsurface Thermal Environment in Jakarta Groundwater Basin", Lubis, R. F., Sakura, Y., Yamano, M., Delinom, R., Miiyakoshi, A., RIHN 1st international symposium, Kyoto International Conference Center, Kyoto, Japan.

November 2006 "Studies on Groundwater Flow Systems around Tokyo Bay Using Subsurface Temperature", Monyrath, V., Sakura, Y., Miyakoshi, A., RIHN 1st international symposium, Kyoto International Conference Center, Kyoto, Japan.

November 2006 "Effect of intensive urbanization on deep groundwater chemical environment; example in Bangkok of Thailand", Onodera, S., Taniguchi, M., Saito, M., Shimada, J., Buapeng, S., RIHN 1st international symposium, Kyoto, Japan.

November 2006 "Spatial variation in groundwater chemistry controlled by urbanization stage in granitic hilly basin, Seoul metropolitan city", Saito, M., Onodera, S. Shimada, J. Ikawa R. Nakano, T. Hosono, T. Miyakoshi, A. Taniguchi M. and Lee K. K., RIHN 1st international symposium, Kyoto, Japan.

November 2006 "Well and Human Life of Tokyo by Historical Records", Taniguchi, T., RIHN 1st international symposium, Kyoto International Conference Center, Kyoto, Japan.

November 2006 "Age Dating of Groundwater Using CFCs as a Tracer", Tsujimura, M., Ohta, K., Shimada, J., Asai, K., Hasegawa, K., Taniguchi, M., RIHN 1st international symposium, Kyoto International Conference Center, Kyoto, Japan.

November 2006 "What is the Difference of Human Impacts on the Subsurface Environments and Coastal Aquatic Ecosystems among Asian-Mega Cities?", Umezawa, Y., Ishitobi, T., Hosono, T., Onodera, S. and Taniguchi, M., RIHN 1st international symposium, Kyoto, Japan.

November 2006 "Reservoir Monitoring by Repeat Microgravity Measurement at Obama Geothermal Field—A 3D Analysis Gravity with Variable Causes of Gravity Change" Saibi, H., Nishijima, J. and Ehara, S. 2006 Meeting of The Japanese Geothermal Research Society of Japan 2006, Ten-ei village, Japan.

November 2006 "Subsurface Structure Imaging of Ungaran Volcano, Indonesia Based on Geophysical Surveys"

Setyawan, A., Nishijima, J., Fukuoka, K., Fujimitsu, Y. and Ehara, S., Meeting of The Japanese Geothermal Research Society of Japan 2006, Ten-ei village, Japan.

December 2006 "Basin wide Nitrate-Nitrogen pollution of groundwater, Miyakonojo, Japan, with the relation of the regional groundwater flow system". Mikami, L., Shimada, J. and Zikuzono, Y., American Geophysical Union 2006 fall meeting, San Francisco, CA, U.S.

December 2006 "Global Assessments of submarine groundwater discharge and groundwater resources assessment under the pressures of humanity and climate change" Taniguchi, M., American Geophysical Union 2006 fall meeting, San Francisco, CA, U.S.

December 2006 "Submarine groundwater discharge in Japanese coastal area", Taniguchi, M., International Symposium on Submarine Groundwater Discharge, Kumamoto, Japan.

## Others

Ehara, S. and Nishijima, J. (2006) Possible Scenario toward Sustainable Development of Geothermal Energy—Step by Step Increase in Capacity Based on Monitoring and Modeling of Geothermal Reservoir—, Renewable Energy 2006.

Goto, S., Kim, H. C., Uchida, Y., and Okubo, Y. (2006) Reconstruction of ground surface temperature history in the southeastern part of the Republic of Korea over the last 300 years, "Annual Report FY2005, Institute for Geothermal Sciences, Graduate School of Science, Kyoto University", 22–24.

Suryantini, Nishijima, J., Ehara, S. and Susilo, A. (2006) Gravity Study of Jatibarang Sub-basin and Surrounding Area; Implication to Heat Flow Map of Onshore North West Java Basin, Indonesia, Proceedings of 4th International Workshop on Earth Science and Technology, pp. 321–328.

Taniguchi, M. (2006) GWSP NETWORKS, *GLOBAL WATER NEWS,* NO. 3.

## Symposium, Lecture, Workshop

April 4–6, 2006 International Symposium on GRAPHIC at RIHN

Co-hosting Organizations: UNESCO, IGRAC, GWSP, IAH, JAGH, JSEG

Welcome address by Toshitaka HIDAKA (RIHN, Japan)

UNESCO activities on groundwater studies by Jose Luis MARTIN (UNESCO-IHP, France)

Introduction of the International Symposium on GRAPHIC by Makoto TANIGUCHI (RIHN, Japan)

Session 1: Changes in groundwater recharge, discharge and storage Chair: Ian WHITE

"Spatial Scaling of Surface Water Infiltration and its Implications for Estimating Groundwater Recharge" by Timothy R. GREEN (USDA, U.S.A)

"Declining low flows, retention dams, and offshore groundwater resources: three key examples of changes in groundwater discharge, recharge and storage" by Henk KOOI (Vrije Universiteit, The Netherlands)

"U.S. Geological Survey's Research Activities in a Highly Stressed Regional Aquifer, the High Plains Aquifer, USA" by Bret BRUCE (USGS, U.S.A)

"Understanding groundwater response to human- and climate-induced stresses: High Plains Aquifer, United States" by Jason GURDAK (USGS, U.S.A)

"Temporal change of groundwater and subsurface environment at Tokyo Metropolitan area for recent sixty-years and its relation to human activities" by Tomochika TOKUNAGA (University of Tokyo, Japan)

"Detection of regional land water mass variations in Indochina using GRACE satellite gravity data by Yoichi FUKUDA (Kyoto University, Japan)

Lunch break

Session 2: Changes in groundwater quality due to climate change and human activities Chair: Jason GURDAK

"Impacts of urbanization on groundwater quality in the Pearl River Delta, China" by Jianyao CHEN (Sun Yat-sen

University, China)

"Distinguishing effects of climate variability and land use changes on hydrochemical composition—a case study from Japan" by Jens HARTMANN (Darmstadt University of Technology, Germany)

"Variation in contaminant transport with urbanization: Comparison of some Asian cities" by Shin-ichi ONODERA (Hiroshima University, Japan)

"Molecular microbiological approaches to understand biogeochemical processes in deep aquifers" by Takeshi NAGANUMA (Hiroshima University, Japan)

Coffee break

"Best practice to reduce the impact of nitrate on groundwater quality—The europian water4all experience" by Kevin HISCOCK (University of East Anglia, U.K)

"Groundwater Resources as Subsystem for Domestic Water Supply Case Study Jakarta Metropolitan City, Indonesia" by Joesron LOEBIS (Research Institute for Water Resources, Indonesia)

"Characteristics of isotopes and chemicals along Dongjian River, China" by Changyuan TANG (Chiba University, Japan)

Concert and Reception—KYOTO GARDEN PALACE HOTEL

Wednesday, 5th April

Session 3: Managements, policy, and capacity building for groundwater Chair: Keven HISCOCK

"Groundwater problems and database in Spain" by Juan Maria Fornes AZOCOITI (Geological and Mining Institute of Spain, Spain)

"Human Security and Japan's ODA Policy in Water Sector" by Masahiro MURAKAMI (Kochi University of Technology, Japan)

"Groundwater in the Limpopo River Basin: Competing sector uses and their impacts" by Ola BUSARI (DBSA, South Africa)

Coffee break

"A New Agenda for Community Development with Water, Sanitation and Education in Sub-Saharan Africa" by Kenji OHARA (Kochi University of Technology, Japan)

"Strategy for groundwater resource development in Rayalaseema region in Southern India" by Yellaturu Venkatarami REDDY (Sri Venkatewara University, India)

Lunch break

Session 4: New methodologies for evaluating groundwater change Chair: Jun Shimada

"Framework for the Global Monitoring of Groundwater Resources" by Neno KUKURIC (IGRAC, Holland)

"Climatic and Human Influences on Groundwater in Low Atolls" by Ian WHITE (Australian National University, Australia)

"Application of remote and ground sensing techonologies in groundwater studies" by J. O. OKONKWO (Tshwane University of Technology, South Africa)

"Proposal of a study on strategy of sustainable groundwater use in Mongolia" by Maki TSUJIMURA (Tsukuba University, Japan)

"Changes of subsurface thermal environment and groundwater flow system measured by borehole temperature profiles and hydraulic heads at the interval of 4 years" by Yasuo SAKURA (Chiba University, Japan)

August 23, 2006 Seminar on Managing Groundwater Resources for Human Security in Changing Global Climate and Human Interception, at RIHN, Kyoto
Co-hosting Organizations: UNU, JICA

Opening Address (Dr. Makoto Taniguchi, Research Institute for Humanity and Nature)

Quo Vadis Aquifers, addressing the links between groundwater degradation and human security (Dr. Fabrice Renaud, Academic Officer, UN University, Institute for Environment and Human Security)

Integrated Groundwater and rural community water management in Senegal (Mr. Oumar Ndiaye, Technical Adviser of the Minister of Prevention, Public Hygiene, Sanitation and Urban Water Supply)

New Agenda of groundwater resources management to sustain the rural community in Southern Africa (Dr. Kevin Pietersen, Director for Research Coordination and Partnership, Water and Research Commission, South Africa)

Groundwater resources assessment in changing climate and human interception (Dr. Makoto Taniguchi, RIHN)

Some policy lessons of groundwater resource development and environmental management in Japan (Mr. Kazuki Tsuji, General Manager, Fuji Grout Co., Ltd.)

Groundwater Resources Management and Policy in Changing Global Climate and Human Interception (Dr. Ashim Das Gupta, Professor, Asian Institute of Technology)

Open Discussion

Closing Address (Dr. Fabrice Renaud, Academic Officer, UNU, IEHS)

November 9, 2006 RIHN 1st International Symposium Satellite Session 2 "Water Rights, Law and Government" at RIHN

Opening Address, Makoto Taniguchi

"Water Governance" Gordon Young

"The Role of Farmers' Collective Action for Mitigating Water Scarcity: The Case of Tank Irrigation in Tamilnadu, India" Chieko Umetsu

"The Roles of Government for Mitigating Water Scarcity: The Case of Drought Water Bank, California" Takahiro Endo

"Water Transfer Policy in China" Changyuan Tang

"Legal Doctrines for Allocation of Groundwater, High Plain Aquifer, U.S.A." Jason Gurdak

"Water Policy in Thailand" Kensuke Yamaguchi

lunch

"Improving Water Governance" Ian White

Discussion

**Full-Research**

**Research axis:** Human Activity Impact Assessment
**Project number:** 2-5FR
**Project name:** Agriculture and Environment Interactions in Eurasia: Past, Present and Future —The Ten-Thousand-Year History
**Project leader:** SATO, Yo-Ichiro (RIHN)
**URL:** http://www.chikyu.ac.jp/sato-project/
**Key words:** genetic diversity, the history of ten-thousand-year relationship between agriculture and environment



## ■Object and goal of the project

### 1. The Project Goal

Agriculture has largely modified and destroyed or damaged the ecosystems in which it is practiced, and it has been said that the beginning of agriculture entailed the beginning of environmental destruction. In present day Eurasia, there are large differences in both agricultural productivity and the extent of environmental deterioration between the Central Asian desert where it is now almost impossible to conduct any agricultural activity, and the Monsoon region where vegetation and water are still plentiful. Our project focuses on different aspects of the history of ten-thousand-year relationship between agriculture and environment. We seek to deepen our understanding of the role that "the loss of genetic diversity" has had over this long time span of interaction between agriculture and environment.

### 2. Research aim and methods

There are three major different types of agricultural systems in Eurasia defined by crop type: rice and *mugi* (wheat, barley, rye, oat), and tuber crop. The background ecosystems (human habitation="*sato*") of these agricultures, and their histories, also differ greatly. We therefore divide Eurasia into three broad regions, namely the *mugi*, Monsoon, and tuber crop zones respectively. We have research groups for each of these regions.

Our research methods include the following:

i) DNA analysis and observation of morphological variation in plant organic remains excavated in archaeological sites. This allows an assessment of genetic diversity using statistical genetic methods (Shannon's formula etc.).
ii) Carbon dating of macro botanical remains.
iii) Characterization of plant seeds and animal tissues by stable isotope analysis.
iv) Analysis of pollen, phytolith, diatom and wooden pieces extracted from soil samples. This provides an understanding of environmental history (especially that of the local ecosystems).
v) Ecological assessment of "*sato*" (human habitation) using historical documents, ethnographical and ethnological materials.
vi) Research on the history of agricultural technology, including the hydrological balance and fertilizer use, employing both ethnobotany and economic research (on issues such as the circulation of agricultural products, etc.).

## ■Member of the projects

◎SATO, Yo-Ichiro (RIHN, Professor, Plant genetics)
* FUKUNAGA, Kenji (RIHN, Project Senior Researcher, Plant genetics)
* ISHIKAWA, Ryuji (Hirosaki University, Associate Professor, Plant genetics)
* JONES, Martin K. (Cambridge University, Professor, Archaeology)
* KATO, Kenji (Okayama University, Associate Professor, Breeding)
* MATTHEWS, Peter (National Museum of Ethnology, Associate professor, Plant archaeology)
* MUGURUMA, Yumi (Institute of Culture of Tohoku, Tohoku University of Art & Design, Researcher, Folklore)

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* TANNO, Kenichi (RIHN, Project Senior Researcher, Archaebotany)
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* YANG Haiying (Shizuoka University, Associate Professor, Social anthoropology)

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HARADA, Nobuo (Kokushikan University, Professor, History)
HASHIO, Naokazu (Kochi Woman's University, Professor, Linguistics)
HOSOYA, Aoi (Waseda University, Lecturer, Archaeobotany)
HOTTA, Mitsuru (Southwest Japan Plant Information Institute, Botany)
IKEBE, Makoto (Free writer)
INOUE, Katsuhiro (Department of Environmental Life, Shimane Prefecture Government, Director)
INOUE, Takashi (Japan Broadcasting Cooperation Special Program center, Executive Producer)
INTOH Michiko (National Museum of Ethnology, Professor, Ethnology—Archaeology)
ISHIGURO, Naotaka (Gifu University, Professor, Molecular genetics)
KADOWAKI, Koichi (Agriculture, Forestry and Fisheries Research Council MAFF, Plant Breeding)
KASAMATSU, Hiroki (Shimane Mountainous Region Research Center, Chief Researcher)
KAWAHARA, Taihachi (Kyoto University, Associate Professor, Plant genetic resources)
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KOYAMA, Shuzo (Suita City Museum, Superintendent, Archaeology)
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LI, Jun (Cultural Heritage Bureau of Xinjiang Uygur Region, Archaeology)
LONG, Chunlin (Plant Resources Kunming Institute of Botany/Chinese Academy of Science, Professor, Ethonobotany)
MANNEN, Hideyuki (Kobe University, Associate Professor, Animal Genetics)
MATSUDA, Ryuji (Paleoenvironment Research Co., Director, Paleoenvironment)
MORI, Naoki (Kobe University, Associate professor, Plant genetics)
MUTO, Chiaki (Gifu University, Graduate student, Plant breeding)
NAKAI, Izumi (Tokyo University of Science, Professor, Geochemistry)
NAKANO, Takanori (RIHN, Professor, Isotope global bioscience)
NAKAMURA, Shinichi (Kanazawa University, Professor, Archaeology)
NASU, Hiroo (Graduate University for Advanced Studies, Researcher, Archaeobotany)

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OKA, Keisuke (Tohoku Cultural University, Professor, Anthropology)
OSADA, Toshiki (RIHN, Professor, Linguistics)
SAITO, Kiyoaki (RIHN, Professor)
SAITO, Naruya (National Institute of Genetics, Professor, Social anthropology)
SASAKI, Chosei (Museum of Fukushima, Researcher, Folklore)
SASANUMA, Tsuneo (Yokohama City University, Assistant Professor, Plant genetics)
SATO, Tadashi (Tohoku University, Associate Professor, Genetic ecology)
SOUMA, Hidehiro (Nara Woman University, Professor, Geology)
TAKEUCHI, Nozomu (Chiba University, Associate Professor, Glacier biology)
TANAKA, Katsunori (RIHN, Project Researcher, Plant Breeding)
TANG, Linghua (Agriculture Academy of Sciences China, Professor, Plant breeding)
TOMINAGA, Toru (Kyoto University, Professor, Agricultural ecology)
TSUJIMOTO, Hisashi (Tottori University, Professor, Plant genetics)
UCHIYAMA, Junzou (RIHN, Associate Professor, Archaeology)
UDATSU, Tetsurou (Miyazaki University, Associate Professor, Agronomy)
UEDA, Shintarou (Tokyo University, Professor, Anthropology)
WADA, Eitaro (Frontier Research Center for Global Change, Program Director, Geochemistry)
WANG, Wei (Institute of Archaeology Chinese Academy of Social Science, Director General, Archaeology)
WATABE, Takeshi (Tokai University, Professor, History)
WU, Yong (Xinjian Institute of Archaeology, Researcher, Archaeology)
YAMADA, Goro (Historical Museum of Hokkaido, Chief Researcher, Archaeobotany)
YASUDA, Yoshinori (International Research Center for Japanese Studies, Professor, Environment archaeology)
YOSHIZAWA, Yasuki (Kinokuniya Bookstore, Director)
YUMOTO, Takakazu (RIHN, Professor, Plant ecology)
(◎: Project leader, *: Core member)

**■Progress of the project (April, 2006–March, 2007)**

1. Both Monsoon zone group (Rice group) and *mugi* group held a group meeting and discussed their respective research plans. Tuber crop group selected its co-researchers and discussed its research schedule.
2. Monsoon zone group is continuing its research on the origin of *indica* rice, from genetic and archaeological points of view. Research on the genetic diversity of Japanese indigenous rice varieties and wild rice is also under way. We have concluded MOU with the University of Philippines and the Institute of Archaeology of Chinese Academy of Social Sciences, to enhance the research system. In particular, we collected soil samples of different age strata from the ancient rice paddy of Ikeshima-Fukumanji site of Osaka, to find out the link between rice cultivation and climate and vegetation. By analyzing the discovered pollens, phytolith and macro remains, we have found out that this region has been flooded for many times, causing loss of biodiversity and at the same time repeatedly destroying agriculture and surrounding ecosystem. We are also studying historical texts concerning the history of relationship between rice cultivation and environment. Similar research is being carried out on the Sannai-Maruyama Site.
3. *Mugi* group is conducting research in West Asia, where sampling is done in order to clarify the history of relationship between *mugi* cultivation and the environment. We have also discussed with Chinese researchers in Xinjiang Uygur Region about our future research. We are accumulating data on the genetic diversity of indigenous wheat

varieties, while developing DNA markers for further analyses. We are also analyzing the relationship between polyploidy of wheat and its water requirement. We plan to publish a book about natural history of *mugi*, by collaboration of researchers, both members and non-members of our project.

4. Tuber crop group has, in collaboration with the invited foreign researcher Dr. Robin Hide, selected its co-researchers and discussed how to conduct research, which we are about to begin.
5. In order to "reevaluate the swidden system" and collect lost "traditional wisdom and the ideology of environmental protection", we have created "swidden research group". The first meeting was held in March, where discussion was made on future research direction.

**■Changes made to the initial research plan (April, 2006–March, 2007)**

1. We have increased the number of researchers according to necessity.
2. We have changed the name of Rice group to Monsoon zone group, which will deal with monsoon agriculture in general.

**■Results obtained so far and themes for the future**

**1. Outline of our achievement**

1. Through the analyses of archaeological remains discovered in Xiaohe Tombs in Xinjiang Uygur Region, China, we have pointed out the possibility that, unlike today, during historical times, agriculture and animal husbandry took place in this region. (cf. *Yomigaeru midori no silk road*, Iwanami Junior Shinsho).
2. We learned that it took longer time to domesticate wheat than what had been considered previously (Tanno & Willcox 2006, Science 311). We have also obtained new results concerning the origin of pulses in *mugi* zone.
3. We have revealed that rice paddy cultivation in Japan was often affected by flood, repeatedly triggering loss of biodiversity and the destruction of surrounding ecosystem.
4. We have analyzed the biodiversity of indigenous varieties of rice and wheat and have also developed DNA markers.

**2. Future themes**

In *mugi* zone, we will study in detail about salt accumulation and its relationship to the decline of agricultural productivity. In Monsoon zone, we will clarify the change of production methods and its impact to the surrounding ecosystem, and the loss of biodiversity among cultivated plants.

Clearly, there is a causal relationship between human activity -agriculture- and environmental destruction. The reality of this relationship varies according to age and the region's climate. We hope to further put this idea into concrete form in the coming four remaining years of our project.

**■Publication (April, 2006–March, 2007)**

**Books**

[in Japanese]

SATO, Yo-ichiro (2006) 'Yomigaeru midori no silkroad—Kankyoshigaku no susume—' Iwanami Junior Shinsho.

SATO, Yo-ichiro (2006) 'Nogyo ha kankyo ni yasasiika?' Edited by T. Hidaka and RIHN. "Kodomotachi ni kataru korekarano chikyu" Kodansha.

SATO, Yo-ichiro (2007) 'DNA bunsekikara mita Yayoi jidai no inasaku' Edited by K. Hirose. Yoyoi jidai ha dokawaruka—Tanka nendai to atarashii kodaizou wo motomete. Gakuseisha.

SATO, Yo-ichiro (2007) 'Hito ga hana ni deatta toki' edited by T. Hidaka and Y.Shirahata "Hito ha naze hana wo mederunoka" Yasaka shobo.

SATO, Yo-ichiro (2007) 2. Shoku to kenkou 1. Shokubunka 「mochi-shoku」edited by T. Akimichi "Mekon no sekai

–rekishi to seitai" Kobunsha.
SHINODA, K. (2007) "Nihonjin ni natta sosentachi" NHK Books.



**Articles**

[in Japanese]
Fukunaga, K. (2006) Awa no keifu kara mita ikutumono nihon. Kikan Tohokugaku 7: 162–180.
[in English]
Fukunaga, K., K. Ichitani and M. Kawase (2006) Phylogenetic analysis of rDNA intergenic spacer subrepeats and its implication for domestication history of foxtail millet, *Setaria italica*. *Theoretical and Applied Genetics*, 113: 261–269.
Furukawa, T., M. Maekawa, T. Oki, I. Suda, S. Iida, H. Shimada, I. Takamure and K. Kadowaki (2006) The *Rc* and *Rd* genes are involved in proanthocyanidin synthesis in rice pericarp. *Plant Journal*, 49: 91–102.
Ghimire, S. K., Y. Akashi, A. Masuda, T. Washio, H. Nishida, Y.-H. Zhou, C. Yen, X. Qi, Z. Li, H. Yoshino and K. Kato (2006) Genetic diversity and phylogenetic relationship among East Asian common wheat (*Triticum aestivum* L.), revealed by the analysis of five isozymes. *Breeding Science*, 56: 379–387.
Ishikawa, R., S. Yamanaka, Y. Fukuta, S. Chitrakon, C. Bounphanousay, K. Kanyavong, L.-H. Tang, I. Nakamura, T. Sato and Y-I. Sato (2006) Genetic erosion from modern varieties into traditional upland rice cultivars (*Oryza sativa* L.) in northern Thailand. *Genetic Resources and Crop Evolution*, 53: 245–252.
Kuroda, Y., Y.-I. Sato, C. Bounphanousay, Y. Kono and K. Tanaka (2006) Genetic structure of three *Oryza* AA genome species (*O. rufipogon*, *O. nivara* and *O. sativa*) as assessed by SSR analysis on the Vientiane Plain of Laos. *Conservation Genetics*, 8: 149–158.
Nozawa, S., M. Takahashi, H. Nakai and Y- I. Sato (2006) Difference in SSR variations between Japanese barnyard millet (*Echinochloa esculenta*) and its wild relative *E. crus-galli*. *Breeding Science*, 56: 335–340.
Sakamoto, S., R. Ishikawa, I. Nakamura, Y.I. Sato and Y. Shimamoto (2006) Species identification of 6,000-years-old beans from Sannai-Maruyama site, Aomori, Japan. *Journal of Fossil Research*, 39: 1–6.
Tanno, K. and G. Willcox (2006) The origins of cultivation of *Cicer arietinum* L. and *Vicia faba* L.: early finds from Tell el-Kerkh, north-west Syria, late 10th millennium B.P. *Vegetation History and Archaeobotany*, 15: 197–204.
Tsuneki, A., M. Arimura, O. Maeda, K. Tanno and T. Anezaki (2006) The early PPNB in the north Levant: A new perspective from Tell Ain el-Kerkh, Northwest Syria. *Paléorient*, 32: 47–71.
Kawakami, S., K. Ebana, T. Nishikawa, Y. I. Sato, D. A. Vaughan and K. Kadowaki (2007) Genetic variation in the chroloplast genome suggests multiple domestication of cultivated Asian rice (*Oryza sativa* L.). *Genome*, 50: 180–187.
Tanaka, K., A. Nishitani, Y. Akashi, Y. Sakata, H. Nishida, H. Yoshino and K. Kato (2007) Molecular characterization of South and East Asian melon, *Cucumis melo* L., and the origin of Group Conomon vars. *makuwa* and *conomon* revealed by RAPD analysis. *Euphytica*, 153: 233–247.
[in French]
Watabe, T. (2006) Des travaux dans les rizières. À propos des modèles en terre cuite des Jin orientaux découverts dans le Guangdong à Zhaoqing. *Arts Asiatiques*, 61: 87–97.

**Report and Newsletter**

[in Japanese]
Project News Letter No. 6–25 (http://www.chikyu.ac.jp/sato-project/new-newsletter.html)・Annual Report of the Project "Agriculture and Environment Interactions in Eurasia Past, Present and Future—A ten-thousand-year history— (in press)

## Other articles

[in English]

Akashi, Y., K. Tanaka, M. T. Khaing , S. S. Yi, T. T. Chou, H. Nishida and K. Kato (2006) Genetic diversity and phylogenetic relationship among melon accessions from Africa and Asia revealed by RAPD analysis. *Cucurbitaceae Proceedings* 2006: 317–325.

Matthews, P. J. (2006) Written records of Taro in the Eastern Mediterranean. In Z. Fuzun Ertug (ed.) *Proceedings of the Fourth International Congress of Ethnobotany* (ICEB 2005), Istanbul-Turkey, 21–26 August 2005, Yayunlari: Istanbul, 419–426.

Tanaka, K., K. Fukunaga, M. T. Khaing, Y. Akashi, H. Nishida and K. Kato (2006) Polyphyletic origin of cultivated melon inferred from analysis of its chloroplast genome. *Cucurbitaceae Proceedings* 2006: 372–379.

## Field works

[in Japan]

| | |
|---|---|
| April 2006 | Sampling at Ikeshima-Fukumanji Archaeological Sites (Osaka). (Y. I. Sato, K. Fukunaga, K. Tanno, K. Tanaka, M. Arimura, J. Kitagawa) |
| May 2006 | Sampling at Ikeshima-Fukumanji Archaeological Sites (Osaka). (K. Tanno, K. Tanaka, M. Arimura, J. Kitagawa) |
| September 2006 | Sampling at Ikeshima-Fukumanji Archaeological Sites (Osaka). (K. Tanaka, M. Arimura, J. Kitagawa) |
| October 2006 | Sampling at Ikeshima-Fukumanji Archaeological Sites (Osaka). (K. Tanaka, M. Arimura, J. Kitagawa) |
| February 2007 | Sampling at Ikeshima-Fukumanji Archaeological Sites (Osaka). (K. Tanno, K. Tanaka, M. Arimura, J. Kitagawa) |
| February 2007 | Sampling at Shimonogo Archaeological Sites (Shiga) Sampling. (Y. I. Sato, K. Tanaka) |

[Abroad]

| | |
|---|---|
| May–June 2006 | Cambodian Agricultural Research and Developmental Institute (CARDI, Cambodia)•Cuu Long Delta Rice Research Institute (CLRRI, Vietnam) (Ryuji Ishikawa & Ikuo Nakamura) |
| May–June 2006 | Research for in situ conservation of wild rice in Cambodia. (Y. I. Sato, R. Ishikawa, I. Nakamura) |
| May–June 2006 | Aleppo University (K. Tanno & M. Arimura) |
| June–July | Cambridge University (UK) (Y. I. Sato & A. Hosoya) |
| August 2006 | Research on wild rice in Darwin (Australia) (Y. I. Sato, T. Sato, R. Ishikawa, I. Nakamura) |
| September 2006 | Research in Kashgar and its vicinity (Y. I. Sato) |
| September–October 2006 | Excavation in Seker site in Syria (K. Tanno) |
| November 2006 | Research in wild rice (Y. I. Sato, I. Nakamura, R. Ishikawa) |
| December 2006 | Literature survey at ZhejiangUniversity (China). (T. Watabe) |
| January 2007 | Xinjian Institute of Archaeology (Y. I. Sato, M. Arimura, J. Katagawa, H. Mannen, T. Ito, S. Toyama) |

## Symposium, meeting, workshops and seminar organized by the project

| | |
|---|---|
| April 24, 2006 | Seminar at RIHN<br>"The Royal Gardens, Sydney, Australia, and a research project on Australian native sweetpotatoes."<br>Adam Marchant (JSPS Invited Reseacher) |
| June 6, 2006 | Symposium in Society for Economic Botany Annual Meeting, organized by the project<br>"Historical Perspectives on the Gain and Loss of Plant Genetic Resources in Monsoon Asia." At Imperial Mae Ping Hotel in Chiang-mai |

[Program]
Introduction: Y. I. Sato (RIHN)
"Common wild rice: *in situ* conservation and genetics." Benjavan Rerkasem (Chiang Mai University, Thailand)
"Taro research in China." Yang Yongping (Kunming Institute of Botany, China)
"Archaeobotany and ethnobotany with reference to Harappan sites in Haryana, north India." Mukund Kajale (Deccan College, India)
"Root and tuber crops in Vietnam." Vu Linh Chi (Plant Resources Center, Vietnam Academy Agricultural Sciences, Hanoi)
Questions, comments and discussion. Songkran Chitrakon (Chairman, Thailand)
"*Pandanus tectorius* ('adan') in southern Japan." (Poster). Peter J. Matthews (National Museum of Ethnology, Japan).
"*Citrus* in the Batanes Islands, northern Philippines." (Poster). Domingo Madulid (National Museum of the Philippines, Philippines).

July 12, 2006 Seminar at RIHN
Archaeology and research of Gao Chang Gu Cheng. Dr. Yong Wu (RIHN invited reseacher)

July 16, 2006 Symposium "Japanese culture and the origin of agriculture—Possibilities of Jomon agriculture seen through Sannai-maruyama site—"
Hirosaki University 50th Anniversary Hall in Hirosaki City.
Co-organized by Faculty of Agriculture and Life Science, Hirosaki University
[Program]
Session 1
Chairman Yo-ichiro Sato (RIHN)
Speaker: Junko Habu (UC Berkley), Misugi Nakamura (Aomori Prefecture)
Session 2
Chairman: Ryuji Ishikawa (Hirosaki University)
Speaker: Steven Weber (Washington State University-Vancouver), Linghua Tang (Institute of Food Crops, Jiangsu Academy of Agricultural Sciences), Wei Wang (Chinese Society of Social Science), Yasuhiro Okada (Aomori Prefecture), Yo-ichiro Sato (RIHN)

July 18, 2006 Seminar at RIHN "Environment and Agriculture in Jomon"
[Program]
Session 1 Discussion
Discussant: Junko Habu (UC Berkley), Shuzo Koyama (Suita City Museum), Yo-ichiro Sato (RIHN)
Session 2
Chairman: Shuzo Koyama (Suita City Museum)
Speaker: Linghua Tang (Institute of Food Crops, Jiangsu Academy of Agricultual Sciences), Wei Wang (Chinese Society of Social Science)

July 22, 2006 Seminar at RIHN
"Plants and Harappan Subsistence" Steven Weber (Washington State University, Vancouver)

August 9, 2006 Seminar at RIHN
Chinese traditional harrow and its transfer. Takeshi Watabe (Tokai University)

November 11–12, 2006 Satellite Symposium of the 1st RIHN International Symposium.
Sali-graphy
Co-organized by Watanabe Project and Osada Project.

[Program]
November 11, 2006.
1. Salt and Culture
Opening Remarks: Y.-I. Sato (RIHN)
Speaker: Takashi Katahira (Photographer), Hiroki Takanashi (Tobacco and Salt Museum), Masatoshi Kishimoto (Archaeologist), Ayao Okumura (Reseacher of traditional foods)
Closing Remarks: Tsugihiro Watabane (RIHN)
November 12, 2006
2. Salt and environment
Opening Remark: Toshitaka Hidaka (RIHN)
Speaker: Kazuya Maekawa (Kokushikan University), Toshio Ito (Osaka Kyoiku University), Selim Kapur (University of Cukurova), Takashi Kume (RIHN)
Closing Remarks: Yo-chiro Sato & Tsugihiro Watanabe (RIHN)

February 1, 2007 Seminar "Vegeculture and Environmental Change in Southeast Asia and Oceania" at RIHN
[Program]
Speakers: Y.-I. Sato (RIHN), Robin Hide (RIHN invited researcher), Peter J. Matthews (National Museum of Ethnology)
Comments: Tomoya Akimichi (RIHN)

March 7, 2007 Seminar at RIHN
George Willcox (Institut de Prehistoire Orientale, CNRS, France)

**Presentation (Conference, meeting and workshop)**

[in Japanese]

Sato, Y. I. (2006) Genetic diverrsity of excavated rice grain size. 23rd meeting of Japan Society for Scientific Studies on Cultural Properties. Tokyo Gakugei University, Koganei, Tokyo. June 2006.

Nishida, H., I. Nakamura, J. Li, I. Abdrasul, K. Kato, Y. I. Sato (2006) Roots of ancient cultivated wheat. —DNA analysis of wheat from the Xiaohe Tomb sites in Xinjiang—Uygur. Tokyo Gakugei University, Koganei, Tokyo. June 2006.

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Tanaka, H., Craig F. Morris, M. Haruna, H. Tsujimoto (2006) Diversity of puroindoline in Asian common wheat. 110th meeting of Japanese Society of Breeding, Ehime University, Matsuyama, September, 2006.

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Muto, C., K. Kawano, T. Tanisaka, Y. I. Sato (2006) Distribution of SSR polymorphism at Waxy gene among glu-

tinous rice in northern Laos. 110th meeting of Japanese Society of Breeding, Ehime University, Matsuyama, September, 2006.

Tanaka, K., Y. Akashi, K. Fukunaga, S. Ohsumi, R. Matsuda, K. Hanamori, K. Kawabata, K. Kato, Y. I. Sato (2007) Dispersal pathway of melon and Japanese melon. Meeting of DNAArchaeology at RIHN, Kyoto. March, 2007.

Hidehira, Y., N. Mori, T. Tanaka, T. Ishii, T. Kawahara, C. Nakamura (2007) Evolution and dispersal of common wheat as revealed by chloroplast DNA. 111st meeting of Japanese Society of Breeding, Ibaraki University, Mito. March 2007.

**Other Activities**

"Rice Cultivation" Exhibition at National Science Museum.

**Full-Research**
**Research axis:** Spatial Scale
**Project number:** 3-2FR
**Project name:** Interactions between Natural Environment and Human Social Systems in Sub-tropical Islands
**Project leader:** TAKASO, Tokushiro (RIHN)
**Core member:** see No. 3
**Key words:** forests, Iriomote, island economics, mangrove plants, subtropical, water balance

**1. Research Objectives and Topics**

Islands throughout the world are faced with water shortages, loss of topsoil, river and oceanic pollution, disappearing biodiversity and other environmental problems. Islands tend to see these problems worsen rapidly because of their closed systems in limited geographical areas. Environmental problems involving islands therefore generally require immediate attention. This project, which focuses on Iriomote Island in Okinawa Prefecture as a model, is designed to solve environmental problems facing islands.

The main subjects of our environmental research are water balance and functions and maintenance of forests. Our focuses in human activity studies are economic activities and decision-making in communities. By pursuing these subjects, we look at interaction between natural environments and human activities on subtropical islands, and will consider social systems for islands to harmonize human activities with the natural environment.

We learned that the role of community centers on the island was even larger than we had expected. We have been in close contact with community centers and local elementary and junior high schools.

The natural environment on Iriomote Island is in imminent danger. We must place our top priority on its preservation. It is not only nature that is at risk on the island. The island's traditional performing art and culture are equally at risk because of shortages of young people who take over the tradition. Some of the performing arts will have to be recorded as there will be no one to perform them before long. Communities on the island exist in their own unique ways under various social circumstances. While proceeding with the project, we are taking such circumstances into consideration.

**2. Relation with Research Program**

This project concentrates on environmental problems in islands. Since the islands are unique and important areas or spaces on the earth, their environmental problems should be carefully examined taking local circumstances into consideration. We believe environmental problems on the island were caused mainly by a lack of environmentally friendly industries that could allow islanders to make a living. We also believe that the islanders' lack of reliable information about their environment is partly to blame for the problems. We believe the outcome of our research on Iriomote Island will be applicable to other islands.

**3. Project Members**

| Name | Affiliation | Position | Role |
|---|---|---|---|
| ◎TAKASO, Tokushiro | Research Institute for Humanity and Nature | Professor | overall care of project analysis of pollination mechanism |
| ○MAEKADO, Akira | Faculty of Law and Letters, Univ. of the Ryukyus | Professor | analysis of water balance, study of soil erosion |
| ○YOSHIMURA, Kazuhisa | Graduate School of Sciences, Kyusyu Univ. | Professor | chemical analysis of water |

| | | | |
|---|---|---|---|
| HIROSE, Takashi | Faculty of Law and Letters, Univ. of the Ryukyus | Associate Prof. | analysis of water balance |
| NAKANO, Takanori | Research Institute for Humanity and Nature | Professor | stable isotope analysis of water |
| ○INOKURA, Yoji | Faculty of Agriculture, Kagoshima Univ. | Associate Prof. | analysis of water balance |
| ○SUZUKI, Atsushi | National Institute of Advanced Industrial Sciences and Technology | Head Researcher | chemical analysis of sea water |
| NAGAO, Masayuki | National Institute of Advanced Industrial Sciences and Technology | Chief Researcher | chemical analysis of sea water |
| TAKASHIMA, Atsuko | CRC Food and Environment Analytical Laboratory | Researcher | chemical analysis of water |
| SETOGUCHI, Hiroaki | Graduate School of Human and Environmental Studies, Kyoto Univ. | Associate Prof. | analysis introduced plants |
| YONEKURA, Koji | Graduate School of Life Sciences, Tohoku University | Assistant Prof. | analysis of plant diversity |
| NOMURA, Naofumi | Research Institute for Humanity and Nature | Researcher | analysis introduced plants |
| PENG, Ching-I | Academia Sinica, Taiwan, Institute of Botany | Head Researcher | analysis of plant diversity |
| CHIANG, Tzen-Yuh | Faculty of Biology, Cheng-Kung University | Professor | analysis of plant diversity |
| HAGIWARA, Akio | Graduate School of Science and Engineering, Univ. of the Ryukyus | Professor | analysis of forest ecosystem study of pine forests |
| ○KUBOTA, Yasuhiro | Faculty of Science, Univ of the Rykyus | Associate Prof. | analysis of forest ecosystem |
| ENOKI, Tsutomu | Faculty of Agriculture, Kyusyu University | Assistant Prof. | analysis of forest ecosystem mangrove forests |
| YASUDA, Keiko | Research Institute for Humanity and Nature | Research Associate | analysis of forest ecosystem |
| ○KAWAKUBO, Nobumitsu | Faculty of Applied Biological Sciences, Gifu University | Associate Prof. | pollination ecology |
| KIMOTO, Yukitoshi | Research Institute for Humanity and Nature | Senior Researcher | pollination ecology, plant morphology |
| NAKAGAWA, Masato | Research Institute for Humanity and Nature | Researcher | Analysis of plant community |
| HIDAKA, Toshitaka | Research Institute for Humanity and Nature | Director | analysis of animal behavior |
| KOHNO, Hiroyoshi | Okinawa Regional Research Center, Tokai University | Researcher | analysis of animal behavior |

| | | | |
|---|---|---|---|
| SEKINO, Tatsuki | Research Institute for Humanity and Nature | Associate Prof. | limnological and ecological studies using information technology |
| MAETA, Yasuo | Professor Emeritus, Shimane University | Professor Emeritus | study of pollination symbiosis and life cycle of bees |
| TADAUCHI, Osamu | Graduate School of Bioresource and Bioenvironmental Studies, Kyusyu Univ. | Professor | entomology |
| MIYANAGA, Ryuichi | Faculty of Life and Environmental Science, Univ. of Shimane | Associate Prof. | study of pollination symbiosis and life cycle of bees |
| ○ARAMOTO, Mitsunori | Tropical Biosphere Research Center, Univ. of the Ryukyus | Professor | study of forest bioresources |
| ○OSHIRO, Hajime | Faculty of Law and Letters, Univ. of the Ryukyus | Professor | island economics |
| KABIRA, Nario | Faculty of Law and Letters, Univ. of the Ryukyus | Professor | economical analysis of agriculture |
| TAIRA, Tsuyoshi | Faculty of Law, Okinawa International University | Lecturer | Study of public finance |
| FUJITA, Yoko | Faculty of Law and Letters, Univ. of the Ryukyus | Associate Prof. | economical analysis of industries, study of ecotourism |
| ○HAGIWARA, Natsuko | Graduate school of Social Design Studies, Rikkyo University | Associate Prof. | Environmental sociology |
| OTSUKA, Yoshiki | Faculty of Environmental and Information Studies, Musashi Institute of Technology | Associate Prof. | economical analysis of industries, study of transportation |
| YANAGI, Yoshikuni | Institute, Attached, Okinawa Prefectural University of Arts | Professor | study of dyeing and weaving |
| MARUTA, Tsutomu | Faculty of Arts and Crafts, Okinawa Prefectural University of Arts | Associate Prof. | study of ceramics soil analysis for ceramics |
| ONAGA, Yoko | Faculty of Arts and Crafts, Okinawa Prefectural University of Arts | Assistant Prof. | Environmental Sociology |
| SATOI, Yoichi | Faculty of Law and Letters, Univ. of the Ryukyus | Associate Prof. | historical analysis of land use |

(◎: Project leader, ○: Core member)

**4. Outcomes**

We learned that the following are keys to solving environmental problems on Iriomote Island: 1) Local people need a solid economic infrastructure to build self-esteem and become independent, and 2) information that is instrumental in solving problems taken up by the project should be shared with locals. The following are what we achieved on specific fronts.

**Water balance and water quality (land area and ocean area)**

- Our observations so far have indicated that the island's soil and forests do not hold much water because rainfall changes water flows on the island more rapidly than we had expected. (Water levels rise and fall rapidly.) The finding suggests the need for wise use of water.
- Rain that falls on the island, other than that brought by typhoons, has been proven to be acidic (pH<5.6). Further analyses are underway to identify the substances that cause the acid rain and the origin of the substances.
- Seawater studies have found that land-derived substances have an impact on coral reefs along coasts immediately after rain.

**Functions and maintenance mechanisms of forest ecology/interaction among organisms**

- Broadleaved evergreen trees are likely to die or have their growth stunted by typhoons. Our studies have shown a high turnover rate in the population by typhoons.
- Our studies on mangrove forests indicate that salts in soil and disturbance by tides and river water affect the dynamism of the forests.
- Pollination mechanisms of mangroves and other plants have been analyzed using image technology. Such videos and pictures are used as teaching materials.
- We have clarified close cooperation between flowers and pollen-carrying insects on Iriomote Island and related the partnership to structures of the flowers

**Research for developing new industries**

- Soil from the Shirahama forest road can be used as premium potter's earth.
- We have used native plant species to conduct coloring and mordanting tests of plant dyes (dye density test, test of different mordants and their density, colorfastness test).

**Research on island economy and decision-making in communities**

- We have conducted surveys to find out how people perceive the relationship between their lives and the natural environment, their relationship with nature, garbage disposal systems and marine pollution. We have interviewed locals and gathered reference materials to help us understand the system of how the land is used.
- Iriomote Island gets a significant amount of fresh and processed food supplies from outside the island. The island's food system is similar to that of the suburbs of Ishigaki Island. Our studies have shown the island has access to more diverse transportation systems and media than before.

**Databases and pictorial library (visit the following websites)**

- Iriomote literature database (http://iriomote.chikyu.ac.jp/)
- Pictorial library of Iriomote- people and nature (http://www1.gifu-u.ac.jp/~kawakubo//iriomote/index01.html)

## 5. Publications

Nakagawa, M. (2006) Ploidy, geographical distribution and morphological differentiation of *Parasenecio auriculata* (Senecioneae; Asteraseae) in Japan. *Journal of Plant Research* 119: 51–61.

Nomura N., Setoguchi, H. and Takaso, T. (2006) Functional consequences of stenophylly for leaf productivity: comparison of the anatomy and physiology of a rheophyte, *Farfugium japonicum* var. *luchuence*, and a related non-rheophyte, *F. japonicum* (Asteraceae). *Journal of Plant Research*, 119: 645–656.

Tobe, H., Kimoto, Y. and Prakash, N. (2007) Development and structure of the female gametophyte in *Austrobaileya scandens* (Austrobaileyaceae). *Journal of Plant Research* 120: 431–436.

**Full-Research**

**Research axis:** History and Time Scale

**Project number:** 4-2FR

**Project name:** A Trans-Disciplinary Study on the Regional Eco-History in Tropical Monsoon Asia: 1945–2005

**Project leader:** AKIMICHI, Tomoya (RIHN)

**URL:** http://www.chikyu.ac.jp/ecohistory/index.htm

**Key words:** Eco-history, subsistence complex, nutrition and health, resource management, transformation, monsoon Asia

## ■Objective and content

### 1. Objective

This research project aims to study interactions between people who inhabit the tropical monsoon Asia region and their surrounding environments during the past several decades since WW II. The reforms in political regimes, devastating wars, infiltration of modernization, economic globalization, and population growth that swept this region, have had serious impacts upon both local environments and human populations. In this project, we examine how people have coped with these external impacts, and how they have survived under these upheaval and the eco-historical consequences.

The project started as Pre-Research in 2002.

The project upgraded to Full-Research in 2003.

### 2. Research content

1) Anthropogenic factor analysis

In this project, we address three eco-sensitive domains; e.g., subsistence complex, nutrition and health, and resource management.

2) Research group by theme and area

To date, in order to demonstrate interactive consequences between the three analytical domains, we have conducted intensive fieldworks with collaboration between six project research groups. The study groups and their study areas are (1) Agro-Forestry Group (Northern Laos), (2) Plains Ecology Group (Central Laos), (3) Human Ecology Group (Central-South Laos), (4) Northern Thailand Group (North Thailand), (5) China Group (Yunnan Province, Southwestern China), (6) Material Culture and Information Retrieval Group. China Group is further divided into three; (5-1) History Group, (5-2) Forestry Group, and (5-3) Eco-History Group, the last being lead by Chinese scholars at Yunnan University.

3) Major themes

We have selected the following research themes as important for the goal, 1. intensive fieldworks on the use of land and natural resources, time allocation, nutrition and health of the people, in Yunnan, China, northern, central and south-central parts of Laos, and northern Thailand, 2. the measurement of material culture quantitative study of human activity, and video recording, 3. staple isotope analysis of rice varieties, water and fish, and DNA analysis, 4. analysis of stone inscription found in villages south of Yuanjiang river in Yunnan, 5. translation and editing of county gazettes in Yunnan Province for the compilation of "the Eco-Chronicle", and 6. extensive study of aquatic resource management in the Lower Mekong Basin.

## ■Joint research members (affiliation, status, role)

Project Leader

◎AKIMICHI, Tomoya (RIHN, Professor, Project Coordinator and Supervisor)

**—Agro-Forestry Group—**

○KONO, Yasuyuki (Institute for Southeast Asian Studies, Kyoto University, Professor, Southeast Asia area studies)
FUJITA, Yuko (Lake Biwa Museum, Research Fellow, Ecology)
FUKUDA, Satoshi (Kinki University, Research Fellow, Rural sociology)
HIROTA, Isao (Kyoto University, Graduate Student, Forest ecology)
HOTTA, Mitsuru (Kagoshima Prefectural College, Emeritus Professor, Botany)
HYAKUMURA, Kimihiko (IGES, Research Fellow, Forest ecology)
KASHINAGA, Masao (National Museum of Ethnology, Research Fellow, Cultural anthropology)
KATO, Makoto (Kyoto University, Professor, Ecology)
KOSAKA, Yasuyuki (Institute for Southeast Asian Studies, Kyoto University, Research Fellow, Botany)
KOTEGAWA, Takashi (Kochi University, Graduate Student, Soil science)
MATSUURA, Miki (ASAFAS, Kyoto University, Graduate Student, Environmental sociology)
MATSUDA, Akira (Kyoto University, Graduate Student, Vegetable nutritional science)
MATO, Toru (Kyoto University, Professor, Vegetable nutritional science)
MUTO, Chiaki (Gifu University, Graduate Student, Genetics)
NAKATA, Tomoko (Asian Folklore Studies, Nanzan University, Research Fellow, Cultural anthropology)
NAKANISHI, Asami (Field Science Education Research Center, Kyoto University, Associate Professor, Forest ecology)
NAWATA, Eiji (Kyoto University, Associate Professor, Tropical agriculture)
OCHIAI, Yukino (The Kagoshima University Museum, Associate Professor, Botany)
SAKURAI, Katsutoshi (Kochi University, Professor, Tropical soil science)
SATO, Yo-Ichiro (RIHN, Professor, Vegetable genetic resource study)
TAKAI, Yasuhiro (Otani University, Professor, Sociology)
TAKEDA, Shinya (ASAFAS, Kyoto University, Associate Professor, Forest ecology)
TANAKA, Koji (Center for Integrated Area Studies, Kyoto University, Professor, Agriculture)
TOMITA, Shinsuke (The University of Tokyo, Assistant Professor, Tropical agricultural ecology)
TOMOOKA, Norihiko (National Institute of Agro-biological Sciences, Senior Researcher, Agriculture)
YAMADA, Isamu (Ritsumeikan Asia Pacific University, Professor, Natural resource environmental theory)
YOKOYAMA, Satoshi (Kumamoto University, Associate Professor, Human geography)
WADA, Yasushi (Kyoto University, Graduate Student, Botany)
VILAYPHON, Anoulom (Kyoto University, Graduate Student, Forest ecology)
BADENOCH, Nathan (Kyoto University, Graduate Student, Tropical resource theory)

**—Plains Ecology Group—**

○NONAKA, Kenichi (RIHN, Associate Professor, Geography, Ecological anthropology)
ADACHI, Yoshihisa (Gifu University, Graduate Student, Diversity conservation study)
AJISAKA, Tetsuro (Kyoto University, Research Fellow, Waterweed study)
IKEGUCHI, Akiko (Nagoya Industrial University, Lecturer, Geography)
KATO, Kumiko (Nagoya University, Associate Professor, History)
KUCHIKURA, Yukio (Gifu University, Professor, Ecological anthropology)
MIYAGAWA, Shuichi (Gifu University, Professor, Agricultural ecology)
MORI, Seiichi (Gifu Keizai University, Professor, Fish ecology)
NISHIMURA, Yuichiro (Aichi Institute Technology DPREC, Research Fellow, Geography)
OKAMOTO, Kouhei (Nagoya University, Professor, Geography)
ONO, Eisuke (Nagoya University, Researcher, Geography)
SAITO, Haruo (RIHN, Research Fellow, Forest science)

SEKO, Maki (Gifu University, Graduate Student, Diversity conservation study)
TAKENAKA, Chisato (Nagoya University, Associate Professor, Environmental science)
WAKANA, Isamu (Akan Town office, The vice-chief editor, Waterweed study)
YANATAN, Isara (Nagoya University, Graduate Student, Anthropology)

**—Human Ecology Group—**

○MOJI, Kazuhiko (Institute of Tropical Medicine, Nagasaki University, Professor, Tropical public health study)
○NAKAMURA, Satoshi (International Medical Center of Japan, Section head, Tropical medicine)
ASAKURA, Takashi (Tokyo Gakugei University, Professor, Health education study)
ATAKA, Yuji (Kwansei Gakuin University, Associate Professor, Medical anthropology)
HAGIWARA, Jun (Miyagi University, Lecturer, Physical anthropology)
INAOKA, Tsukasa (Saga University, Professor, Human ecology)
ISHINE, Masayuki (Kyoto University, Graduate Student, Medicine)
IWASA, Mitsuhiro (Chiba University, Graduate Student, Medical anthropology)
KANEDA, Eiko (Institute Of Tropical Medicine, Nagasaki University, Researcher, School hygiene study)
KAWASHIMA, Takaaki (Siebold University of Nagasaki, Researcher, Nutritional science)
KAWABATA, Masato (Kobe University ICMRT, Professor, Tropical medicine)
KAWABE, Toshio (Takasaki City University of Economics, Professor, Physical anthropology)
KOBAYASHI, Atsushi (JICA, Specialist, Tropical medicine)
KOBAYASHI, Toshio (Hiroshima University, Professor, Health study)
MATUBAYASHI, Kozo (Institute for Southeast Asian Studies, Kyoto University, Professor, Gerontology)
MATSUMURA, Yasuhiro (National Institute of Health and Nutrition, Project leader, Nutritional epidemiology)
MIDORIKAWA, Yutaka (Suzuka University of Medical Science, Associate Professor, Tropical medicine)
MURAYAMA, Nobuko (Niigata University of Health and Welfare, Professor, Nutritional ecology)
NAKAZAWA, Shunsuke (Institute of Tropical Medicine, Nagasaki University, Assistant Professor, Tropical medicine)
NAKAZAWA, Minato (Gunma University, Associate Professor, Medical anthropology)
NATSUHARA, Kazumi (Fukuoka Prefectural University, Associate Professor, Mother and child-health study)
ODANI, Shingo (Chiba University, Research Fellow, Medical anthropology)
OKUMIYA, Kiyohito (RIHN, Associate Professor, Gerontology)
ONISHI, Hideyuki (RIHN, Researcher, Anthropology)
SAKAGAMI, Teiji (Kyoto University, Graduate Student, Medicine)
SASAKI, Shun (National Institute of Health and Nutrition, Program leader, Nutrition epidemiology)
SHIDOJI, Yoshihiro (Siebold University of Nagasaki, Professor, Nutritional genetics)
SHIRAKAWA, Toshiro (Kobe University ICMRT, Researcher, Medicine)
SUZIKI, Kentaro (Kyoto University, Graduate Student, Medicine)
TAKASAKA, Koichi (Kyorin University, Professor, Population study)
TAKEI, Hideo (Chiba University, Professor. Medical anthropology)
TOMOKAWA, Sachi (Hiroshima University, Graduate Student, Health study)
UMEZAKI, Masahiro (The University of Tokyo, Associate Professor, Ecological Anthropology)
YAMAUCHI, Taro (The University of Tokyo, Research Fellow, Human ecology)
RI, Chi-Yau (Takasaki City University of Economics, Graduate Student, Medical anthropology)
BOUPHA, Boungnong (National Institute of Public Health, Ministry of Health, Vientiane, Lao PDR, Director, Medicine)
PHONGLUSA, Khampheng (National Institute of Public Health, Ministry of Health, Vientiane, Lao PDR, Medicine)

PHONGMANY, Panom (Savannakhet Provincial Health Department, Ministry of Health, Lao PDR, Deputy Director, Medicine)
SISAVEUY (Ministry of Health, Songkhone district, Lao PDR, Director, Medicine)
PHROMMALA, Souraxay (National Institute of Public Health, Ministry of Health, Vientiane, Lao PDR, Deputy Director, Medicine)
PONGVONGSA, Tiengkham (Station of Malariology, Parasitology and Entomology, Savannakhet province, Director, Medicine)

**—Northern Thailand Group—**

○IKEYA, Kazunobu (National Museum of Ethnology, Professor, Ecological anthropology)
MASUNO, Takashi (The Graduate University for Advanced Studies, Graduate student, Forest ecology)
NAKAI, Shinsuke (The Graduate University for Advanced Studies, Graduate student, Agro-forestry)
YOSHINO, Akira (Tokyo Gakugei University, Professor, Cultural anthropology)
SANTASOMBAT, Yos (Chiang Mai University, Professor, Area study and Anthropology)

**—China (History) Group—**

○DANIELS, Christian (Tokyo University of Foreign Studies, ILCAA, Professor, History)
MATSUDA, Atsuyuki (Tokai University, Graduate Student, History)
NISHIKAWA, Kazutaka (Chuo University, Graduate Student, History)
NOMOTO, Takashi (Gakushuin University, Graduate Student, History)
SIMIZU, Toru (Nihon University, Lecturer, History)
TATEISHI, Kenji (Kokugakuin University, Lecturer, History)

**—China (Eco-History) Group—**

○ABE, Kenichi (Center for Integrated Area Studies, Kyoto University, Associate Professor, Political ecology)
ADACHI, Shinpei (Kyoto University, Graduate Student, Ecological anthropology)
KANESHIGE, Shigeru (Shiga University of Medical Science, Associate Professor, Historical geography)
NAGATANI, Chiyoko (RIHN, Research Fellow, Cultural anthropology)
TAKI, Chiharu (National Museum of Ethnology, Research Fellow, Oriental historian)

**—Material Culture and Information Retrieval Group—**

○KUBO, Masatoshi (National Museum of Ethnology, Professor, Information theory)
ANDO, Saori (The Anthropological Museum of Nanzan University, Research Fellow, Modern life history)
GOTO, Akira (Doshisha Women's College, Professor, Anthropology)
HASHIMURA, Osamu (RIHN, Researcher, Historical geography)
KAWANO, Kazuaki (Reimeikan, Section chief, Folklore)
KIDA, Ayumu (The Anthropological Museum of Nanzan University, Research Fellow, Anthropology)
KOJIMA, Mafumi (Kagoshima Jun-ai University, Associate Professor, Folklore)
KUROSAWA, Hiroshi (Nanzan University, Associate Professor, Archaeology)
MIYAWAKI, Chie (The Graduate University for Advanced Studies, Graduate Student, Ethnology)
NISHIMOTO, Futoshi (RIHN, Researcher, Social anthropology)
SASAKI, Koumei (National Museum of Ethnology, Professor Emeritus, Cultural Geography)
SHIMIZU, Ikuro (Daido Institute of Technology, Associate Professor, Cultural anthropology)
SUYAMA, Naruhiko (The Anthropological Museum of Nanzan University, Extraordinary Personnel, Archaeology)
TAGUCHI, Rie (Tokai University, Associate Professor, Cultural anthropology)
YAMAZAKI, Go (The Anthropological Museum of Nanzan University, Extraordinary Personnel, Anthropology)
YOSHIDA, Hirohiko (Tenri University Sankokan Museum, Chief Curator, Ethnology)

## ■Progress of the Project

1) Field research: In this year, we have conducted field research in Yunnan, China, Laos and northern Thailand as the previous years. Particularly in Laos, three villages have been intensively investigated in which interviews and questionnaires methods were employed to reconstruct the eco-history of the areas. In northern Thailand, three villages are selected for the intensive field research.
2) Academic meetings: Most of the joint researchers have met in Kyoto in February for the preparation of the publication. Each group had several meetings for the presentation of research outcomes and discussed about the publications. Also, in order to promote inter-group discussion, joint meetings were held in Kyoto and Tagawa City.
3) Set up the Ecological Anthropological Society in China: In September, 2006, a new academic society of ecological anthropology in China was set up in Guilin. Akimichi, Abe and Yamada participated in this meeting.
4) A compilation of the eco-chronicle: We have almost completed the translation and data input of major historical events in county gazettes in Yunnan province for compiling the eco-chronicle. Base on this, we have prepared the database for dissemination.
5) Workshop in Yunnan University: In June, 2006, a joint workshop was organized at Yunnan University among the Eco-history project members, academic staffs of Yunnan University, and two groups of "Resource Anthropology" Monbu-kagaku-sho Research-in-Grants project. The title of the symposium was "Future of ecological anthropology in Yunnan: the ecology of the boundaries".
6) Akimichi read a paper Flood and Life in Transition—Impacts of Irrigation upon Rice Cultivation in Lao Lum Communities in Champassak, Southern Lao PDR—in the first International Symposium of RIHN.
7) Joint research members actively participated in the international symposia, and workshops held in Australia, Singapore, and India as well as domestic academic meetings.

## ■Outcome and Future Topics

### 1. Outline of results

1) Environmental deterioration and conservation and policy changes: The subsistence complex typically found in monsoon Asia region such as paddy cultivation, swidden agriculture, freshwater fishing, hunting, gathering has greatly been transformed during the past few decades The process of the transformation has been verified through intensive field researches in several villages. In particular, the reforms in political regimes (revolution of China, migration policy, Great heap, the second Indo-China War, the new economic policy, the privatization policy, and the forest conservation policy) have had significant impacts on environments. Various kinds of factors, external and internal, are associated with the eco-historical transformation in the region. We have shown these associations as fifty five flow charts, shown in the illustrated catalogue. Each set of flow chart is expected to be combined together for further integrative figures.
2) Transformation in nutrition and health: We have clarified the transformation process that have been indicated in nutrition, health and population dimensions from intensive human ecological studies. For instance, high incidence of diabetes was detected even among rural inhabitants in Laos. This may be associated with rapid change in food consumption among villagers due to the introduction of high yield rice and the irrigation system.
3) From the analysis of stone inscriptions in Yunnan during the 18th and 19th centuries, community-based conservation laws were established to avoid environmental hazards. In other words, environmental deterioration had already proceeded even during the 18th and 19th centuries in southwestern China.
4) Despite the introduction of fish conservation zone policy since the early 1990s, it was revealed only partly effective as local inhabitants could not find it satisfactory both for fish populations and local demand of fish. In stead, community-based ideas have been newly adopted to compensate the top-down policy.
5) In northern Thailand, inter-ethnic relations among Yao, Mraburi, and Mon ethnic minorities were scrutinized in

line with the recent changes of cash cropping and modernization.

6) From intensive studies in local communities of Vientiane Plains, impacts of urbanization and changes in resource use have been clarified that extend to time allocation, daily activities, and food consumption pattern of the people.
7) Akimichi submitted an article to the proceedings of the first International Symposium of RIHN.
8) As publications of Eco-history project as a whole, we have published "An Illustrated Eco-History of the Mekong Basin" from Kobundou in March, 2007. Also, "A Lao Food Book for Dietary Assessment" and "The Biodiversity of Vegetables in Vientiane", "*Nature, Human and Environment*" (*The Lao Agriculture and Forestry Journal, Special Issue*) have been published. Individual papers and articles in the books are shown in section 4.

**2. Further themes**

1) Publication: "The Eco-History of the Monsoon Asia" will be published as three volumes from Kobundo in February, 2008.
2) Publication by group: "Village Eco-history in Vientiane Plain" and "Eco-History of Forest and Agriculture" will be published from the Mekong Publishing Company. By March, 2008.
3) Workshop and publication: We will organize a joint workshop with Ichikawa project on the 8th October and the results will be published as a book, entitled as "Witnessing tropical and sub-tropical forests in Southeast Asia" from Jinbun-Shoin by March, 2008.
4) An English version of "An Illustrated Eco-History in the Mekong Basin" will be published from the White Lotus Pubilishing Company in Thailand. Also, an Chinese version is expected to be published from Kunming, Yunnan, China.
5) A joint exhibition on "*Khao nyeaw* Glutinous Rice, People and Life in Laos" will be held at Oyasato Museum, Tenri University between October 17th, 2007 and January 7th, 2008. This exhibition is co-organized by Research Institute for Humanity and Nature, National Museum of Ethnology, Tenri University, and St. Sophia University.
6) An international symposium of Public Health in Laos will be conducted in September, 2007 in Vientiane in collaboration with National Institute of Public Health (NIOPH), Laos. Also, an international workshop on the impact of globalization upon agro-forestry in Laos will be held on the 30th, November, 2007 in Luang Nam Tha, Laos, in collaboration with National Agriculture and Forestry Institute (NAFRI), Laos.
7) The result of the research on the historical stone inscription in Yunnan Province, China will be published as a Compilation of Historical Inscription.
8) Integrative database on the eco-chronicle archives, photographic database of the Japanese expedition to Southeast Asian during the post-war period will be disseminated in public.
9) Special issue on the agro-forestry under globalization will be published in English as one volume of "Southeast Asia Study", Kyoto University. This is a part of the research results of Agro-Forestry Group.

## ■Publications (April, 2006–March, 2007)

### Books

[Japanese]

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**—Agro-Forestry Group—**

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**—Plains Ecology Group—**

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**—China Eco-History Group—**

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[English]

**—Agro-Forestry Group—**

SAYANA, K. G., L. LUOHUI, Y. KONO, and S. MIYATA eds. (2006) *Small-scale Livelihoods and Natural Resources Management in Marginal Areas of Monsoon Asia,* Dehradun: Bishen Singh Mahendra Pal Singh.

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TOMOOKA, N., A. KAGA and D.A. VAUGHAN. (2006) "The Asian *Vigna* (subgenus Ceratotropis) Biodiversity and Evolution." In SHARMA, A.K.and A. SHARMA eds., *Plant Genome: Biodiversity and Evolution,* Science Publishers, Enfield, New Hampshire, pp. 87–126.

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TAKEDA, Shinya, Akihisa IWATA, Xayvongsa LAMPHOUNE, Inthavong SOULAPHONE, Masaharu, YOSHIYUKI, and Silythone KESADONG (2007) *Local Knowledge in the Past, Present and Future,* Center for Southeast Asian Studies Research Report Series 114.

**—Plains Ecology Group—**

SAITO, H., A. IKEGUCHI, and K. NONAKA (2007) *The biodiversity of vegetables in Vientiane.* National Agriculture and Forestry Research Institute (NAFRI) & Research Institute for Humanity and Nature (RIHN).

**—China Eco-History Group—**

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## Articles

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**—Agro-Forestry Group—**

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**—Plains Ecology Group—**

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**—Human Ecology Group—**

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**—Material Culture and Information Retrieval Group—**

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**—Agro-Forestry Group—**

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**—Plains Ecology Group—**

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IKEGUCHI, A., H. SAITO, K. NONAKA, Y. ADACHI, S. SIVILAY and Y. NISHIMURA (2007) "Food plants and Animals in a marketplace in the Vientiane suburb, Lao PDR." In BOUNTHONG, B. .*et al.* eds., *Nature, Human and Environment (The Lao Agriculture and Forestry Journal, Special Issue)*: 47–57.

NONAKA, K. (2007) "Humanity and Nature in Vientiane Plain, Lao PDR." In BOUNTHONG, B. *et al.* eds., *Nature, Human and Environment (The Lao Agriculture and Forestry Journal, Special Issue)*: 1–2.

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## Reports and Newsletters

[Japanese]

**—Agro-Forestry Group—**

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[English]

**—Agro-Forestry Group—**

TOMOKA, N, K. ABE, D. A. VAUGHAN, A. KAGA, A. ISEMURA, and T. KURODA (2006) "Conservation of legume—symbiotic Rhizobia genetic diversity in East Timor, 2005." *Annual Report on Exploration and Introduction of Plant Genetic Resources* 22: 135–147.

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## Journals

[Japanese]

**—Plains Ecology Group—**

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NISHIMURA, Yuichiro (2006) "Torsten Hägerstrand Time Geography." In KATO, M. and N. OHSHIRO eds., *The Geography of Urban Space.*, Mineruva Shobo, pp. 99–111.

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MIYAGAWA, S. (2006) "Co-existence of the paddy and forest: rice cultivation in lowland Laos." *Geography* 51(12): 44–49.

**—Northern Thailand Group—**

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## Newspapers

**—Agro-Forestry Group—**

2006. 6. 21 KASHINAGA, M. "The meaning of to work: The prospect toward high economic development." *Mainichi News Paper* (evening).

**—Plains Ecology Group—**

2006. 9. 7 NONAKA, K. "To eat insects: palatability and love to nature." *Chugoku News Paper and others.*

**—Yunnan Eco-History Group—**

2006. 10. 11 ABE, K. "Logging tropical forest under the peace." *Kyoto News Paper* (morning).

**—Material Culture and Information Retrieval Group—**

2007. 3. 16 YOSHIDA, A. "Staple glutinous rice: life of the Laotian." *Newsletter of Tenri Sankokan* . No. 2.

## Research activities

**Overseas Research**

**—Agro-Forestry Group—**

2006.5. Laos (Oudomxai, Savannakhet): A study on the inter-relations between environment, food intake and health (KOSAKA, Yasuuki)

2006.6. Laos (Xiengkhuang, Huaphanh): A collection of plant specimens in Laos, and research on the phenology of flowering plants and pollinating insects communities (KOSAKA, Yasuyuki)

2006.6. Laos (Vientiane, Xiengkhuang): Research on the phenology of flowering plants and pollinating insects communities (KATO, Makoto)

2006.6. Australia (Brisbane): Participating to the workshop of area network in Southeast Asia of IGU (International Geographical Union), and oral presentation in the IGU meeting (YOKOYAMA, Satoshi)

2006.6–11. Laos (Savannakhet): Research on the home garden among the ethnic minorities (WADA, Taiji)

2006.7. Laos (Pakse, Vientiane): Household-base research on the agriculture and use of forest resources (NAKATA, Tomoko)

2006.8. Laos (Oudomxai): Research on the use of forest resources (FUKUDA, Kei)

2006.8–9. Laos (Vientiane, Luang Prabang, Oudomxai, Luang Nam Tha): A study on the relations between

cattle and water buffalo and humans (TAKAI, Yasuhiro)

2006.9. India (Gohati): Oral presentation in the workshop "Swidden agriculture, environmental conservation and sustainable subsistence in the peripheral mountain communities" (OCHIAI, Yukino)

2006.10. Laos (Vientiane, Pakse): Research on the genetic resources of beans (TOMOOKA, Norihiko)

2006.11. Laos (southern part): Research on the genetic resources of beans (TOMOOKA, Norihiko)

2006.11. Laos (Oudomxai): Research on the history of land use in Southeast Asian continent (TOMITA, Shinsuke)

2006.11. Laos: Research on the cultivation of glutinous rice (MUTOH, Chiaki)

2006. 12. Laos (Attapeu): Research on the food-borne and water-borne diseases in Laotian rural communities (KOSAKA, Yasuyuki)

2006.12.–2007.1 Laos (Pongsaly, Oudomxai): Research on the mapping of useful plants (OCHIAI, Yukino)

2007.1. Thailand (Konkhen): Research on the land use in continental Southeast Asia (KONO, Yasuyuki)

2007.1–2. Laos (Luang Prabang, Oudomxai, Luang Nam Tha, Pongsaly, Muangkua, Namo): Research on the edible water weeds and sampling (FUJITA, Yuko)

2007.2. Laos (Oudomxai): Research on bamboos in the swidden fallow land (NAKANISHI, Masami)

2007.2.– Laos (Oudomxai): Research on the soil in the paddy field (KOTEGAWA, Takashi)

2007.3. Laos (Vientinae, Luang Prabang, Oudomxai): Research on the transformation of relations between cattle, water buffalo and humans (TAKAI, Yasuhiro)

2007.3. Laos (Oudomxai): Research on the use of forest resources (FUKUDA, Kei)

**—Plains Ecology Group—**

2006.5. Laos: Research on the paddy rice and the environment in rain-fed fields (MIYAGAWA, Shuichi and SEKO, Maki)

2006.5–8. Laos: Research on the agro-ecology and use of wild resources in rain-fed fields (ADACHI, Yoshihisa)

2006.6. Laos: Research on the use of fungus resources (SAITO, Haruo)

2006.8. Laos: Research on the use of wild resources (NONAKA, Kenichi)

2006.8. Laos: Research on the production and distribution of fishery resources (IKEGUCHI, Akiko)

2006.8. Laos: Spatio-temporal analysis of daily activities of Dongkwai village by GPS•GIS techniques (NIHIMURA, Yuichiro and OKAMOTO, Kohei)

2006.8. Thailand, Laos: Research on paddy rice growing and relevant environmental conditions in the rain-fed fields (MIYAGAWA, Shuichi and SEKO, Maki)

2006.8. Laos: Research on the ground and surface waters. (TAKENAKA, Chisato)

2006.8–9. Thailand, Laos: Research on the ethno-history, inter-village communications, and salt-making (KATO, Kumiko)

2006.8–10. Thailand, Laos: Research on the ethno-history, inter-village communications, and salt-making (YANATHAN, Isara)

2006.9. Laos: Research on the use of wild resources (NONAKA, Kenichi)

2007.2. Laos: Research on ground and surface waters (TAKENAKA, Chisato)

2007.2–3. Laos: Research on the use of wild resources (NONAKA, Kenichi)

2007.2–3. Laos: Research on the production and distribution of fishery resources (IKEGUCHI, Akiko)

2007.2–3. Laos: Research on the development of mushroom cultivation (SAITO, Haruo)

2007.2–3. Thailand, Laos: Research on the ethno-history, inter-village communications, and salt-making (ISARA, Yanathan)

2007.3. Thailand: Research on the ethno-history, inter-village communications, and salt-making (KATO, Kumiko)

2007.3. Laos: Research on the daily business working activities in Dongkwai community (NISHIMURA, Yuichiro and OKAMOTO, Kohei)

**—Human Ecology Group—**

2006.4–6. Laos: Research on the school health (TOMOKAWA, Yuki)

2006.4–10. Laos: Cultural anthropological study of local medicine (IWASA, Mitsuhiro)

2006.5. Laos: Research on food life and mother-infant health (MURAYAMA, Nobuko, Kazumi, NATSUHARA, and Satoshi, SASAKI)

2006.6–7. Laos: Transition of adult's hair throat condition (INAOKA, Tsukasa, Yasuhiro, MATSUMURA, and Toshimasa, KOBAYASHI)

2006.7–8. Laos: Transition of adult's hair throat condition (INAOKA, Tsukasa, Yasuhiro, MATSUMURA, and Toshimasa, KOBAYASHI)

2006.7–9. Laos: Research on the school health (TOMOKAWA, Yuki)

2006.9. Laos: Research on food life and mother-infant health (MURAYAMA, Nobuko)

2006.11–2007.1 Laos: Research on the school health (TOMOKAWA, Yuki)

2007.3. Laos: Research on the trend of health conditions of the elderly (OKUMIYA, Kiyoto)

**—Northern Thailand Group—**

2006.4. Thailand (Nan): Research on the pig husbandry among the Mon (NAKAI, Shinsuke)

2006.5–11. Thailand (Nan): Research on the pig husbandry among the Mon (NAKAI, Shinsuke)

2006.10. Thailand (Nan): Research on the hunting activities of the mountain people (IKEYA, Kazunobu)

2006.12–2007.1. Thailand (Nan): Research on the pig husbandry of the Mon (NAKAI, Shinsuke)

2007.3. Thailand (Phayao): Research on the agricultural activity in the Yao (MASUNO, Takashi)

2007.3. Thailand (Phayao): Research on the hunting activity of the mountain people (IKEYA, kazunobu)

## Symposia, study meeting, workshops, lectures

**—Agro-Forestry Group—**

2006.5.26. The 1st Agro-Forestry Group meeting, Institute of Southeast Asian Studies, Kyoto University, Kyoto City
Program: "Presentations of research outcomes and discussion about the publication and forthcoming workshop."

2006.7.9.–10. The 2nd Agro-Forestry Group meeting, Institute of Southeast Asian Studies, Kyoto University, Kyoto City
Program: "Presentations of research outcomes and discussion about the publications."

2007.2.16. The 3rd Agro-Forestry Group meeting, Institute of Southeast Asian Studies, Kyoto University, Kyoto City
Program: "Discussion about the publications."

**—Plains Ecology Group—**

2006.11.6. Poster presentation in the first International Symposium of RIHN, Kyoto International Conference Hall, Kyoto City
ONO, Eisuke (Nagoya University) "Effects of seasonal water level fluctuation on agricultural land use in the Vientiane Plain, Lao PDR."
NISHIMURA, Yuichiro and Kohei OKAMOTO "The daily activity in the natural water environment: Time-geographic analysis using GPS and GIS in Dongkhuaai village, Laos."

2007.3. ZUBZUB WORKSHOP, National Agriculture and Forestry Research Institute, Vientiane, Laos
Program:
ONO, Eisuke "Physical geography of rivers in the Vientiane Plain."

TAKENAKA, Chisato "Problem on high concentration of nitrate in well water in Xaythani District."
ADACHI, Yoshinao "Natural resource utilization of typical land utilization villages in Xaythani District, Lao PDR."
SAITO, Haruo "Mushroom cultivation in Dong Khuwaai village and sustainable development."
IKEGUCHI, Akiko "Significance of aquatic resources for household economies in Vientiane Plain: from Dong Khuwaai village household survey result."
NONAKA, Kenichi "Cultural geography of insect--use in the Vientiane Plain."

**—Human Ecology Group—**

2006.10.6. Workshop on "Public Health in Laos: mother-infant health, malaria, and Population surveillance system." Ponpe Building, Nagasaki University, Nagasaki City
Program:
"A proposal for the action and practices planning of the improvement of mother—infant health for the goal of the millennium development project." BOUPHA, Boungnyong (NIOPH, Laos), and K. CHENLAMANY, (Health center for mother-infant, Ministry of Health, Laos)
"The introduction of National Institute of Public Health of Laos: Its role, vision, mission and contemporary activities." BOUPHA, Boungnyong (NIUPH, Laos)
"Malaria vector mosquitoes in Vietnam and Laos: from fieldworks in communities of ethnic minority." SUNAHARA, Toshihiko (Institute of Tropical Medicine)
"A wisdom learned from the establishment of health-population surveillance system in Lahanam area, Savannakhet, Laos." KANEDA, Eiko and Kazuhiko, MOJI (Institute of Tropical Medicine, Nagasaki University)

**—Northern Thailand Group—**

2007.3.18 2006's Northern Thailand Group study meeting, Tokyo Gakugei University, Koganei City
Program:
"Sustaining mechanism of production in traditional pig husbandry: a case study of the Mon, northern Thailand." NAKAI, Shinsuke (The Graduate University of Advanced Studies)
"Impacts of forest and land plot allotments policy by Royal Thai Forestry upon land use of local inhabitants." MASUNO, Takashi (The Graduate University of Advanced Studies)
"Change of Agriculture in the Yu-Mien (Yao) in northern Thailand: *pwi kong* labor exchange and techonological change." YOSHINO, Akira (Tokyo Gakugei University)
"The relations between hunter-gatherers and agriculturalists: DNA archaeology and Ethnology." IKEYA, Kazunobu (National Museum of Ethnology)

**—Yunnan Eco-History Group—**

2006.6.23. International Symposium Yunnan Eco-History Symposium "The Eco-history of the Borders.", Yunnan University, Kunming, China
Co-organized by Eco-History Project and Yunnan University
Program:
"Introduction to the eco-history in tropical monsoon Asia" AKIMICHI, Tomoya (RIHN)
"From Political Economy to Political Ecology, in Yunnan Forestry" ABE, Kenichi (Kyoto University)

2006.9.24–29. The First Advanced Forum on Ecological Anthropology in China", Guilin, Guangxi, China
Organized by Yunnan University and Guangxi Nationalities University
"A New Horizon of Ecological Anthropology in China—A Study of the Eco-History in Yunnan" AKIMICHI, Tomoya (RIHN)

**Oral Presentations (Lecture, Academic societies' meeting, study meetings)**

**—Agro-Forestry Group—**

2006.4.3. "Mapping of land use in the swidden agriculture among the Khmu in northern Laos." TAKEDA, Shinya (Kyoto University), M. IWASA, M. WATANABE (JICA), P. POUMAVONG and T. POMCHANG
The 117th meeting of Japan Society of Forestry, Tokyo University of Agriculture, Tokyo

2006.4.3. "Demonstration of field surveys, using satellite images on the individual land plot in the swidden fallow in northern Laos." KIMURA, T. (Kyoto University), S. TAKEDA (Kyoto University), M. IAWASA, and M. WATANABE (JICA)
The 117th meeting of Japan Soceity of Forestry, Tokyo University of Agriculture, Tokyo

2006.6.7–8. "Multiple uses of Job's tears (*Coix*, Gramineae) in mainland Southeast Asia" Yukino OCHIAI (Kagoshima University Research Museum)
47th annual meeting of Society for Economic Botany, Chiang Mai University, Thailand

2006.6.18. "Use of Job's tear plants among the Tivoli people in Mindanao, the Philippines: Tourism and handicrafts," OCHIAI, Yukino (Kagoshima University Research Museum)
The 16th meeting of Japanese Society of Tropical Ecology, Tokyo University of Agro-Technology, Fuchu City
"An exhibition as a process for learning: a challenge of thee 5th special exhibition." OCHIAI, Yukino (Kagoshima University Research Museum)
The 1st meeting of the Museum Science, Hokkaido University, Sapporo

2006.6.23. "Population dynamics and reclamation of paddy fields in mountainous mainland Southeast Asia: A case study of one village in Oudomxay province in northern Laos" Tomita Shinsuke (CSEAS, Kyoto University)
Yunnan Eco-History Symposium, Yunnan University, Kunming (China)

2006.7.6. "Forest Use and Indigenous Eco-knowledge in Northern Laos". YOKOYAMA, Satoshi (Kumamoto University) and Yukino OCHIAI (Kagoshima University Research Museum)
IGU (International Geographical Union) 2006 Brisbane Conference, Queensland University of Technology, Brisbane, Australia

2006.8.2. "Mapping the changes of swidden cultivation area in a Khmu village of northern Laos" VILAYPHONE, Anoulom and Shinya TAKEDA (Kyoto University)
International Agroforestry Conference (IAC) 2006, Seri Pacific Hotel, Kuala Lumpur, Malaysia

2006.9.16. "Environmental comparison of rain-fed and irrigated paddy fields, using diatome commnities as indicators." FUJITA, Yuko (Lake Biwa Museum) and T. KOTEGAWA (Kochi University)
The 71 meeting of the Japanese Society of Limnology, Ehime University, Matsuyama

2006.9.23. "Shifting agriculture and millet cultivation in southern Chin State, Myanmar" OCHAI, Yukino (Kagoshima University Research Museum)
International Workshop on Shifting Agriculture, Environmental Conservation and Sustainable Livelihoods of Marginal Mountain Societies NIRD-NERC, Gohati, India

2006.10.13. "Future perspectives on *Vigna* diversity research" TOMOOKA, N. (NIAS) TRF Conference 2006 October 12–14. Cha-Am, Thailand

2006.10.22. "Traditional Swidden agriculture of the Khmu (Lao Thoung, Lao Shun) and its transformation." HIROTA, Isao (Kyoto University), NAKANISHI, Mami (Kyoto University), and NAWATA, Eiji (Kyoto University)
The 100th meeting of the Japanese Society of Tropical Agriculture, Tenpaku Campus, Meijo University, Nagoya City

2006.10.22. "Development process of land use in mountain areas of Mainland Southeast Asia: a case study of paddy field exploitation in a community in northern Laos." TOMITA, Shinsuke (University of Tokyo), KONO, Yasuyuki (ISEAS, Kyoto University), KOTEGAWA, Takashi (Kochi University), and SAKURAI, Katsutoshi (Kochi University)
The 100th meeting of the Japanese Society of Tropical Agriculture, Tenpaku Campus, Meijo University, Nagoya City

2006.11.11. "Three-year Monitoring of Shifting Cultivation Fields in a Karen Area of the Bago Mountains, Myanmar" TAKEDA, Shinya, Reiji, SUZUKI and Hla Maung THEIN
Kyoto Symposium, Crossing Disciplinary Boundaries and Re-visioning Area Studies: Perspectives from Asian and Africa, Memorial Tower, Kyoto University, Kyoto City

2006.11.26. "Socio-economic transformations process in the communities along the route 23, southern Laos: Colonialism, development and the adaptation to the market economy." NAKATA, Tomoko (Nanzan University)
Regular meeting of the Anthropological Study Grroup in Hokuriku, Kanazawa University, Kanazawa

2006.11.28. "Forest policy and swidden agriculture in Laos" YOKOYAMA, Satoshi
The 8th Southeast Asian Geography Association Conference, Namyang Girls High School, Singapore

2006.12.9. "Forestry policy in Laos and swidden agriculture." YOKOYAMA, Satoshi (Kumamoto University)
Asian International Forum 2006: "Asia and Japan: from exchange to corroborative creation." Saga University, Saga City

2007.1.9–10. "CSEAS-EWC-KKU Scoping Workshop on Comparative Analysis of Local Level Studies on Land Use and Cover Change in the Uplands of Mainland Southeast Asia" KONO, Yasuyuki (Kyoto University), organize and chairperson, Khon Kaen, Thailand

2007.1.26. "Sustainable use and conservation of the forests—Insights from fieldwork." KONO, Yasuyuki (Kyoto University)
A symposium: "For the Recovery of the Forests: thinking the scenario from the destructed land." Kyoto University, Uji City

**—Plains Ecology Group—**

2006.4. "Modernization and globalization of Laos and changes of daily life." NISHIMURA, Yuichiro (Aichi Industrial University)
The 2006 April regular meeting of the Society of Economic Geography, Chubu branch, Nagoya University, Nagoya City

2006.5. "A Method of Representing Human-Creature Relationship in the Form of Geographical Illustration Using Comics or Cartoons or Manga in Japanese." NONAKA, Kenichi (RIHN)
Sensi/able Spaces, Reikyavik, Iceland

2006.7.3–7. "Household life cycle and aquatic resource use in Vientiane Plain, Laos." IKEGUCHI, Akiko (Nagoya University of Industry)
International Geographical Union 2006 Brisbane Conference, Queensland University of Technology, Brisbane, Australia

2006.7.3–7. "Land-use Change and Natural resource-use Dynamics in the Vientiane Plain, LAO PDR." NONAKA, Kenichi (RIHN)
International Geographical Union 2006 Brisbane Conference, Queensland University of Technology, Brisbane, Australia

2006.7.3–7. "Representing Human-biosphere Relationship in a Form of Geographical Illustration." NONAKA, Kenichi (RIHN)
International Geographical Union 2006 Brisbane Conference, Queensland University of Technology, Brisbane, Australia

2006.7.3–7. "Time-geographic survey using GPS and GIS in suburban village near Vientiane, Laos." NISHIMURA, Yuichiro (Aichi Industrial University) and Kohei, OKAMOTO (Nagoya University)
International Geographical Union 2006 Brisbane Conference, Queensland University of Technology, Barisbane, Australia

2006.11.18. "Time-geographic comparative study on the human activities in Chinese and Japanese cities." OKAMOTO, Kohei (Nagoya University)
A joint seminar on the "Cities and social environments.", Nagoya University Shanghai Office, Shanghai, China

2006.11. "The use of wild life for food and its recent change in the Vientiane Plain, Laos PDR." NONAKA, Kenichi (RIHN)
Southeast Asian Geography Association, Nanyang Girls High School, Singapore

2007.3. "The Study of Insect-Eating, Nature and Society." NONAKA, Kenichi (RIHN)
The meeting of Japanese Geographical Society, Toyo University, Tokyo

2007.3. "Trend of critical GIS (public participation): thinking of space analysis from gender's viepoint." NISHIMURA, Yuichiro (Aichi Industrial University)
Working Group of the Ideas in Geography of the Society of Human Geography, Umeda Campus, Kwansei Gakuin University, Osaka City

2007.3.24. "On the use of as food in the central-south Laos." AJISAKA, Tetsuro (Kyoto University)
The 31th meeting of Japanese Society of Weeds Studies, Kobe City

2007.3.31. "The relations of rice growth and surrounding forests in rain-fed paddy cultivation in Vientiane Plains, Laos." MIYAFGAWA, Shuichi (Gifu university), SEKO, Maki (Gifu University), ADACHI, Yoshinori (Gifu University), Kozo, KAMIYA (Gifu University), S. SIVILAY (NAFRI) and Chisato, TAKENAKA (Nagoya University)
The 101 meeting of the Japanese Society of Tropical Agriculture, Tokyo University of Agriculture, Tokyo

2007.3.31. "Instability of production in rain-fed paddy fields in Vientiane Plains and farmers response." ADACHI, Yoshinobu (Gifu University), Shuichi, MIYAGAWA (Gifu University), Kozo, KAMIYA (Gifu University), Maki, SEKO (Gifu University), and S. SIVILAY (NAFRI)
The 101 meeting of the Japanese Society of Tropical Agriculture, Tokyo University of Agriculture, Tokyo

**—Human Ecology Group—**

2006.6.24 "Present status and problems of school health in Laos: Perceptual differences on the health and hygene education between teachers in training schools and primary school teachers in rural areas." TOMOKAWA, S. (Hiroshima University) and T. KOBAYASHI (Hiroshima University)
The 38th meeting of the Chugoku/Shikoku Society of School Health, Matsuyama City

2006.10.2. "Problems and prospect on the research and practical implementations of school health in Laos: to evoke the movement based on the practical evidences." TOMOKAWA, Sachi (Hiroshima University)
The 3rd International Symposium of the Graduate Course of the Health Department, Hiroshima University, Hiroshima City

2006.10.11. "The prospect of the Lahanam demographic surveillance system, Lao PDR." KANEDA E (Nagasaki

University), Tiengkham, PONGVONGSA (NIOPH), Bougnong, BOUPHA (NIOPH), and Kazuhiko MOJI (Nagasaki University)
The 47th meeting of the Japanese Society of Tropical Medicine and the 21st meeting of the Japanese Society of International Health and Medicine (Joint meeting), Nagasaki City

2006.10.11. "Significance of studies of medical ethics in developing countries: a reportfrom medical anthropological study in Lao PDR." IAWSA, Mitsuhiro (Chiba University)
The 47th meeting of the Japanese Society of Tropical Medicine and the 21st meeting of the Japanese Society of International Health and Medicine (Joint meeting), Nagasaki City

2006.10.12. "A preliminary study of the possible relevant factors for schiotosis among children in lowland peasant communities in southern Laos." TOMOKAWA, Sachi (Hiroshima University), Toshio, KOBAYASHI (Hiroshima University), Eiko KANEDA (Nagasaki University), and Boungnong BOUPHA (NIOPH)
The 47th meeting of the Japanese Society of Tropical Medicine and the 21st meeting of the Japanese Society of International Health and Medicine (Joint meeting), Nagasaki City

2006.10.13. "Human ecological approach in the tropical medicine and international public health studies. MOJI, Kazuhiko (Nagasaki University)
The 47th meeting of the Japanese Society of Tropical Medicine and the 21st meeting of the Japanese Society of International Health and Medicine (Joint meeting), Nagasaki City

**—Northern Thailand Group—**

2006.6.18. "House-hold level of changes of swidden agricultural activities in mountain villages of the Yao (Mien) in northern Thailand." MASUNO, Takashi (The Graduate University of Advanced Studies)
The 16th annual meeting of the Japanese Society of Tropical Ecology, Tokyo Agro-Technological University, Fuchu City

2006.6.18. "Hunting activities of the mountain farmers in tropical monsoon area: a case of northern Thailand." IKEYA, Kazunobu (NME) and MASUNO, Takashi (The Graduate University of Advanced Studies)
The 16th annual meeting of the Japanese Society of Tropical Ecology, Tokyo Agro-Technological University, Fuchu City

**—Yunnan Eco-History Group—**

2006.6.23. "Introduction: The Regional Eco-History and the Trans-Border World in Tropical Monsoon Asia" Tomoya AKIMICHI (RIHN)
International Symposium Yunnan Eco-History Symposium "The Prospect of Ecological Anthropology in Yunnan: The Eco-History of the Border Areas." Yunnan University, Kunming City, China

2006.6.23. "Population Influx and Environmental Change in Yuan Yan, Honghe County, Yunnan, in the 19th Century" Kazutaka NISHIKAWA (Chuo University)
International Symposium Yunnan Eco-History Symposium "The Prospect of Ecological Anthropology in Yunnan: The Eco-History of the Border Areas." Yunnan University, Kunming City, China

2006.6.23. "The Regional Eco-History on Poppy and Opium: A Case Study on Honghe County in Yunnan Province, P.R. China" Tsutomu KANESHIGE (Shiga Medical University)
International Symposium Yunnan Eco-History Symposium "The Prospect of Ecological Anthropology in Yunnan: The Eco-History of the Border Areas." Yunnan University, Kunming City, China

2006.6.23. "Introduction and Development of Tabacco—A Case Study of the Regional Eco-History in Yunnan

Province" Wang Zhifen (Yunnan University)
International Symposium Yunnan Eco-History Symposium "The Prospect of Ecological Anthropology in Yunnan: The Eco-History of the Border Areas." Yunnan University, Kunming City, China

2006.6.23. "The Regional Eco-History on Maize and Potato in Yunnan Province (the 18th Century-the 19th Century) Zhou Qiong (Yunnan University)
International Symposium Yunnan Eco-History Symposium "The Prospect of Ecological Anthropology in Yunnan: The Eco-History of the Border Areas." Yunnan University, Kunming City, China

2006.6.23. "Dragon Worship, Water Protection and Management of the Bai" Jin Shaoping (Yunnan University)
International Symposium Yunnan Eco-History Symposium "The Prospect of Ecological Anthropology in Yunnan: The Eco-History of the Border Areas." Yunnan University, Kunming City, China

2006.6.23. "Eco-History of Ethnic Relationships in Tropical Monsoon Forests: Case Studies of the Northern Thailand" Kazunobu IKEYA (National Museum of Ethnology)
International Symposium Yunnan Eco-History Symposium "The Prospect of Ecological Anthropology in Yunnan: The Eco-History of the Border Areas." Yunnan University, Kunming City, China

2006.6.23. "Thatched House—Study on Eco-environmental Transformation of Damanru Village in Menglian County through the Policy of Thatched House Alteration" Shi Hong (Kunming Science and Technology University)
International Symposium Yunnan Eco-History Symposium "The Prospect of Ecological Anthropology in Yunnan: The Eco-History of the Border Areas." Yunnan University, Kunming City, China

2006.6.23. "Population Fluctuation and Paddy Field Exploitation in Mountain Areas of Continental Southeast Asia: A Case of Ai Village, Oudomxai, Northern Laos" Shinsuke TOMITA (Kyoto University)
International Symposium Yunnan Eco-History Symposium "The Prospect of Ecological Anthropology in Yunnan: The Eco-History of the Border Areas." Yunnan University, Kunming City, China

2006.6.23. "National Policy, Changes of Land Management and Utilization of Mountainous Communities in Menghai County" Yan Ning (Yunnan Normal University)
International Symposium Yunnan Eco-History Symposium "The Prospect of Ecological Anthropology in Yunnan: The Eco-History of the Border Areas." Yunnan University, Kunming City, China

2006.6.23. "From Shangerila to Xishangbanna—the Forestry Conservation Policy in the Lantsang Drainage Area" Zhang Peifang (Yunnan University)
International Symposium Yunnan Eco-History Symposium "The Prospect of Ecological Anthropology in Yunnan: The Eco-History of the Border Areas." Yunnan University, Kunming City, China

2006.6.23. "From Political Economy to Political Ecology, in Yunnan Forestry" ABE Kenichi (CIAS, Kyoto University)
International Symposium Yunnan Eco-History Symposium "The Prospect of Ecological Anthropology in Yunnan: The Eco-History of the Border Areas." Yunnan University, Kunming City, China

2006.6.23. "Visual Records on Shifting Cultivation at Manbeng Viliage, Menghai County" Yang Gancai

(Ethnologist)
International Symposium Yunnan Eco-History Symposium "The Prospect of Ecological Anthropology in Yunnan: The Eco-History of the Border Areas." Yunnan University, Kunming City, China

2006.9.24–26. "Future of Ecological Anthropology in China." AKIMICHI, Tomoya (RIHN)
The First Advanced Forum on Ecological Anthropology in China, Yunnan University and Guangxi Nationalities University, Guilin, Guangxi, China

2006.9.24–26. "Ecological Anthropology in 21st Century" ABE Kenichi (CIAS, Kyoto University)
The First Advanced Forum on Ecological Anthropology in China, Yunnan University and Guangxi Nationalities University, Guilin, Guangxi, China

2006.9.24–26. "Comparative Area Studies on the Eco Resource Management and Utilization in Various Ecosystem in the World" YAMADA, Isamu (CSEAS, Kyoto University)
The First Advanced Forum on Ecological Anthropology in China, Yunnan University and Guangxi Nationalities University, Guilin, Guangxi, China

**—Material Culture and Information Retrieval Group—**

2006.6.3. "Perspective to the Eco-History in Southeast Asia from the cultural complexes." KUBO, Masatoshi (NME) as the representative
The 40th annual meeting of the Japanese Society of Cultural Anthropology, University of Tokyo, Tokyo
Subsession, The 40th annual meeting of the Japanese Society of Cultural Anthropology, University of Tokyo, Tokyo

2006.6.3. "Cultural resources as results of cultural anthropological research: for the goal of wise use of materials of the museums." KUBO, Masatoshi, (NME)
The 40th annual meeting of the Japanese Society of Cultural Anthropology, University of Tokyo, Tokyo

2006.6.3. "The collections and their history: the collection researches in the tropical Monsoon Area, Southeast Asia and their effective use in the Eco-History project." TAGUCHI, Rie (Tokai University)
The 40th annual meeting of the Japanese Society of Cultural Anthropology, University of Tokyo, Tokyo

2006.6.3. "For the shared use of the cultural materials of the museums: from studies of collections by St. Sophia University expedition to northwestern Thailand, stored in the Anthropological Museum of Nanzan University."KIDA, Ayumu (Anthropological Museum of Nanzan University, Nagoya University)
The 40th annual meeting of the Japanese Society of Cultural Anthropology, University of Tokyo, Tokyo

2006.6.3. "Loose rebellion: a case from mountain communities in northern Laos." SIMIZU, Ikuro (Daido Industrial University)
The 40th annual meeting of the Japanese Society of Cultural Anthropology, University of Tokyo, Tokyo

2006.6.3. "Horse as a media to link humans and horse: the eco-history from the material culture's perspective." KOJIMA, Mafumi (Kagoshima Junshin Women's University)
The 40th annual meeting of the Japanese Society of Cultural Anthropology, University of Tokyo, Tokyo

## Social Activity

**—Agro-Forestry Group—**

2006.3.31. "A seminar for those who challenge to devote for the world." (Organizer: Foundation of Kumamoto City International Exchange Promotion) YOKOYAMA, Satoshi (Kumamoto University), T. KUSAKA, (International Development Journal), Eiji, YASUDA (International Development Journal) and E. YASUDA (Ministry of Foreign Affairs).
International Exchange House of Kumamoto, Kumaoto City

## Interview to the newspaper, journals, TV, and broadcasting services

**[Journal]**

**—Agro-Forestry Group—**

FUKUDA, K. 2006. Bookreview, A. ONO "An Introduction to the environmental sociology in the mountains: delimited mountain villages and watershead management." in Sonraku-Shakai Kennkyu (Study of Village communities) 13(1): 61-62.

**[Newspaper]**

**—Agro-Forestry—**

2006.6.17. KONO, Yasuyuki, Book review, SONOE, Mitsuru, The environment and agricultural technology in northern Laos: the ecology of rice production in Tai culture area. Tosho-Sinbun vo. 2778.

**—Human Ecology Group—**

2006.8.11. TOMOKAWA, Sachi. "Jumping up Establishment of health program in Laos." Chugoku Newspaper.

**Full-Research**

**Research axis:** Conceptual Framework for Global Environmental Issues
**Project number:** 5-2FR
**Project name:** Interactions between the Environmental Quality of a Watershed and the Environmental Consciousness: With Reference to Environmental Changes Caused by the Use of Land and Water Resources
**Project leader:** YOSHIOKA, Takahito (RIHN)
**URL:** http://www.chikyu.ac.jp/idea/
**Key words:** environmental consciousness, watershed environment, value judgment, scenario questionnaire



## ■Research Objectives and Contents

### 1. Research objectives

It is essential for constructing the human society, which has sustainability and assures the possibility for future generations, to preserve and utilize the global environment, as a whole. Assuming that the global environmental issues are based on the interaction between humans and the nature, understanding the essence of sense of value for environments is important for solving the environmental issues. In the 5-2 IDEA project, the relationship between the environmental consciousness and the environmental qualities will be elucidated. A material-cycling model of watershed environments is developed for estimating and predicting the response of the environments to the artificial impacts on the land and water-resource uses. A tool for analyzing relationships between the environmental quality and the environmental consciousness, "Interactive Device between Environments and Artifacts (IDEA)" will be developed. Tools and procedures developed in this project will be proposed as a methodology, in which people can take a responsible approach to the solution of environmental issues.

### 2. Contents of the project

(1) Development of a response-prediction model of a watershed environment to the changes in land and water resource uses (Response-prediction model working group: RPM WG)
We will construct a response-prediction model for the forested-catchment environment to simulate environmental changes caused by a virtual impact to the watershed environment. The response-prediction model is composed of several sub-models on water and material cyclings in the watershed environment.

(2) Elucidation of the relationship between the environmental quality and the view of environmental value in the formation process of environmental consciousness (IDEA working group: IDEA WG)
The IDEA WG, which is composed of both social and natural scientists, discusses the structure of the IDEA as the main framework of the project and implements social surveys on the environmental consciousness.

1) Survey on people's interests in a forest-agricultural-aquatic system
Interests in the watershed environment are studied based on the interviews and questionnaires. Results of the analyses are used for selecting and scoping virtual impacts applied for the scenario questionnaire.

2) Survey on forest uses for future generations
People's preferences on aims, scales and methods for the forest cutting are surveyed.

3) Scenario questionnaire
Relationships between people's environmental consciousness and environmental change are analyzed using the responses to the questionnaires regarding the environmental change scenarios generated by the response-prediction model. The relationship between people's environmental consciousness and environmental qualities estimated from the scenario questionnaire will be fed-back to the next questionnaire, in order to determine whether the relationship shows the direct interaction between environmental consciousness and environmental quality or not.

## ■Relation with Research Program

Program of the Research axis "Conceptual Framework for Global Environmental Issues" is "Theoretical and empirical analysis for building conceptual framework of global environmental issues". Concepts on the people's sense of values associated with the environment, such as environmental consciousness and value judgment on the environment, are the basic concepts on the global environmental issues. The theoretical and empirical surveys on them, however, have been still immature. In this project, we have taken up these concepts from the viewpoints of humane-sociology and natural science. We will develop the interdisciplinary methodology to identify the environmental quality affecting the people's environmental consciousness and contribute for building the conceptual framework of the global environmental issues.

## ■Project Members

○Project leader

YOSHIOKA, Takahito (Research Institute for Humanity and Nature, Assoc. Prof.)

○Core members

FUJIHIRA, Kazutoshi (Institute of Environmentology, Head, View of value and mutual agreement)

HINO, Shuji (Faculty of Science, Yamagata University, Assoc. Prof., Lacustrine material cycling)

KOBA, Keisuke (Interdisciplinary Grad. Sch. Science and Engineer, Tokyo Institute of Technology, Assoc. Prof., Development of analytical procedures for environmental valuation)

NAGATA, Motohiko (Fac. Humanities and Social Sci., Mie Univ., Assoc. Prof., Environmental sociology and psychology)

NAKATA, Kisaburo (Fac. Oceanography, Tokai Univ., Prof., Model of lacustrine processes)

OHNISHI, Fumihide (Takenaka Corperation, Staff, Environmental valuation using GIS technique)

OHTE, Nobuhito (Grad. Sch. Agriculture, Kyoto University, Assoc. Prof., Models for water and material cycling)

SEKINO, Tatsuki (Research Institute for Humanity and Nature, Assoc. Prof., Development of IDEA)

SHIBATA, Hideaki (Field Science Center for Northern Biosphere, Hokkaido University, Assoc. Prof., Dynamics of watershed ecosystems)

SUGIMAN, Toshio (Integrated Human Studies, Kyoto University, Prof., Social Psychology)

TAKAHARA, Hikaru (Grad. Sch. Agr. Kyoto Prefecture University, Prof., Pollen analysis of forest vegetation)

TAKANO, Masao (Grad. Sch. Environmental Studies, Assoc. Prof., Models for material cyclings in the forest-freshwater ecosystem)

TOKUCHI, Naoko (Field Science Education and Research Center, Kyoto University, Assoc. Prof., Assessment of forest cutting)

YASUE, Koh (Faculty of Agriculture, Shinshu University, Assoc. Prof., Annual tree-ring analysis)

ZHENG, Yuejun (Research Institute for Humanity and Nature, Assoc. Prof., Statistical survey of environmental consciousness)

○Cooperative research members

FENG, Fong-Long (National Chung Hsing University, China, Prof., Environmental valuation using GIS Technique)

HAYAKAWA, Kazuhide (Lake Biwa Environmental Research Institute, Shiga, Senior-Researcher, Lacustrine material cycling)

IGARASHI, Masataka (Center for Environmental Science, Hokkaido, Res. Staff, Nutrient dynamics)

IKEGAMI, Yoshiyuki (Field Science Center for Northern Biosphere, Hokkaido University, Assist. Prof., Vegetation and land-use analyses)

ISHIKAWA, Yasushi (Center for Environmental Science, Hokkaido, Res. Staff, Analysis of lake ecosystem)

KAKIZAWA, Hiroaki (Grad. Sch. Agriculture, Hokkaido University, Prof., Ecosystem management)

KITAGAWA, Hiroyuki (Grad. Sch. Environ. Stud. Nagoya Univ., Assoc. Prof., Palaeoenvironment analysis)
MAKI, Daisuke (AMITA Institute for Sustainable Economics, Director, Ecological anthropology)
MIKAMI, Hidetosi (Center for Environmental Science, Hokkaido, Res. Staff, Isotopic analysis of lake ecosystem)
OKADA, Naoki (Grad. Sch. Agriculture, Kyoto University Assoc. Prof., Annual tree-ring analysis)
SHOJI, Yasushi (Graduate School of Agriculture, Hokkaido University, Assist. Prof., Contingent valuation method)
TAKANO, Keishi (Hokkaido Institute of Public Health, Res. Staff, Plankton population dynamics)
TATENO, Ryunosuke (Graduate School of Agriculture, Kagoshima University, Assist. Prof., Development of a response-prediction model)
YAMANE, Takuji (University of Human Environments, Assoc. Prof., Environmental economics)
YOSHIDA, Toshiya (Field Science Center for Northern Biosphere, Hokkaido University, Assist. Prof., Land plant population dynamics)



## ■Progress of the Project (From April 2006 to March 2007)

### 1. Response-prediction model (RPM)

Full-set of the model has been developed. In order to input the calculation results by the PnET-CN model, which simulates the material cyclings in the forest ecosystem, into the lake model, a hydrologic model (HYCYMODEL) was adopted. Using HYCYMODEL, stream discharge rates were calculated. Although a mesh-model for the lacustrine material cycle had been developed, a box-model with 8 boxes was constructed to save the calculation time. For the scenario questionnaire, the box-model will calculate environmental changes caused by imaginary impacts. When the logging impact was applied as an imaginary impact, the stream hydrochemistry and lake ecosystem changes were estimated. Due to the logging impact, the stream nitrate ($NO_3^-N$) concentrate increased. However, the biomass of phytoplankton in Lake Shumarinai did not change. Phosphorous limitation in the lake was successfully represented.

### 2. Attitude survey

From the questionnaire on people's interests in a forest-agricultural-aquatic system, several environmental qualities, which are suggested to be important for people to evaluate the environment, have been selected. Scenario questionnaire will be planed as a conjoint analysis. The questionnaire entitled "Survey on the forest use for future generations" has been conducted. In this survey, 8 water systems were selected from 101 water systems registerd as one class water systems in Japan, according to their areas, forest area ratios, population densities and so on. People who live upper and lower reaches in those water systems were randomly selected. Conjoint analysis was applied to elucidate people's preferences on places, areas and methods for forest logging. People's preference suggested that the plantation after logging was primarily essential in the forest management, compared with logging place and area. The detail analyses have been continued.

## ■Modifications on the Original Research Plan

The response-prediction model was changed from PnET-BGC to PnET-CN. The box-model for the material cycling in the lacustrine ecosystem has been developed, because the mesh-model spends much time to complete the calculation. Preliminary survey on the scenario questionnaire planned in this fiscal year has been postponed, since the selection of the environmental qualities considered in the questionnaire was delayed. Instead of the preliminary scenario questionnaire, people's preferences on aims of the forest logging and the logging methods will be elucidated by the "Survey on the forest use for future generations".

## ■Outcomes

### 1. Outline of outcomes

(1) Development of the RPM

1) Carbon and nitrogen cyclings in forest environments

To estimate material cycles and vegetation dynamics, we chose and run the PnET-CN model, using measured data as an input. We found that the PnET-CN model could be applicable to our project though there are some discrepancies between observations and simulation results. It was suggested that some modifications might be needed in hydrological processes for the application to our study sites. As preliminary predictions, effects of the intensity of logging on stream chemistry were simulated for the forest in the Lake Shumarinai watershed. Although logging affected the stream chemistry, the 25% logging was estimated to only slightly increase the stream $NO_3^-$. The model results also suggested that the effect of the increase in atmospheric nitrogen deposition on the stream $NO_3^-$ concentration was compensated by the increase in atmospheric $CO_2$ concentration. In the simulation results for the forest in Wakayama and Nara prefectures, the patterns of the biomass increment reaching a plateau and the decrease of leaf nitrogen concentration with forest age seemed to be simulated well.

2) Rainfall-runoff model

Performance of the hydrological sub model in the PnET-CN model was examined using the dataset from a Japanese temperate forest under Asian Monsoon climate. Although the PnET-CN model reproduced the monthly discharge of the stream water, the model was not able to simulate sufficiently the seasonal variation in the stream $NO_3^-$ concentration in the catchment. In order to develop a robust model for ecosystem scale water and nutrient cycles, more realistic hydrologic sub model must be built in the model. A method for the description of rainfall-runoff phenomena from sub-basins was considered to propose a new rainfall runoff model based on the assumption that retention capacities in the soil has a great effect on the runoff phenomena. The simulation results agreed fairly well with observed data collected at two small catchments in the Lake Shumarinai watershed. However, this simulation needed detailed precipitation dataset with respect to time and space. Such detailed dataset was unable to be collected for the objective field. Therefore, the HYCYMODEL developed for the Japanese forested watershed was applied. The HYCYMODEL was able to partly reproduce the seasonal pattern of the monthly $NO_3^-$ concentration.

3) Nutrient loading from agricultural fields

Nutrient loading from influent rivers to Lake Shumarinai has been investigated since the beginning of the project.

4) Flow model of lake water and biogeochemical material cycling in lake environments

The development of a model to simulate the flow of lake water was completed. Water temperature and flow rate in each water layer were simulated. The biogeochemical ecosystem model has been also developed as a mesh model. However, it took too much time (several days) for the calculation. Since the preparation of the scenario questionnaire requires tens of different scenarios, the mesh type of the biogeochemical ecosystem model is not applicable. A box-model with 8 boxes was newly developed to save the calculation time. Parameters in the model have been tuned using observational data.

(2) Attitude survey for elucidating relationships between the environmental quality and the people's view on environmental value: IDEA WG

1) Interviews to residents in the Lake Shumarinai watershed and nearby city and town

Evaluation grid method on the transcripts from the interviews for residents, who live in and around the Lake Shumarinai watershed, suggested the following sequence in the people's environmental perception: Causes → environmental changes → recognition of environmental change → value judgment on environmental changes. This sequence matched the basic assumption of the project.

2) Survey on people's interests in a forest-agricultural-aquatic system

Questionnaire on people's interests in a forest-agricultural-aquatic system was conducted to determine ranges of type and scale of virtual impact to the environment. Procedure for preparing the questionnaire was considered to keep high versatility and applicability to other environments. The questionnaire was distributed to 120 sites and 1800 residents in Japan. (http://www.chikyu.ac.jp/idea/QS/interestQS.htm, in Japanese). Factor analyses of the questionnaire revealed that people seemed to evaluate environments similarly, with respect to the categories such as direct use value, indirect use values and environmental functions. In this survey, people's images for forest, river and lake were collected. Applying the morpheme analysis, keywords (more than 1000 phrases) were assorted into several expressions relating to environmental qualities, such as "purified air", "pleasant landscape" and so on. Following categories were selected: for the forest, "recreational space", "purified air", "pleasant forest landscape", "plentiful (rich) forest", "habitat for animals" and "natural food production"; for river and lake, "swimming and playing in the water", "pleasant freshwater landscape", "fishing places" and "habitat for fishes". Using these categories, environmental qualities, which should be included in the scenario questionnaire, will be decided.



## 2. Publication

### Article

E. Konohira, J. Shindo, T. Yoshioka and H. Toda (2006) "Stream water chemistry in Japan". *Journal of Japanses Association of Hydrological Sciences*, 36: 145–149 (in Japanese with English abstract).

T. Wakamatsu, E. Konohira, J. Shindo, T. Yoshioka, K. Okamoto, A. Itaya, M.-S. Kim (2006) "Dissolved inorganic phosphate concentration in stream water in Japan and factors controlling the concentration". *Journal of Japan Society on Water Environment*, 29: 679–686 (in Japanese with English abstract).

T. Yoshioka, R. Tateno and M. Yoh (2006) "Prospects of simulation models in watershed studies". *Japanese Journal of Limnology*, 67: 231–234 (in Japanese with English abstract).

H. Shibata, N. Ohte, F. Satoh and T. Yoshioka (2006) "Biogeochemical model in forest ecosystem: Application and problem of PnET model". *Japanese Journal of Limnology*, 67: 235–244 (in Japanese with English abstract).

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N. Ohte (2006) "Necessity to consider hydrological controls of biogeochemical cycling when developing a catchment-scale ecosystem model". *Japanese Journal of Limnology*, 67: 259–266 (in Japanese with English abstract).

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K. Nakata, S. Hino and S. Ueda (2006) "Biogeochemical model coupled with hydrodynamic model in lake environment". *Japanese Journal of Limnology*, 67: 281–291 (in Japanese with English abstract).

### Books

5-2 IDEA project Response-Prediction model studying team (Katsuyama, M. and T. Yoshioka, eds.) (2006) "*Research Report No.1. Simulation models of Watershed Biogeochemistry*" (ISBN: 4-902325-07-1), Research Institute for Humanity and Nature, pp. 73.

T. Kohyama, J. Urabe, K. Hikosaka, H. Shibata, T. Yoshioka, E. Konohira, J. Murase and E. Wada (2007) Terrestrial ecosystems in monsoon Asia: Scaling up from shoot module to watershed. "*Terrestrial Ecosystems in a Changing World (Canadel, J., Pataki, D., Pitelka, L. eds.)*", The IGBP Series, Springer, Berlin, p. 285–296.

T. Yoshioka (2007) Forest and Water, Humans and Nature. "*Mori-Sato-Umi Renkann-gaku*", Field Science Education and Research Center (ed.), Kyoto University Press, p. 211–222, in Japanese.

## Miscellaneous

R. Tateno and T. Yoshioka (2006) "Approach to elucidate the relationship between environmental qualities and people's environmental consciousness". *Shinnrin-Kagaku*, 47: 70–72 (in Japanese).

M. Katsuyama (2007) Report of Biogeochemistry Workshop 2006 "Water Resource Preservation in Pluvial Regions", *Journal of Japan Society of Hydrology & Water Resources*, 20, pp. 125–126 (in Japanese).

## Symposium and annual meeting

[International]

H. Shibata, X. Xu, A. Ogawa and T. Yoshioka (2006) Spatial and seasonal pattern of stream chemistry in snow-dominated forest basin in northern Japan. LTER (Long-Term Ecological Research) all scientists meeting, September, Colorado, USA.

T. Matsukawa and T. Yoshioka (2006) Effect of childhood nature experience on environmental concerns about watershed. RIHN 1st International Symposium "Water and better human life in the future", November, Kyoto, Japan.

M. Katsuyama, K. Fukushima and N. Tokuchi (2006) Influence of Geology on Water Yielding Function in Forest Catchments. RIHN 1st International Symposium "Water and better human life in the future", November, Kyoto, Japan.

M. Katsuyama, N. Ohte and N. Kabeya (2006) Disagreement of end-members and geographic sources of streamwater: riparian control mechanism, AGU Fall Meeting, December, San Francisco, USA.

[Domestic]

H. Shibata (2006) Application of process-based model of biogeochemical cycling in forest watershed in Hokkaido, northern Japan., Japan Geoscience Union Meeting 2006, May, Makuhari, Japan.

M. Nagata and T. Yoshioka (2006) Structure of evaluation on watershed environment. The 47th Annual meeting of the Japanese Society of Social Psychology, September, Sendai, Japan.

T. Yoshioka (2006) Sample Survey on Interests in Watershed Environment (1) Background and outline of the survey. Annual meeting of Society of Environmental Science, Japan, September, Tokyo, Japan.

T. Matsukawa and T. Yoshioka (2006) Sample Survey on Interests in Watershed Environment (2) Structure of environmental consciousness from the viewpoint of value. Annual meeting of Society of Environmental Science, Japan, September, Tokyo, Japan.

N. Hayashi, T. Yoshioka and S. Saito (2006) Sample Survey on Interests in Watershed Environment (3) Relationship between interests in environments and intention to environmental conservation activities. Annual meeting of Society of Environmental Science, Japan, September, Tokyo, Japan.

K. Takano, Y. Ishikawa, H. Mikami, M. Igarashi, S. Hino and T. Yoshioka (2006) Features of cyanobacterial bloom in the eutrophic area in Lake Shumarinai, Hokkaido. The 71th Annual meeting of the Japanese Society of Limnology, September, Matsuyama, Japan.

T. Yoshioka, M. Katsuyama, A. Ogawa, N. Sasaki, S. Hino and H. Shibata (2006) Carbon and nitrogen isotope compositions in Lake Shumarinai sediments. The 71th Annual meeting of the Japanese Society of Limnology, September, Matsuyama, Japan.

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M. Katsuyama, K. Fukushima and N. Tokuchi (2006) Comparison of Rainfall-Runoff Characteristics between Forest Catchments with Granitic rock and Sedimentary rock, Annual Meeting of Japanese Association of Hydrological Sciences 2006, October, Nagano, Japan.

M. Katsuyama, N. Ohte and N. Kabeya (2006) Estimation of the runoff sources of streamwater: Relationships of End-

members and Geographic sources, Biogeochemistry Workshop (2006) "Water Resource Preservation in Pluvial Regions", November, Kochi, Japan.

H. Shibata, X. Xiu, A. Ogawa and T. Yoshioka (2006) Hydrologic and geographical controls on spatial and seasonal variations of stream hydrochemistry in a forested watershed. Biogeochemistry Workshop 2006 "Water Resource Preservation in Pluvial Regions", November, Kochi, Japan.

T. Matsukawa and T. Yoshioka (2006) Controlling factors of esthetic experiences on environments and their implications. The 34th seminar of the Japanese Society for Environmental Sociology, December, Tokyo, Japan.

H. Shibata, X. Xiu, A. Ogawa and T. Yoshioka (2007) Spatial distribution of the stream hydrochemistry caused by topographic differences in the forested watershed. The 54th Annual Meeting of Ecological Society of Japan, March, Matsuyama, Japan.

**Full-Research**
**Research axis:** Conceptual Framework for Global Environmental Issues
**Project number:** 5-3FR
**Project name:** A New Cultural and Historical Exploration into Human-Nature Relationships in the Japanese Archipelago
**Project leader:** YUMOTO, Takakazu (RIHN)
**Core members:** see No. 3
**Key words:** paleo-vegetation, wise use, biodiversity, human ecology, indigenous knowledge

## 1. Research Objectives and Contents

The Japanese Archipelago has been extremely densely populated since the Neolithic Age, and most of the natural environment has been strongly influenced by human activities. The life patterns of humans have, in turn, been shaped by their use of biological resources, by their fauna and flora. Moreover, although the Japanese biota is derived from life forms which migrated from the continental mainland during periods when sea levels were lower, it has been further augmented by human beings, who have introduced additional species at various times. However, in spite of the intensive intervention by humans in the natural environment, there is still a rich biota in the Japanese Archipelago, which includes, for example, an abundance of indigenous species of angiosperm and freshwater fish. Because of this, it has been widely assumed that human-nature relations in pre-modern Japan were governed by some kind of traditional wisdom that prevented people from exhausting biological resources; or even that it was the moderate human activity itself that preserved the abundant biota and sustainability of biological resources in Japan.

However, the question of exactly how stable the coexistence between the nature and humans was in the past has not been resolved. Could it be that even in the Japanese Archipelago there has been a history of exhausting biological resources? If the wisdom and will to use biological resources in a sustainable way existed, how common were they? Moreover, could there have been any major social changes that occurred as a result of exhausting certain biological resources?

Although each of these questions has been tackled within the limits of one historical period, region, or one academic discipline, they have not been researched using a trans-disciplinary approach, over an area that would represent the whole Japanese Archipelago, or over a time span that encompasses the whole period from the earliest human habitation of Japan to modern times. The objective of the present project is to reconstruct as historical processes. It will examine, first, how the natural environment has been changed since the late Paleolithic Age, when human beings are first known to have existed in the Japanese Archipelago; second, how the biota has changed during that process; and third, what kind of perceptions, knowledge and skills the humans possessed, concerning both nature in general, and specific life forms. Our aim is to present a foundation for contemplating how human-nature relations should be developed, and to suggest concrete measures for preventing mass extinction of species in the near future.

## 2. Relation to Research Axis

The Japanese Archipelago extends over 3000 km from North to South, and includes subarctic, cool temperate, warm temperate and subtropical climatic zones. It is evident that, even during the global environmental changes that have taken place over the past 100,000 years, these various climatic zones were present. As a result, the characteristics of the natural environment and the human subsistence activities within the Japanese Archipelago varied greatly, as did the relationships between nature and human activity. Under the influence of climatic change and human activities, the distributions of individual species of plants and animals in the Japanese Archipelago and its surrounding landmasses have been constantly changing. Populations have repeatedly divided, expanded and diminished in response to changes in the availability of suitable habitat. Where suitable habitat was not available, the species became extinct.

The knowledge and skills that humans have developed concerning individual species can be considered to contain

both the idea that biological resources should be used sustainably, and the desire to harvest without fear of exhausting the resources. Although ethnological research has highlighted phenomena such as public management of lands and resources, and environmental preservation through limited harvest, it is still unclear when, in which region and among whom the philosophy of preservation was put into practice, or under which social conditions it became an influential way of thinking. Throughout the period of human habitation, the Japanese Archipelago has been blessed with a warm climate and abundant rainfall, and consequently abundant biological resources. But what is the history of overuse and exhaustion of those resources? And how did individual species fare in this historical process? These are the central issues of the present project.

The three main problems to be investigated here are as follows.

1) How did new subsistence/economic systems (human-nature relationships concerning food, shelter, clothing, tools, fuel, fodder, fertilisers, medicine, rituals) emerge and spread?
2) How were these subsistence/economic systems maintained, and how and why did they end? What kind of social system (social structure, economic foundation, system of spatial organisation, technical system, perception of nature) supported the subsistence/economic system, and, after it ends, how does the social system change?
3) What becomes of the biological resources that were connected to the system after it ends? Do they become entirely extinct or remain as relics?

Answering the above questions can contribute to the conceptual framework for global environmental issues.

**3. Project Members**

| Name | Affiliation | Position | Role |
|---|---|---|---|
| ◎YUMOTO, Takakazu | Research Institute for Humanity and Nature | Professor | Project Leader |
| **1) Analysis of ancient vegetation and changes in the distribution of plants and animals** | | | |
| ○MURAKAMI, Noriaki | Graduate School of Science, Kyoto University | Associate Professor | Analysis of the distribution and genetic constitution of living plants (sub-leader of plant geography WG) |
| ○SHIMIZU, Isamu | Centre for Ecological Research, Kyoto University | Professor | Analysis of the distribution and genetic constitution of living animals |
| ○TAKAHARA, Hikaru | Faculty of Agriculture, Kyoto Prefectural University | Professor | Reconstruction of historical environmental from plant remains (sub-leader of paleo-ecosystem WG) |
| ○YAMAGUCHI, Hirofumi | Graduate School of Agriculture and Biological Sciences, Osaka Prefecture University | Professor | Analysis of the distribution and genetic constitute of domesticated plants |
| FUJII, Noriyuki | Graduate School of Science, Tokyo Metropolitan University | Assistant Professor | Analysis of the distribution and genetic constitution of living plants |
| HASE, Yoshitaka | Faculty of Science, Kumamoto University | Professor | Reconstruction of historical environments from plant remains |

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| IGARASHI, Yaeko | Laboratory for the Study on North Paleo-environment | Director | Reconstruction of historical environments from plant remains |
| MINAKI, Mutsuhiko | Faculty of Commercial Sciences, University of Marketing and Distribution Sciences | Professor | Reconstruction of historical environments from plant remains |
| MOMOHARA, Arata | Faculty of Horticulture, Chiba University | Associate Professor | Reconstruction of historical environmental from plant remains |
| MORITA, Yoshimune | Research Botanical Garden, Okayama University of Science | Associate Professor | Reconstruction of historical environments from plant remains |
| NAKAYAMA, Yu'ichiro | Graduate School of Agriculture and Biological Sciences, Osaka Prefecture University | Assistant Professor | Analysis of the distribution and genetic constitute of domesticated plants |
| KANOUCH, Astuko | School of Letters, Meiji University | Part-time Lecturer | Reconstruction of historical environments from plant remains |
| KITO, Norio | Faculty of Education, Hokkaido Education University | Associate Professor | Reconstruction of historical environments from plant remains |
| SETOGUCHI, Hiroaki | Graduate School of Human and Environmental Studies, Kyoto University | Associate Professor | Analysis of the distribution and genetic constitution of living plants |
| SUKA, Takeshi | Nagano Environmental Conservation Research Institute | Researcher | Analysis of the distribution and relations between animals and humans |
| TOMARU, Nobuhiro | Graduate School of Bioagricutural Sciences, Nagoya University | Associate Professor | Molecular plant geological studies on the Fagaceae plants |
| TACHIDA, Hidenori | Graduate School of Science, Kyushu University | Professor | Analyses on population genetics of plants |
| TANAKA, Hiroyuki | Primate Research Institute, Kyoto University | Assistant Professor | Analysis of the distribution and genetic constitution of living animals |
| TAMURA, Minoru | Graduate School of Science, Osaka City University | Associate Professor | Analysis of the distribution and genetic constitution of living plants |
| TSUMURA, Yoshihiko | Forestry and Forest Products Research Institute | Head of Genome Analysis Laboratory | Molecular plant geological studies on conifers |
| USHIMARU, Atsushi | Faculty of Human Development, Kobe University | Associate Professor | Analysis of the distribution and relations between plants and humans |

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| YAMANE, Kyoko | Graduate School of Agriculture and Biological Sciences, Osaka Prefecture University | Assistant Professor | Analysis of the distribution and genetic constitute of domesticated plants |

**2) Reconstruction of human ecology based on population estimates and the diets**

| | | | |
|---|---|---|---|
| ○KATAYAMA, Kazumichi | Graduate School of Science, Kyoto University | Professor | Analysis of human diets based on old human bones (sub-leader of old human bones) |
| ○NAKAI, Sei'ichi | Faculty of Humanities, Toyama University | Associate Professor | Historico-linguistic analysis of the human-nature relationships |
| ○NAKANO, Takanori | Research Institute for Humanity and Nature | Professor | Stable isotope analysis of human-nature relations in the past and the present |
| ○TAYASU, Ichiro | Centre for Ecological Research, Kyoto University | Associate Professor | Stable isotope analysis on human-nature relations in the past and the present |
| YONEDA, Minoru | National Institute of Environmental Studies | Chief Researcher | Stable isotope analysis on human-nature relations in the past and the present |

**3) Reconstruction of human-nature relations in the past, and the analysis of the social systems behind them**

[HOKKAIDO]

| | | | |
|---|---|---|---|
| ○TAJIMA, Yoshiya | Faculty of Economics, Kanagawa University | Professor | Historical studies on human-nature relationships (sub-leader of Hokkaido WG) |
| FUMOTO, Shin'ichi | Faculty of Education and Human Sciences, Niigata University | Associate Professor | Historical studies on human-nature relationship |
| KOJIMA, Kyoko | Open Education Center, Waseda University | Part-time Lecturer | Historical studies on human-nature relationships, Ainu cases |
| KOSUGI, Yasushi | Graduate School of Letters, Hokkaido University | Associate Professor | Archeological studies on human-nature relationship |
| MIURA, Yasuyuki | Historical Museum of Hokkaido | Curator | Historical studies on human-nature relationship |
| NAKANO, Yasushi | Graduate School of Humanities and Social Sciences, University of Tsukuba | Associate Professor | Ethnological studies on human-nature relationship |
| USHIRO, Hiroshi | Historical Museum of Hokkaido | Chief Curator | Archeological analysis of the human-nature relationships |

[TOHOKU]

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|---|---|---|---|
| ○IKEYA, Kazunobu | National Museum of Ethnology | Associate Professor | Ethnological study and research on the human-nature relations (sub-leader of Tohoku WG) |

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|---|---|---|---|
| IZAWA, Kosei | Faculty of Science and Engineering, Teikyo University of Science | Professor | Analyses on human-nature relationships and the distribution of mammals |
| KIKUCHI, Isao | Department of Cultural Studies, Miyagi Gakuin Women's University | Professor | Historical analysis of the human-nature relationships |
| MITO, Yukihisa | Japan Monkey Center | Chief Curator | Cultural studies on human-nature relationships |
| OKA, Keisuke | Faculty of Policy Management, Tohoku Bunka Gakuen University | Professor | Ethnological studies on human-nature relationships |
| [CHUBU] | | | |
| ○SHIROUZU, Satoshi | The Law Faculty, Chuo-Gakuin University | Associate Professor | Historical studies on human-nature relationships (sub-leader of Chubu WG) |
| ARAGAKI, Tsuneaki | Tokyo National College of Technology | Part-time Lecture | Historical studies on human-nature relationships |
| HASEGAWA, Hirohiko | School of Letters, Meiji University | Part-time Lecture | Geographical studies on human-nature relationships |
| MORIMOTO, Sanae | Faculty of Commerce, Okayama Shoka University | Lecture | Environmental economics of the commons |
| NAKAZAWA, Katsuaki | Nagano National College of Technology | Associate Professor | Historical studies on human-nature relationships |
| SEKIDO, Akiko | Faculty of Education, Gunma University | Associate Professor | Anthropo-geographical studies on human-nature relationships |
| TAGUCHI, Hiromi | Faculty of Arts, Tohoku University of Arts and Design | Professor | Ethnological analysis of the human-nature relationships |
| YOSHIMURA, Satoko | National Museum of Japanese History | Assistant Professor | Ethnological analysis of the human-nature relationships |
| [KINKI] | | | |
| ○OSUMI, Katsuhiro | Forestry and Forest Products Research Institute | Senior Management Officer | Analyses on human-nature relationships (sub-leader of Kinki WG) |
| FUKAMACHI, Kazue | Faculty of Human and Environmental Studies, Kyoto Prefectural University | Associate Professor | Ecological analyses on human-nature relationships |
| ITO, Hiroki | Forestry and Forest Products Research Institute | Chief Researcher | Analyses on human-nature relationships and the distribution of plants |
| MIZUNO, Shoji | School of Human Culture, The University of Shiga Prefecture | Professor | Historical studies on human-nature relationship |
| OGURA, Jun'ichi | Faculty of Humanities, Kyoto Seika University | Professor | Reconstruction of historical environments from plant remains |

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|---|---|---|---|
| OKU, Hirokazu | Forestry and Forest Products Research Institute | Chief Researcher | Analyses on human-nature relationships |
| SAKUMA, Daisuke | Osaka Museum of Natural History | Chief Curator | Historical analysis of the human-nature relationships |
| [KYUSHU] | | | |
| ○IINUMA Kenji | Faculty of Humanities, Beppu University | Professor | Study on environmental history (sub-leader of Kyushu WG) |
| DANJO, Tatsuo | Faculty of Humanities, Beppu University | Professor | Ethnological analysis of the human-nature relationships |
| GOTO, Muneyoshi | Faculty of Humanities, Beppu University | Professor | Archeological analysis of the human-nature relationships |
| HARUTA, Naoki | Department of Education, Kumamoto University | Associate Professor | Studies on the historical documents of human-nature relations |
| HATTORI, Hideo | Graduate School of Social and Cultural Studies, Kyushu University | Professor | Historical studies on human-nature relationships |
| NAGAMATSU, Atsushi | Miyazaki Municipal University | Associate Professor | Ethnological analysis of the human-nature relationships |
| NAKAYAMA, Akinori | Faculty of Humanities, Beppu University | Associate Professor | Geographical analysis of the human-nature relationships |
| SHIMOMURA, Satoshi | Faculty of Humanities, Beppu University | Professor | Archeological analysis of the human-nature relationships |
| TACHIBANA, Masanobu | Faculty of Humanities, Beppu University | Professor | Archeological analysis of the human-nature relationships |
| [RYUKYU] | | | |
| ○ANKEI, Yuji | Faculty of International Studies, Yamaguchi Prefectural University | Professor | Ethnological study and research on the human-nature relations (sub-leader of Ryukyu WG) |
| ANKEI, Takako | Faculty of Medicine, Yamaguchi University | Part-time Lecturer | Ethnological analysis of the human-nature relationships |
| KINOSHITA, Naoko | Faculty of Letters, Kumamoto University | Professor | Archeological analysis of the human-nature relationships |
| MORIGUCHI, Mitsuru | Okinawa International College | Part-time Lecturer | Analysis of the distribution and relations between animals and humans |
| TOGUCHI, Ken | Faculty of Law and Letters, University of the Ryukyu | Part-time Lecturer | Geographical analyses on human-nature relationships |
| TOYAMA, Masanao | Okinawa Culture Promotion Foundation | Chief Curator | Ecological analyses on human-nature relationships |

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| [SAKHARIN] | | | |
| ○SATO, Hiroyuki | Graduate School of Humanities and Sociology, The University of Tokyo | Professor | Ethnological studies on human-nature relationships |
| IZUHO, Masami | Archeological Research Center | Curator | Archeological analysis of the human-nature relationships |
| MASUDA, Ryuichi | Creative Research Initiative "Sousei", Hokkaido University | Associate Professor | Ethnological studies on human-nature relationships |
| ODA, Hirotaka | Center for Chronological Research, Nagoya University | Assistant Professor | Archeological analysis of the human-nature relationships |
| SASAKI, Shiro | National Museum of Ethnology | Professor | Ethnological studies on human-nature relationships |
| SODA, Tsutomu | Institute of Tephrochronology for Nature and History | President | Reconstruction of historical environmental from plant remains |
| TAKAHASHI, Keiichi | Lake Biwa Museum | Chief Curator | Reconstruction of historical environmental from animal remains |
| YAMADA, Satoru | Kitami City Board of Education | Curator | Archeological analysis of the human-nature relationships |
| **4) Theoretical modeling of human-nature relations** | | | |
| ○ABE, Hiroshi | Graduate School of Human and Environmental Studies, Kyoto University | Associate Professor | Philosophical study on human-nature relations |
| ○IMAMURA, Akio | Research Institute for Humanity and Nature | Research Fellow | Ecological studies on human-nature relations |
| ○MATSUDA, Hiroyuki | Faculty of Environment and Information Sciences, Yokohama National University | Professor | Theoretical study on the extinction of species |
| ○YAHARA, Tetsukazu | Faculty of Science, Kyushu University | Professor | Empirical study on conservation of species Theoretical study on |

(◎: Project leader, ○: Core member)

**4. Progresses in Pre-Research**

**Organizing working groups and targeting core sites in six districts**

We have re-organized six district-based working groups targeting core sites (shown in parentheses), Hokkaido (Central and Eastern Hokkaido), Tohoku (Kitakami), Chubu (Akiyama-Tsumari), Kinki (Kyoto-Tanba), Kyushu (Kuju-Aso), Ryukyu (Okinawa Island and Amami-oshima Island), each of which possesses characteristic climate, vegetation, flora and fauna, and traditional life style of people, and includes ca. 100 km×100 km area of agricultural and forestry villages, and mountains. Also, we organized three method-based working groups targeting paleo-ecosystem, plant-geography, and old human bones. We do not organize the working group on animal-geography because several research projects are undergoing by 21 Century COE program in Kyoto University, Ryukyu University and Hokkaido University; nor human population estimates which were already done by a project of International Research Center for Japanese Studies. Each working group held several meetings to review the pre-existing information and to discuss the approaches, expected results and time-table of the project.

## 5. Publication and Science Communication

### Publications (Books)

[in Japanese]

Nakai, S. (2006) Landscape, sense, vocabulary: vocabulary of diet and environment utilization system. *"Field Linguistics of Japan"* Katsura-shobo: 21–32.

Nakazawa, K. (2006) Residences and function of Samurai warriors: a view about excavated iron arrowheads and hunting *"Archaeology of Kamakura Period"* (Ono, M. and Hagiwara, M. eds.) Koshi Shoin: 95–105.

Sakuma, D. (2006) *Satoyama* in catchment area of Yamato-gawa river *"Nature of Yamato-gawa River"* (Osaka Museum of Natural History ed. ) Tokai University Press: 48–49.

Yamaguchi, H. (2006) Impact on Ecosystems of un-isolated cultivation of genetically-modified crops. *"Series Agriculture of 21th Century: A Study of Genetically-modified Crops"* (Association of Japanese Agricultural Scientific Societies ed.) Yokendo: 63–85.

Yumoto, T. and Matsuda, H. eds. (2006) *"World Heritage Eaten by Deer"* Bun-ichi Co., Ltd.

Yumoto, T. (2006) What is meant by "nature conservation"? *"Sharing the Future Earth Environment with Children"* (Hidaka, T. ed.) Kodansha Ltd.: 75–90.

Yumoto, T. (2006) From a view of the 10,000 years' forest history. *"Who Owns the Forests? The Future of Asian Forests and People"* (Hidaka, T. and Akimichi, T. eds.) Showado: 26–60.

[in English]

Ikeya, K. (2006) Mobility and territoriality among hunting-farming-trading societies: the case study of bear hunting in mountain environments of northeastern Japan. *"Beyond Affluent Foragers: Rethinking Hunter-Gatherer Complexity"* (Grier, C., J. Kim, J. Uchiyama eds.), Oxbow Books, UK: 34–44.

### Scientific Papers

[in Japanese]

Horiuchi, M., Fukamachi, K., Oku, K. and Morimoto, H. (2006) Utilization patterns of mountain forest resources in *Satoyama* landscapes in western part of Shiga Prefecture in late Meiji period: reconstructed from diary written by local people. *Journal of the Japanese Institute of Landscape Architecture* 69(5): 705–710.

Ito, H. (2006) Changes in undergrowth after thinning in a *Cryptomeria japonica* plantation in the suburbs of Kyoto City. *Applied Forest Science* 15: 83–86.

Morita, Y., Kamiya, C., Nasu, H. and Momohara, A. (2006) Pollen spectra of surface samples from mires in the Konsen District, eastern Hokkaido, Japan. *Japanese Journal of Historical Botany* 14: 45–60.

Ohno, T., Maenaka, H. and Yamaguchi, H. (2006) Diversity of bamboo utilization in Yunnan, China, Thailand and Vietnam. *Bamboo Journal* 23: 56–64.

Sasaki, T., Sugai, T., Yanagida, M., Morita, Y., Furusawa, A., Fujiwara, O., Moriya, T. Nakagawa, T. and Miyagi, T. (2006) Reconstruction of depositional environment and paleoclimate changes from a small basin deposit during the past 300,000 years, Central Japan. *The Quaternary Research (Daiyonki-kenkyu)* 45: 275–286.

Seo, A. (2006) Comparison of geographic patterns of genetic differentiation among several plant species distributed in the Ryukyu Archipelago. *Bunrui* 6: 115–120.

Yasuda, K. and Yamaguchi, H. (2006) Growth and seed production in wild and weed azuki beans under shading conditions. *Journal of Weed Science and Technology* 51(2): 61–68.

Yoneda, M. (2006) Review on the Bone Chemistry for Prehistoric Anthropology. *Anthropological Science (Japanese Series)* 114: 5–15.

Yumoto, T. (2006) Forest-dwelling animals endangered by a civil war. *Shinrin-Kankyo (Forest and Environment)* 8: 94–104.

[in English]

Aoki, K., T. Matsumura, T. Hattori and N. Murakami (2006) Chloroplast DNA phylogeography of *Photinia glabra* (Rosaceae) in Japan. *American Journal of Botany* 93: 1852–1858.

Fujii, N. and K. Senni (2006) Phylogeography of Japanese alpine plants: biogeographic importance of alpine region of central Honshu in Japan. *Taxon* 55: 43–52.

Igarashi, Y. (2006) The lateglacial and Holocene history of vegetation in Sakhalin and Hokkaido. *EAFES 2 Symposium Abstract* 419.

Igarashi, Y. and T. Oba (2006) Fluctuations in the East Asian monsoon over the last 144ka in the northwest Pacific based on high-resolution pollen analysis of IMAGES core MD01-2421. *Quaternary Science Reviews* 25: 1447–1459.

Ikeda, H., K. Senni, N. Fujii and H. Setoguchi (2006) Refugia of *Potentilla matsumurae* (Rosaceae) located at high mountains in the Japanese archipelago. *Molecular Ecology* 15: 3731–3740.

Imamura, A., T. Yumoto and J. Yanai (2006) Urease activity in soil as a factor affecting the succession of ammonia fungi. *Journal of Forest Research* 11: 131–135.

Iwasaki, T., K. Aoki, A. Seo and N. Murakami (2006) Intraspecific sequence variation of chloroplast DNA among the component species of deciduous broad-leaved forests in Japan. *Journal of Plant Research* 119: 539–552.

Kawase D. and T. Yumoto (2006) Clonal structure and genetic differentiation in the serpentine plant *Japonolirion osense* (Petrosaviaceae) using AFLP markers. *Acta Phytotax. Geobot.* 57: 183–190.

Kobashi, S., N. Fujii, A. Nojima and N. Hori (2006) Distribution of chloroplast DNA haplotypes in the contact zone on *Fagus crenata* in the southwest of Kanto District, Japan. *Journal of Plant Research* 119: 265–269.

Tsujino, R., T. Hino, N. Agetsuma and T. Yumoto (2006) Variation in tree growth, mortality and recruitment among topographic positions in a warm temperate forest. *Journal of Vegetation Science* 17: 281–290.

## Reports

[in Japanese]

Oka, T., Igarashi, Y. and Hayashi, M. (2006) Study of the alluvial deposits (Alluvium) in the Teshio plain by the analyzing drilling data and pollen analysis. *Report of the Geological Survey of Hokkaido* 77: 17–75.

Yumoto, T. (2006) Ideas of the history to re-build up natural forests. *Electric Power Civil Engineering* 325: 3–8.

## Journal and Newpapers

[in Japanese]

Ankei, Y. (2006) A view of Amami Islands from Yaeyama Islands: looking for folk culture which has been lost from Okinawa Island. *Nankai-nichinichi Shinbun*, September 5th, 2006.

Ikeya, K. and Ooi, T. (2006) To where human-animal boundary has gone? *Eco-sophia* 17: 2–9.

Mito, H. (2006) How have Japanese people had relations with wild animals? *Eco-sophia* 17: 10–17.

Yumoto, T. (2006) Hidden invaders in an environmental reforestation. *Eco-sophia* 17: 71–77.

## Symposia and Meetings

[in Japanese]

| | |
|---|---|
| March 14, 2006 | Workshop 'Protect the World Heritage from Deer Feeding Damage: A Proposal for Restoration of Nature of Ohmine Mountains' Tenkawa Village, Nara Prefecture |
| October 28, 2006 | Symposium 'Forgotten Giant Tree: An Endangered Species *Pinus amamiana* var. *amamiana*' Kagoshima City, Kagoshima Prefecture |
| February 24, 2007 | On-site Meeting to Explain Research Results 'People and Nature in Akiyama-goh' Sakae Village, Nagano Prefecture |
| March 18, 2007 | On-site Explanation of Research Results 'Research results of Excavations in Sencho-muta, |

Kokonoe-town (Archeaological sites of Toshinokami and Muta-guchi)' Kokonoe Town, Oita Prefecture

March 22, 2007 54th Annual meeting of Ecological Society of Japan, Symposium 'History of Environmental Changes and Human Activity in Kyoto Basin: Approaches from Various Methodology' Ehime University, Matsuyama City, Ehime Prefecture

## Press and Broadcasting

[in Japanese]

**[Newspapers]**

August 10, 2006 'Increasing Animal Damage and Nature Conservation' *Seikyo Shinbun*

August 30, 2006 'Studying "Human-Nature Relationships"' *Nankai-nichinichi shinbun*

August 30, 2006 'Comprehensive Research by RINH begins' *Ohshima Sinbun*

March 2, 2007 'Comprehensive Research of Akiyama-goh will carry out in next 5 years' *Tsunan Shinbun*

**[Radio]**

August 1, 2006 'Hiroshi Yamazaki's journey around the person and the sounds' *KBS Kyoto*

**Pre-Research**

**Research axis:** Environmental Change Impact Assessment
**Project number:** 1-3PR
**Project name:** Vulnerability and Resilience of Social-Ecological Systems
**Project leader:** UMETSU, Chieko (RIHN)
**Core members:** see section 3
**URL:** http://www.chikyu.ac.jp/resilience/
**Key words:** resilience, poverty, social-ecological system, resource management, environmental variability, vulnerability, human security, semi-arid tropics

## 1. Research Objectives

### A. Background and Objective

A vicious cycle of poverty and environmental degradation such as forest degradation and desertification is a major cause of global environmental problems. Especially in semi-arid tropics (SAT) including Sub-Saharan Africa and South Asia where a majority of the poor concentrates, poverty and environmental degradation widely prevails. People in this area largely depend on rainfed agricultural production systems and their livelihoods are vulnerable to environmental variability. Environmental resources such as vegetation and soil are also vulnerable to human activities. In order to solve this "global environmental issues", a key is a quick recovery from or a resilience of human society and ecosystems to impacts of environmental shocks. Thus in this project we consider society and ecology as one social-ecological system and try to perform empirical analysis for its resilience in semi-arid tropics.

### B. Objectives of Research

The objective of the research is 1) to consider impacts of environmental variability through vulnerability and resilience of human activities in semi-arid tropics; 2) to study factors affecting social-ecological systems and the recovery from impacts and shocks; 3) to analyze factors determining an ability of households and communities to recover from environmental shocks and the roles of institutions in improving household resilience; and 4) to identify the factors affecting resilience of social-ecological systems and ways in which resilience of the subsistence farmers in semi-arid tropics against environmental variability can be strengthened.

## 2. Research Organization, Contents and Methodology

### A. Research Organization

In order to achieve these objectives, the research is organized into four themes. Each theme is linked to one another; and this allows a comprehensive assessment of resilience of social-ecological systems. In contrast to a narrowly-focused-discipline based research group, our theme based research approach is trans-disciplinary. Researchers from various disciplines will closely work together under a supervision and coordination of the respective theme leaders. Many researchers involve in more than one theme, which allows greater flexibility and tight interdisciplinary integration. The followings are brief descriptions of the four themes:

**Theme I: Ecological resilience and human activities under variable environment**

**Theme II: Household and community responses to variable environment**

**Theme III: Political-ecology of vulnerability and resilience: historical and institutional perspectives**

**Theme IV: Integrated analysis of social-ecological systems.**

The first two themes consider site specific or village level analysis and those studies are extended to temporal as well as spatial analyses in the third and forth themes at larger scales. We invited appropriate experts in many fields such as agronomy and soil science, agricultural and development economics, anthropology, geography, climatology, and remote sensing to jointly conduct the study. The time scale of the analysis is from 1960s to the present when the changes in social and natural environment have been accelerated.

**B. Research Areas**

The study areas of the project are in selected countries in semi-arid tropics (SAT). The population in SAT largely live in rainfed agricultural areas and their marginal livelihood depends critically on fragile and poorly endowed natural resources. The research areas cover India in south Asia, Burkina Faso in western Africa and Zambia, which is the primary study site, in Southern Africa. In Zambia, drought prone Eastern and Southern provinces are our target research areas.

**C. Research Contents and Methodologies**

**Theme I: Ecological Resilience and Human Activities under Variable Environment**
**(Theme Leader: Hitoshi SHINJO)**

This theme tries to capture the interaction between ecological resilience and human activities under fluctuating environment. The theme I is further organized into two sub-themes. In theme I-1, we will monitor spatial and temporal changes of soil conditions, e.g. organic materials and fertility related properties, succession of grass/shrub/tree communities, micro-climatic condition in above-ground and soil, and degradation of land that are expected to happen during the process of conversion from stable fallow woodland to agricultural land. The purposes are to evaluate the components, capacity and succession of ecological resilience. In theme I-2, the influence of ecological resilience on human activities are revealed by comparing soil properties, which is related to ecological resilience, across landscapes, e.g. valley, slope and plane land, and by examining the types and histories of land use, and succession stages of agro-ecology.

**Theme II: Household and Community Responses to Variable Environment**
**(Theme Leader: Takeshi SAKURAI)**

The rural households in the semi-arid tropics have developed various kinds of risk-management and risk coping mechanisms to respond to an unpredictable rainfall. In order to serve as the integrated analysis of socio-ecological systems, the theme II investigates rural households' strategies against the erratic rainfall in four interrelated sub-themes. Theme II-1 is to measure the risky event objectively, that is, rainfall. Theme II-2 concerns with the endowments of resources available to households including physical, natural, human, financial, and social capitals. Theme II-3 is devoted to the analyses of households' behaviors: risk-management before the rain, adjustment during the rainy season, and risk-coping after harvest. And finally in theme II-4, households' resilience in risky environment is evaluated in terms of income-smoothing, consumption-smoothing, and nutritional status.

**Theme III: Political-Ecology of Vulnerability and Resilience: Historical and Institutional Perspective**
**(Theme Leader: Shuhei SHIMADA)**

This theme focuses on the institutional aspects of social resilience in the area of semi-arid tropics. Social resilience undergoes changes along with social, political, economic as well as ecological changes. It is important to understand both in the context of local history and physical settings. There are three sub-themes under theme III. Theme III-1 considers the change of economic policy and its impacts on agricultural production and land use. Theme III-2 analyzes changes in socio-political and their impacts on land use. Theme III-3 investigates historical changes of drought responses and crop failures and the role of social institutions to mitigate such situations.

**Theme IV: Integrated Analysis of Social-Ecological Systems (Theme Leader: Mitsunori YOSHIMURA)**

The primary goal of this theme is to clarify the relationship between ecological vulnerability, resilience and human activities through investigations of changes in land use and multi-level social/ecological systems. The fourth theme is organized into four sub-themes. Theme IV-1 analyzes meteorological factors that determine the drought formation mechanisms at a continental scale. Theme IV-2 investigates land use change and its impact on ecological system such as forest degradation and vegetation change using multi-temporal aerial photographs and satellite imageries. Theme IV-3 considers the role of actors of early warning systems and its effects on food security. Finally in theme IV-4 we analyze and evaluate regional resilience with district level data.

**3. Project members**

| | |
|---|---|
| ◎UMETSU, Chieko | RIHN, Associate Professor, Regional analysis, farm survey |
| □YACHI, Shigeo | RIHN, Associate Professor, Advisor |
| **Theme I** | |
| ○SHINJO, Hitoshi | Graduate School of Agriculture, Kyoto University, Assistant Professor, organic materials and soil fertility |
| ○TANAKA, Ueru | Graduate School of Global Environmental Studies, Kyoto University, Associate Professor, soil degradation and erosion |
| SHIBATA, Shozo | Graduate School of Global Environmental Studies, Kyoto University, Associate Professor, tree/shrub components and its succession |
| MIURA, Reiichi | Graduate School of Agriculture, Kyoto University, Lecturer, grass/herb components and its succession |
| MIYAZAKI, Hidetoshi | Graduate School of Agriculture, Kyoto University, Ph.D. Candidate, measurement of land plot, crop components |
| MWALE, Moses | Mt. Makulu Central Research Station, Zambia Agricultural Research Institute, Ministry of Agriculture and Cooperatives, Vice Director, soil analysis |
| NORO, Yoko | Graduate School of Agriculture, Kyoto University, MS. Candidate, organic materials and soil fertility |
| **Theme II** | |
| ○SAKURAI, Takeshi | Policy Research Institute, MAFF, Senior Economist, household survey and analysis |
| YAMAUCHI, Taro | Graduate School of Medicine, The University of Tokyo, Assistant Professor, Assessment of health and nutrition status at individual-, household- and population-level |
| KANNO, Hiromitsu | National Agricultural Research Center for Tohoku Region, Laboratory of Agricultural Meteorology, Team Leader, measurement of rainfall data |
| **Theme III** | |
| ○SHIMADA, Shuhei | Graduate School of Asian and African Area Studies, Kyoto University, Professor, village society and institution |
| ARAKI, Minako | Faculty of Letters and Education, Ochanomizu University, Associate Professor, village society and institution |
| HANZAWA, Kazuo | College of Bioresource Sciences, Nihon University, Professor, farm household survey |
| ITO, Chihiro | Graduate School of Asian and African Area Studies, Kyoto University, MS. Candidate, labor migration in rural areas |
| KODAMAYA, Shiro | Graduate School of Social Sciences, Hitotsubashi University, Professor, agricultural development and social change |
| MULENGA, Chileshe | Institute of Economic and Social Research, University of Zambia, Senior Lecturer, analysis of social behaviors |
| NAKAMURA, Tetsuya | Graduate School of Asian and African Area Studies, Kyoto University, MS. Candidate, Socio-economic responses to environmental change |
| **Theme IV** | |
| ○YOSHIMURA, Mitsunori | RIHN, Associate Professor, ecological change monitoring |
| IITSUKA, Yukiko | The International Peace Cooperation Headquarters, Cabinet Office, Programme Advisor, Early warning system |

| | |
|---|---|
| LEKPRICHAKUL, Thamana | RIHN, Senior Project Researcher, household survey and analysis |
| MATSUMURA, Keiichiro | Graduate School of Global Environmental Studies, Kyoto University, Associate Professor, land tenure system and rural livelihood |
| SAEKI, Tazu | RIHN, Assistant Professor, climate monitoring |
| YAMASHITA, Megumi | Survey College of Kinki, Lecturer, vegetation monitoring |
| **India** | |
| ○PALANISAMI, K. | Tamilnadu Agricultural University, Centre for Agricultural and Rural Development Studies, Director, household survey and analysis |
| YATAGAI, Akiyo | RIHN, Assistant Professor, monsoon rainfall analysis |
| RANGANATHAN, C.R | Tamilnadu Agricultural University, Department of Mathematics, Professor, economic modelling |
| CHANDRASEKARAN, B. | Tamilnadu Agricultural University, Directorate of Research, Director, rice production analysis |
| GEETHALAKSHMI, V. | Tamilnadu Agricultural University, Department of Agricultural Meteorology, Professor, monsoon rainfall analysis |
| **Burkina Faso** | |
| Kimseyinga Savadogo | University of Ouagadougou, Department of Economics, Professor, household data analysis |

(◎: Project leader, ○: Core member, □: Advisor)

**4. Research Progress (FY2006)**

**A. Research Organization**

1) We discussed about the MOU with Zambia Agricultural Research Institute (ZARI) and reached an agreement. The MOU was signed in March 2007.
2) We discussed with researchers and staff members of the following institutions which agreed to collaborate with the research project: Central Statistical Office, Ministry of Finance and National Planning; Food Security Research Project in Zambia (USAID/MSU); Institute of Economic and Social Research, University of Zambia (INESOR/UNZA); Meteorology Department, Ministry of Communication and Transport; Survey Department, Ministry of Land; Zambia Vulnerability Assessment Committee (ZVAC).

**B. Methodologies**

During the FY2006, we conducted literature review, field observation and preliminary interview with farmers and identified some research targets that should be included in our resilience study.

**C. Results of Preliminary Field Research**

1) During the field trip to Zambia in June-July 2006, we identified the field experiment site for Theme I near Petauke in Eastern Province. We obtained permission for the use of fallow land from the district administrator as well as villagers. Also a preliminary soil analysis was undertaken in order to clarify spatial distribution of soil characteristics. Theme I supports Theme II for soil analysis.
2) From August 2006, two graduate students resided in two different villages in Southern Province for their in-depth interview survey on labor migration, drought response and others. They continued to stay in their respective villages until the end of cropping season in June 2007. (Theme III)
3) In order to know typical land use change patterns in past years, we analyzed multi-temporal satellite imageries as our preliminary analysis. In addition, we assessed a land cover change using a Normalized Difference Vegetation Index (NDVI) which is a measurement of spectral reflectance of the visible and near-infrared band combinations.

During the field trip to Zambia in August-September 2006 (Theme IV), we conducted ground truth survey to verify the results of the preliminary analysis with actual ground conditions. In this year's ground truth survey, we also visited some villages and interviewed farmers where the land use change in the past was quite rapid. Furthermore, we examined the impact of drought from vegetation change at the national level using mid-level resolution multi-temporal satellite imageries. Finally, rainfall data from national meteorological station in Zambia were used to show the specific rainfall patterns during drought.

4) During the field trip to Zambia in November-December 2006, we visited a local hospital, health center and obtained information on effects of drought on health and nutrition. Reportedly, the rate of low birth weight infants (< 2.5 kg) significantly increased during the drought year. We also obtained information on HIV/AIDS prevalence in rural Zambia.
5) For human dimensions and human security, we surveyed global food security issues as well as institutions for food aid and early warming systems developed in Ethiopia for comparison.
6) We organized a Resilience Seminar "Developing Methods for Institutional Analysis: Institutional Diversity in Resource Management) by Prof. Elinor Ostrom in July 2nd at RIHN and discussed about the institutions of resource management with many researchers who attended the seminar.
7) We organized five Resilience Seminars in FY2006 (2 July, 25 July, 2 October, 9 November, 22 February)

**5. Changes Made from the Initial Plan**

1) The effects of drought on humans appear especially in infant health status. The information related to their weight, height, and arm circumference is very important. Thus we consider this aspect not only in Theme II but also in other surveys.
2) In FY2007, we plan to start plot-level rainfall measurement and household interview only in Southern Province.

**6. Major Findings (2006)**

1) In Eastern Province of Zambia, we selected the site where the field experiments will be carried out from 2007. The project has secured an approval from the local community and from responsible public authorities. In the site, we estimated the spatial variability of soil and plants so that we can allocate the experimental plots in an effective manner.
2) We identified areas around Petauke in Eastern Province and around Sinazongwe in Southern Province as sites for household survey to be launched in 2007. The Zambian Central Agricultural Research Station has agreed to manage the implementation of the household survey in the sampled villages.
3) S. Shimada has conducted field study in a village at Central Province of Zambia on increased vulnerability of HIV/AIDS infected farmers. Mr. T. Nakamura and Ms. C. Ito have started field study at villages (Malabali v. & Simweele v.) of Gwembe Tonga area in Southern Province. Nakamura wants to make clear how diversified cultivation system contributes to alleviating vulnerability; and Ito tries to analyze the role of out-migration as mitigating strategies when agriculture production failed in drought prone area.
4) Satellite and meteorological data were collected and preliminary data analysis had been executed in sub-theme I and II. The analysis is a part of a global environment and land use change monitoring. Literature on early warning system, international food aid, and land use change monitoring was reviewed and synthesized. Furthermore, an extensive household survey was started.

**7. Remaining Issues**

1) In Southern Province of Zambia, we will carry out field trial in farmers' fields from 2007 onward to evaluate land productivity based on their ecological conditions, such as topography and soils. We are planning to select the sites appropriate for this trial.

2) Under budget and human resource constraints, we have decided to start an intensive household survey only in Southern Province in 2007 and to reduce the number of sample households to about fifty. It is essential that preparation to conduct a comprehensive field survey which includes rain gauge and weather station installations be completed before the start of the rainy season in November 2007.
3) S. Shimada will join workshop on "Resilience, reality and research in African environment" to study and discuss about the challenge issues of resilience study. Mr. Hanzawa and Shimada will continue field study at C. village at Central Province, and Mr. Nakamura will finalize his study at M. village of Southern Province. One new researcher will start long-term field study in a village in Gwembe Tonga area.
4) Data accumulation and compilation will be continued and full-scale data analysis will also be started. Early warning system will be investigated not only at an international level but also at Zambian country level. Economic data collection and analysis will be done and household survey will be started.



## 8. Publications

### Book and book chapters

Sakurai, T. Measurement and Analytical Framework on Social Capital, in S. Yokoyama and T. Sakurai (eds.) Potential of Social Capital for Community Development, Asian Productivity Organization, Tokyo, 2006.

Sakurai, T. Role of Social Capital for Economic Development: Evidence and Issues, in S. Yokoyama and T. Sakurai (eds.) Potential of Social Capital for Community Development, Asian Productivity Organization, Tokyo, 2006.

Sakurai, T. Rainfall as an Idiosyncratic Shock: Evidence from West Africa Semi-Arid Tropics, in J. S. Caldwell et al (eds.) Supporting Farmer Decisions in Response to Climatic Risk, JIRCAS Working Report No. 49, Japan International Research Center for Agricultural Sciences, Tsukuba, pp. 60–74, 2006.

Yamauchi, T. Modernization, nutritional adaptability, and health in Papua New Guinean Highlanders and Solomon Islanders. In: R. Ohtsuka R, S. J. Ulijaszek (eds.), Health Change in the Asia-Pacific Region, Cambridge University Press, Cambridge, 2007.

### Journal articles

Shinjo, H., Kato, A., Fujii, K., Mori, K., Funakawa, S., and Kosaki, T. 2006: Carbon dioxide emission derived from soil organic matter decomposition and root respiration in Japanese forests under different ecological conditions. Soil Science and Plant Nutrition, 52, 233–242.

Sakurai, T. Intensification of Rainfed Lowland Rice Production in West Africa: Present Status and Potential Green Revolution. Developing Economies, vol. XLIV, no. 2, pp. 232–251, 2006.

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Ohashi, J., Naka, I., Kimura, R., Tokunaga, K., Yamauchi, T., Natsuhara, K., Furusawa, T., Yamamoto, R., Nakazawa, M., Ishida, T., and Ohtsuka, R. Polymorphisms in the ABO blood group gene in three populations in New Georgia Islands, Solomon Islands. Journal of Human Genetics, vol. 51, no. 5, pp. 407–411, 2006.

Walker, R., Hill, K., Gurven, M., Migliano, A., Chagnon, N., Djurovic, G., Hames, R., Hurtado, A. M., Oliver, W. J., De Souza, R., Valeggia, C., and Yamauchi, T. Growth rates, developmental markers, and life histories in 21 small-scale societies. American Journal of Human Biology, vol. 18, pp. 295–311, 2006.

Beekley, M. D., Abe, T., Kondo, M., Midorikawa, T., and Yamauchi, T. Comparison of maximum aerobic capacity and body composition of elite Sumo wrestlers to elite athletes in combat and other sports. Journal of Sports Science

& Medicine, Combat Sports Special Issue, pp. 13–20, 2006.

Zhou, H., Yamauchi, T., Natsuhara, K., Yan, Z., Lin, H., Ichimaru, N., Kim, S.W., Ishii, M., and Ohtsuka, R. Overweight in urban schoolchildren assessed by body mass index and body fat mass in Dalian, China. Journal of Physiological Anthropology, vol. 25, pp. 41–48, 2006.

Umetsu, Chieko, Thamana Lekprichakul and Ujjayant Chakravorty. "Efficiency and Technical Change in the Philippine Rice Sector during the Post Green Revolution Era," Studies in Regional Science, vol. 36, no. 1, pp. 161–178, 2006.

**Reports**

Umetsu, Chieko ed. *Vulnerability and Resilience of Social-Ecological Systems*: FY2006 PR Project Report, pp. 1–162, March 2007.

Sakurai, T. Shock and Poverty in Sub-Saharan Africa: The Case of Burkina Faso. Vulnerability and resilience of Social-Ecological Systems, FY2006 PR Project Report, pp. 17–26, 2007.

Yamauchi, T. Longitudinal Monitoring Survey on the Growth and Nutritional Status of Children in Zambia: Assessment of the Impact of Drought on the Health and Nutritional Status of Children. Vulnerability and resilience of Social-Ecological Systems, FY2006 PR Project Report, pp. 27–32, 2007.

Yamauchi, T., Onishi, H., Phonepadith, X., and Monely, V. Resting energy expenditure and physical activity level of rice farmers in Lao PDR during the post-harvest season. A Transdisciplinary Study on the Regional Eco-History in Tropical Monsoon Asia: 1945–2005, pp. 208–218, 2006.

S. Shimada (2006) How can we perceive social vulnerability: Rethinking from a case study on the impact of infectious disease on agricultural production in Zambia, (in 'Vulnerability and resilience of social-ecological systems' *FY2005 FS Project Report*, Research Institute for Humanity and Nature, Kyoto, pp. 41–55).

**9. Field research**

June–July 2006, Zambia (Shinjo, Miyazaki)

To find a site suitable for the field experiment starting in 2007 and evaluate the spatial variability of soil and plants within the site, we carried out the field survey and took soil samples in Eastern Province of Zambia

June 2006, Zambia (Umetsu, Sakurai)

Meeting with Zambia Agricultural Research Institute, Central Statistical Office, and University of Zambia for project implementation, MOU and research permit

August 2006–March 2008, Zambia (Ito, Nakamura)

Intensive interview survey at the village in Southern Province

November–December 2006, Zambia (Umetsu, Lekprichakul, Yamauchi)

Meeting with Central Statistical Office, Interview with health facilities in Southern Province

January 2007, India (Kume)

Tsunami affected agricultural households in the coastal area of the State of Tamil Nadu

March 2007, Zambia (Umetsu, Lekprichakul)

Extensive household survey with Central Statistical Office, Meeting with collaborating institutions (Theme IV)

March 2007, Zambia (Yoshimura, Yamashita)

Cross check investigation with site inspection and preliminary results of satellite data analysis at Southern province, field investigation for Eastern province, negotiation and information exchange with Zambian government offices (Theme IV)

March–April 2007, Zambia (Shinjo)

Theme I field survey in Eastern Province

**10. Symposium, Workshop, Seminar in FY2006**

**a. The 1st Resilience Workshop, June 2–3, 2006**

[Program]

- 2nd June 2006 13:00–18:00

"The planned sloppiness in pearl millet growing in West Africa", Reiichi Miura, Graduate School of Agriculture, Kyoto University

"Nutritional and behavioral adaptation in vulnerable living environments: a case study of the Pacific Island populations", Taro Yamauchi, Graduate School of Medicine, University of Tokyo

"The relationships between pastoralists and agriculturalists and annual change of their livelihood activities in the Sahel region of West Africa", Hidetoshi Miyazaki, Graduate School of Agriculture, Kyoto University

"Climate change and its impact on agriculture in Tamilnadu India", V. Geethalakshmi, RIHN and Tamilnadu Agricultural University

"Asian Precipitation—Highly Resolved Observational Data Integration towards Evaluation of the Water Resources", Akiyo Yatagai, RIHN

"Monitoring on Environmental Change in Zambia from a meteorological standpoint", Tazu Saeki, RIHN

"How to make the best use of the experience of meteorological observation in Mali, West Africa?", Hiromitsu Kanno, National Agricultural Research Center for Tohoku Region

"Resilience for socio-ecological changes in rural area: a case study of drought-management in Ethiopia", Keiichiro Matsumura, Graduate School of Human and Environmental Studies, Kyoto University

"Can we quantify resilience by environment history and mineral balance approaches?", Takanori Nagano, RIHN

- 3rd June 2006 9:30–16:00

"Vulnerability and Resilience of Social-ecological Systems", Chieko Umetsu, RIHN

"Ecological resilience and human activities under variable environment", Hitoshi Shinjo, Graduate School of Agriculture, Kyoto University

"Household and Community Responses to Variable Environment", Takeshi Sakurai, Policy Research Institute, Ministry of Agriculture, Forestry and Fisheries

"Vulnerability and resilience in political ecology: From historical and institutional point of view", Shuhei Shimada, Graduate School of Asian and African Area Studies, Kyoto University

"Integrated Analysis of Socio-Ecological Systems", Mitsunori Yoshimura, RIHN

"Socio-economic changes in Gwembe Valley, Zambia", Shiro Kodamaya, Graduate School of Social Sciences, Hitotsubashi University

"Agricultural production and farmer's economic activities in Zambia—A case of C village—", Kazuo Hanzawa, College of Bioresource Sciences, Nihon University

"The collection and measurement of spatial information for multi-scale GIS data system", Megumi Yamashita, Survey College of Kinki

General Discussion

**b. Resilience Seminar**

- The 12th Resilience Seminar

Date and Time: Monday July 3rd 2006, 10:00–11:30 Place: RIHN Lecture Hall

Co-organized by the Society of Commons Studies and Biwa-Yodo Watershed Project

Title: Developing Methods for Institutional Analysis: Institutional Diversity in Resource Management

Speaker: Elinor Ostrom, Co-Director, Workshop in Political Theory and Policy Analysis, Indiana University

- The 13th Resilience Seminar

Date and Time: Tuesday, 27 July 2006, 16:00–17:30 Place: RIHN Seminar Room 1 & 2

Title: Application of climate information for enhancing resilience to climate risk: Indian case study
Speaker: Prof. V. Geethalakshmi, Visiting Researcher at RIHN and Professor, Department of Meteorology, Tamilnadu Agricultural University, India

- The 14th Resilience Seminar
  Date and Time: Monday, October 2nd, 2006, 15:30–17:15 Place: RIHN Seminar Room 1 & 2
  15:30–16:30 Title: Influence of gregarious flowering of *Melocanna baccifera* in Mizoram, North-East India
  Speaker: Shozo SHIABTA, Graduate School of Global Environmental Studies, Kyoto University
  16:30–17:15 Title: Zambia Field Trip Report; Speaker: Mitsunori Yoshimura, RIHN
- The 15th Resilience Seminar
  Date & time: Thursday, November 9th, 2006, 15:30–17:00 Place: RIHN Seminar Room 1 & 2
  Title: International approach to drought early warning system for human security—Current trends in international organisations and Ethiopia—
  Speaker: Yukiko IITSUKA, Secretariat of the international peace cooperation headquarters, Cabinet office
- The 16th Resilience Seminar
  Date & time: Thursday, February 22nd, 2007, 15:30–17:00 Place: RIHN Lecture Hall
  15:30–16:15 Title: Creating social space for economic activities among rural women in Southern Zambia
  Speaker: Tokuko Narisawa, Graduate School of Asian and African Area Studies, Kyoto University
  16:15–17:00 Title: Sorghum cultivation in Gwembe valley, southern Zambia
  Speaker: Kazue Awaji, Graduate School of Asian and African Area Studies, Kyoto University

**11. Oral Presentations**

| | |
|---|---|
| 2006 | Hitoshi Shinjo, Keiichi Hayashi, Kenta Ikazaki, Soh Sugihara, Ueru Tanaka and Takashi Kosaki. "Optimal Organic Matter Management for the Multi-Stakeholders in the Sahel of West Africa", 18th World Congress of Soil Science, Philadelphia, US. |
| April 4–8, 2006 | Umetsu, Chieko, K. Palanisami, Ziya Coşkun, Sevgi Donma, Takanori Nagano, "Water Scarcity and Alternative Cropping Patterns in Lower Seyhan Irrigation Project: A Simulation Analysis", the International Symposium on Water and Land Management for Sustainable Irrigated Agriculture, Çukurova University, Adana-Turkey. |
| April 22, 2006 | F. N. Rwezimula, J. Ikeno and U. Tanaka. "Characteristics of the indigenous farming systems under diverse agro-ecological conditions in Kibogwa village of the Uluguru mountains, eastern Tanzania". Japanese Society of Regional and Agricultural Development, Nihon University. |
| July 3–7, 2006 | Ujjayant Chakravorty, Eithan Hochman, Chieko Umetsu, David Zilberman, "Alternative Institutions for Water Distribution", the 3rd World Congress of Environmental and Resource Economists, Kyoto International Conference Hall, Kyoto, Japan. |
| July 3–7, 2006 | Palanisami, K., Chieko Umetsu, "Groundwater Over-Draft and Returns to Management in Hard-Rock Regions of South India", the 3rd World Congress of Environmental and Resource Economists, Kyoto International Conference Hall, Kyoto, Japan. |
| July 3–7, 2006 | Ujjayant Chakravorty, Chieko Umetsu, "Industrialization of Agriculture and the Environment: The Livestock Revolution," the 2006 Meeting of the Society of Environmental Economics and Policy Studies, Kyoto International Conference Hall, Kyoto, Japan. |
| July 4–7, 2006 | Sakurai, T. and K. Savadogo. "War-Induced Transient Poverty and Environmental Degradation: Evidence from Burkina Faso, West Africa" 3rd World Congress of Environmental and Resource Economists, Kyoto International Conference Center, Kyoto, Japan. |
| August 12–18, 2006 | Sakurai, T., J. Furuya, and K. Futakuchi. "Rice Miller Cluster in Ghana and Its Effects on Efficiency and Quality Improvement" 26th Conference of the International Association |

of Agricultural Economists, Gold Coast Convention and Exhibition Centre, Gold Coast, Australia.

August 12–18, 2006 Kajisa, K., K. Palanisami, and T. Sakurai. "The Dissemination of Private Wells and Double Tragedies: the Overexploitation of Groundwater among Well Users and Increased Poverty among Non-Well Users in Tamil Nadu, India" 26th Conference of the International Association of Agricultural Economists, Gold Coast Convention and Exhibition Centre, Gold Coast, Australia.

September 3–7, 2006 Yamauchi, T. et al., "Physical activity in obese and non-obese school children in Central Java, Indonesia", International Congress on Obesity, Sydney Convention and Exhibition Centre, Sydney, Australia.

October 10–14, 2006 Yamauchi, T. et al., "Age and gender differences in physical activity patterns among urban school children in Korea and China", Yamauchi, T. et al., International Congress of Physiological Anthropology, Kamakura Price Hotel, Kamakura, Japan.

February 7–10, 2007 Umetsu, Chieko, K. Palanisami, Ziya Coşkun, Sevgi Donma, Takanori Nagano, Yoichi Fujihara, Kenji Tanaka, "Climate Change and Alternative Cropping Patterns in Lower Seyhan Irrigation Project: A Simulation Analysis", the 3rd International Groundwater Confrence (IGC2007), Water, Environment and Agriculture: Present Problems and Future Challenges, Tamilnadu Agricultural University, Coimbatore, India.

February 9–11, 2007 Ichimaru N, Yamauchi, T. "Obesity and physical fitness among urban school children in Korea and Taiwan", Asia-Oceania Conference on Obesity, Sheraton Grand Walkerhill Hotel, Seoul, Korea.

February 12, 2007 Shimada, S. "Environmental problems in rural Africa: From political ecological point of view", First Korean-Japan International Symposium "Present condition and perspectives of geographical studies on Rural Africa", Kongju University, Korea.

February 12, 2007 Shimada, S. "The impact of HIV/AIDS on rural society in Africa", First Korean-Japan International Symposium "Present condition and perspectives of geographical studies on Rural Africa", Kongju University, Korea.

March 28, 2007 Umetsu, Chieko, K. Palanisami, Ziya Coşkun, Sevgi Donma, Takanori Nagano, Yoichi Fujihara, Kenji Tanaka, "Climate Change and Alternative Cropping Patterns in Lower Seyhan Irrigation Project: A Simulation Analysis with MRI-GCM and CCSR-GCM", TEA (Theoretical Economics and Agriculture) Spring Meeting, Okinawa International University.

## Pre-Research

**Research axis:** Spatial Scale
**Project number:** 3-3PR
**Project name:** Environmental Change and the Indus Civilization
**Project leader:** OSADA, Toshiki (RIHN)
**URL:** http://www.chikyu.ac.jp/Indus/
**Key words:** the Indus civilization, the Saraswati river, Kachchh in Gujarat, reconstruction of long-term environmantal change

### ■Research Objective and Contents

**1. Research objective**

Environmental problems are resulted from the human activity because human being utilized and changed natural environment repeatedly since ancient times. Generally, studies of environmental problems are focused on climate, vegetation, water and/or air pollution and so on. In other words only few studies have given an attention to humanity. We can learn from the ancient epic, Gilgamesh or Vedic because the humanity is universal through times in contrast to the development of scientific technologies. In our project we will cast light on the humanity. Our project aims to understand the Indus Civilization and its environment in a holistic manner. Especially, we will concentrate pursuing the cause of downfall of Indus civilization because environmental problems are one of the main reasons for it.

**2. Contents of Research**

The Indus Civilization is spread out over 680,000 sq. km. of northwestern South Asia. Indus people established the cities like Mohenjo-Daro and Harappa from 2500 BC to 1900 BC. The Indus cities were declined around in 1900 BC. It means that the decline of Indus civilization is relied upon the archaeological fact of downfall of Indus cities.

To examine the socio-cultural aspect of Indus Civilization, the objects of our studies are mainly divided into two folds; i.e., the excavated culture and the inherited culture. For the former, we have already started excavating at Kanmer, Kachch, Gujarat, India in collaboration with Indian archaeologists. We would like to reconstruct the socio-cultural aspects of the Indus Civilization by the closely examination of excavated materials. For the latter, Indologists and cultural anthropologists will analyze the inherited culture from their own data.

### ■Project Member

◎OSADA, Toshiki (RIHN, Professor, Project leader)
○UNO, Takao (International Research Center for Japanese Studies, Professor, Excavation leader)
○OHTA, Shoji (Fukui Prefectural University, Professor, Analysis of Wheat)
○KODAMA, Nozomi (Kumamoto Unvieristy, Associate Professor, Dravidian languages)
○GOTO, Toshifumi (Tohoku University, Professor, Old Indo-Aryan languages)
○SHOGAITO, Masahiro(Kyoto University, Professor, Historical linguistic methodology)
○TANAKA, Masakazu (Kyoto University, Professor, Indian folk culture)
○MAEMOKU, Hideaki (Hiroshima University, Associate Professor, Geological research)
CHIBA, Hajime (Tohokugakuin University, Economics)
DOYAMA, Eijiro (Osaka University, Assistant Professor, Vedic text analysis)
EINO, Shingo (Tokyo University, Professor, Vedic Study)
FUJII, Masato (Kyoto University, Professor, Vedic culture)
KANAE, Shinjiro (RIHN, Associate Professor, Hydology)
KOISO, Manabu (Tokai University, Lecturer, Excavation assistant)
MAEKAWA, Kazuya (Kokushikan University, Professor, Mesopotamian culture)

MATSUI, Takeshi (Tokyo University, Professor, Pakistan folk Culture)
MIURA, Reiichi (Kyoto University, Research Associate, Cultivated plants)
MORI, Wakaha (RIHN, Senior Researcher, Sumer language and culture)
NAKANO, Takanori (RIHN, Professor, Isotope Analysis)
OKAMURA, Makoto (Khochi University, Professor, Geological research)
SATO, Yo-Ichiro (RIHN, Professor, Rice culture)
TAKAHASHI, Takanobu (Tokyo University, Professor, Dravidian culture)
TAKEUCHI, Nozomu (RIHN, Associate Professor, Ice core Analysis)
TANNO, Kenichi (RIHN, Senior Researcher. Archae-botany)
TOGAWA, Masahiko (Hiroshima University, Associate Professor, Indian folk culture)
UESUGI, Akinori (Kansai University, Lecturer, Excavation assistant)
UTADU, Teturou (Miyazaki University, Associate Professor, Pytholith analysis)
UTIYAMA, Jyunzou (RIHN Associate Professor, Archae-zoology)
YAMASHITA, Hiroshi (Tohoku University, Professor, Dravidian culture)
YUMOTO, Takakazu (RIHN, Professor, Ecology)
○Jeewan Singh Kharakwal (Department of Archaeology, Institute of Rajasthan Studies, J.R.N. Rajasthan Vidyapeeth, Associate Professor, Excavation in India)
○Vasant Shinde (Department of Archaeology, Deccan College, Post-Graduate & Research Institute, Professor, Excavation in India)
Asko Parpola (RIHN, Visiting Professor, Indus script)
(◎: Project leader, ○: Core member)

**■Progress of the Project (2006)**

Regarding the archaeological research, the two seasons' excavation at Kanmer, Kachchh in Gujarat, India revealed a stone-walled citadel, a Indus sealing, semi-precious stone beads, such as lapis lazuri, carnelian and steatite, botanical evidence such as barley, wheat and rice and animal bones of both domesticated and wild animals, producing good information for the understanding of the Indus Civilization. The citadel was found to be enclosed by a series of massive stonewalls, having a square plan.

In addition to Kanmer in Gujarat, an exploration was conducted along the old river course of the Saraswati river in Rajasthan and Haryana, in order to select a site to be excavated in this project. Consequently, the site of Farmana was selected for excavations from next year. Geological research, which was conducted simultaneously, indicated a possibility that the Saraswati river might have been a smaller river than hitherto supposed.

Negotiations and preparations were done for excavations at Ganweriwala in Pakistan from the year of 2007.

**■Modification from the Original Plan (2006)**

While an archaeological excavation was planned to be done at Pilibangan in Rajasthan in the original plan, the site of Farmana in Haryana was selected for the excavation finally on the basis of the results of exploration in March 2007.

Although the original plan of the project was focused on the Indus civilization itself only, the significance of relations with Central Asia and Iranian plateau was recognized in order to understand the Indus Civilization. From this point of view, we visited important sites in Turkmenistan in November 2006.

## ■Outcome in 2006 and Future Plan

### 1. General remarks

The excavations at Kanmer revealed the historical and cultural significance of the region of present Gujarat in the Indus Civilization. In addition, it provided much information, such as semi-precious beads, to reconstruct an exchange and trading network of the Indus Civilization.

The excavation also provided a set of data for the subsistence economy during the Indus Civilization.

Geological survey along the Saraswati river suggest a great potentiality for the understanding the role of the river for the Indus Civilization.

Two volumes of Occasional Papers, a book 'Indus Civilization: Text and Context' from a publisher in India and 'Studies on the Indus Civilization: Retrospect, Prospect and Bibliography' from RIHN have been published so far. Reports of the archaeological excavation in India and Pakistan will be continuously published.

### 2. Future plan

The primary target of our project is a reconstruction of the relationship between the Indus Civilization and environments by an interdisciplinary method. The palaeo-environmental research will be oriented to the reconstruction of the Saraswati river and palaeo-coastline in Gujarat that may have affected the rise and decline of the Indus Civilization.

Results of archaeological excavations will be integrated to the reconstructed environment in order to understand the relationship between human activities and environments during the Indus Civilization.

Our project will also attempt to link the Indus Civilization to the later Indian society that were left partially in the Vedic literature.

## ■Results

### 1. List of major publication in English

Osada T. (2006) *Indus Civilization: Text and Context.* Manohar Publications.

Osada T. (2007) *Occasional Paper 2: Linguistics, Archaeology and the Human Past.* RIHN.

Shinde, V., S. S. Deshpande, T. Osada, T. Uno (2006) Basic issues in Harappan archaeology: some thoughts. *Ancient Asia* 1: 63–72.

Kharakwal, J. S., Y. S. Rawat, T. Osada (2007) Kanmer: A Harappan site in Kachchh, Gujarat, India, *Occasional Paper 2: Linguistiucs, Archaeology and the Human Past.* pp.

### 2. Symposium, Seminar and meetings

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|---|---|
| 2006, April 28 | The first project meeting |
| | Shoichi Inoue (International research center for Japanese studies) "On Ise Jingu" |
| | Kiyotari Tsuboi (former Director, Nara National Research Institute for Cultural Properties) "My memory on Archaeology for 75 years" |
| 2006, June 2 | The second project meeting |
| | Vasant Shinde (Visiting researcher of RIHN) "Dholavira and the Indus civilization" |
| | Michael Witzel (Harvard University) "Interdisciplinary studies on prehistoric South Asia" |
| 2006, December 2 | The Third project meeting |
| | Asko Parpola (Visiting researcher of RIHN) "On the Indus script and Indus Seals" |
| | Toshiki Osada (RIHN) "Report on the preliminary archaeological research in Pakistan and India" |
| 2007, January 19 | The first core-member meeting |
| 2007, March 5 | The paleo-environment Working Group's meeting |

## Pre-Research

**Research axis:** History and Time Scale
**Project number:** 4-4PR
**Project name:** Neolithisation and Modernisation: Landscape History on East Asian Inland Seas
**Project leader:** UCHIYAMA, Junzo (RIHN)
**Key words:** landscape preservation, landscape change, cultural systems, inland seas, Neolithisation, Modernisation, sustenance, trade



### ■Research Objectives and Topics

#### 1. Research Objectives

This project aims at reconsidering the notion of "cultural landscape protection" by way of reconstructing the historical landscape (hereinafter *LS*) change on East-Asian inland seas during the two most notable revolutionary periods in the history of human-nature relations, i.e. Neolithisation (hereinafter *NLS*) and Modernisation (hereinafter *MDS*), through the analyses of sustenance activities, trade and mental or cultural structures (political system, art, literature, festivals etc), climatic and topographical analysis in eight regions (see below) on the shores of East-Asian Inland Sea (Japan and East China Sea). The primary goals of the project are to:

(1) Reconstruct the changes in the naturally and culturally conditioned spheres of LS.
(2) Explicate the functioning of inland seas as a network creating cultural unity and diversity.
(3) Reconsider the idea of "cultural landscape" in order to put the cultural landscape protection policies into a new perspective. Comparing NLS and MDS processes can give us a better understanding of possible future developments and solutions to present environmental issues.

#### 2. Topics and Methodology

The project focuses mainly on the East Asian inland sea, i.e. the Japan Sea Rim and the East China Sea Rim. Historically, inland sea coastal areas were densely populated and played a major role as worldwide trading spots and collision spots for various cultures and civilisations. Throughout the duration of this research project, results will be compared to those of the LS research in the North European inland seas.

Eight research areas were chosen around the East Asian inland seas to represent the full variety of cultural and natural settings. The selected research areas are: 1. Hokuriku, 2. Biwako and 3. Northern Kyushu for mainland Japan, 4. Hokkaido and 5. Ryukyu for marginal Japan, 6. Southern Coast of Korea, 7. Northern Zhejiang for China, and 8. Primorye for Far-East Russia.

In order to foster interdisciplinarity, the work groups (hereinafter *WG*) are organised according to regions rather than by research subjects.

#### 3. Research Methods

As a basis for studies on both NLS and MDS, a geographical database will be created for each region for both of the periods with available cartographical data in the form of both historic and modern maps, information on the distribution and spatial structure of archaeological sites, and other related archaeological data. Land use, settlement patterns and population dynamics will be mapped on the basis of cartographic data, historical documents, pollen analyses, and other environmental and ecological datasets.

Since LS is a holistic phenomenon that entails both a cultural and a natural side, and develops through the influence of human practices and interactions of the natural environment, a large part of LS research has to be based on qualitative rather than quantitative research methods. Specific research methods would depend on each discipline and on one of the highlighted periods of study (NLS or MDS).

Comparisons and synthesis of overall results will be carried out through frequent workshops and seminars both in Japan and Europe, where LS studies, as a discipline, have been a part of mainstream academic research for at least three decades.

**■Project Members**

| | |
|---|---|
| AMITANI, Katsuhiko | Department of Japanese History, Tsuruga Junior College (Biwako WG, geography) |
| ○BAUSCH, Ilona | RIHN (Hokuriku, N. Kyushu, N. Zhejiang WGs, archaeology) |
| BELUSHKIN, Mikhail Y. | Institute of Automatic and Information Technologies, Maritime State University named after G.I. Nevelskoy (Primorye WG, GIS) |
| BORRÉ, Caroline | RIHN (Biwako, N. Kyushu, Primorye WGs, Japanese folklore) |
| ○FUKASAWA, Yuriko | Tohoku University, Graduate School of International Cultural Studies (Hokkaido WG, archaeology) |
| ○FUKUSAWA, Hitoshi | Faculty of Urban Environmental Sciences, Tokyo Metropolitan University (physical geography of topography and climate) |
| ○HARUTA, Naoki | Faculty of Education, Kumamoto University (N. Kyushu WG leader, Biwako WG, history) |
| HASHIMOTO, Michinori | Lake Biwa Museum (Biwako, N. Kyushu WGs, historical geography) |
| ○HOSOYA, Aoi | Institute of Prehistoric Archaeology, Waseda University (Hokkaido, Ryukyu WGs, archaeology) |
| ○IIDA, Taku | National Museum of Ethnology (Ryukyu WG leader, anthropology) |
| ○IKEYA, Kazunobu | National Museum of Ethnology (Hokkaido WG leader, ethnology) |
| ITAKURA, Yudai | Fukuoka City Board of Education (N. Kyushu WG, archaeology) |
| ITO, Shinji | Faculty of Letters, Kokugakuin University (Ryukyu, Primorye WGs, archaeology) |
| ○KANER, Simon | The Sainsbury Institute for the Study of Japanese Arts and Cultures (Hokuriku WG, archaeology) |
| ○KIM, Jangsuk | Department of History, Kyung Hee University (Southern Coast of Korea WG, archaeology) |
| KIM, Jong-Il | Soul National University (Southern Coast of Korea WG, archaeology) |
| LEE, Soon Hyeong | Kyong-Bok University (Southern Korea Coast of WG, sociolinguistics) |
| LIM, Sangtaek | Pusan University (Southern Coast of Korea WG, archaeology) |
| ○LINDSTRÖM, Kati | RIHN (Biwako, N.Kyushu, Primorye WGs, human geography) |
| LONG, Daniel | Graduate School of Humanities, Tokyo Metropolitan University (Rykyu, Hokuriku WGs, sociolinguistics) |
| MIYAMOTO, Shinji | Lake Biwa Museum (Biwako, Southern Coast of Korea WGs, physical geography) |
| MIZOGUCHI, Koji | Graduate School of Social and Cultural Studies, Kyushu University (N. Kyushu WG, archaeology) |
| MURAKAMI, Yumiko | RIHN (N. Kyushu, N. Zhejiang WGs, archaeology) |
| NAGANO, Takanori | RIHN (environmental engineering) |
| ○NAKAI, Seiichi | Faculty of Humanities, Toyama University (Hokuriku WG leader, Ryukyu, Southern Coast of Korea WGs, sociolinguistics) |
| ○NAKAJIMA, Tsuneo | Lake Biwa Museum (Biwako WG leader, N. Zhejiang WG, biological geography) |
| NAKAMURA, Oki | Faculty of Letters, Kokugakuin University (Hokkaido, Hokuriku, Primorye WGs, landscape archaeology) |
| NAKAMURA, Shin'ichi | Faculty of Letters, Kanazawa University (N. Zhejiang WG, archaeology) |
| ○NISHITANI, Masaru | National Museum of Japanese History (N. Zhejiang WG, ethnology) |

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|---|---|
| ODAGI, Harutaro | Department of Archaeological Art, Tenri University Sankokan Museum (Southern Coast of Korea WG, archaeology) |
| ○OKADA, Hiroki | Faculty of Cross-cultural Studies, Kobe University (Southern Coast of Korea WG leader, Rykyu, Hokuriku WGs, anthropology) |
| ONISHI, Hideyuki | RIHN (Hokkaido, Rykyu WGs, athropology) |
| POPOV, Alexander | Museum of Archaeology and Ethnology, Far-East National University (Primorye WG leader, archaeology) |
| SANO, Shizuyo | Research Centre for Sustainability and Environment, Shiga University (Biwako WG, human geography) |
| SASAKI, Shiro | National Museum of Ethnology (Primorye, N. Zhejiang WGs, cultural anthropology) |
| SEGUCHI, Shinji | Shiga Prefecture Cultural Properties Protection Association (Biwako, Hokuriku WGs, archaeology) |
| TABAREV, Andrei V. | Russian Academy of Sciences, Siberian Branch, Institute of Archaeology and Ethnography (Primorye WG, archaeology) |
| TAKAMIYA, Hiroto | Faculty of Cultural Studies, Sapporo University (Ryukyu WG, ethnology) |
| TAKANISHI, Seisuke | Faculty of Cultural Studies, Kochi Women's University (N. Zhejiang, Biwako WGs, Chinese literature) |
| TAKAOKA, Hiroyuki | Faculty of Cultural Studies, Kochi Women's University (Hokkaido, Hokuriku, N. Kyushu WGs, folklore) |
| TAKETANI, Toshio | Department of Archaeological Art, Tenri University Sankokan Museum (Southern Coast of Korea WG, archaeology) |
| TEZUKA, Kaoru | Historical Museum of Hokkaido (Hokkaido WG, anthropology) |
| TKACHEV, Sergei V. | Institute for Social and Political Sciences, Maritime State University named after G. I. Nevelskoy (Primorye WG, political science) |
| TORITANI, Yoshifumi | Japanese Language Research Centre, Osaka Shoin Women's University (Hokuriku, Biwako WGs, sociolinguistics) |
| ◎UCHIYAMA, Junzo | RIHN (N. Zhejiang WG leader, Biwako, Hokuriku, Southern Coast of Korea, N. Kyushu WGs, zooarchaeology) |
| ○YASUMURO, Satoru | National Museum of Japanese History (Biwako, Ryukyu, N. Zhejiang WGs, ethnology) |
| ZEBALLOS VELARDE, Carlos Renzo | Graduate School of Engineering, Kyoto University (GIS) |

(◎: Project leader; ○: Core member)

**■Progress of the Project**

1) Discussions were held in each workgroup to determine specific target areas, main topics and problems in each of the eight research areas. Detailed plans were built to start research activities on the outset of the FR period. The topics that will be addressed by the individual researchers in all the eight research groups can be divided into the following four major common themes:
   (1) The birth and expansion of the archetypal East Asian landscape: research on rice paddy system, migratory waterfowl hunting, raised floor stock houses on one hand and on archetypal urban planning and Feng Shui on the other.
   (2) Waterfronts, i.e. the system of the inner/outer sea, rivers and lakes as a source of living and an object of worship, but also the function of waterways as a passage for the trade of local produce.
   (3) Migration and colonisation as a major force of landscape change, including the change of settlement patterns inside one culture, as well as colonisation and immigration as a forced landscape shift from indigenous/tradi-

tional landscape systems to introduced ones.

(4) Travelling and creation of mental landscape images: Eight Ômi Landscapes, the landscape imports in colonisation (ghosts and spirits transferred to new areas) and the role of temples as a landscape axis.

2) While during the FS period we organised the structure of WGs inside Japan, during the PR year we have concentrated on the completion of the WGs outside Japan.
   (1) Northern Zhejiang WG. Six WG members from Japan visited China in November and held negotiations with local researchers concerning future research.
   (2) Southern Coast of Korea WG. The team of researchers is almost complete. On February 11–14 the project leader visited Korea to discuss cooperation with local researchers.
   (3) Primorye: A group of researchers from the Siberian branch of the Russian Academy of Sciences visited RIHN on September 25–27; On March 25–29, negotiations were held with Prof. Alexander Popov and 3 other scholars, as a result of which the member structure, research plans and concrete research areas of the Primorye WG were decided.
3) To facilitate information exchange and discussion among project members, an Internet forum was launched.
4) A general data format was created for the GIS database and main priorities for both NLS and MDS period database were determined. As a pilot case, inserting data about Biwako area was started. Three WGs (NLS; MDS and physical geography) were created to discuss the selection of data sources.
5) A standard historical periodisation was created for all eight regions on the basis of archaeological data to determine the use of terms and the extent of NLS in the framework of NEOMAP.
6) To promote international collaboration with Europe and pave the way for the comparison with North Sea and Baltic Sea, project members visited Tallinn University and Tartu University (Estonia). Two members introduced the project with a presentation at The Permanent European Conference for the Study of Rural LS (PECSRL) and negotiations for possible collaboration were started with researchers from Belgium, Holland and Norway. The project was visited by several other foreign researchers, like B. Seyock (München University/East Asian history), R. Pearson (University of British Columbia/ East Asian archaeology) and W. J. Boot (Leiden University/History of Eastern philosophy).

## ■Future Topics

1) During the PR year we have managed to set up the general work flow in the project that consists of area WGs, seminars and symposia held in the main office, and the database WGs. On the outset of the first FR year we expect to start field research in all the areas immediately, according to the research plans developed during the 2nd WG meetings of the fiscal year 2006.
2) We expect to start inserting data for all the regions in NLS part of the database and continue data collection for Biwako, Hokuriku and Northern Kyushu area in MDS part of the database.
3) Both individual and group research results will be presented at symposia, workshops and conferences inside Japan and internationally.
4) Negotiations will be continued for research collaboration with North European scholars.

## ■Outcome

### 1. Publications

[in English]

**Books**

Lindström, Kati (2007) From Experiential to Chronometric Seasonality—The Establishment of Seasons as a National Symbol in Modern Japan. Palang, Hannes; Sooväli, Helen (Eds) *Seasonal Landscapes. Landscape Series 7.* Springer, 215–229.

**Other Articles**

Takamiya, Hiroto (2006) An Unusual case? Hunter-gatherer adaptations to an island environment: a case study from Okinawa, Japan. In *Journal of Island and Coastal Archaeology* 1: 49–66.

Takamiya, Hiroto (2006) How did agriculture spread?—Case Studies from Japan. In *A Study on the Environmental Change and Adaptation System in Prehistoric Northeast Asia*. Kumamoto University: 110–118.

Fitzpatrick, Scott M.; Takamiya, Hiroto; Neff, Hector; and Dickinson, William R. (2006) Compositional Analysis of Yayoi-Heian Period Ceramics From Okinawa: Examining the Potential for Provenance Study. In *Geoarchaeology* 21(8): 803–822.

Katsuta, N.; Takano, M.; Kawakami,S.; Togami, S.; Fukusawa, H.; Kumazawa, M. and Yasuda (2006) Climate system transition from glacial- to interglacial state around the beginning of the last termination: evidence from a centennial to millennial scale climate rhythm. *Geochemistry, Geophysics, Geosystems (G-cubed)* 7(12), 1–9 ZQ12006 (doi: 10.l029/2006GC001310).

Kitamura, A., Yamamoto, N., Kase, T., Ohashi, S., Hiramoto, M., Fukusawa, H., Watanabe, T., Irino, T. Kojitani, H., Shimamura, M. and Kawakami, I. (2007) Potential of submarine-cave sediments and oxygen isotope composition of cavernicolous micro-bivalve as a late Holocene paleoenvironmental record. *Global and Planetary Change*, 55, 301–316.

Katsuta, N.; Takano, M.; Kawakami, S.; Togami, S.; Fukusawa, H.; Kumazawa, M. and Yasuda (2007) Advanced micro-XRF method to separate sedimentary rhythms and event layers in sediments: its application to lacustrine sediment from Lake Suigetsu, Japan. *Journal of Paleolimnology*, 37, 259–271. (doi: 10.1007/s10933-006-9028-3).

Miyamoto, Shinji (2007) Vegetational Changes Since the Last Glacial from the Pollen Influx in Hokuriku District, Central Japan. *Geographical review of Japan English Edition* 80(5): 330–331.

[in Japanese]

**Books**

Uchiyama, Junzo (2006) *Jomon Zooarchaeology*. Showado.

Uchiyama, Junzo (2007) The becoming and life of the gasho-style villages of Shirakawa and Gokayama. In: Akimichi, Tomoya (Ed.) *Water and the World Cultural and Natural Heritage*. Shogakkan.

Onishi, Hideyuki (2007) The danger of terraced rice paddies landscape in the Cordillera. In: Akimichi, Tomoya (Ed.) *Water and the World Cultural and Natural Heritage*. Shogakkan, 175–186.

Onishi, Hideyuki (2007) Cherishes flowers—therefore human? In: Hidaka, Toshitaka; Shirahata Yosaburo (Eds.) *Why people cherish flowers?* Yasaka Shobo, 51–73.

Takamiya Hiroto (2006) The Challenge of Hunters-Gatherers in Adapting to the Island Environment. In: Into, Michiko (Ed) *The Anthropology of Environment and Resource Use*. Akashi shoten.

Hosoya, Aoi (2007) Initial rice cultivation and plant archaeology on Sakishima Islands. In: Ebisawa Tadashi (Ed.) *Lecture series "Studies on Rice Cultivation III The origins and spreading of Japonica* Waseda University Research Centre on Rice Cultivation, 41–43.

**Other articles**

Gotanda, Katsuya; Fukusawa, Hitoshi (2006) Reconstruction of the Biome Pattern since 20,000 yr BP Using Biomization Method (1) Kyusyu Island. *Chigaku zasshi* 115(2), 125–135.

Amitani, Katsuhiko (2007) For the Research of Jomon Dug-out Canoes. In: Shiga Prefecture Cultural Properties Protection Association (Ed) *The Era of Dug-Out Canoes. Biwako and Ancient People*, 34–61.

Takamiya, Hiroto (2006) The Reonstruction and Meaning of the Plant Use in the Middle Area of Minamishima. *The Trade and Sustenance of the Prehistoric Ryukyu 2—From the Excavations of Amami and Okinawa Islands.* Kumamoto University Faculty of Letters, 89–100.

Onishi, Hideyuki (2007) The Movements on the Eve of the Formation of the "Medieval Ainu" Society in the Eastern Hokkaido: the Position of Tobinitai Culture in the Archipelago's History." Sawato, Hirosato; Oguchi, Masashi (Eds.) *The Formation and Chnage of the Ainu Culture: Focussing on Trade and Communication.* Hosei Daigaku Kokusai Nihongo Kenkyujo, 211–234.

Takanishi, Seisuke (2007) On the Perception of Sea in the China in Middle Ages. *Papers on Chinese Literary History 3.*

**2. Field Work**

Field research was carried out in the following regions: Ume no ki Site in Yamanashi Prefecture (NLS in Hokuriku); Shirakawa village in Gifu Prefecture, Lake Biwa surroundings in Shiga Prefecture (MDS), North-Eastern Hokkaido (NLS, MDS), Amami Oshima area (NLS, MDS in Ryukyu Islands), Kikuchi township in Kumamoto Prefecture (MDS) in Japan and Ningbo city and Dienlashan site in China (NLS, MDS), Vladivostok city and surroundings in Russia (NLS, MDS), Leiden city in the Netherlands (NLS, MDS), Berlin and München in Germany (MDS) and Tallinn and Tartu in Estonia (NLS, MDS).

**3. Project meetings**

For the development of research plans and exchange of ideas the following meetings were held: (1) Hokuriku WG (July 21, Dec 1), (2) Biwako WG (July 16, Dec 1), (3) Northern Kyushu WG (July 22, Nov 23), (4) Hokkaido WG (June 25, Jan 14), (5) Ryukyu Islands WG (June 24, Jan 13), (6) N. Zhejiang WG (April 22, Nov 15, Jan 27), (7) Southern Coast of Korea WG (July 22, Nov 23), (8) Primorye WG (Sept, 25, March 25-29), (9) core member meeting (April 21)/ general meetings (Sept 23, Feb 16).

**4. Symposia and Workshops**

(1) July 2, 2006. "LS and living beings", workshop at the 4th Yearly Congress of the Society of Biosophia Studies, Abashiri, Japan. Papers from 6 members.

[Program]

First part

"Changing LSs: people, animals and shell mounds" Uchiyama, Junzo (RIHN)

"Landscape with a Storehouse: from an Archaeological and Ethnographical Perspective" Hosoya, Aoi (Waseda University)

"The Village of the Living and the Village of the Dead: The Relation between the Living and Non-Living Beings in Prehistory" Nakamura, Oki (Kokugakuin University)

Second Part

"Living Beings and Place Names" Haruta Naoki (Kumamoto University)

"Landscape as a Commodity Around Lake Biwa: Living and Non-Living Beings in Landscape" Lindström, Kati (RIHN)

"Landscape Change Accompanying the Construction of Asahikawa City and the Resource Use of the Ainu People" Onishi, Hideyuki (RIHN)

(2) July 16, 2006. "Landscape Archaeology in Japan", in collaboration with Sainsbury Institute for the Study of Japanese Arts and Cultures (SISJAC), Norwich, UK. Keynote speeches by Simon Kaner and Junzo Uchiyama. 5 NEOMAP members attended.

(3) Sept. 10, 2006. " "Japan Sinks" Repeated", a symposium linked to the exhibition "Digging up the landscape of Suita", in collaboration with Suita City Museum, Osaka, Japan.

[Program]

" "Japan Sinks" Repeated" Uchiyama, Junzo (RIHN)

"Landscape as a Commodity—on the Example of the Pre-Modern and Modern Ohmi Region" Lindström, Kati (RIHN)

"The Village of the Living and the Village of the Dead" Nakamura, Oki (Kokugakuin University)

"The Ghosts and Spirits in the Modern and Pre-Modern Cities" Takaoka, Hiroyuki (Kochi Women's University)

"Digging up the Landscape of Suita" Koyama, Shuzo (Suita City Museum)

(4) Oct. 15, 2006. "Waterfronts—Water, Fish and People", 1st symposium dedicated to the Tenth Anniversary Exhibition of Lake Biwa Museum, Lake Biwa Museum, Shiga, Japan.

[Program]

"People's Lives in an Environment Abundant with Fish and Water—a Look Through Audiovisual Materials" Imamori, Mitsuhiko

"A Culture Born from Abounding Fish and Water—a Look Through Audiovisual Materials" Murata, Shin'ichi (NHK director)

"Landscape at Lake Biwa" Uchiyama, Junzo RIHN)

Chair and comments: Nakajima, Tsuneo (Lake Biwa Museum)

(5) Nov. 12, 2006. "Landscape History around Lake Biwa", 2nd symposium dedicated to the Tenth Anniversary Exhibition of Lake Biwa Museum, Lake Biwa Museum, Shiga, Japan.

[Program]

"When Did People Start Seeing Lake Biwa as a Lake of Carps?" Nakajima, Tsuneo (Lake Biwa Museum)

"Is Landscape Really Cute? *Satoyama* discourse surrounding Lake Biwa" Lindström, Kati (RIHN)

"The Folk Culture of the Water Fronts and Landscape History—on the Reed Fields of Lake Inlets" Sano, Shizuyo (Shiga University)

**5. Seminars**

**Landscape Seminar**

Landscape Seminar I, April 7, 2006.

Presentator: Kati Lindström "Temporality, Seasonality, Landscape"

Landscape Seminar II, April 28, 2006.

Presentator: Hideyuki Onishi "Overcoming the Dual Opposition in Landscape Perception"

Landscape Seminar III, May 19, 2006.

Presentator: Aiko Kudo "Livable Landscape"

Landscape Seminar IV, June 23, 2006.

Presentator: Carlos Renzo Zeballos Velarde "Symbolic Landscape in Ancient Peru"

Landscape Seminar V, July 14, 2006.

Presentator: Akiko Momoki "American Landscape"

Landscape Seminar VI, September 29, 2006.

Presentator: Kati Lindström, Junzo Uchiyama "Affluent Foragers and Affluent Feudalism"

Landscape Seminar VII, October 20, 2006.

Presentator: Aiko Kudo "Landscape Change Caused by Changing Poduction Methods: Examples from New Zealand and Japan"

Landscape Seminar VIII, November 2, 2006.

Presentator: Hideyuki Onishi "Landscape Appreciated by Whom?"

Landscape Seminar IX, November 30, 2006.

Presentator: Futoshi Nishimoto "Loss of Landscape as a Result of Deportation"

Landscape Seminar X, December 22, 2006.

Presentator: Caroline Borré "Chiefly and Shamanist Landscapes in Mongolia. 2. Carp Legends in Japan—Remnants

from a Bygone Mental Landscape?"

Landscape Seminar XI, January 18, 2006.

Presentator: Junzo Uchiyama "The Representation of Sami Cultural Identity in the Cultural Landscape of Northern Sweden"

**Wild Boar and Landscape Seminar**

Seminar I, November 10, 2006. Ilona Bausch

Seminar II, December 7, 2006. Ilona Bausch

**6. Individual achievements**

(presentations made by individual members based on NEOMAP research activities)

(1) June 17, 2006.

(I) "Why did shell-middens disappear?—culture roles in the landscape shift in prehistoric foraging societies in the Northern inland seas" Junzo Uchiyama (RIHN)

(II) "The perception and use of stone sources in the Middle Jomon" Ilona Bausch (RIHN)

Seminar "Culture and Nature in Japanese archaeology: recent approaches and future directions", organised by Simon Kaner and Patrick Skinner, The McDonald Institute for Archaeological Research, University of Cambridge, UK

(2) Aug. 13, 2006.

"Dugout canoes, axes, lacquer ware—the use of forest resources and long-distance communication in Jomon people" Amitani Katsuhiko (Tsuruga Junior College)

Keynote speech at the 32nd Exhibition Symposium "The age of dugout canoes—Lake Biwa and the ancients", Shiga Prefectural Archaeological Museum of the Azuchi Castle, Shiga Prefecture, Japan [In Japanese]

(3) Sept. 6, 2006.

"Affluent foragers and affluent feudalism: The idealised landscapes of past as models for sustainable future" Kati Lindström (RIHN), Junzo Uchiyama (RIHN), Carlos Renzo Zeballos Velarde (Kyoto University)

Paper presented at the Permanent European Conference for Rural Landscape Studies (PECSRL), Freie Universität Berlin, Germany

(4) Sept. 10, 2006.

"One More Origin of the Ainu Culture—The Contacts and Fusion of the Okhotsk and Satsumon Cultures in the Eastern Hokkaido" Hideyuki Onishi (RIHN)

Hosei University Institute of International Japan-Studies, "Declaration of International Japan-Studies" project, Thematic Cluster 5 "The Other Japan (The Formation and Change of Ainu Culture)", Hokkaido Museum of Northern Peoples, Abashiri [In Japanese]

(5) Sept. 13, 2006.

"A class on environmental education" Daniel Long (Tokyo Metropolitan University), Sei'ichi Nakai (Toyama University)

Minami Daito Pro-Gymnasium, Minami Daito, Okinawa [In Japanese]

(6) Sept. 29, 2006.

(I) "Is there a Jomon Aesthetic?" Simon Kaner (The Sainsbury Institute for the Study of Japanese Arts and Cultures; read by Ilona Bausch)

(II) "The multiple roles of clay figurines in the Middle Jomon period" Ilona Bausch (RIHN)

Presented at University of Oxford and Ritsumeikan University symposium "How objects and images make people", Ritsumeikan University, Kyoto, Japan

(7) Oct. 29, 2006.

"The Movement of Immigrants as Seen from Pottery" Toshio Taketani (Tenri University Sankokan Museum)

Exhibition dedicated to the 50th Anniversary of the Establishment of Kashihara City "Distant Communication Across the Seas—Kashihara Burial Mounds and Immigrants", Museum of Kashihara Archaeological Institute, Kashihara city

(8) Nov. 11, 2006

"Okinawa—The Island Where Hunters and Gatherers Once Lived" Hiroto Takamiya (Sapporo University)

The 60th Congress of the Japanese Anthropological Society, Kochi City

(9) Nov. 9, 2006.

(I) "Hard Tofu from Hard-Working Farmhouses: The Landscape History of the Shirakawa-go and Gokayama villages" Junzo Uchiyama (RIHN)

(II) "The Dangers and Management of the Terraced Rice Paddies in the Cordillera, the Philippines" Hideyuki Onishi (RIHN)

RIHN Satellite Symposium "World Heritage, People and Water", RIHN [In Japanese]

(10) Nov. 14, 2006

"Burial Mounds of Korean Peninsula 1" Toshio Taketani (Tenri University Sankokan Museum)

Hometown History Lecture Series 10, Yamato Koriyama City Southern Community Center, Yamato Koriyama City

(11) Dec. 1, 2006.

"Landscape is alive!" Junzo Uchiyama (RIHN)

RIHN 16th Public Seminar, RIHN, Kyoto

(12) Dec. 12, 2006.

"Burial Mounds of Korean Peninsula 2" Toshio Taketani (Tenri University Sankokan Museum)

Hometown History Lecture Series 11, Yamato Koriyama City Southern Community Center, Yamato Koriyama City

(13) Dec. 20, 2006.

"Middle Jomon clay figurine fragmentation practices and exchange" Ilona Bausch (RIHN)

Paper presented at 'Reconfiguring prehistoric figurines: perspectives from the Balkans and Japan' workshop organised by The Sainsbury Institute for the Study of Japanese Arts and Cultures (SISJAC) and the International Centre for Albanian Archaeology, Norwich, UK

(14) Jan. 16, 2007

"Burial Mounds of Korean Peninsula 3" Toshio Taketani (Tenri University Sankokan Museum)

Hometown History Lecture Series 12, Yamato Koriyama City Southern Community Center, Yamato Koriyama City

(15) Feb. 13, 2007.

"Burial Mounds of Korean Peninsula 4" Toshio Taketani (Tenri University Sankokan Museum)

Hometown History Lecture Series 13, Yamato Koriyama City Southern Community Center, Yamato Koriyama City

(16) Feb. 17, 2007.

"Wild Boar and Its Changing Role in the Landscape" Ilona Bausch (RIHN)

Leiden University, Department of Japanese and Korean Studies, Leiden, the Netherlands

(17) Feb. 17, 2007.

"Jomon Exchange Networks in Central Japan" Ilona Bausch (RIHN)

Leiden University Faculty of Archaeology, Leiden, the Netherlands

(18) March 8, 2007

"The Story of Jomon Jade and Amber" Ilona Bausch (RIHN)

Hamayashiki Lecture Series, Hamayashiki Centre, Suita, Osaka

(19) March 13, 2007.

"The Thousand Years Kingdom of Silla—Kyongju Roof Tiles" Toshio Taketani (Tenri University Sankokan Museum)

Hometown History Lecture Series 15, Yamato Koriyama City Southern Community Center, Yamato Koriyama City

**Pre-Research**
**Research axis:** History and Time Scale
**Project number:** 4-5PR
**Project name:** Historical Interactions between Hybrid Society of Ethnic Groups and the Natural Environment in a Semi-Arid Region, Central Eurasia
**Project leader:** KUBOTA, Jumpei
**URL:** http://www.chikyu.ac.jp/rihn/pro/2007_4-5.html
**Key words:** historical interactions, boundaries, subsistence, Central Eurasia, semi-arid region

## ■Outline of Research Project

### 1. Research Objectives

With the exception of those people who lived in oasis areas, people in the semi-arid region, which spreads widely over Central Eurasia, once lived a predominately nomadic lifestyle. During the long transition of the rise and fall of various ethnic groups and countries, the Yuan Dynasty dominated the whole of Eurasia as a loosely controlled unity during the 13th and 14th centuries. In 18th century, a tight and well-defined border divided the region between Russia and Qing. At the same time, the people in this area experienced a great change in their lifestyle, caused by the migration of farmers, the settlement of once nomad activities and agricultural development in association with the expansion of Russia and Qing. For nomadic peoples living in semi-arid regions, relocation was one of the major means for adapting environmental changes, demographic expansion and political conflicts between groups. Settlement policies and borders prevent these people from their way of adaptation. Finally, with the weakening of the Soviet Union, the Russian side was divided into many republics. Behind the various environment problems in this world, man-made trans-boundary problems, between countries or ethnic groups, religions, agriculture and nomadism, or between cities and the surrounding areas, could have cause another environmental problems. This project aims to study and clarify the historical interaction of human activities and natural systems in the semi-arid region of Central Eurasia, focusing on such trans-boundary problems.

### 2. Contents and Methodology

The area of study is the Ili River watershed which flows from China to Kazakhstan, terminating at Balkhash Lake as well as the surrounding areas, including Kyrgyzstan and Uzbekistan. The project consists of two research groups: one will set out to clarify historical changes in both human activities and natural systems by analyzing historical documents as well as a variety of natural proxies, and the other group to investigate the present processes of human activities and natural systems for interpreting the historical information. The project will focus on;

1) to clarify historical changes, the rise and fall of nomadic groups and countries, their removal, changes in subsistence, the use of natural resources and climate change through the analysis of historical documents and archeological investigations as well as various natural proxies such as ice cores, lake sediment samples, tree rings and wind-brown deposit.
2) to investigate the present status of the area and the effects of human activities on the natural environment, including their social, religious and cultural background.
3) to compare upstream and downstream areas in terms of historical changes and their present status, looking at areas that used to be the same but have developed differently, to understand the meaning of boundaries in the context of environmental issues.

## ■Members of the Project

◎KUBOTA, Jumpei (RIHN, Associate Professor, Supervision)
* FUJITA, Koji (Nagoya University, Associate Professor, Age determination of ice cores)

* FUNAKAWA, Shinya (Kyoto University, Associate Professor, Pedology)
* KATO, Yuzo (RIHN, Assistant Professor, Chinese documents)
* KONAGAYA, Yuk (National Museum of Ethnology, Professor, Nomadic system)
* MATSUYAMA, Hiroshi (Tokyo Metropolitan University, Associate Professor, Climate change)
* SOMA, Hidehiro (Nara Women's University, Professor, Remote sensing)
* SUGIYAMA, Masaaki (Kyoto University, Professor, Chinese and Persian documents)
* TAKEUCHI, Nozomu (Chiba University, Associate Professor, Biology in snow and ice)
* UYAMA, Tomohiko (Hokkaido University, Associate Professor, Russian and Kazhk documents)
* YOSHIDA, Setsuko (Shikoku Gakuin University, Associate Professor, Nomadic system)
* YOSHIKAWA, Ken (Okayama University, Professor, Forest Ecology)

CHENGZHI (RIHN, JSPS Postdoctoral Fellow, Manchurian documents)
ENDO, Kunihiko (Nihon University, Professor, Lake sediment analysis)
ENDO, Takahiro (RIHN, Assistant Professor, Water resources management)
FURUMATSU, Takashi (Kyoto University, Assistant Professor, Tibetan documents)
HYASHI, Toshiyuki (Soka University, Professor, Archaeology)
HORINO, Haruhiko (Osaka Prefecture University, Associate Professor, Irrigation system)
HORI, Sunao (Konan University, Professor, Chinese and Uigur documents)
INOUE, Mitsuyuki (RIHN, Research Fellow, Chinese documents)
INOUE, Takashi (NHK, RIHN Visiting Professor, Archaeological Research)
KITAMURA, Yoshinobu (Tottori University, Professor, Irrigation systems)
KOBAYASHI, Osamu (Ehime University, Associate Professor, Dendrochronology)
KOMORI, Jiro (Nihon University, Research Fellow, Lake sediment analyses)
KOZAN, Osamu (Yamanashi University, COE Researcher, Hydrological modeling)
LEE, Aeria (RIHN, RIHN, Visiting Fellow, Migration)
MIYA, Noriko (Kyoto University, Assistant Professor, Chinese history)
MURAKAMI, Nobuyuki (Tsukuba University, Chinese documents)
MURATA, Taisuke (Nihon University, Research Fellow, Lake sediment analyses)
NAKAYAMA, Yasunori (Nihon University, Professor, Remote sensing)
NAKAWO, Masayoshi (RIHN, Professor, Ice core analysis)
NARAMA, Chiyuki (Nagoya University, JSPS Postdoctoral Fellow, Glacier change)
NODA, Jin (University of Tokyo, Graduate Student, Russian documents)
OJI Toshiaki (Ritsumeikan University, Professor, Oasis system)
ONUMA, Takahiro (Tsukuba University, Graduate Student, Chinese and Russian documents)
ONO, Hiroshi (Kyoto Tachibana University, Professor, Persian documents)
SHIMIZU, Katunori (Torrori University, Associate Professor, Irrigation systems)
SHINJILT (Kumamoto University, Associate Professor, Ethnology)
SHIRAISHI, Norio (Niigata University, Professor, Archaeology)
TSUZHIMURA, Maki (Tsukuba University, Lecturer, Isotope analysis)
YATAGAI, Akiyo (RIHN, Assistant Professor, Precipitation)
YAMOTO, Ryuji (University of Tokyo, Graduate Student, Agricultural economics)
WATANABE, Mitsuko (RIHN, Research Fellow, Remote sensing)
WATANABE, Tsuguhiro (RIHN, Professor, Irrigation systems)

(◎: Project leader, *: Core member)

## ■Progress of the Project

1) Scientific meetings

Three meetings of the project members have been convened to date. During the course of these meetings, we have discussed and refined the framework, objectives and methods of the project, after considering the comments and suggestions of the evaluation committee. The outcomes of these meetings have been published as a research report.

2) Field research

Four preliminary field trips have been made.

a) In July to August, members of the present status analysis group made a preliminary field trip to Kazakhstan and China for general surveying. They found several field sites potentially suitable for the evaluation of the impact of human activities on local ecosystems. A large amount of basic information concerning vegetation, soil, meteorological and hydrological conditions was gathered during the field trip with regard to the present status of the study area.

b) In August, members of the ice-core research group made a field trip to the Gregoriev Glacier in the Tian Shan Mountains in Kyrgyz. They surveyed the area and decided on drilling sites. They confirmed the availability and accessibility of the sites.

c) Members of the historical research group traveled from Uzbekistan, Kazakhstan and China for a general survey of the historical remains in the area.

d) In March 2007, the lake sediment coring group visited Lake Ivey in China

3) Preparation of joint research

Agreements for conducting joint research with universities and research institutes in Beijing, Urmuqi, and Almaty have been prepared. Some of these institutes and potential projects are listed below;

a) with the First Historical Archive of China in Beijing, an agreement for joint research, gathering and compiling historical documents in the Qing era, China;

b) with Kazakhstan Institute of Geography in Almaty, an agreement for joint research on Ecohydrological research in Ili River Basin in Kazakhstan as a part of the UNESCO 'Ecohydrology' project;

c) with the Regional Environmental Centre for Central Asia (CAREC), Kazakhstan Institute of Geography in Almaty and UZHYDROMET in Tashkent, an agreement for joint glaciological and hydrological research in Central Asia as a part of UNESCO-IHP project;

d) the Central Asia Deep Ice-Coring Project (CADIP). This is an international project on ice-core research in Central Asia, including China, France, Germany, Kyrgyz, Switzerland, Russia, Tajikistan, and USA. The ice coring research component of our project will be performed as a part of this project

## ■Outcomes (2005)

### Project reports

Research report on Oasis-regions 6-1, 2007 (in Japanese).

### Books

Uyama, T. and M. Suda, 2006, "Kazakhstan", Hakusui-sha (in Japanese).

### Articles

Funakawa, S., Y. Nishiyama, A. Kato, A. Kadono, and T. Kosaki, 2006, Temperature and moisture dependence of organic matter decomposition in soils from different environments, with special reference to the contribution of light- and heavy-fraction C. Pedologist, 50(1), 29–45.

Funakawa, S., R. Suzuki, S. Kanaya, E. Karbozova-Saljnikov, and T. Kosaki, 2007, Distribution patterns of soluble salts and gypsum in soils under large-scale irrigation agriculture in Central Asia. Soil Science and Plant Nutrition,

53(2), 150–161.

Narama, C., Y. Shimamura, D. Nakayama and K. Abdrakhmatov, 2006, Recent changes of glacier coverage in the western Terskey-Alatoo range, Kyrgyz Republic, using Corona and Landsat. Annals of Glaciology, 43, 223–229.

Miyake, T., F. Nakazawa, H. Sukugawa, N. Takeuchi, K. Fujita, K. Ohta and M. Nakawo, 2006, Concentrations and source variations of n-alkanes in a 21 m-ice core and snow samples at Belukha Glacier, Russian Altai Mountains. Annals of Glaciology, 43, 142–147.

Kitamura, Y., T. Yano, T. Honna, S. Yamamoto and K. Inosako, 2006, Causes of farmland salinization and remedial measures in the Aral Sea basin—Research on water management to prevent secondary salinization in rice-based cropping system in arid land, Agricultural Water Management, 85(1-2): 1–14.

Noda, J., 2006 The Qazaqs in the Muslim Rebellion in Xinjiang of 1864-65, Central Eurasian Studies Review, 5-1: 28–31.

**Oral Presentations in scientific meetings**

November 28, 2006 "Global change and its impact on humans and nature" KUBOTA, J. (RIHN, invited speaker) The UNESCO regional workshop on "Assessment of Snow-Glacier and Water Resources in Central Asia", Almaty, Kazakhstan

## Pre-Research

**Research axis:** Conceptual Framework for Global Environmental Issues
**Project number:** 5-4PR
**Project name:** Effects of Environmental Change on Interactions between Pathogens and Humans
**Project leader:** KAWABATA, Zen'ichiro (RIHN)
**URL:** http://www.chikyu.ac.jp/z/
**Key words:** infectious diseases, pathogens, environmental changes, carp, koi herpes virus (KHV), model, societal security

### ■Objectives

The spread of emerging infectious diseases is becoming a serious global environmental problem. To predict outbreaks of infectious diseases and to prevent epidemics, it is essential not only to conduct pathological studies but also to understand the interactions between humans and environments that generate infectious diseases.

The objectives of this study are to clarify the relationships between anthropogenic environmental changes, pathogens that emerge under these environmental changes, and the effects on humans of diseases caused by those pathogens. Our project is based on the hypothesis that anthropogenic environmental changes mediate the spread of disease. Outbreaks of mass mortality in carp, which have long been part of human food resource and culture, caused by the koi herpes virus (KHV) disease have occurred worldwide since 1998. Specifically, we will focus on the relationships between environmental changes in a freshwater ecosystem, KHV, common carp (*Cyprinus carpio carpio*), KHV disease and humans. We regard this system as a model of interactions between pathogens and humans (Fig. 1), because parameters common to other diseases are involved in the system and also this system allows us to conduct experiments to verify the interactions. We will then establish a general model for the emergence and spread of diseases.

This study could help deal with emerging infectious diseases proactively, before they become a major health threat, through an understanding of the nature of disease, and contribute to the safe coexistence of humans with pathogens to realize long-term societal security.

### ■Research organization

**1. Research groups and their roles**

Our project is organized into five research groups, an executive group, and an advisory group. The role of each group is as follows:

1) Environmental alteration by humans (Group 1): revealing the effects of anthropogenic environmental alteration on the emergence and spread of a pathogen (KHV) and on the behavior of its host (common carp, *Cyprinus carpio* carpio).
2) Ecology of pathogens and their hosts (Group 2): clarifying the dynamics of a pathogen (KHV) and its host (common carp) in relation to environmental factors, thereby defining the environmental factors involved in KHV infection.
3) Infectious process and ecosystem effects (Group 3): revealing the infectious process and the effects of KHV disease on ecosystem functions such as material cycling.
4) Economics and culture (Group 4): clarifying losses in terms of ecosystem services, economics and culture as a result of environmentally increased diseases, and the compensation process for those losses.
5) Feedback (Group 5): clarifying the effects of those losses on subsequent environmental alteration by humans.
6) Executive: coordinating the activities of each group to connect the research subjects to attain our objective. Applying our model to other infectious diseases.
7) Advisory: Giving suggestions to improve research from the viewpoint of international experts.

**2. Field study sites**

The study sites are Lake Biwa, Japan, and Lake Chau-hu, China. Lake Kasumigaura, Lake Suwa, natural rivers in Nagano and Gifu Prefectures, Japan, Tai-hu (China), and sites in Sri Lanka, Indonesia, and the USA are under consideration.

**3. Subjects and methods of each group**

1) Environmental alteration by humans (Group 1)

We will focus on eutrophication, habitat degradation, biodiversity loss, and changes in the food web as a result of anthropogenic environmental alteration. We will experimentally clarify the relationships among these factors. We will develop new methods to simply and rapidly measure the degree of eutrophication, which will enable us to collect data, worldwide using small samples and making use of satellite data. We will clarify the extent of habitat degradation by measuring water temperature, dissolved oxygen, pH, bottom topography, and bottom sediments. We will develop a method to measure species diversity using a meta-genome analysis. We will also reveal the changes in biomass and species composition of benthos, aquatic plants, and food organisms of the common carp. We will reveal changes in the food web where common carp are involved by measuring the stable isotopes of food organisms. We will also study the effects of anthropogenic environmental alteration on the emergence and dynamics of a pathogen (KHV) in collaboration with Group 2.

2) Ecology of pathogens and their hosts (Group 2)

We will clarify the process of genetic changes and the spatial and temporal distribution of both KHV and its host, the common carp. We will study their life cycle and ecology and will also clarify the related environmental factors. We will clarify the relationship between the fatality rate and the degree of stress experienced by the host. We will also clarify the environmental factors that stress the host, host immunity in terms of age and habitat, and the relationships among water temperature, dissolved oxygen, host and pathogen density, eutrophication, habitat degradation, biodiversity loss, changes in the food web, and the emergence of KHV disease.

3) Infectious process and ecosystem effects (Group 3)

We will investigate the process and mechanisms of the spread of KHV disease. We will clarify the effects of either the occurrence of the disease or disappearance of the host on material cycling, eutrophication, biodiversity, and community structure and function.

4) Economics and culture (Group 4)

We will clarify the effects of the occurrence of KHV disease or disappearance of the host on the cost of treatment of dead hosts, prevention of disease, increase in research funding, and economic losses to fishery, the decreased importance of the carp fishery, and ecological services. We will evaluate the losses of food materials, culinary knowledge, spiritual culture, and knowledge of common carp utilization as well as changes in the concepts of nature and living organisms. We will clarify the substitution process for these losses. We will study how to solve these disease-induced changes.

5) Feedback (Group 5)

We will clarify the effects of economic and cultural changes on the timeline and processes for subsequent anthropogenic environmental alteration. We will establish a model for the interaction between KHV and humans. We will clarify the historical relationship between humans and diseases, and propose how to co-exist with diseases. We will clarify the favorable aspects of disease for living organisms, including humans.

6) Executive

We will coordinate the activities of each group to connect the research subjects to attain our objective. We will apply our model, "Interactions between KHV and humans", to other infectious diseases.

## ■Present state of research

### 1. Results of the project

1) We have established the research topics for each group and have integrated them into the basic structure of the interactions between pathogens and humans through eight seminars since April.
2) Each group has started to collect materials and data.
3) A pre-survey was conducted in Lake Chau-hu, China, with a Chinese collaborator.
4) We have recommended our research framework on infectious diseases in aquatic ecosystems and humans to an international program of biodiversity science (DIVERSITAS).

### 2. Results of each group

1) Environmental alteration by humans (Group 1)

From July to October 2006, we surveyed the topology, bottom quality, and water quality of four satellite lakes of Lake Biwa that seemed to be important habitat for common carp. In particular, a detailed survey was conducted for Iba-naiko. We found heterogeneous environments in this lake, including water temperature ranging from 24°C to 32°C and concentrations of dissolved oxygen ranging from 2 mg/L to 16 mg/L. These environments may affect the behavior of common carp. A mathematical model, based on the hypothesis that common carp migrate between the satellite lakes seeking better habitats, predicted that lower connectivity among satellite lakes increases the stress carp experience and enhances the spread of KHV.

2) Ecology of pathogens and their hosts (Group 2)

We developed a method to detect KHV in lake water and bottom sediments. We collected 528 common carp from seven sites in Lake Biwa to obtain materials for stable isotope analyses and to identify their behavioral range. We studied a method to measure cortisol as a stress-induced hormone. We installed breeding tanks for common carp with a controlled water temperature for the stress experiment.

3) Infectious process and ecosystem effects (Group 3)

We collected blood samples from 120 common carp that were captured in Iba-naiko, a satellite of Lake Biwa, to measure antibodies against KHV.

4) Economics and culture (Group 4)

We began our study of the effect of common carp extinction on humans based on the concept of "usefulness in uselessness". This idea is that the value of common carp seems to have already disappeared from our daily life; however, we are not conscious of this value and it remains hidden as an indispensable element for our life. We have initiated our study of the requirements for converting uselessness to usefulness and the economical understanding of uselessness.

5) Feedback (Group 5)

We reviewed the case of *Legionella* infection in the context of our project to determine if our model will apply to other infectious diseases. We also exchanged information about avian influenza and *Vibrio* enteritis with other research groups to find common parameters involved in infectious disease outbreaks.

## ■Contribution to the solution of global problems

Expected final results from our project are as follows: 1) we will map stressors of carp in aquatic ecosystems, 2) we will diagnose illnesses in aquatic ecosystems based on the landscape, 3) we will be able to better predict the emergence and outbreak of infectious diseases, 4) we will propose a conceptual model of the effects of environmental change on the interactions between pathogens and humans, 5) we will suggest a way to co-exist with pathogens, and 6) we will contribute to basic science. By integrating these results, we will also reduce infectious disease outbreaks due to co-existence with humans.

**■Project Members (Affiliation, Position, Role)**

○ASANO, Kota (Graduate School of Human and Environmental Studies, Kyoto University, Associate Professor, Model for Economical effects)

□IIDA, Takaji (National Research Institute of Aquaculture, Fisheries Research Agency, Manager of pathogen control division, KHV infectious disease)

IBUKI, Naomi (Research Institute for Humanity and Nature, Research Associate, Secretary)

○ITAYAMA, Tomoaki (National Institute for Environmental Studies, Researcher, Nano-technological measurements)

WU, Deyi (Shanghai Jiao Tong University, Associate Professor, Lake management)

UCHII, Kimiko (Center for Ecological Research, Kyoto University, Graduate student, Intestinal microbes ecology)

UEKI, Masaya (Research Institute for Humanity and Nature, Research Fellow, Fish habitats)

○OHMORI, Koji (Center for Marine Environmental Studies, Ehime University, Associate Professor, Environmental alteration)

○OKUDA, Noboru (Center for Ecological Research, Kyoto University, Associate Professor, Food web analysis)

OKUMIYA, Kiyohito (Research Institute for Humanity and Nature, Associate Professor, Medical science)

○KAKEHASHI, Masayuki (Graduate School of Health Science, Hiroshima University, Professor, Model for epidemics)

◎KAWABATA, Zen'ichiro (Research Institute for Humanity and Nature, Professor, Project Leader)

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NAKANO, Shin-ichi (Faculty of Agriculture, Ehime University, Associate Professor, Microbial ecology)

SEKINO, Tashuki (Research Institute for Humanity and Nature, Assistant Professor, GIS analysis)

○NASU, Masao (Graduate School of Pharmaceutical Sciences, Osaka University, Professor, Genome analysis of pathogens)

PARK, Ho-Dong (Faculty of Science, Shinshu University, Professor, Water pollution)

HONJO, Mie (Research Institute for Humanity and Nature, Research Fellow, Viral ecology)

○MATSUI, Kazuaki (Research Institute for Humanity and Nature, Senior Researcher, Microbial ecology)

○MATSUOKA, Masatomi (Asahi Fishery Cooperative, Shiga Prefecture, Secretary, Creation food culture)

MOMOKI, Akio (Research Institute for Humanity and Nature, Associate Professor, Effects of epidemics on culture)

MIKI, Takeshi (Center for Ecological Research, Kyoto University, Graduate student, Mathematical models of epidemics)

YASUNAGA, Teruo (Genome Information Research Center, Research Institute for Microbial Diseases, Osaka University, Informatics)

YAMAUCHI, Astsushi (Center for Ecological Research, Kyoto University, Associate Professor, Mathematical models for epidemics)

YAMANAKA, Hiroki (Center for Ecological Research, Kyoto University, Graduate student, Fish habitats)

YOSHIDA, Takehito (Research Institute for Humanity and Nature, Research Fellow, Japan Society for Promotion of Science, Gene mutation)

YONEKURA, Ryuji (Gifu Prefectural Research Institute for Freshwater Fish and Aquatic Environments, Researcher,

Stress on fish)

□DIVERSITAS (International Programme of Biodiversity Science) members (Secretariat in France, 11 members of 9 countries, Biodiversity and disease)

○NAIMAN, Robert (Univ. Washington, Fishery Science. USA, Professor, Fish ecology)

○SOTO, Doris (Fishery Department, FAO, UN, Rome, Italy, Senior Fishery Resources Officer, Resource analysis)

(◎: Project leader; ○: Core member, □: Advisor)

## ■Outcomes

### Publications

Yoshida, T. (2006) Ecological stoichiometry and the shape of resource-based tradeoffs. OIKOS 112: 406–411.

Honjo, M., Matsui, K., Ishii, N., Nakanishi, M. and Kawabata, Z. (2007) Viral abundance and its related factors in a stratified lake. Fundamental and Applied Limnology Archiv für Hydrobiologie 168: 105–112.

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Meyer, J. R., Ellner, S. P., Hairston, N. G. Jr., Jones, L. E. and Yoshida, T. (2006) Prey evolution on the time scale of predator-prey dynamics revealed by allele-specific quantitative PCR. Proceedings of the National Academy of Sciences, USA 103: 10690–10695.

Frost, P., Benstead, J., Cross, W., Hillebrand, H., Larson, J., Xenopoulos, M. and Yoshida, T. (2006) Threshold elemental ratios of carbon and phosphorus in aquatic consumers. Ecology Letters 9: 774–779.

Nishiura, H., Schwehm, M., Kakehashi, M. and Eichner, M. (2006) Transmission potential of primary pneumonic plague: time inhomogeneous evaluation based on historical documents of the transmission network. Journal of Epidemiology & Community Health, 60(7): 640–645.

### Oral Presentation

May 23, 2006 Baba, T., Yamaguchi, N., Maruyama, K., Tani, K. and Nasu, M. "Rapid and accurate enumeration of active Legionella pneumophila in aquatic environments." American Society for

Microbiology 2006 General Meeting (Orlando)

June 6, 2006 Uchii, K., Okuda, N., Karube, Z., Yonekura, R., Matsui, K. and Kawabata, Z. "Trophic polymorphism in lake Biwa bluegill, an introduced fish species in Japan: Stable isotopic evidence." ASLO Summer Meeting (Victoria, British Columbia, Canada) Abstract: 125

August 20, 2006 Matsui, K., Kawabata, Z., Narita, M. and Endo, G. "Analysis of worldwide dissemination of TnMERI1-like mercury resistance transposon among Bacillus on the basis of directly repeated (DR) sequences." 11th International Symposium on Microbial Ecology (Vienna, Austria) Abstract: 451

August 20, 2006 Matsui, K., Narita, M., Kawabata, Z. and Endo, G. "Evidence for worldwide dissemination of mercury resistance transposon among Bacillus on the basis of directly repeated (DR) sequences." 11th International Symposium on Microbial Ecology (Vienna, Austria) Abstract: 451

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September 21, 2006 Obata, K., Matsui, K. and G. Endo. "Expression of arsenic resistance genes from *Bacillus* sp. MB24 in *Escherichia coli* and *Bacillus megaterium*". 61st Annual Meeting of Japan Society of Civil engineers (Ritsumeikan University, Shiga)

**Poster Presentation**

June, 2006 Uchii, K., Okuda, N., Karube, Z., Yonekura, R., Matsui, K. and Kawabata, Z. "Trophic polymorphism in Lake Biwa bluegill, an introduced fish species in Japan: stable isotopic evidence." ASLO Summer Meeting 2006 (Victoria, British Columbia, Canada)

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August 24, 2006 Endo, G., Matsui, K., Yusa, K. and Narita, M. "Substrate specificity of several organomercurylyases found from environmental bacteria." 11th International Symposium on Microbial Ecology (Austria Center, Vienna, Austria)

October 29, 2006 Matsui, K., Narita, M., Kawabata, Z. and Endo, G. "Dissemination of organmercurial resistance transposon among *Bacillus* on the basis of directly repeated (DR) sequences." 22nd Annual Meeting of Japan Society for Microbial Ecology (University of Tokyo, Tokyo)

November 6–8, 2006 Matsui, K., Honjo, M., Ueki, M., Koumatsu, Y. and Kawabata, Z. "Detection of Koi Herpesvirus (KHV) in freshwater environment." RIHN First International Symposium~Water and Better Human Life in the Future~ (Kyoto)

November 6–8, 2006 Omori, K., Ohnishi, H., Ueki, M. and Kawabata, Z. "Habitat analysis of a carp in Lake Biwa, Japan." RIHN First International Symposium~Water and Better Human Life in the Future~ (Kyoto)

## Feasibility Study

**Research axis:** Human Activity Impact Assessment
**Project number:** 2-6FS
**Project name:** Clarification of Materials Circulatory Systems Changes in East Asia as a Result of the Use of Geo-Spherical Resources
**Project leader:** NAKANO, Takanori (RIHN)
**Key words:** underground resource, environmental diagnosis, material transport, traceability, stable isotope, environmental education

### ■Research Objective

1) This project aims to establish the discipline of environmental traceability to monitor the global diffusion of substances produced from underground resources in the information society, which depends on the use of a diverse array of underground resources, and to develop methods for designing systems to govern environmental quality using the resultant technologies.
2) This project investigates Japan as a study area from the following reasons. Japan is an advanced information society and consumes a large amount of underground resources produced in other countries. Moreover, Japan is significantly affected by China, which has the largest resources of rare metals and has undergone rapid industrialization and economic growth, with resultant changes in the atmosphere. The diagnosis of environmental quality in Japan is important in terms of assessing qualitative changes in the global environment caused by advanced and globalized use of nonrenewable resources and the predicted economic development of China and other East Asian nations.
3) This project finally propose system designs for wise utilization of underground resources and governance of environmental quality based on the traceability diagnosis of materials emitted into the earth environment form the massive use of underground resources.

### ■Research Content

1) Three groups will be formed in line with the flows of elements that constitute underground resources, to study the interactions between people and nature: (1) underground resource analysis group, (2) environmental traceability group, (3) environmental quality assessment group. Another group, Group (4), will be formed to deal with environmental education, environmental policy, ethics, and philosophy in order to study the relationships between the future utilization of underground resources and governance of environmental quality based on the knowledge acquired by groups (1) to (3).
2) Group (1) will be studied by analyzing various types of energy resources and their future potentials, reviewing the latest statistical data on mineral resources including rare metals, preparing global models on future demand for these resources, quantitatively assessing the loads imposed by the use of mineral resources on the environment, and assessing technologies for reducing such loads. Reviews will also be conducted on the histories of mining and mining technologies to analyze factors that have inhibited or enabled sustainable mining operations. The resultant knowledge will be used to precisely assess substances that may affect the atmospheric and water environments when consumed, and to identify problems in the use of underground resources necessary for the information society as well as clues for the solution of these problems.
3) Group (2), the core of this project, aims to trace the behaviors of substances in the entire environment and establish environmental tracing methods for diagnosing and assessing their safety. The method of tracing pollutants to their sources will be used to gain an understanding of diverse environmental issues in Japan, such as acid rain, yellow sand, heavy metal contamination, eutrophication, salt water intrusion, and food safety. Specimens will be sampled jointly with universities, NPOs, and other organizations, with which data will be shared, and will be analyzed to

form a general view on the water quality of rivers and underground water at about 3,000 points in Japan (by sampling once at every point) and rainwater at about 30 points (by sampling monthly). In the case of rivers, organisms and sediments will also be sampled and analyzed. By this method, the effects of resource use on the network of material cycles, encompassing the atmosphere, hydrosphere, and biosphere of Japan, will be able to be diagnosed with much higher precision and from a different perspective than with conventional methods.

4) Group (3) will involve multilateral analyses of the relationships between qualitative changes in the atmosphere, hydrosphere, and biosphere caused by resource use and the health and culture of people by comparing regions and using the data acquired in Topic (2). For example, water quality will be analyzed in relation to the nature and culture of the relevant region, such as endemic diseases, medical treatment methods using water, renowned mineral waters, dietary culture, and individual rivers.
5) Group (4) will summarize the relationships between environmental quality and human society at the regional and watershed scales and investigate system designs for the future development and consumption of underground resources. Studies will be conducted in a mutually beneficial manner by educating citizens on environmental traceability and collecting regional information from citizens.

**■Project member (Affiliation · Position · Role)**

◎NAKANO, Takanori (RIHN · Professor · Project leader)
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○KAWANO, Yoshinobu (Faculty of Culture and Education, Saga University · Associate professor · group 4)
○KAWAHATA, Hodaka (Ocean Research Institute, the University of Tokyo · Professor · group 2)
○SHIKAZONO, Naotatsu (Faculty of Science and Tachnology, Keio University · Professor · group 1)
○TANAKA, Tsuyoshi (Graduate School of Environmental Studies, Nagoya University · group 4)
○TAYASU, Ichiro (Center for Ecological Reserch, Kyoto University · Associate professor · group 2)
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○MASTUDA, Toshihide (Faculty of Physical Sciences and Engineering, Meisei University · Associate professor · group 4)
○YAMASHITA, Katsuyuki (Institute for study of Earth's Interior Center, Okayama University · Associate professor · group 2)
○YANAGISAWA, Fumitaka (Department of Earth and Environmental Sciences, Faculty of Science, Yamagata University · Associate professor · group 2)
○YURIMOTO, Hisayoshi (Graduate School of Science, Hokkaido University · Professor · group 2)
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OHTE, Nobuhito (Graduate School of Agriculture, Kyoto University · Associate professor · group 3)
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IMAI, Noboru (Institute of Geology and Geoinformation, National Institute of Advanced Industrial Science and Technology · group 1)
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ITO, Takashi (The College of Education, Ibaraki University · Associate professor · group 4)
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SASE, Hiroyuki (Acid Deposition and Oxidant Research Center, Japan Environmental Sanitation Center · Senior Researcher · group 3)
NISHIYAMA, Takashi (Kyoto University · Professor Emeritus · group 1)
KUZUHARA, Shigeki (Mie University · Professor · group 3)
KOKUBO, Kazumasa (Mie University · Assistant Professor · group 3)
UEDA, Hitohiro (Kansai College of Oriental Medicene · Professor · group 3)
OGURA, Norio (Tokyo University of Agriculture and Technology · Professor Emeritus · group 4)
TAKEUCHI, Nozomu (Chiba University · Associate professor · group 3)

(◎: Project leader, ○: Core member)

**■Progress of the Project (From April 2006 to March 2007)**

1) The project focuses on atmospheric precipitation and surface water and also investigates organisms, riverbed sediments, and rock specimens. A decision was made to analyze both newly collected and existing specimens. The

feasibility of conducting routine analyses of eight types of stable isotopes was investigated for diverse types of specimens, and a feasible system was established. Since few research institutes dealing with the global environment in the world are capable of providing data on these stable isotopes, the Research Institute for Humanity and Nature will lead the world in data provision.

2) The compositions of the stable isotopes were shown to be effective for identifying materials produced in Japan and Asian countries. Part of the results, comprising application of a traceability technique using stable isotopes of sulfur, has been developed into a clean atmosphere trading right with China, and has been reported at the Council for Science and Technology Policy. For the first time, heavy metals from Russia were found to exist in the atmosphere in northern Japan by monitoring lead isotopes, suggesting the effectiveness of the method for monitoring the atmosphere.
3) Past studies have shown that dissolved components in surface water at the time of base discharge are relatively stable and do not vary by season. In this study, stable isotope compositions were stable, showing that one sampling of surface water can represent the site. In four prefectures—Akita, Kyoto, Kagawa, and Kumamoto—joint surveys were conducted with university members, and specimens were collected at 500 points in total, of which some have been analyzed. The results have shown that an environmental quality map that covers 3,000 points in all parts of Japan can be prepared.

## ■Future problem

1) The project title was changed from "diagnosis of chain Interactions between humans and nature using environmental traceability method" to "discipline of environmental traceability toward the establishment of new systems for utilizing underground resources", considering that the major aim of the project is to construct the traceability method to diagnose the present earth environment rather than to propose the wise use of underground resources. We added specialists of resource economy science and environmental medical science into the project, in order to signify the concept of environmental traceability method as an interface between human and environment. However, as we could not organize seminar or meeting, it was insufficient to promote the exchange of information and concept among members with a wide range of research fields.
2) Previous studies have shown that the inventory analysis of resources such as nitrogen is consistent with the observed concentration data of nitrogen compounds in the atmosphere and surface water, whereas this inventory analysis is not effective for metal elements. We focused the metals for the inventory analysis into lead, sulfur, and rare-earths which have stable isotopes for each and phosphorous which does not have stable isotope but is important as biogeochemical element. However, further examination is required to select metals for the inventory analysis.

## ■Achivements

### Books

[Japanese]

Ie, Y., Ogawa, Y., Nagata, T., Nakano, T., Hiei, E., Hirano, M., Asano, Y., Ikeda, N., Ikeda, N. and Suken Shuppan Shuppanbu. (2006) Chigaku I, Earth and Space (text for senior high school), 274 pp. Suken Shuppan.

Nakano, T. (2006) Effects of desertification on earth environment, Hidaka, T. and Nakawo, M eds., Chikyu-ken sousho, Where disappeared water and green in silk-road? Shouwa-dou, 131–162.

Nakano, T. (2006) Sr isotope and Pb isotope in the study of soil environment, Chemical Society of Japan ed, "Chemical Experiment Series 20-2, Environmental Chemistry", Maruzen, 416–422.

Nakano, T. (2006) Mineral circulation on Yakushima island, Field Science Education and Research Center of Kyoto University ed., "Mori-Sato-Umi Renkan-gaku" Kyoto University Press, 81–98.

## Articles

[Japanese]

Shikazono, N., Iwai, S., Ishihara, Y., Nakano, T. and Igarashi, T. (2006) Paleoceanic environment deduced from geochemistry of turbidite-sequence in Anno Formation, Awa Group, Boso Peninsula, Chiba Prefecture, Japan. Journal of Geography, 115, 669–690 (in Japanese with English abstract).

[English]

Nakano, T., Morohashi, S., Yasuda, H., Sakai, M. Aizawa, Shichi, K, Morisawa, T., Takahashi, M., Sanada, M., Matsuura, Y., Sakai, H., Akama, A., Okada, N. (2006) Determination of seasonal and regional variation in the provenance of dissolved cations in rain in Japan based on Sr and Pb isotopes. Atmospheric Environment, v.40, 7409–7420.

Ando, A., H. Kawahata and T. Kakegawa (2006) Sr/Ca ratios as indicators of varying modes of pelagic carbonate diagenesis in the ooze, chalk and limestone realms. Sedimentary Geology, 191: 37–53.

Hyodo, F., Tayasu, I. and Wada, E. (2006) Estimation of the longevity of C in terrestrial detrital food webs usin radiocarbon ($^{14}C$): how old are diets in termites? H Functional Ecology 20: 385–393.

## General Reports

[Japanese]

Nakano, T. (2006) Diagnostics of environment altered by human activities using natural fingerprint. *In Human and Nature, 2006 Report of the Open lecture of Doshisha University.* 17–20 (in Japanese).

Nakano, T. (2006) Study on the behavior of heavy metals in the water-plant-soil system of abandoned mining area. *2005 Report of Japan Mining Industry Association.* 33–38 (in Japanese).

## Magazine and Newspaper

[Japanese]

| | |
|---|---|
| July 29, 2006 | Nakano, T. Shigen yunyuutaikoku nihonn no kininaru kennkoujoutai, Minichi, Chikyuken-kyotohatu |
| October 28, 2006 | Nakano, T. Hitogaru higashiajia no fukugoutaikosenn, Minichi, Chikyuken-kyotohatu |

## Field Research in Japan and Oversea

| | |
|---|---|
| July 18–19, 2006 | Wakayama Prefecture (Water quality research of Wakayama Field Center of Kyoto University) |
| June 24–26, 2006 | Kagawa Prefecture (Water quality research of river) |
| August 6–10, 2006 | Kagawa Prefecture (Water quality research of river) |
| October 26–29, 2006 | Yatsugatake-Kawakami Field Center of the University of Tsukuba (River water quality, millipede, and soil research) |
| December 23–28, 2006 | Kyoto basin and surrounding area (Water quality research) |
| March 22–26, 2007 | Saijo-city in Ehime prefecture (Water quality research) |

## Public lectures (all in Japanese)

| | |
|---|---|
| April 18, 2006 | "Global warming and climate change" Hanshin senior college |
| April 25, 2006 | "Acid-rain and desertification problems" Hanshin senior college |
| June 7, 2006 | "Environmental change in lake Biwa" Special lecture on Biogeochemistly group of Faculty of Agriculture of Kagawa University |
| July 3, 2006 | "Rock-fingerprint and environment traceability study" Special lecture on agriculture economy group of Faculty of Agriculture of Kagawa University |

| | |
|---|---|
| August 6, 2006 | "Lake Biwa altered by water in the eastern watershed" P3-1 workshop at Inae of Shiga prefecture |
| August 31, 2006 | "Study on water and life using mineral tracer" Special lecture at Center for Ecological Research of Kyoto University |
| September 9, 2006 | "Water-quality map of river in Akanoi watershed" Special lecture at NPO Houjo-no sato |
| September 18, 2006 | "Volcano and water" Areal lecture of RIHN in Kagoshima |
| September 23, 2006 | "Development of Environmental Indicators Linking Lakes-Rivers-Humans and Watershed Diagnosis" P3-1 International workshop |
| September 27, 2006 | "Effect of desertification in China and Asian dust on the environment of Japan and surrounding region" Special lecture at the Faculty of Science, Kumamoto University |
| October 6, 2006 | "Recommendation of environmental traceability study to diagnose the relationship between resource and environment" Special lecture at the Faculty of Science, Okayama University |
| October 10, 2006 | "Diagnose environment altered by human activity using natural fingerprint" Open lecture of Doshisha University (invited) |
| November 10, 2006 | "Study on the behavior of heavy metals in the water-plant-soil system of abandoned mining area" *User's Forum of Thermo Fisher Scientific* |
| February 14, 2007 | "Water in Kyoto altered by humans" Renkei-juku, Hito-to-mizu |
| February 28, 2007 | "Explanation of hexa-diagram of water by geologist" *Hydrospheric Atmospheric Research Center of Nagoya University* (invited) |
| March 20, 2007 | "Environmental traceability study using stable isotope information of rock: possibility as an index for the determination of cropping area of agricultural products" *Special lecture at Food and Agricultural Materials Inspection Center* |

**Feasibility Study**

**Research axis:** Human Activity Impact Assessment

**Project number:** 2-7FS

**Project name:** Relationships between Human Activities and Atmospheric Changes, Possibilities of Harmonious Society for Environmental Issues in the East Asia

**Project leader:** ZHENG, Yuejun (RIHN)

**URL:** http://www.chikyu.ac.jp/rihn/pro/2004_2-7.html

**Key words:** human-induced substances, environmental asessment, environmental consciousness, environmental perception, environment management capacity, harmonious society, area study

## ■Research Objectives

Amid atmospheric deteriorations with rapid economic growth in East Asia, a new environmental cooperation system that emphasizes not political or economic but environmental and cultural contexts is becoming more and more significant. This project tries to explore the theory of fostering a harmonious society for environmental issues synthetically based on results derived from analysis of the relationships between human activities and emissions of man-made substances, quantitative evaluation of social perception of environmental issues, and identification of social capacity for environmental management, in specific research sites.

## ■Research Content

1) Exploring influence of human activities on atmospheric changes: We try to analyze the influences of human activities, including energy consumption and land use etc., on emissions of $CO_2$, $NO_x$ and $SO_x$, and to predict the possible level for environmental cooperation (PLEC) for each research site by means of investigating relationship between the various human activities and their environmental impacts based on methodologies of area studies.
2) Analyzing structure of environmental consciousness: We try to evaluate social perception of environmental issues (SPEI), which will be accomplished by extracting the essence of environmental consciousness of citizens, firms and governments, and thereby develop multidimensional indicators.
3) Identifying capacity for environment management: The capacities of citizens, firms and governments and their mutual interactions will be identified based on survey data in each research site, and a set of indexes will also be developed for evaluating the social capacity for environmental management (SCEM).
4) Explore the framework of a harmonious society for environmental issues: Based on the above three factors, features of each research site, and social situations of specific country, possible frameworks of harmonious society will be explored for extracting incentive to solve environmental problems.

## ■Project Members

◎ZHENG, Yuejun (RIHN)
○AMANO, Masahiro (School of Human Sciences, Waseda University)
○HAYASAKA, Tadahiro (RIHN)
○KOJIMA, Hiroshi (School of Social Sciences, Waseda University)
○MURAKAMI, Masakatsu (Faculty of Information Science, Doshisha University)
○TSUYUKI, Satoshi (Graduate School of Agriculture and Life Sciences, The University of Tokyo)
○YAMAOKA, Kazue (National Institute of Public Health)
○YOSHINO, Ryozo (Institute of Statistical Mathematics)
AKIMICHI, Tomoya (RIHN)
MATSUOKA, Shunji (Graduate School for International Development and Cooperation, Hiroshima University)

SHIBASAKI, Fumikazu (School of Political Science and Economics, Meiji University)
SUGIMURA, Ken (Forestry and Forest Products Research Institute)
YOSHIOKA, Takahito (RIHN)
BAK, Hee-Je (Department of Sociology, Kyung Hee University, South Korea)
FENG, Feng-Long (Department of Forestry, National Chung Hsing University, Taiwan)
LO, Hing-Po (Department of Management Sciences, City University of Hong Kong, China)
SHIA, Ben-Chang (Department of Statistics and Information Science, Fu Jen Catholic University, Taiwan)
YUAN, Wei (College of Statistics, Renmin University of China, China)
ZHAO, Yanyun (Center of Applied Statistics, Renmin University of China, China)
ZHOU, Guomo (College of Environmental Science, Zhejiang Forestry University, China)
(◎: Project leader, ○: Core member)



## ■Progress of the Project (from April 2006 to March 2007)

1) Methodology to estimate the amount of man-made substances with activity data (energy consumption, land-use etc.) and emission factors was build up.
2) Spatial approach to identification of source and sink of man-made substances related to changes of land use and land cover was explored using the Landsat satellite data.
3) Variables for representing environmental consciousness of citizens, firms, and governments have been discussed through reviewing the previous researches and actual surveys.
4) Indicators to identify capacity for environmental management have been considered, which are monitoring and auditing, and public participation for the citizens, observance of regulations, and environmental investment and acquisition of ISO 14000 for the firms, and national policy, administrative control, budgetary situation for the governments.

## ■Outcome

### Papers

Zheng Y., Yoshino R. (2006) "Area Sampling for Social Survey without Frames—A Case Study of Consciousness Survey Conducted in Tokyo—", Proc. of 34th Conference of the Behaviormetric Society of Japan: 224–227. (in Japanese)

Hiroshima T., Matsumoto M., Zheng Y. (2006) "Calculation on Carbon Stock in Forest Sector and House Sector at A National Level", FORMATH 5: 177–186. (in Japanese)

Zheng Y. (2006) "Cross-national Comparison of Transitions of Traditional Values in Eastern Asian Countries" Proc. of International Conference on Comparative Social Sciences: 1–2.

Aoyagi-Usui M., Kuribayashi M., Zheng Y. (2006) China-Japan Environmental Survey: Is Social Capital Effective for Promoting Pro-Environmental Actions?" Abstract of 42nd Conference of International Sociology Association: 1105.

Zheng Y. (2007) "Changes on Family, Marriage and Life Satisfaction" In Cross-national Comparison on Family, Work and Housekeeping: A Panel Survey in Beijing, China (The 2nd survey result), Ochanomizu University Tokyo: 114–123. (in Japanese)

Zheng Y. (2007) "Relationship between Atmospheric Environmental Change and People's Environmental Consciousness" in the Last Report on Emissions of Greenhouse Gases and Aerosol and Human Activities in the Eastern Asia, Research Institute for Humanity and Nature: 29–33. (in Japanese)

## Reports

Zheng Y. et al (2007) "Comparative Survey on Environmental Consciousness in the East Asia—A Sampling Survey in Tokyo and Beijing, 2005" Research Institute for Humanity and Nature 329 pp. (in Japanese)

Zheng Y. et al (2007) "Comparative Survey on Environmental Consciousness in the East Asia—A Sampling Survey in Taipei and Seoul, 2006", Research Institute for Humanity and Nature 292 pp. (in Japanese)

Yoshino R., Hayashi F., Yamaoka K., Zheng Y., and Matsumoto W. (2007) "The Asia & Pacific Values Survey—China 2005 Survey (Beijing, Shanghai & Hong Kong), Institute of Statistical Mathematics 521 pp. (in Japanese)

Yoshino R., Hayashi F., Yamaoka K., Zheng Y., and Matsumoto W. (2007) "The Asia & Pacific Values Survey—USA 2006 Survey", Institute of Statistical Mathematics 238 pp. (in Japanese)

Yoshino R., Hayashi F., Yamaoka K., Zheng Y., and Matsumoto W. (2007) "The Asia & Pacific Values Survey—Taiwan 2006 Survey", Institute of Statistical Mathematics 192 pp. (in Japanese)

**Feasibility Study**

**Research axis:** Human Activity Impact Assessment

**Project number:** 2-8FS

**Project name:** Environmental Changes and Vector-Borne Diseases in Tropical Asia and Oceania

**Project leader:** MOJI, Kazuhiko

**URL:** http://www.chikyu.ac.jp/rihn/pro/2004_2-8.html

**Key words:** environmental changes, epidemiology of infectious diseases, malaria, dengue fever, filariasis, leishmaniasis, tropical Asia, vector insects



## ■Objectives and contents of the project

### 1. Research objectives

The original objectives of the project were 1) to study the impacts of deforestation, urbanization and other environmental changes on the occurrence and epidemiology of vector-borne diseases in tropical Asia and Oceania, 2) to find out a way to evaluating regional and global environments from the epidemic states of vector-borne diseases, 3) to study long-term relationships between humans and vector-borne diseases from the human ecological perspective of comprehensive global environmental changes, and 4) to establish an ecological or global environmental viewpoint in vector-borne disease researches. The importance of such a viewpoint has been underestimated so far in the medical sciences.

In the year 2006, achieved were: 1) start-up of malaria surveys in Savannakhet, Lao PDR; 2) feasibility study of dengue fever and diarrhea studies in Bangladesh; and 3) identification of the research questions to be answered by this project and study methodology.

### 2. Research contents

The environmental changes and their impacts on the ecology and behavior of vectors, of human beings, and of pathogens were studied. Epidemic or occurrence of a given disease in a given region can be seen as the consequence of the interactions among human beings, vectors, and pathogens in a given environment. Such an approach has been rarely made in a comprehensive manner.

The following 5 research teams were established:

1) Wide area survey and information networking group (in collaboration with INDEPTH Network and other organizations)
2) Fixed-point observation group
   a) Savannakhet (Lao, PDR) sub-group (in collaboration with National Institute of Public Health (NIOPH))
   b) Vietnam sub-group (in collaboration with National Institute of Maraliology, Parasitology and Entomology (NIMPE))
   c) East Indonesia sub-group (in collaboration with Tropical Disease Centre (TDC), Airlangga University)
   d) Bangladesh sub-group (in collaboration with the International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR, B) and the University of Cambridge)
3) Geographical and historical literature study group
4) Theoretical epidemiology and mathematical model group
5) Integration group (environmental evaluation, long-term measures against infectious diseases, policy development)

The project had a limited number of scientists to be involved at the FS stage, and will increase the number to cover a wider range of study areas in the full research stage. The research groups will include local counterparts and highly competent European scientists in relevant areas, to constitute an international project.

The project anticipated at the beginning a wider study area covering tropical Asia and East Indonesia-Papua New Guinea, however, for certain restrictions, it had to limit the area to tropical Asia and concentrate on Vietnam, Lao PDR, Bangladesh and Indonesia.

**■Project members**

◎MOJI, Kazuhiko (Professor, Nagasaki University Institute of Tropical Medicine)
BOUPHA, Boungnong (Director and Professor, National Institute of Public Health, Vientiane, Lao PDR)
HASHIZUME, Masahiro (Researcher, Nagasaki University Institute of Tropical Medicine)
IIJIMA, Wataru (Professor, College of Literature, Aoyama Gakuin University)
○KANEDA, Eiko (Assistant Professor, Nagasaki University Institute of Tropical Medicine)
○KANO, Shigeyuki (Director, Research Institute, International Medical Center of Japan)
KOBAYASHI, Jun (Doctor, International Medical Center of Japan)
MASCIE-TAYLOR, C. G. Nicholas (Professor, Department of Biological Anthropology, Cambridge University)
○MOMOKI, Akiko (Associate Professor, RIHN)
NAKAZAWA, Shusuke (Assistant Professor, Nagasaki University Institute of Tropical Medicine)
SACK, David (Director, International Centre for Diarrhoeal Disease Research, Bangladesh)
SUNAHARA, Toshihiko (Assistant Professor, Nagasaki University Institute of Tropical Medicine)
○TAKAGI, Masahiro (Professor, Nagasaki University Institute of Tropical Medicine)
○WAGATSUMA Yukiko (Professor, Graduate School of Comprehensive Human Science, University of Tsukuba)
YAMAMOTO, Taro (Deputy Director, International Cooperation Bureau, Ministry of Foreign Affairs)
(◎: Project leader, ○: Core member)

**■Progress of the project (April 2006–March 2007)**

**1. Integration group and geographical and historical literature study group**

Literatures made by Prof. Anthony McMichael at the Australian National University and by a group at London School of Tropical Medicine were studied on ecosystem services and health (in the framework of Millenium Ecosystem Assessment), relationship between global warming and infectious diseases, evolutionary perspective of infectious diseases and environmental changes, and changes in life-style.

At the joint conference of the Japanese Society of Tropical Medicine and the Japan Association for International Health held in October 2006 headed by K. Moji, Prof. David Sack, Director-General of the ICDDR, B was invited and a symposium was held on demographic surveillance system.

**2. Malaria surveys in Lao PDR**

T. Sunahara, E. Kaneda and other members studied blood plasmodium levels, collected mosquitoes, and monitored use of mosquito nets in two communities in Sepone district, Savannakhet Province. About 70% of the children under 5 years old were infected even in the dry season where a relatively low rate of infection had been estimated. Use of the genetic technique of PCR (polymerase chain reaction) revealed infection of many adults with low parasitemia levels of blood plasmodium while they were using mosquito nets. The mosquito abundances were more than the study sites in Vietnam.

**3. Dengue surveys in Bangladesh**

Kamurdin and other members made a preliminary study in Bangladesh. Hashizume joined the Institute of Tropical Medicine, Nagasaki University, from London School of Tropical Medicine, and engaged in studies of relations between climate and infectious diseases such as diarrhea by using time series analysis. The frame of studying on relationships between climate/weather, other environmental factors, human life-styles and infectious diseases was discussed.

## ■Outcomes (April 2006–March 2007)

### Publication

Yoda T, Minematsu K, Abe T, Basuki S, Artasutra K, Dachlan YP, Moji K, Kanbara H, Rakue Y, Mizota T. (2007) "Evaluation by villagers of the malaria control project on Lombok and Sumbawa Islands, West Nusa Tenggara Province, Indonesia." *Southeast Asian J Trop Med Public Health.* 38(2): 213–222. PMID: 17539269

Nishikiori N, Abe T, Dehiwala G M Costa, Samath D Dharmaratne, Kunii O, Moji K. (2006) "Timing of mortality among internally displaced persons due to the tsunami in Sri Lanka: cross sectional household survey." *BMJ* 332 11 2006: 334–335.

Nishikiori N, Abe T, Dehiwala G M Costa, Samath D Dharmaratne, Kunii O, Moji K (2006) "Who died as a result of the tsunami?—Risk factors of mortality among internally displaced persons in Sri Lanka: a retrospective cohort analysis." *BMC Public Health* 2006, 6: 73 (1–8).

### Field research in foreign countries

Research on malaria and Thai liver fluke infection in Lao PDR and Vietnam (T. Sunahara, E. Kaneda and T. Abe)
Research on dengue fever in Bangladesh (Kamurdin).

### Oral Presentations

October 2006 KANEDA E, TIENGKHAM PONGVONGSA, BOUNGNONG BOUPHA, MOJI K "The prospect of the Lahanam demographic surveillance system, Lao PDR." The Joint Meeting of the 47th Annual Meeting of the Japanese Society of Tropical Medicine and the 21st Annual Meeting of the Japanese Society of International Health (Nagasaki Brick Hall, Nagasaki)

October 2006 KANEKO S, SHIMADA M, MOHAMED KARAMA, MINAKAWA N, KOMAZAWA O, MUSHINZIMANA E, MOJI K, ICHINOSE Y, KANEDA E "A platform development for demographic and health information system to support research and control of infectious diseases and health-related problems." The Joint Meeting of the 47th Annual Meeting of the Japanese Society of Tropical Medicine and the 21st Annual Meeting of the Japanese Society of International Health (Nagasaki Brick Hall, Nagasaki)

October 2006 NAKAZAWA S, LE DUC DAO, NGUYEN VAN TUAN, MAENO Y, UEMURA H, HA VIET VIEN, TRUONG VAN HANH, LE KHANH THUAN, MOJI K, SUNAHARA T "An outline of the project and case reports of people with a high slide positive rate in the research site." The Joint Meeting of the 47th Annual Meeting of the Japanese Society of Tropical Medicine and the 21st Annual Meeting of the Japanese Society of International Health (Nagasaki Brick Hall, Nagasaki)

October 2006 SUNAHARA T, VU VIET HUNG, NGUYEN DINH NAM, VU DUC CHINH, HO DINH TRUNG, LE KHANH THUAN, TAKAGI M, MOJI K, NAKAZAWA N "Variability in abundance of the malaria vector, Anopheles dirus, among and within villages." The Joint Meeting of the 47th Annual Meeting of the Japanese Society of Tropical Medicine and the 21st Annual Meeting of the Japanese Society of International Health (Nagasaki Brick Hall, Nagasaki)

October 2006 ABE T, Trinh Dinh Tuong, Nguyen Quang Thieu, Le Xuan Hung, Le Khanh Thuan, SUNAHARA T, NAKAZAWA S, MOJI K "Mosquito avoidance practice and malaria infection in a minority's community in southern Vietnam." The Joint Meeting of the 47th Annual Meeting of the Japanese Society of Tropical Medicine and the 21st Annual Meeting of the Japanese Society of International Health (Nagasaki Brick Hall, Nagasaki)

February 2007 TAKEUCHI S, MOJI K, Yuesheng Li, Yongkang He, Huan Zhou, WATANABE C, OHTSUKA R "Time allocation study in endemiology of schistosomiasis japonica in the Dongting Lake, China." U.S.-Japan Cooperative Medical Science Program Parasitic Diseases Panel (The University of Tokyo, Tokyo)

## ■Future plan

1) The research design should be further refined.
2) It is also important to develop small-scale detailed studies.
3) The conceptual framework to contribute to mitigation of the global environmental issues should be developed.

**Feasibility Study**

**Research axis:** Human Activity Impact Assessment
**Project number:** 2-9FS
**Project name:** Evaluation for *on-farm* Conservation of Traditional Faming Systems and Lifestyle
**Project leader:** SATO, Tadashi
**URL:** http://www.chikyu.ac.jp/rihn/pro/2004_2-9.html
**Key words:** Green revolution, Agriculture, Life, *On-farm* conservation, Genetic resources, sustainability, traditional faming system



## ■Research Object and Contents

### 1. Research Objective

After the Second World War, using chemical fertilizer and agricultural chemicals and high yield varieties increased the yield of cereals such as rice and wheat. The dramatic increase of cereal's yield is termed the "Green Revolution", despite the fact that the "Green Revolution" caused serious global environmental problems such as ground pollution, air pollution, eutrophied lakes and rivers, and shortages in irrigation water. In addition, high-yield cultivars diffused by the "Green Revolution" has promoted temporary productivity enhancement, but on the other hand, has caused serious global environment problems. High-yield cultivars in particular have produced global environment problems. *On-farm* conservation of traditional farming-systems involves the conservation of local crop cultivars and the lifestyles of farmers in agro-ecosystems.

This feasibility study sassed the biological diversity and productivity of local crop cultivars in traditional farming systems. An agronomist, biologist, sociologist and economist will take part in this assessment. This project deals with sustainable farming-systems and sustainable lifestyles, which are chose to secure a certain degree of productivity. We proceeded with the exchange of Memorandam of Agreement (MOA) on the cooperative research concerning on-farm conservation of rice and wheat in Southeast Asia and Southwest Asia, respectively.

### 2. Contents of Research

In this feasibility study, the study area and item were examined to construct and support the Full Research project. The study site was set as those areas in which rice and wheat had been cultivated. The study sites of rice were set to areas in Thailand, Laos, Vietnam, and Cambodia in the Indochinese Peninsula region and in Indonesia. In addition, the study sites for wheat were set to areas in Syria and Turkey in western Asia. This study examined whether the item shown in the following items can be investigated in those areas. The studied items are as follows: (1) investigation concerning the genetic diversity of crops that had been cultivated in the past or are being cultivated now; (2) investigation of the biodiversity in cultivated field ecosystem and the circumference; (3) investigation of agriculture and lifestyle; (4) investigation of physical cycle in the cultivated field ecosystem; (5) investigation concerning religious and cultural positioning about biodiversity and genetic diversity; and (6) productivity of crops created before and after the "Green Revolution", based on statistical data of each country and international organizations. We investigated the biodiversity of rice, wheat, wild relatives, companion plants, and soil microorganisms. The *on-farm* conservation sites of rice that were established in Bangkok and Prachinburi of Thailand and Vientiane of Laos. In addition, *on-farm* conservation sites were nominated in Laos, Indonesia, Cambodia, Vietnam, and Australia. As for wheat, several *on-farm* sites in Syria and Turkey were nominated. Concerning biodiversity and genetic diversity, not only observations by the field survey but also utilization of the DNA polymorphism analysis was studied. Regarding evaluation of the agriculture style, not only the survey based on the scientific literature but also interviews and field study were performed. Concerning investigations of the dynamic state of material in the ecosystem, utilization of the stable isotopic element was studied.

**■Project Member**

○ISHII, Takashige (Faculty of Agriculture, Kobe University, Associate Professor, Plant Genetics)
OHTA, Shoji (Department of Bioscience, Fukui Prefecture University, Professor, Plant Genetics)
KASAHARA, Yasuhiro (Institute of Low Temperature Science, Hokkaido University, Associate Professor, Soil Microbiology)
KUDO, Hiroshi (Faculty of Science, Associate Professor, Plant Ecology)
○SASANUMA, Tsuneo (Kihara Institute for Biological Research, Yokohama City University, Assistant Professor, Plant Genetics)
◎SATO, Tadashi (Graduate School of Life Sciences, Tohoku University, Associate Professor, Project Leader)
○SATO, Yo-Ichiro (Research Institute of Humanity and Nature, Professor, Plant Genetics)
SHIBUYS, Chousei (Faculty of Agriculture and Life Science, Hirosaki University, Professor, Economics)
○SUZUKI, Iwayumi (Graduate School of Arts and Letters, Tohoku University, Professor, Science of Religion)
TSUKAWAKI, Shinji (Institute of Nature and Environmental Technology, Kanazawa University, Associate Professor, Natural Metrology)
NAWATA, Eiji (Graduate School of Agriculture, Kyoto University, Associate Professor, Tropical Ecology)
FUKUTA, Yoshimichi (Japan International Research Center for Agricultural Sciences, Project Leader, Plant Breeding)
MATOU, Tooru (Graduate School of Agriculture, Kyoto University, Associate Professor, Plant Physiology)
YAMAYA, Tomoyuki (Graduate School of Agriculture, Tohoku University, Professor, Plant Biochemistry)
○CHANPHENGXAY, Monthathip (National Agriculture and Forestry Research Institute, Lao PDR, deputy director, pedology)
○SAROM, Men (Cambodia Agriculture Research and Development Institute, Cambodia, Director, Agronomist)
(◎: Project leader, ○: Core member)

**■Progress Report (April 2006–March 2007)**

Traditional agriculture and the industrial agriculture are managed in Indochinese regions and western Asian regions. This feasibility study was performed for establishing the above-mentioned sites to the study one.

The preliminary study of rice confirmed that the biodiversity and genetic diversity were rich in the study sites, where the traditional farming system was managed in the Laotian northern part, etc. It was agreed with Thailand and Lao PDR that the *on-farm* conservation sites should be continuously set up respectively in Prachinburi and in Vientiane. We discussed with Laos about cooperative research that study sites would be set up around Louang Phrabang or Luang Namtha in the northern part of Laos. With the Department of Rice in Thailand, contents of the cooperative research were confirmed, and an agreement was reached for further planning of their study. Memorandum of cooperative research agreement was concluded at the beginning of the next fiscal year. Furthermore, the agreement was concluded with the Cambodia Agricultural Research and Development Institute. We discussed with the Rice Institute of Cao Long Delta of Vietnam and Hasanuddin University of Indonesia.

We confirmed that the traditional farming system, which used native wheat cultivars, was still managed in Syria. We discussed with the researcher of Syria concerning with *on-farm* conservation sites of wheat. These sites are four study areas in one area in the northern part, one area in the central part, and two areas in the southern part of Syria. Memorandum of cooperative research agreement, at latest by May of next year, will be concluded with the International Center for Agricultural Research in the Dry Areas.

The genetic diversity of rice and wheat and the biodiversity of companion plants and microorganisms were investigated by their phenotypes and DNA analysis. Regarding the dynamic state of material in the cultivated field ecosystem, utilization of the stable isotopic element was studied; its possibility was confirmed.

## ■Future Plan

The biodiversity and the genetic diversity are important problems in this project. For the study described, it is problem to export DNA extracted from the organisms and crops from those countries, because they conflict with the Convention on Biological Diversity and the International Treaty on Plant Genetic Resources for Food and Agriculture. To solve this problem, it was necessary to construct a system where DNA analysis of collected organisms and crops should be completed within the research facilities in those countries. Therefore, a future subject shall be to conclude a cooperative research agreement with research organizations (Department of Rice in Thailand, National Agricultural Irrigation Laboratory in Cambodia, Cuulong Delta Rice Research Institute in Vietnam, Darwin University in Australia, International Center for Agricultural Research in the Dry Area in Syria, etc.) The preliminary study clarified that Green Revolution cultivars were cultivated in traditional agricultural regions in Laos and Indonesia. Therefore, it is future problems to preserve *on-farm* sites in where traditional cultivars were cultivated. Concerning analysis of the dynamic of the nutritional elements in the cultivated field ecosystem, it is a future problem to confirm the availability of stable isotopic elements in those countries.

## ■Major Publications

### Books

Fukuta Y., Araki E., Kobayashi S., Ebran LA., Umemoto T., Morita S., Nagata K., Sato T., Nagamine T., Fukuyama T., Sasahara H., Nemoto H., Maeda H., Hamamura K., Ogata T., Matsue Y., Ichitani K., Takagi A., Tamura K., Khush GS. (2006) The reaction pattern of quantitative trait loci (QTL) for days to heading under different regions of temperate and tropical zone in rice (*Oryza sativa* L.). Physio-genetic study on yield determination and ecological adaptability for sustainable rice culture, Edited by Fukuta Y., Nozoe T., Ito O. JIRCUS, Tsukuba, pp 22–31.

Kobayashi S., Fukuta Y., Sato T., Ozaki M., Kush GS. (2006) Molecular marker dissection of rice (Oryza sativa L.) plant type under temperate and tropical climates. Physio-genetic study on yield determination and ecological adaptability for sustainable rice culture. Edited by Fukuta Y., Nozoe T., Ito O. JIRCUS, Tsukuba, pp 41–47.

Kobayashi S., Fukuta Y., Morita S., Sato T., Ozaki M., Khush GS. (2006) Quantitative trait loci affecting flag leaf development in rice (*Oryza sativa* L.). Physio-genetic study on yield determination and ecological adaptability for sustainable rice culture. Edited by Fukuta Y., Nozoe T., Ito O. JIRCUS, Tsukuba, pp 54–61.

### Papers (Reviewed)

Abe T., Takehisa H., Yasuda M., Hayashi Y., Saito H., Ichida H., Shirao T., Onuma R., Ryuto H., Fukunichi N., Miyazaki Y., Tokairin H., Nakashita H., Kudo T., Sato T. (2006) Isolation of morphological mutants of rice induced by heavy-ion irradiation. Riken Accelerator Progress Report 39: 137.

Ishikawa R., Yamanaka S., Fukuta Y., Chitrakon S., Bounphanousay C., Kanyavong KLH., Tang LH., Nakamura I., Sato T., Sato Y-I. (2006) Genetic erosion from modern varieties into traditional upland rice cultivars (*Oryza sativa* L.) in northern Thailand. Genetic Resources and Crop Evolution 53: 245–252.

Takehisa H., Ueda T., Fukuta Y., Obara M., Abe T., Yano M., Yamaya T., Kameya T., Higashitani T., Sato T. (2006) Epistatic interaction of QTLs controlling leaf bronzing in rice (*Oryza sativa* L.) grown in a saline paddy field. Breeding Science 56: 287–293.

### Articles

Sato T., Ueno K., Akimoto M., Ishikawa R., Minamisawa K., Nakamura I., Shishido R., Ishii T., Sato Y-I. (2006) Empirical research for establishment of *On-farm* conservation system on genetic resources of wild rice. Research Progress Report of Grant-in-Aid for Scientific Research B, (15405041) (2003–2005). (in Japanese)

Sato T., Takehisa H. (2006) Clarification of function and identification of QTL for saline tolerance to breed salt tolerant rice. The Salt Science Research Foundation Annual Research Report 2005. (in Japanese)

## Research Activities

[Overseas Field Research]

June, 2006 — Vientiane area in Lao PDR. Bangkok area in Thailand (Continuous Research of *On-farm* conservation in genetic recourses of wild rice and traditional cultivated rice)

August, 2006 — Northern Territory area in Australia (Continuous Research of *On-farm* conservation in genetic recourses of wild rice and traditional cultivated rice)

November, 2006 — Can Tho area in Vietnam, Laos border area—Stung Treng—Kratie—Phnom Penh area in Cambodia, Vientiane and Louangphrabang area in Lao PDR., Bangkok area in Thailand (Continuous Research of *On-farm* conservation in genetic recourses of wild rice and traditional cultivated rice)

March, 2007 — Northern Territory area in Australia, Makassar area—Parepare area in Indonesia (Continuous Research of *On-farm* conservation in genetic recourses of wild rice and traditional cultivated rice)

## Symposium, workshop, Seminar and Meeting

July 3, 2006 — Core-member meeting of research project "Evaluation for *on-farm* conservation of traditional faming systems and lifestyle". (Research Institute of Humanity and Nature, Kyoto)

August 29, 2006 — *On-farm* conservation of rice genetic resources. Seminar in Department of rice in Thailand, (Department of Rice, Bangkok, Thailand)

September 23, 2006 — Workshop "Current situation and action assignment on oversea scientific research of plant genetic resources" Co-organized by Oota, S., K. Kato and T. Sato. 110th Meeting of Japanese Society of Breeding (Ehime University, Matsuyama, Ehime Prefecture)

December 4, 2006 — Symposium "Evaluation for *on-farm* conservation of traditional faming systems and lifestyle". Research Institute of Humanity and Nature, Kyoto

Feasibility study project in Research Institute of Humanity and Nature
Yo-Ichio Sato (Research Institute of Humanity and Nature)

*On-farm* conservation and global environment
Tadashi Sato (Graduate School of Life Sciences, Tohoku University)

*On-farm* conservation of wheat family in west Asia recognized as the cradle
Tsuneo Sasanuma (Kihara Institute for Biological Research, Yokohama City University)

Environmental pollution in food export country—Case study of asparagus production in Thailand—
Tooru Matou (Graduate School of Agriculture, Kyoto University)

Religion and folkways on rice genetic resources
Iwayumi Suzuki (Graduate School of Arts and Letters, Tohoku University)

March 31, 2007 — Workshop "Current situation and action assignment on oversea scientific research of plant genetic resources" Co-organized by Oota, S., K. Kato and T. Sato. 111th Meeting of Japanese Society of Breeding, (Ibaraki University, Mito, Ibaraki Prefecture)

## Oral Presentation

July 25, 2006 — Sato, T., H. Takehisa. Clarification of function and identification of QTL for saline tolerance to breed salt tolerant rice. Annual Meeting of the Salt Science Research Foundation (Toshi CenterHotel, Tokyo)

September 23, 2006 — Takehisa, H., T. Abe, Y. Hayashi, C. Kamba, H. Saito, H. Ichida, R. Onuma, H. Ryuto, H. Fukunishi, Y. Miyazawa, H. Tokairin, A. Hokura, N. Fukuda, I. Nakai, T. Sato. Characteristics

of salt-tolerance rice mutants induced by heavy-ion beam. 110th Meeting of Japanese Society of Breeding (Ehime University, Matsuyama, Ehime Prefecture)

October 27, 2006 Sato, T. Utilization of Genetic resources for breeding of environmental-stress resistant rice. Seminar in Toyama Agricultural Research Center (Toyama Agricultural Research Center, Toyama, Toyama Prefecture)

March 30, 2007 Honma, T., K. Nagai, R. Ishikawa, Y-I. Sato, T. Sato, I, Nakamura, L. L., Hout, K. L. Hak, S. Saophany, M. Sarom. Research of rice genetic resources in Cambodia. 111th Meeting of Japanese Society of Breeding (Ibaraki University, Mito, Ibaraki Prefecture)

**Poster Presentation**

September 23, 2006 Abe, T., Hayashi, Y., Takehisa, H., Yasuda, M., Ichida, H., Saito, H., Kashiwabara, T., Fukuda, N., Onuma, R., Hokura, A., Terada, Y., Ryuto, H., Fukunishi, N., Miyazawa, Y., Nakashita, H., Kudo, T., Nakai, I., Sato, T. Induction of mutation in rice using heavy-ion beams. 110th Meeting of Japanese Society of Breeding (Ehime University, Matsuyama, Ehime Prefecture)

November 6–7, 2006 Sasaki, K., Fukuta, Y., Sato, T. Characterization of quantitative trait loci controlling seed longevity of rice (*Oryza sativa* L.) using chromosome segment substitution lines. The 100th Anniversary of Tohoku University International Symposium (Sendai International Center, Sendai, Miyagi Prefecture)

November 6–7, 2006 Takehisa, H., Ueda, T., Fukuta, Y., Obara, M., Abe, T., Yano, M., Yamaya, T., Higashitani, A., Sato, T. "Epistatic interaction of QTLs controlling leaf bronzing in rice (*Oryza sativa* L.) grown in a saline paddy field" The 100th Anniversary of Tohoku University International Symposium: Frontiers in Rice Science—from Gene to Field—. Sendai, Japan

November 6–7, 2006 Obara, M., Tamura, W., Ono, H., Ebitani, T., Yano, M., Sato, T. and Yamaya, T. "Identification and characterization of quantitative trait loci in nitrogen utilization of rice" The 100th Anniversary of Tohoku University International Symposium: Frontiers in Rice Science—from Gene to Field—. Sendai, Japan

March 30, 2007 Sasaki, K., Y. Hukuta, T. Sato. Characterization of quantitative trait loci controlling seed longevity of rice (*Oryza sativa* L.) using chromosome segment substitution lines. 111th Meeting of Japanese Society of Breeding (Ibaraki University, Mito, Ibaraki Prefecture)

March 31, 2007 Kamba, C., H. Takehisa, T. Abe, Y. Hayashi, H. Saito, H. Ichida, R. Onuma, H. Ryuto, H. Fukunishi, Y. Miyazawa, H. Tokairin, A. Hokura, N. Fukuda, I. Nakai, T. Sato. Characterization of saline-tolerant rice mutants induced by heavy ion beam. 111th Meeting of Japanese Society of Breeding (Ibaraki University, Mito, Ibaraki Prefecture)

March 31, 2007 Hayashi, Y., H. Takehisa, Y. Kazuma, C. Kanba, H. Tokairin, H. Saito, H. Ryuto, N. Fukunishi, Y. Miyazaki, T. Satyo, T. Abe. Effects of ion beam urradiation on mutation in rice. 111th Meeting of Japanese Society of Breeding (Ibaraki University, Mito, Ibaraki Prefecture)

March 31, 2007 Takehisa, H., Y. Fukuta, T. Abe, N. Fukuda, M. Obara, T. Yamaya, A. Hokura, I. Nakai, A. Higashitani, T. Sato. Fine mapping of *qLb-3* and *qLb-11* controlling Leaf-bronzing in rice under saline paddy field. 111th Meeting of Japanese Society of Breeding (Ibaraki University, Mito, Ibaraki Prefecture)

**Academic Activities**

Editorial board of International Journal of Agriculture & Biology (2004–)

Foreign examiner of Doctor of Philosophy in Vidyasagar University, India (2006)

**Feasibility Study**

**Research axis:** Human Activity Impact Assessment
**Project number:** 2-10FS
**Project name:** Better Understanding of Plant Distribution and Carbon Circulation Change by Human Activities in Asia
**Project leader:** HONDA, Yoshiaki
**Key words:** human activity, vegetation biomass, carbon isotope, land area matter cycle model, social pattern, satellite observation

## ■Research purpose and content

### 1. Research purpose

Though the environmental consciousness in each country and region on the environmental system and the mitigation of the load of environmental impacts on humans and social system capabilities is overall evaluated, it is difficult to assess the global contribution of these items by using the environmental sustainability index (ESI). It is rather more universal to evaluate the environmental condition in a country and a region based on an index of combined environmental factors of the plant and useful living matter environmental indicator. To measure the plant quantitatively, the biomass is used. In addition, human activity and the influence of global warming can be understood by classifying plant biomass between C3 plant and C4 plant more clearly. In these approaches, it is necessary to search for a relation that is better than that between the vegetation and humans at these periods of Global warming. In this research, the aim is to analyze the relation between carbon dioxide origin, source, and amount and human activity on the vegetation distribution, through the production of global satellite observation information on the carbon dioxide concentration and ground measurements; consequently, this is an evaluation of human activity's influences on the carbon cycle, such as land use and vegetation biomass.

### 2. Research content

This research is composed of three main parts: blocks A, B, and C. The background of the research includes the influence on the ecosystem of a variety of human activities as farmland development, urbanization etc. that causes the change in land use, and, consequently, the biomass change. Moreover, the global warming due to human activity is a key factor that causes climate change, and desertification of meadow and biomass change through deforestation etc. Research block A estimates the carbon dioxide exhaust source of fossil origin and classifies the carbon dioxide of living organisms' origin and the fossil fuel origin of the carbon dioxide in the atmosphere. Research block B derives the vegetation biomass from satellite measurements, estimates the C3 plant in the region and the ratio of the C4 plant biomass based on Carbon 13 isotope measurements, and estimates the C3 plant and the C4 plant biomass. Research block C analyzes the relation between vegetation biomass (C3, including the ratio of the C4 plants) and the change of human activity based on five social patterns: 1-Principle of external action under that of the individualism (Western type), 2-Individualism under the above brother principle (Chinese type), 3-the overall community type (Japanese type), 4-community principle by sets of groups according to function (Indian type), 5-community principle by the objective principle (Judeo-Islam type). Research block A gives the boundary condition of each region of the carbon dioxide concentration of the vegetation origin of research block B. As a result, the C3 plant of various areas and the biomass of the C4 plant can be preserved through the relationship with the gross weight.

## ■Joint Research contributors (Affiliation, Position, and research allotment criteria)

◎HONDA, Yoshiaki (Center for Environmental Remote Sensing, Chiba University, Japan, Associate Professor, Research on Vegetation Monitoring)
○HAYASAKA, Tadahiro (RIHN, Japan Professor, Fossil fuel consumption analysis of China, collaboration and

coordination with RIHN)

○AOKI, Shuji (Graduate School of Science, Tohoku University, Professor, Carbon Isotope research)

○ITO, Akihiko (Frontier Research Center for Global Change, Japan, Researcher, Vegetation model research)

○OJIMA, Dennis (Colorado State University, U.S.A., Professor, Vegetation model research, Field investigation)

○KATO, Takashi (Faculty of Letters, Chiba University, Japan, Professor, Human activity pattern research)

(◎: Project leader, ○: Core member)



**■Progress report (April 2006–March 2007)**

1) In vegetation ecology models, research on physiological phenomena of C3 and C4 plants is conducted through a basic process in which the association of continental scale and global scale matter cycle models is not currently included. In this work, the research block A helps to curb the amount of atmospheric carbon dioxide in the atmosphere; in block B, the origin and the amount of carbon dioxide from living matters is examined, origins of carbon dioxide from land surface biomass is compared to C3 and C4 plant carbon dioxide of the atmosphere, and, used for the design of C3 and C4 plants uptake in the land area matter cycle model. As a result, it is shown that it is possible to achieve more close results between observation data and model data.
2) A large amount of matters exhausted by biomass burning included in the carbon dioxide of the atmosphere originates from living matters; and the influence of a large-scale forest fire etc. becomes a serious problem. It was shown that it is possible to use the advanced DMSP/OLS sensor maintained by NOAA to build a biomass burning data set.
3) The success or failure of this research depends on whether highly accurate estimations of the biomass from the grass vegetation to the forest vegetation are possible or not. It was shown that it is possible to estimate the biomass with average level resolution global observation optics sensors by using multiple observations and Shadow index (SI) to measure the biomass from the satellite; and, this was the main information acquisition of this research.

**■Future tasks**

1) It is necessary to find a connection method between research block A and research block B to concretely advance in the examination of large area data collection and analysis.
2) It is necessary to search for the materialization of the research technique by enumerating concrete cases in the arrangement of the relation between research blocks A · B with research block C. For instance, analyses can be made so that five social patterns may connect research blocks A · B to the result of the social science and further examinations.
3) Research block C, the number of social patterns would be 5, divided in big types with global correspondences to universal handling. However, there is a necessity for the frame to concretely connect research block C and research blocks A · B for the advancement of research. The big problem is how the renewed necessity of this frame would be constructed to advance the research.

**■Achievement (April 2006~March 2007)**

**Scientific publications**

[Japanese]

Chen L, S. Furumi, X. Yun, K. Muramatsu, Y. Honda, K. Kajiwara, N. Fujiwara (2006). Sensitivity Analysis of Net Primary Production Estimation using a Semi-empirical BRDF Model and Reflectance Observed by RC Helicopter for Japanese Cedar Forest. Journal of Japan Society of photogrammetry and Remote Sensing 45-6: 25–40.

Chen L, S. Furumi, Y. Honda, K. Kajiwara (2006). Influence of BRDF on the estimation of coniferous forest NPP. Doshita University World business review. 8-1: 32–41.

## Projects sponsored, Co-sponsored symposium, Research meetings, workshop, lecture meetings, etc.

Jan 10, 2007 International Workshop "Global Estimation of Biomass using the next generation sensor." Institute of Industrial Science, the University of Tokyo, Tokyo, Japan

〈Program〉

"THEOS-Thai Earth Observation Satellite" APAPHANT, Pakorn (Geo-Informatics and Space Technology Development Agency (GISTDA)

"Satellite greenness measures of seasonal ecosystem productivity and stress" HUETE, Alfredo R. (University of Arizona)

"Remote sensing of environment and disaster over Asia with satellite observation network" TAKEUCHI, Wataru (The university of Tokyo)

"fAPAR estimation using satellite observed spectral information" KAJIWARA Koji (Center for Environmental Remote Sensing, Chiba University)

"DMSP Detection of Active Fires" TUTTLE, Benjamin T. (NOAA-National Geophysical Data Center)

"Studies on forest fires and biomass burning in India using satellite data and ground based measurements—An ISRO—GBP perspective in monitoring and management of forest fires and related trace gases and aerosols" CHAND, Kiran (National Remote Sensing Agency, Department of Space, India)

"Monitoring biomass burning in Southeast Asia using MODIS and high resolution satellite data" CHIN, Liew Soo (CRISP, National University of Singapore)

"Global land environment monitoring using SGLI/GCOM-C" HONDA, Yoshiaki (Center for Environmental Remote Sensing, Chiba University)

"Possible Use of SGLI for Coastal Environment Studies" ISHIZAKI, Joji (Nagasaki University)

"Science of cryosphere using GCOM-C/SGLI data" AOKI, Teruo (Meteorological Research Institute, Japan)

"The key parameters estimated from GCOM-C thermal infrared channels and its application" MORIYAMA, Masao (Nagasaki University)

"Atmospheric particles observations from multi-spectral imagers" NAKAJIMA, Takashi (Tokai University)

"Aerosol monitoring using GCOM-C/SGLI polarized channels" SANO, Itaru (Kinki University)

"Discussion about Global Estimation of Biomass & carbon circulation" Chairperson: HONDA, Yoshiaki

## Oral presentations (lecture meeting, academic society, research meetings, etc.)

**[Lecture (domestic)]**

June 15, 2006 Yoshiaki Honda. Matter cycle change-Vegetation observation from Space. Global environment change observation mission symposium-Diamond plaza Shinagawa Mitsubishi building, Minato Ward, Tokyo

January 11, 2007 A challenge of global biomass estimation using satellite data: GEOSS Symposium on Integrated Observation for Sustainable Development in the Asia-Pacific Region (GEOSS AP Symposium), Dai-ichi Hotel Tokyo Seafort and Shinagawa-ku, Tokyo

January 29, 2007 Honda Y. Challenge of Global Biomass by satellite observations, AMSR/GLI Workshop 2007, Tsukuba space Center, Integrated development promotion building 1F main conference room (Tsukuba city, Ibaraki Prefecture)

February 18, 2007 Yoshiaki Honda. Land observation combined to satellite observation. Challenge of estimation

of vegetation biomass by satellite observations. Fiscal year 2006, open symposium sponsored by The Ecology Society of Japan, Kanto district. Present and the future of land ecosystem observation~Scale and beyond technology limitations. Oceanic Research and development mechanism. Yokohama Research Institute, Miyoshi commemoration hall, Yokohama City, Kanazawa Ward, Kanagawa Prefecture

**[Oral presentation (domestic)]**

November 24, 2006 Ono A., K. Kajiwara, Y. Honda. 'Development of vegetation index for plant growth (II)'. Japan Society of photogrammetry and Remote Sensing, Science lecture meeting of autumn of fiscal year 2006. Matsue Telsa (Matsue workers and integrated welfare center), Matsue City, Shimane Prefecture

November 24, 2006 Miyake K., K. Kajiwara, Y. Honda. 'Research on vegetation water stress detection technique' Japan Society of photogrammetry and Remote Sensing, Science lecture meeting of autumn of 2006 fiscal year. Matsue Telsa (Matsue workers and integrated welfare center), Matsue City, Shimane Prefecture

November 24, 2006 Ichinohe S., K. Kajiwara, Y. Honda. 'Extraction of tree crown structural features research based on laser scanner' Japan Society of photogrammetry and Remote Sensing. Science lecture meeting of autumn 2006. Matsue Telsa (Matsue workers and integrated welfare center), Matsue City, Shimane Prefecture

January 30, 2007 Y. Honda. 'Development of database and simulation of vegetation BRDF', AMSR/GLI Workshop 2007. Tsukuba Space Center (TKSC) Integrated development promotion building 1F, Main conference room, Tsukuba city, Ibaraki Prefecture

**[Oral presentation (Overseas)]**

July 26, 2006 Yoshiaki HONDA, Hirokazu YAMAMOTO, Masahiro HORI, Hiroshi MURAKAMI, Nobuyuki KIKUCHI "A capability study of global environment change monitoring using the next generation satellite sensor, SGLI/GCOM-C": Western Pacific Geophysics Meeting (WPGM), Beijing, China

August 1, 2006 SANJAA T., K. KAJIWARA, Y. HONDA "A Comparative Study of Split Window Algorithms for Estimating Land Surface Temperature in the Mongolian Grassland": IGARSS 2006 & 27th Canadian Symposium on Remote Sensing, Colorado Convention Center, USA

August 22, 2006 Dim Jules Rostand, Koji KAJIWARA, Yoshiaki HONDA "Satellite observation for desertification monitoring": TOWARD SUSTAINABLE ENVIRONMENT AND HUMAN LIFE IN MONGOLIA, Conference Hall of Mongolia-Japan Center, Mongolia

August 22, 2006 Tuya SANJAA, Koji KAJIWARA, Yoshiaki HONDA "Satellite observation for evapotranspiration in Mongolian glassland": TOWARD SUSTAINABLE ENVIRONMENT AND HUMAN LIFE IN MONGOLIA, Conference Hall of Mongolia-Japan Center, Mongolia

September 11, 2006 Yoshiaki HONDA, Hirokazu YAMAMOTO, Masahiro HORI, Hiroshi MURAKAMI, Nobuyuki KIKUCHI "The possibility of SGLI/GCOM-C for Global environment change monitoring": Remote Sensing 2006, Stockholm International Fairs, Stockholm, Sweden

**Feasibility Study**

**Research axis:** Spatial Scale
**Project number:** 3-4FS
**Project name:** High-Altitude Environments—Association of Ageing, Diseases and Livelihood with Culture and Nature
**Project leader:** OKUMIYA, Kiyohito
**URL:** http://www.chikyu.ac.jp/rihn/pro/2004_3-4.html
**Key words:** Human Aging, Disease, Adaptation to Highlands, Himalaya, Tibet, the Andes, the Ethiopian Highlands, the three great highlands

## ■Research Purpose and Contents

### 1. Objectives

High-altitude areas with hypoxia and low temperature are the severe environments for the adaptation of life, and they are fragile to the influence of globalism. While the high-altitude areas have the diversity of nature, adaptive livelihood and culture, the problems have emerged, i.e. environmental destruction, change of culture and livelihood, and increase of life style related diseases. In the project how humans became adaptive to high-altitude environments and the fragility to the globalism will be studied. The problems will be understood in the association of human ageing and diseases and livelihood with culture and nature, and the solutions will be approached by the viewpoint of glocalism as the harmony of globalism and localism.

### 2. Research Content and Method

The adaptable livelihood and the human aspects of life; birth, aging, disease and death in association with the diversity of nature and culture will be studied in the Himalaya and the Andes, compared with the northern Ethiopia and the Alps. Moreover the influences of the globalism on the changes of the livelihood and the human aspects of life will be studied.

### 3. High-altitude Nature and ecology

Destruction and protection of forests and changes of climate will be studied. As there was a case that the destruction of forests was aggravated by the forced strategy for the protection (Nepal), the communities' protective functions are important.

### 4. High-altitude livelihood

Dilemmas emerged between the adaptable and steady traditional livelihood and the competitive modern market. Interaction of resource, human and society between low and high-altitude areas, influences of globalism, and the economic sustainability will be studied.

### 5. Human aspects of life; birth, aging, disease and death

Ageing and life style related diseases may be accelerated in high-altitude dwellers. Health and diseases are closely associated with natural environments and human cultures. In this interdisciplinary project, the original and adaptable criteria about human aging and diseases could be found besides the global standard.

### 6. High-altitude Culture

Nature will be understood totally through the human cognition; "Study of Nature". Human ageing and diseases will be discussed also in association with religion and traditional medicine.

**■Project members (Affiliation, Title, Role)**

◎OKUMIYA, Kiyohito (RIHN, Associated professor, Supervision, Disease and civilization, High altitude adaptation and disease)

○ANDO, Kazuo (The Center for South-east Asian Studies, Associate professor, Agroeconomy, Locally exisiting technologies and rural development)

○KAWAI, Akinobu (The University of The Air, Sustainable agricultural and rural development)

○SAITO, Kiyoaki (RIHN, Professor, Nature view of highlanders)

○TAKEDA, Shinya (Graduate School of Asian and African Area Studies, Associate professor, Forest ecology, Forest resource use)

○TSUKIHARA, Toshihiro (Faculty of Education and Regional Studies, Fukui University, Associate professor, Highland-Lowland Interaction, Pastoralism in extreme highland)

○MATSUBAYASHI, Kozo (The Center for South-east Asian Studies, Kyoto University, Professor, Health and disease in highland people, Aging and culture)

○YAMAMOTO, Norio (National Museum of Ethnology, Professor, Agricultural Culture, "Highland Civilization" Theory)

OTSUKA, Kuniaki (Tokyo Women's University of Medical Science, Professor, Circulatory disease, Atherosclerosis and Hypoxia)

YATAGAI, Akiyo (RIHN, Assistant professor, Change of climate in highlands)

ISHINE, Masayuki (Kyoto University Department of Field Medicine, Lifestyle related disease)

WADA, Taizo (Kyoto Univ. Department of Field Medicine, Assistant professor, Prevalence of disease and high-altitude environment)

YAMADA, Isamu (Center for Southeast Asian Studies, Emeritus Professor, Forest and eco-tourism)

**■Outcome (April 2006–March 2007)**

**1. Discussion of the Methodology**

Building up and verification of the hypothesis of "Highland Civilizations"

Highlands are demarcated at an altitude of 2500 m or over, because the physiological effects by hypoxia emerge above this altitude. Highland-lowland interaction will be also studied in relation to highland livelihood and disease.

**2. Outcome of the Feasible Study**

**1) Study in the Ethiopian Highlands**

Several subjects and issues were recognized:

Intensive exploitation of the environment, Land use of fields with rainwater, Characteristic climate in tropical highlands, Indigenous crops of tef and ensete that are adapted to the highland climate, Epidemics of Malaria are greater in lowland areas, and highland populations generally escape from them, Ethical values of reciprocal help are common among people of low economic status, Religiosity of people devoted to the Ethiopian orthodox church, Serious large-scale forest destruction, The association between AIDS and poverty, An increase of diabetes in patients with poor economic status.

**2) Study in the Tibetan plateau**

The following important subjects were recognized.

Land use adapted to the mountain ecosystem, Agro-pastoral subsistence (barley and yak) adapted to highlands, Religiosity of people devoted to Tibetan Buddhism. Changes caused by socio-economic globalization were recognized, such as the distribution of a great deal of materials and the movement of great numbers of people caused by the development of railway linking to Lhasa from low-land areas in China; availability of electricity; increase in ownership of mobile phones and motorcycles; and the increase in patients with hypertension and obesity.

"Living Above Clouds: The World of the High-altitude Peoples Andes and Himalaya" (by Norio Yamamoto, a core member of this project) was awarded the "Chichibunomiya Memorial Award of Mountain". In this book comparative studies in mountain anthropology were shown, and the hypothesis of "Highland Civilizations" was proposed as the result of the feasible study in this project.

## ■Solution in the future

### 1. Problems Recognized After IS and FS Study and the Proposed Solutions

Because the field study areas are wide-ranging, cooperative study among the disciplinary project members must be conducted effectively and frequent discussion meetings will be needed. By establishing reasonable deadlines and securing an ample budget for this project, several researchers will be engaged and devoted to the project and effective cooperative studies can be realized.

### 2. Change from the previous proposal

We changed the project title from "High-Altitude Environments—Association of Aging, Diseases and livelihood with Culture and Nature" into "Human Life, Aging, and Disease in High-Altitude Environments: Physio-medical, Ecological and Cultural Adaptation in the Three Great "Highland Civilizations"". We changed the title into this because the relationship between peoples and the environments at high altitudes could not be discussed without the viewpoints of "Highland Civilizations".

### 3. Expected Outputs

The effects of globalism on the high-altitude environments will be found out in the association of the human aspects of life with ecology, culture and nature. The worldwide problems of the changes of the environments, livelihood and human diseases related to globalism and ageing will be disclosed and the solution will be discussed by the viewpoint of glocalism in the high-altitude environments.

## ■Major Publications (April 2006–March 2007)

### Books

[Japanese]

Yamamoto, Norio (2006) 'Living above Clouds: The World of the High-altitude Peoples, Andes and Himalaya' Nakanishiya Shuppan (in Japanese)

Matsubayashi K, Okumiya K (2006) 'Progress of modern Japan with the most aged societies in the world.' Iwanami Kouza The seventh of "Knowledge of the Empire Japan." Scientific technology as a practical science (Edited by Koji Tanaka). Iwanami-shoten (in Japanese)

Saito, Kiyoaki (2006) 'IMANISHI, Kinji and Field Science' Iwanami Kouza The seventh of "Knowledge of the Empire Japan." Scientific technology as a practical science (Edited by Koji Tanaka). Iwanami-shoten 303–343 (in Japanese)

Okumiya K (2006) 'Diabetes' "Atlas the world of the Mekong—History and Ecology— "(Edited by Tomoya Akimichi). Koubundo 100–101. (in Japanese)

Okumiya K (2006) 'Health promotion and evaluation of QOL' "Comprehensive approach and rehabilitation" (Edited by Iyoshi Ouchi, Hideki Itoh, Tetsuro Miki and Kenji Toba) Medical View Sha 14–19. (in Japanese)

Okumiya K (2006) '1. Definition and classification of frailty and care recipient' '2. Devision in functional ability in daily life (ADL, IADL, AADL)' "Guideline for prevention of longterm care" (Edited by Kenji Toba) Kouseikagaku Kenkyusho 24–28. (in Japanese)

Okumiya K (2006) 'Model of community-Analyze of CGA (Kahoku in Kochi)' 'Model of decline of functional ability-How does functional deterioration progress?' "Guideline for prevention of longterm care" (Edited by Kenji

Toba) Kouseikagaku Kenkyusho 42–45. (in Japanese)
Okumiya K (2006) 'Risk factor for functional deteriolation' 'Risk factor for deteriolation of frailty in Kahoku in Kochi' "Guideline for prevention of longterm care" (Edited by Kenji Toba) Kouseikagaku Kenkyusho 70–74. (in Japanese)
Okumiya K (2006) 'System formation of prevention of longterm care Metod and result of Kahoku in Kochi' "Guideline for prevention of longterm care" (Edited by Kenji Toba) Kouseikagaku Kenkyusho 168–174. (in Japanese)
Matsubayashi K (2006) 'Screening of risk factor. The method of the combination of CGA' "Guideline for prevention of longterm care" (Edited by Kenji Toba) Kouseikagaku Kenkyusho 104–108. (in Japanese)
Matsubayashi K (2006) '5. System formation for prevention of longterm care. The situation of community-dwelling elderly in Asia' "Guideline for prevention of longterm care" (Edited by Kenji Toba) Kouseikagaku Kenkyusho 189–197. (in Japanese)
Wada T, Okumiya K, Matsubayashi K (2006) 'Technique for revention of longterm care and evaluation of the effect. Prevention of depression' "Guideline for prevention of longterm care" (Edited by Kenji Toba) Kouseikagaku Kenkyusho 215–218. (in Japanese)
Matsubayashi K (2006) Alzheimer's disease and physical disorder (Edited by Shunsaku Hirai) Navigator for Senile Dementia. Medical View Sha 88–89. (in Japanese)
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[English]
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Shinya Takeda (2006) Local response to government land allocation program: the role of NTFPs in marginal mountainous area in Lao PDR, *Small-scale livelihoods and natural resource management in marginal areas of monsoon Asia*. Bishen Singh Mahendra Pal Singh, Dehra Dun, pp. 67–70.

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Saito K (2006) 'China: Tyohaku Mountain and Kokusui Castle.' "No. 2 of the travel in Study of Nature." Newslletter of Japanese Society of Tropical Ecology. 65: 15–18.

Saito K (2006) 'Going on the Ethiopian Highland' "No. 1 of the travel in Study of Nature." Newslletter of Japanese Society of Tropical Ecology. 64: 14–18.

Okumiya K (2006) 'Visitation of Tibet. Creeping of disease of civilization—Changing of lifestyle in the highplateau under globalization' "From Kyoto by RIHN". Mainichi Shinbun 11.25.

Higuchi T, Arai H, Matsubayashi K, Udaka F (2006) 'Depression in the Elderly-check point of diagnosis and treatment.' "Depression Frontier" 4: 42–50.

Matsubayashi K (2007) 'The problem of the management of the health in the community-dwelling older elderly from the international viewpoint.'—Asia—"Gerontology New Horizon" 19: 31–35.

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Kawai A (2006) Review of Economics in the African farmer—Comparison of areas on the discipline of the system—Nouringyo Mondai Kenkyu (Study of the problem of agro-forestly (by Sugimura K)) 41-4, 56–57.

## Research Activities

[Field Research in Japan]

| | |
|---|---|
| July, 2006 | Tosa in Kochi (Longitudinal cohort study on health and comprehensive geriatric assessment in community-dwelling elderly) (Okumiya K, Matsubayashi K, Ishine M) |

[Field Research in Foreign Countries]

| | |
|---|---|
| June, 2006 | Ethiopian Highland, Field Study (Okumiya K, Matsubayashi K, Saito K, Yamamoto N) |
| July, 2006 | Thailand Khon Kaen, Thang Khwan village, Survey of Diabetes (Okumiya K, Matsubayashi K, Ishine M) |
| October, 2006 | China Yunnan Province, East Tibetan Plateau, Field Study (Okumiya K, Matsubayashi K, and Ishine M) |
| January, 2007 | Indonesia West Papua, Merauke (Study on neurodegenerative diseases) (Grant from Ministry of Science and Sports) (Okumiya K, Matsubayashi K, Ishine M) |

February, 2007 Thailand Bangkok (Exchange of Information) (Takeda S)

February–March, 2007 India; Arunachal Pradesh, Assam, Field study (Ando K)

March, 2007 Nepal, Pokala International Mountain Museum (Exchange of Information) (Saito K)

March, 2007 Laos (Research on the health and comprehensive geriatric assessment and Diabetes Mellitus in Ay village in Oudomxay) (Okumiya K, Matsubayashi K, Ishine M)

March, 2007 India, Ladakh, Field Survey (Tsukihara T)

**Workshop by the Project**

April, 2006 The 2nd workshop in the Highlands Project, RIHN, Kyoto

[Program]

'Outline of the Highlands Project' Okumiya K (RIHN)

'Agro-ecology, history of environment, and approach by regional' Ando K (The Center for South-east Asian Studies)

'Highland-lowland interaction and pastoralism in the highest' Tsukihara T (Faculty of Education and Regional Studies, Fukui University)

'High altitude medicine and human life in highlanders-Approach by field medicine Matsubayashi K (The Center for South-east Asian Studies)

'Mountain anthropology and by Highland Civilization' Yamamoto N (National Museum of Ethnology)

'Approach bymeterological approach' Yatagai A (RIHN)

Discussion: Fukushima Y (RIHN), Yamada I (The Center for South-east Asian Studies), Ando K (The Center for South-east Asian Studies)

Matsubayashi K (The Center for South-east Asian Studies), Yatagai A (RIHN), Takeda S (Graduate School of Asian and African Area Studies), Yamamoto N (National Museum of Ethnology), Okumiya K (RIHN)

August, 2006 The 2nd workshop in the Highlands Project, the Center for South-east Asian Studies, Kyoto

[Program]

'Highlands Project and the comparison of the three highlands—Approach by Highland Civilization' Okumiya K (RIHN)

'Discussion about adaptation in high altitude area and civilization geographically and by the level of altitude' Tsukihara T (Faculty of Education and Regional Studies, Fukui University)

Discussion: Matsubayashi K (The Center for South-east Asian Studies), Ishine M (Kyoto University Department of Field Medicine), Okumiya K (RIHN), Tsukihara T (Faculty of Education and Regional Studies, Fukui University)

November, 2006 The 3rd workshop in the Highlands Project, the Center for South-east Asian Studies, Kyoto

[Program]

'High-Altitude Environments—Association of Ageing, Diseases and livelihood with Culture and Nature—', Okumiya K (RIHN)

Discussion: Yamamoto N (National Museum of Ethnology), Ando K (The Center for South-east Asian Studies), Matsubayashi K (The Center for South-east Asian Studies), Ishine M (Kyoto University Department of Field Medicine), Takeda S (Graduate School of Asian and African Area Studies), Okumiya K (RIHN), Tsukihara T (Faculty of Education and Regional Studies, Fukui University)

**Oral Presentation**

| | |
|---|---|
| 3 April 2006 | 'Verification of the survey in the shifting cultivation field in fallow in the northern Laos using the satellite pictures.' Kimura T, Takeda S, Iwasa M, Watanabe M. (Graduate School of Asian and African Area Studies)<br>117th Nippon Shinrin Gakkai Taikai (Japan Forest Congress) Tokyo University of Agriculture, Tokyo |
| 3 April 2006 | 'Transition of cooperative management of forest resource according to the transition of livelihood in Mian (Chewing tea) producing village.' Sasa A, Kanzaki M, Takeda S. (Graduate School of Asian and African Area Studies)<br>117th Nippon Shinrin Gakkai Taikai (Japan Forest Congress) Tokyo University of Agriculture, Tokyo |
| 3 April 2006 | 'Mapping of land use of shifting cultivation in Kham people in Northern Laos.' Takeda S. et al. (Graduate School of Asian and African Area Studies)<br>117th Nippon Shinrin Gakkai Taikai (Japan Forest Congress) Tokyo University of Agriculture, Tokyo |
| 7–9 June 2006 | 'Association of geriatric functional ability and economic status in developing and developed countries.' Okumiya K et al.<br>The 48th Japanese Geriatrics Society, Ishikawa Kenritsu Ongakudo, Kanazawa |
| 21–22 October 2006 | 'Study note on Tun farming in Bagan in Myanmar-local approach and historical viewpoint-local development and historical view.' Ando K et al.<br>Lecture in the 100th Nippon Nettai Nougyou Gakkai Meijyo University Amajjiro Campus |
| 26 October 2006 | 'Geriatric medicine and field medicine-Comparison between Japan and Asia.' Matsubayashi K (The Center for South-east Asian Studies)<br>Synposium of Tohoku Geriatrics Medicine, Tohoku University, Sendai |
| 10 February 2007 | 'Analysis of history of land use using satellite pictures-A case of the shifting cultivation in Karen in Bago Mountains in Myanmar.' Suzuki R, Takeda S. (Graduate School of Asian and African Area Studies)<br>Symposium of Area Study and Information Study—New horizon. Tokeidai Memorial Hall in Kyoto University, Kyoto |
| 10 February 2007 | 'Comparison of the health status of community dwelling old people in Asia' Matsubayashi K (The Center for South-east Asian Studies)<br>Symposium of Area Study and Information Study—New horizon. Tokeidai Memorial Hall in Kyoto University, Kyoto |
| 25 March 2007 | 'Field Medicine from Alpine club' Matsubayashi K (The Center for South-east Asian Studies)<br>Symposium of Mountaineering, Exploration, and field work—To the higher in the Earth. National Institute of Ethnology, Osaka |
| 25 March 2007 | 'From the first mountaineering to the field science' Saito K (RIHN)<br>Symposium of Mountaineering, Exploration, and field work—To the higher in the Earth. National Institute of Ethnology, Osaka |
| 25 March 2007 | 'From Hushimi Momoyama to the highlands in the world.' Yamamoto N. (National Museum of Ethnology)<br>Symposium of Mountaineering, Exploration, and field work—To the higher in the Earth. National Institute of Ethnology, Osaka |
| 31 March 2007 | 'Examination note on the relief of plow in the ancient remains in Indonesia and Cambodia.' Ando K (The Center for South-east Asian Studies) |

The 50th Memorial Meeting in the Society of Japanese Tropical Agriculture Society. Tokyo Agriculture University, Tokyo



**Public Lecture**

| | |
|---|---|
| 1 April 2006 | Tosa-cho chojyukeikaku (2004–2005) no kekkahoukoku' tosa-cho field igakukouenkai, tosa-cho kenkoufukushi center (Report of the Tosa longitudinal aging studies 2004–2005. Tosa field medicine Lecture, Tosa town office) [in Japanese] |
| 11 April 2006 | 'Field science and Medicine' Matsubayashi K (Kyodai Talk Salon) Hyakushunentokeidaikinen kan (Memorial hall of 100 years), Kyoto University |
| 11 May 2006 | 'Field medicine for Japanese old people' Matsubayashi K (Meeting on Super-elderly in Tochigi, Utsunomiya Grand Hotel |
| 13 May 2006 | 'Geriatric medicine and field medicine.' Matsubayashi K (Meeting of Kyoto-shi Sakyo Ishikai) Miyako Hotel Kyoto |
| 5 September 2006 | 'Remarks on mountaineering by people of middle and old aged people'. Matsubayashi K (Meeting of Japan Alpine Club) Kyodai Kaikan |
| 1 October 2006 | 'Geriatric Medicine and Field Medicine' Matsubayashi K. Tochigi Tyoukoureisha Igaku Kenkyukai (Meeting of Geriatric Medicine for Super Elderly in Tochigi), Utsunomiya Grand Hotel |
| 9 March 2007 | 'Type of illness-Doctors for human and doctors for the environment' Okumiya K (Cooperation with Kawabata Z) (RIHN) The 17th RIHN Seminar |

**Introduction in Article on Newspaper**

| | |
|---|---|
| 3 August 2006 | Disclose of impaired glucose tolerance—Field Medicine check-up in Tosa. Kochi Shinbun |
| 6 August 2006 | Start of Field Medicine check-up in Tosa. Kochi Shinbun |
| 9 August 2006 | Field in Tosa. Kochi Shinbun |
| 14 September 2006 | Slowdown of increase of longevity in Kochi—Increase of pre-stage of lifestyle related diseases. Kochi Shinbun |
| 20 March 2007 | In the 4th year of field medicine in Tosa—disclose of impaired glucose tolerance and promotion of health—Hope to prevention of longterm care. Kochi Shinbun |

**Feasibility Study**
**Research axis:** Spatial Scale
**Project number:** 3-5FS
**Project name:** Collapse and Restoration of Ecosystem Networks with Human Activity
**Project leader:** YAMAMURA, Norio (Kyoto Univirsity)
**URL:** http://www.chikyu.ac.jp/yamamura-pro
**Key words:** ecosystem, network, Mongolia, Sarawak, biodiversity, minimizing instability

## ■Research Objectives

Most ecosystems on the planet have been seriously degraded by human activities and are now in a critical situation. This problem, which has led to the loss of biodiversity and ecosystem function, is widely accepted as one of the most serious global environmental problems. Nevertheless, most research on the problem has focused only on the direct consequences such as the destruction and pollution of natural habitats or the reduction in animal populations due to hunting or fishing. The collapse and deterioration (destabilization and decrease in sustainability) of ecosystems by human activities via interactions within the ecosystem network, including indirect and cascade effects, have rarely been considered. In addition, few studies take a social science perspective, although environmental problems are one of the consequences of the interactions between nature and human societies. The effects of social structures (*e.g.*, changes in and globalization of economic, political, cultural, and social networks mediated by direct interactions and distribution and information systems) on ecosystems, and the effects of the resultant collapse and deterioration of ecosystems on human societies have rarely been investigated in depth. This may be partly because such studies require the consideration of extraordinarily complex interactions, and because it is difficult for scientists from different disciplines to conduct such research in close collaboration.

The recent boom in theoretical studies on complex networks (complex system sciences, complex adaptive systems) and the remarkable progress in computer performance have dramatically increased our capacity to deal with complex systems such as ecosystems and social interactions. Complex system sciences are now a practical, important tool in various fields of sociology, economics, and ecology.

This project takes advantage of the interdisciplinary nature of network sciences to consider environmental problems, especially the problem of ecosystem deterioration, by linking sociology, economics, and ecology. The project aims to clarify the mechanisms resulting in the collapse and deterioration of ecosystems, and then pave the way to restore and maintain healthier ecosystems with high biodiversity and ecological functions while minimizing instability and uncertainty in the long term over a wide area. In addition, it will provide new approaches in environmental science by extracting the characteristics of the interactions between human societies and the environment and their changes.

## ■Project Members

◎YAMAMURA, Norio (Kyoto Univirsity)
○SAKAI, Shoko (Kyoto Univirsity)
○FUJITA, Noboru (Kyoto Univirsity)
○OHGUSHI, Takayuki (Kyoto Univirsity)
○NAKASHIZUKA, Tohru (Tohoku University)
○NAKAMARU, Mayuko (Tokyo Institute of Technology)
○ISHII, Reiichiro (JAMSTEC)
○ICHIKAWA, Masahiro (RIHN)
○KONDOH, Michio (Ryukoku University)
(◎: Project leader, ○: Core member)

## ■Progress of the project

### 1. Finalization of the project members

1) In addition to specialists in ecology and mathematics, core members with a background in the social sciences, including politics and economics, have been added, and the core members have been determined.
2) We have negotiated with the Sarawak Forest Research Center and the Mongolian Academy of Science, who understand the goal and importance of the project and have agreed to cooperate with the project as much as possible.

### 2. Finalization of the research plan

1) We have examined methods with which to clarify nodes and links within and between subsystems and have determined that the following techniques are useful: (1) sampling insects and other animals using different traps to assess the movement of pollinators, seed dispersers, and others, (2) analyzing population genetics to assess the maintenance of genetic diversity, (3) using stable isotope analyses to assess food webs and material flow, and (4) analyzing satellite images and land use.
2) Both reported data such as statistics and previous studies and further fieldwork are considered important for elucidating the detailed relationships and interactions.
3) Considering the extent of the changes, we decided to survey the changes in the ecosystem networks over the last 100 years.

## ■Outcomes

### Publication

Yamamura, N., N. Fujita, M. Hayashi, Y. Nakamura, and A. Yamauchi. (2007) Optimal phenology of annual plants under grazing pressure. *Journal of Theoretical Biology* 246: 530–537.

### Symposium

20 March, 2007 Symposium at the annual meeting of Japanese Ecological Society. Collapse and restoration of ecosystem networks with human activity. Ehime University, Matsuyama

**Feasibility Study**

**Research axis:** History and Time Scale

**Research number:** 4-6FS

**Project name:** Historical Interaction between Nomadic States' Activities and Environmental Transformation in the High-Latitude Asian Steppe Region

**Project leader:** SHIRAISHI, Noriyuki (Niigata University)

**Key words:** Mongol plateau, nomadic states, steppe region, environmental archaeology

## ■Outline of Research Project

The life of nomads is sustained through resources provided by livestock and nothing is wasted. Also, the people protect the steppes that nurture their livestock. By looking at how they live, there are many things we can learn about how they utilize limited resources effectively, because people living in the modern world are facing environmental problems. From ancient time, the people on the Mongol plateau have coexisted harmoniously with nature. In this project we are considering how to reevaluate Mongolian nomad culture. It appears that we who live in modern society can learn something from the history of the vicissitudes of the nomadic states on the Mongol plateau.

## ■Contents and Methodology

The Mongol plateau has been the homeland of powerful nomadic states that crossed over the Eurasian continent from olden times. For example, the Mongol Empire developed a communications and transportation network that covered the whole of Eurasia and promoted East-West exchange. It is regarded as a prelude to the later Age of Geographical Discovery and Globalization.

However the climate of the Mongolia is so extreme that industry and agriculture in this region cannot compete against China, Central Asia and Europe. It is known as a region that is an extreme environment for human life. Why have powerful sovereign states been formed in such a region? We are interested in this problem and in solving it. In this project, we will use not only historical methods but also the multidisciplinary approaches of the natural and social sciences.

Through the project we will be able to provide accurate results that clarify the background of the growth and downfall of the Mongol Empire and other nomadic states. Moreover superior aspects of nomadic, life from the practical use of natural resources to the adaptation to an extreme environment will be revealed. These are, in a sense, the knowledge of nomadic cultural tradition. We will try to integrate this knowledge into hazard systems used for snow damages and droughts. By using the system, it will be possible for us to propose plans for the prevention of disasters and the reconstruction of affected areas. The results of this project will be made available to assist in the making of a sustainable society in Mongolian and for nomadic peoples all over the world.

## ■Project Members

◎SHIRAISHI, Noriyuki (Niigata University, Archaeology, Supervision)
○KATO, Yuzo (RIHN, Legal history)
○KOMIYAMA, Hiroshi (Japan International Research Center for Agricultural Sciences, Economy)
○MATSUDA, Koichi (Osaka International University, History)
○SHINODA, Masato (Tottori University, Climatology)
□KONAGAYA, Yuki (National Museum of Ethnology, Ethnology)
□SOHMA, Hidehiro (Nara Women's University, Geography)
□NAKAWO, Masayoshi (RIHN, Glaciology)
HAGIHARA, Mamoru (Kobe University, History)
HAYASHI, Toshio (Soka University, Archaeology)

HONGO, Hitomi (Graduate University of Advanced Studies, Archaeology)
ICHINO, Mika (Ochanomizu Women's University, Climatology)
ISHII, Satomi (Rakuno Gakuen University, Nutritional Science)
IZUMI, Kaoru (Niigata University, Glaciology)
KAWASHIMA, Katsuhisa (Niigata University, Glaciology)
KOGA, Naoki (Kokusai Kosu Co., Ltd, Environmental Research)
MURAKAMI, Yasuyuki (Ehime University, Archaeology)
MURATA, Taisuke (Nihon University, Paleo-ecology)
NACHIN (Yokohama City University, Ecology)
OBATA, Hiroki (Kumamoto University, Archaeology)
OZAKI, Takahiro (Kagoshima University, Ethnology)
SUEDA, Tatsuhiko (Ehime University, Ecology)
TAKAHARA, Hikaru (Kyoto Prefectural University, Ecology)
TSUJIMURA, Maki (University of Tsukuba, Hydrology)
(◎: Project leader, ○: Core member, □: Adviser)

# Incubation Studies

## Incubation Study

**Project name:** Histories of Economic Activities and Environmental Protection Policies and Their Impacts on the Ecosystem in the Caspian Sea

**Leader:** KITAZAWA, Daisuke (Associate Professor, Institute of Industrial Science, The University of Tokyo)

Environmental problems in the Caspian Sea reflect the consequences of the historical and economic development of the Circum-Caspian countries. Moreover the future national and transnational development of the commercially attractive Caspian natural resources such as oil and gas may have negative impacts on the sea and coastal ecosystem, which includes several endemic species such as seals and sturgeons. The Caspian Environment Programme was visited to investigate the present system of environmental protection under corporation among Circum-Caspian countries. As a result, the environmental protection system is being constructed little by little, however it is quite important to know how the economic activities of natural resources development have impacts on the Caspian ecosystem.

## Incubation Study

**Project name:** Complex Urban Environmental Analysis and Study of Future Impact upon the Earth's Potential Based on Multidimensional Historical Time Axis

**Leader:** MURAMATSU, Shin (Associate Professor, The University of Tokyo)

Our results from the current calendar year are as follows:

1. Through interviewing those who are planned to participate in the project, we have selected phenomena relevant to the global environmental issues focusing on the urban theme. The following keywords are chosen through this process; globalization, movement, staying, etc.
2. We have selected South East Asia as the most pertinent area for our study described above.

## Incubation Study

**Project name:** A Study of Human Subsistence Ecosystems among Arab Societies: To Combat Livelihood Degradation

**Leader:** NAWATA, Hiroshi (Junior Associate Professor, Arid Land Research Center, Tottori University)

This research project aims to promote basic studies to examine the interactions between human and nature in dryland areas, for the purpose of ensuring sustainability of subsistence activities and combating livelihood degradation in local communities of the Arab people. We clarify human subsistence ecosystems by focusing attention on human life support mechanisms and self-sufficient modes of production (hunting, gathering, fishing, herding, farming, and forestry). Based on these research results, we intend to propose a scientific framework to strengthen their subsistence productivity and to rehabilitate the daily life of the common people in Arab societies.

## Incubation Study

**Project name:** How is it Thought about Rapid Increase and Decrease of Cormorant Populations?

**Leader:** TAKAHASHI, Shinji (National Institute for Environmental Studies)

In this study toward a symbiotic relationship between birds and human, we focused on 'culture', 'diversity' and 'ecosystem', and carried out following; survey for cormorant-fishing, method planning of estimate for pollutants in bird and analysis for mitochondria-DNA of Grate Cormorant and Japanese Cormorant to consideration evolution, classification and migration. In the result of DNA analysis, these Cormorants are classified two groups in genetics, and Grate Cormorant (n=65) and Japanese Cormorant (n=19) are sorted out 10 family and 6 family in genetics,

respectively. In addition, we proposed that philosophy of Japanese traditional painting; 'kacho-(sansui)-ga' make a contribution to symbiotic spirit.



## Incubation Study

**Project name:** Collapse and Restoration of Ecosystem Networks with Human Activity

**Leader:** YAMAMURA, Norio (Professor, Kyoto University)

We showed concretely that the research sites, Mongolia and Sarawak, take contrasting positions in ecosystem regeneration time and food web length. We reviewed a hundred years history of each site where we identified three periods, traditional nomadic, socialism and capitalism periods in Mongolia, and colonial, commercial logging and plantation periods in Sarawak. We investigated the way of applying the network theory to our project, the theory covering common phenomena such as cluster structure scale-free distribution and a small world over inter-net, human relationships and biological interaction systems.

## Incubation Study

**Project name:** Environmental Problems and Human Security for Children as Our Future: Asia-Pacific Children and the Environment (ACE) Project

**Leader:** YAMAUCHI, Taro (Hokkaido University)

Children are the most vulnerable sector of the human population within the environment. There is no doubt that understanding the effects of environmental dangers on children is crucial when considering environmental problems. Nevertheless, insufficient effort is being made to assess the relationships between children and their environment. This project seeks to determine the actual conditions relating to child security in local environments in the Asia-Pacific region, to support children's participation in community development and environmental care, and to open up new perspectives on future human capabilities.

# Research Promotion Center

The Research Promotion Center, in accordance with the principles of the Institute, has been engaged in building the basis for finding a new research perspective beyond the scope of the existing disciplinary framework. The Institute organizes its activities in the framework of the National Institutes for the Humanities, whose Medium-term Action Program stipulates that "Research Institute for Humanity and Nature will make necessary arrangements to consolidate the Research Promotion Center for activities including information collection and processing, science communication, and relevant basic research, in relation to the global environment studies."

The Research Institute has set up the Committee for the Operation of the Research Promotion Center in the fiscal year 2005. Accordingly, RPC (Research Promotion Center)'s research works are adjusted as RPC's Research Project.

**●Construction of a methodology to archive and reuse the methods and results of interdisciplinary studies (project leader: Tatsuki Sekino)**

This project aims to systematically archive the methods and results of interdisciplinary studies on environmental issues and to construct a methodology for reusing them to facilitate research ideas and research planning for future generations. In order to provide a basis for implementing the methodology, the project examines various problems associated with interdisciplinary study approach and considers the applicable scope and validity of the methodology.

**●Research and studies to promote RIHN's science communication activities (project leader: Kiyoaki Saito)**

This project investigates how the implications of RIHN's academic studies and the outcomes of its research activities should be disseminated not only to researchers inside and outside Japan but also to the general public in order to facilitate their understanding. The project will propose concrete communication programs and strategies after reviewing available tools and methods of dissemination.

The Research Promotion Center (RPC) is also engaged in specific activities to promote RIHN's research and "global environmental studies". These activities include "planning of science communication", "provision of information", and "provision of tools".

In the "planning of science communication," we develop science communication programs to disseminate the outcomes of RIHN's research activities and their implications to the general public. To this end, we are involved in the planning and implementation of various programs such as RIHN Forums (see p. 217), RIHN Public Seminars (see p. 218), the RIHN Series (see p. 221), and RIHN Library (see p. 221).

In fiscal 2006, the first issue of the bimonthly "Humanity & Nature Newsletter" was published with six issues being published by the end of year (see p. 222).

To support the "provision of information", we provide necessary information via such means as databases to research project teams and other organizations inside and outside RIHN. We also collect a broad range of information.

For the "provision of tools", we provide instruments for observation and analysis, and enhance their sophisticated use. We are also in charge of the administration of laboratory facilities.

# Outreach Programs and Events

## 1. International Symposium

**RIHN (Research Institute for Humanity and Nature) 1st International Symposium**

With the conclusion of the Phase 1 RIHN Projects (5 projects) in March 2007, the RIHN 1st International Symposium on 'Water and Human Lifestyles' was held on the 7th and 8th of November 2006 in order to release their findings to the wider international research community.

Coinciding with this, public lectures on 'Water and Future Possibilities' were held, where a part of their results was made available to the general public, and at the same time four satellite workshops and a satellite symposium were also held. Here an interdisciplinary discussion was conducted with researchers of each country on the theme of water as a global environmental problem common to human kind as a whole. Also, a 1st International Symposium Photography Contest (open to submissions from the public) was held, and during the symposium period a total of 50 of the photos were exhibited at the venue, including the first prize, runner up, excellence award and other award winning submissions.

### 1-1. Water and Better Human Life in the Future

Date: 11 December, 2006

Venue: Kyoto International Conference Hall

<Program>

- The United Nations World Water Development Report—Crises in Freshwater: Fundamental Considerations—: Gordon J. YOUNG (Former Coordinator, United Nations World Water Assessment Programmed)
- The "Futurability": Toshitaka HIDAKA (Director-General, RIHN, Japan)

### 1-2. RIHN 1st International Symposium — Water and Better Human Life in the Future

Date: Nov. 7–8, 2006

Venue: Kyoto International Conference Hall

<Program on Nov. 7, 2006>

- Opening Ceremony
- Welcome addresses: Toshitaka HIDAKA (Chair, Steering Committee and Director-General, RIHN)
- Welcome addresses: Yo-Ichiro SATO (Chair, Scientific Committee and Professor, RIHN)

Session 1: Water Imbalances

- Sustainable Society in Dry Regions: Jiftah BEN-ASHER (Professor, the Jacob Blaustein Institute for Desert research, Ben-Gurion University of Negev, Israel)
- Flood and Life in Transition—Impacts of Irrigation upon Rice Cultivation in Lao Lum Communities in Champasak, Southern Lao PDR: Tomoya AKIMICHI (Professor, RIHN)
- Changes in the Water Cycle Due to Climate Change: Richard G. LAWFORD (Director, International GEWEX Project Office, U.S.A.)
- Changes in Water Cycle in Human-Nature System over East Asia: Tadahiro HAYASAKA (Professor, RIHN)
- Virtual Water — Can Virtual Water Alone Save the World Water Crisis?: Shinjiro KANAE (Associate Professor, RIHN)
- Society-Water Cycle Interactions in the Central Pacific: Impediments to Meeting the UN Millenium Goals for Freshwater: Ian WHITE (Professor, Center for Research and Environmental Studies, Australian National University, Australia)
- Water Management for Human Security: Caroline A. SULLIVAN (Head, Water Policy and Management, Centre for Ecology and Hydrology, U.K.)
- Management of Water Balance in Agriculture and Region — Experiences and Future Prospect: Tsugihiro WATANABE (Professor, RIHN)

- Discussion

<Program on Nov. 8, 2006>

Session 2: Human-Water Interaction

- What Changes, and What does not Change — Unforeseen vicious Circle on the Water Resources and Water use: Masayoshi NAKAWO (Professor, RIHN)
- Hierarchy-Based Approach to the Problem of Agricultural Water Turbidity in the Lake Biwa Watershed: Shigeo YACHI (Associate Professor, RIHN)
- Management of Water Balance in Agriculture and Region Human and Climate Stresses on Ground Water: Life and Water on the High Plans Aquifer, United States: Jason GURDAK (U. S. Geological Survey, Colorado Water Science Center, U.S.A.)
- Beyond the Aral Sea Syndrome: The ZEF/UNESCO Efforts in Uzbekistan: Paul L. G. VLEK (Professor, Center for Development Research (ZEF), University of Bonn, Germany)
- Learning and Unlearning in Water Resources Management History in South Asia: The Cases of Irrigation and Flood Control: Peter P. MOLLINGA (Senior Lecturer, Center for Development Research (ZEF), South Asia Consortium for Interdisciplinary Water Resources Studies (SaciWATERs), University of Bonn, Germany)
- Water Resources Management of the Yellow River Basin — Current Problems and Future Perspecitve: Yoshihiro FUKUSHIMA (Professor, RIHN)
- Giant "Fish-Feeding Forest" An Interaction between Water, Materials and Human Culture—: Takayuki SHIRAIWA (Associate Professor, RIHN)
- Eco-ethics and Water Ethics: Louis LEGENDRE (Director, Villefranche Oceanography Laboratory, CNRS, France)
- Spatial and Hierarchical Upscaling of Indigenous Water Resource Management Practices in the Northeast of Thailand: Sawaeng RUAYSOONGERN (Assistant Professor, Faculty of Agriculture, Khon Kaen University, Thailand)
- Discussion
- Closing Session

  Summary of Session 1: Makoto TANIGUCHI (Associate Professor, RIHN)

  Summary of Session 2: Tsugihiro WATANABE (Professor, RIHN)
- Comments

  Nűket YETIŞ (Acting President of the Scientific and Technological Research Council of Turkey)

  Jiro KIKKAWA (Professor Emeritus, the University of Queensland, Australia)
- Concluding Remarks: Yo-Ichiro Sato (Professor, RIHN)
- Closing Address: Toshitaka HIDAKA (Director-General, RIHN)

## 1-3. Satellite Workshop

ICCAP-Kyoto Workshop

Date: Nov. 2, 2006

Venue: Conference Hall, RIHN

Organizer: Tsugihiro WATANABE (RIHN)

<Program>

Opening Session

- Opening remarks: Tsugihiro WATANABE (RIHN)
- Address: Toshitaka HIDAKA (RIHN)
- Address: Rıza KANBER (Çukurova University)

Session 1: Progress of the ICCAP

- Overview of the Progresses of ICCAP: Tsugihiro WATANABE (RIHN)
- Progresses of the ICCAP Turkish Team: Rıza KANBER (Çukurova University)

Session 2: Strategy and Progress of Integration

- Assumed Social Scenario and Land Use for the Final Integration: Takanori NAGANO (RIHN)
- Integration Strategies for the Assessment of Impacts, Adaptation and Vulnerability to Climate Change: Levent TEZCAN (Hacettepe University)

Session 3: Climate Change and Variability of Turkey and the Seyhan River Basin

- An Analysis of Precipitation over Turkey – As a Validation Tool for the Hi-resolution Models: Akiyo YATAGAI (RIHN)
- Pseudo Warming Experiments Based on the Two GCMs – MRI and CCSR/NIES/FRSGC: Fujio KIMURA (Tsukuba University)
- Bias Correction of the Third Product of RCM: Kenji TANAKA (Kyoto University)

Session 4: Progress of Sub-group and Individual Researches

- Projection of the Impact of Climate Change on the Hydrology and Water Resources of the Seyhan River Basin with Land Use Adaptation Scenario: Kenji TANAKA (Kyoto University) and Yoichi FUJIHARA (RIHN)
- Groundwater Modeling for Projecting Impacts of Climate Change on the Geo-environment of the Lower Seyhan River Basin: Katsuyuki FUJINAWA (Shinshu University)
- Water Balance and Crop Growth Simulation for the Lower Seyhan Irrigation Project with the Latest Projected Climate Dataset for the 2070s: Keisuke HOSHIKAWA, Takashi KUME and Takanori NAGANO (RIHN)
- Effect of Global Warming on the Secondary Factors Affecting Water Use Efficiency and Irrigation Management: Jiftah BEN-ASHER (Bengrion University), Pinhas ALPERT (Tel-Aviv University) and Moti SHECHTER (University of Haifa)
- Estimation of Vegetation Change after Global Warming in the Eastern Mediterranean Region of Turkey: Shigenobu TAMAI (Tottori University), Junji SANO (Tottori University), Makoto ANDO (Kyoto University), Keisuke KATO (Tottori University) and Yuki KISHIBE (Tottori University)
- Simulating the Impact of Global Climate Change on Wheat Production in Adana: Hiroshi NAKAGAWA (Ishikawa Prefectural University), Tohru KOBATA (Shimane University) and Tomohisa YANO (Kyushu Kyoritsu University)
- Econometric Analyses of the Impacts of Global Warming to Turkish Agriculture: Hiroshi TSUJII (Ishikawa Prefectural University)
- Climate Change and Alternative Cropping Patterns in Lower Seyhan Irrigation Project – A Regional Simulation Analysis: Chieko UMETSU (RIHN)

Session 5: General Discussion on Future Works for the Conclusion

Closing Session

- Summing-up by participants
- Closing remarks: Tsugihiro WATANABE (RIHN)

## 1-4. Satellite Symposia

1. "World Heritage, Water and People"

Date: Nov. 9, 2006

Venue: RIHN Lecture Room (Kyoto City)

Organizer: NIHU, RIHN, and Sokendai (The Graduate University of Advanced Studies)

<Program>

Opening Address: AKIMICHI, Tomoya (RIHN)

Presentation

First session Natural Heritage and Water Problems

Chairperson: IKEYA, Kazunobu (NME)

(1) "Mammals in the Sea of Shiretoko" UNI, Yoshikazu (Tokyo University of Agriculture)

(2) "Water and Human Life in Shirakami-sanchi" MAKITA, Hajime (Matagi school)

(3) "Yakusima as a Treasury of Plants" YUMOTO, Kakakazu (RIHN)

Second session: Cultural Heritage and Water Problems

Chairperson: NONAKA, Kenichi (RIHN)

(4) "Hard tofu from Hard-working Farmhouses: the Landscape History of the Shiraqkawa-go and Gokayama Villages" UCHIYAMA, Junzo (RIHN)

(5) "Kamigamo Jinja Shrine and Water: Still activate Cultural Heritage" MURAMATSU, Teruo (Kamigamo Shrine)

(6) "Feng-Shui and Gods of Kumano, central Japan" MESAKI, Shigekazu (Nanzan University)

(7) "Shuri-Jo Castle and Water" HATERUMA, Eikichi (Okinawa Prefectural University of Art)

Third session: World Heritage in Asia and Water Problems

Chairperson: COBBI, Jane (College de France, CNRS)

(8) "Three Parallel Rivers of Yunnan, China: Water Resources and Local Community" ABE, Kenichi (Kyoto University)

(9) "Collapse of Rice Terraces and Irrigation Management in the Corldillera Region, Philippine" OHNISHI, Hideyuki (RIHN)

(10) "Culture of Water Use, the Commons, and Underground Water in Cheju Islands, Korea." Chun Kyung-Soo (Seoul University)

(11) "A Sociological Consideration on Water Environment in Lijiang, Yunnan: Old Town of Lijiang as a World Cultural Heritage is losing its Community." Zhu Anxin. (Aichi University)

(12) "Water in the Ancient Civilizations in Southeast Asia." NITTA, Eiji (Kagoshima University)

General Discussion

Chairperson: AKIMICHI, Tomoya (RIHN)

2. "Water Rights, Law and Government"

Date: Nov. 9, 2006

Venue: Seminar room No. 3-4, RIHN

<Program>

- Opening Address: Makoto TANIGUCHI (Associate Professor, RIHN)
- Water Governance: Gordon YOUNG (Former Coordinator, United Nations World Water Assessment Programme, Canada)
- The Role of Farmers' Collective Action for Mitigating Water Scarcity— The Case of Tank Irrigation in Tamilnadu, India: Chieko UMETSU (Associate Professor, RIHN)
- The Roles of Government for Mitigating Water Scarcity— The Case of Drought Water Bank, California: Takahiro ENDO (Assistant Professor, RIHN)
- Water Transfer Policy in China: Changyuan TANG (Chiba University)
- Legal Doctrines for Allocation of Groundwater, High Plain Aquifer, U.S.A.: Jason GURDAK (U. S. Geological Survey)
- Water Policy in Thailand: Kensuke YAMAGUCHI (Research Fellow, RIHN)
- Improving Water Governance: Ian WHITE (Australian National University)
- Discussion

3. "Sali-graphy"

First Section: Salt and culture

Date: Nov. 11, 2006

Venue: Conference Hall, RIHN

Chairs: Yoichiro SATO, Tsugihiro WATANABE (RIHN)

Convener: Kenji FUKUNAGA (RIHN)

<Program>

- Opening address: Yoichiro SATO, Tsugihiro WATANABE
- Salt in the world: Takashi KATAHIRA (photographer)
- Man and salt. Historical perspective on salt production: Hiroki TAKANASHI (curator of Tobacco and Salt Museum)
- Ancient salt production in Japan: Masatoshi KISHIMOTO (archaeologist)
- Salt and food culture: Ayao OKUMURA (traditional food producer)
- Closing address: Yoichiro SATO, Tsugihiro WATANABE

Second Section: Salt and Environment

Date: Nov. 12, 2006

Venue: Conference Hall, RIHN

Chairs: Yo-Ichiro SATO and Tsugihiro WATANABE (Professors, RIHN)

Convener: Takashi KUME (Research Fellow, RIHN)

<Program>

- Opening Address: Toshitaka HIDAKA (Director-General, RIHN)
- Salinization in Sumerian Agriculture: Kazuya MAEKAWA (Kokushikan University)
- Environment and Salt of the Ancient Loulan: Toshio ITO (Professor, Osaka Kyoiku University)
- The Salinity Development and Historical Perspectives of Salt Problems in Turkey: Selim KAPUR (Çukurova University)
- Global Perspective of Salinity Problem: Takashi KUME (Research Fellow, RIHN)
- Discussion
- Closing Address: Yo-Ichiro SATO and Tsugihiro WATANABE (Professors, RIHN)

## 2. RIHN Forum

"What are the global environmental problems?" "What are the integrated global environment studies?" "What will be the outcomes of such studies?" "What will be the future of the global environmental problems?" "Will their solution be possible?"

RIHN Forum is organized, based on the principles and outcomes of RIHN's research activities, and especially on the understanding that "the so-called environmental problems are fundamentally problems of human culture", to raise questions and animate discussion about up-to-date topics around the problems, to help us find answers to the above fundamental questions.

This is held once a year for citizens. This year is the fifth year it has been held. Solution strategies were sought on the major global environmental issue of forest destruction, while taking it as a regional problem in areas such as South East Asia and Japan. This problem was considered from the perspective of regional residents, indigenous organisms, property owners and ruling bodies. Various time frames were also considered ranging from 100 to 10,000 years. The details are discussed below.

**The 5th RIHN Forum**
Date: 8 July, 2006
Theme: "Forests and People in Asia—Eco-historical Perspective"
Venue: Kyoto International Conference Hall

## 3. Seminars

RIHN seminars for general citizens are held as 'Public Seminars' which are generally held locally around every month, and 'RIHN Area Seminars' where regions are visited and, with the participation of regional researchers and citizens, problems characteristic to the natural surroundings and culture of the particular region are considered.

### 3-1. Public Seminar

In order to present RIHN research activity in a manner that is easily understood, lectures for citizens were started in November 2004, with a total of 4 lectures held in 2004 and a total of 7 in 2005, all of which were held at the Doshisha Niijima Hall. In 2006, along with the relocation to the new Kamigamo facility, a total of 6 lectures were held as follows at the RIHN lecture room.

With RIHN staff as the lecturers, an easy-to-understand explanation of global environmental problems is given using concrete examples, and on every occasion enthusiastic questions are received from the audience.

| | |
|---|---|
| The 12th Public Seminar | 14 April, 2006<br>A prologue to environmental history in Eurasia—from Monsoon Asia to Silkroad<br>SATO, Yo-ichiro (Professor, RIHN) |
| The 13th Public Seminar | 9 June, 2006<br>How will become Japanese nature? How should we plan Japanese land?<br>YUMOTO, Takakazu (Professor, RIHN) |
| The 14th Public Seminar | 22 September, 2006<br>Why did the Indus Civilization decline?<br>OSADA, Toshiki (Professor, RIHN) |
| The 15th Public Seminar | 20 October, 2006<br>Global environmental problems under the ground<br>TANIGUCHI, Makoto (Associate Professor, RIHN) |
| The 16th Public Seminar | 1 December, 2006<br>Landscape is alive!<br>UCHIYAMA, Junzo (Associate Professor, RIHN) |
| The 17th Public Seminar | 9 June, 2006<br>Different types of illness—Doctors for humans and doctors for the environment<br>KAWABATA, Zen'ichiro (Professor, RIHN) and OKUMIYA, Kiyohito (Associate Professor, RIHN) |

### 3-2. RIHN Area Seminar

With RIHN research staff and regional intellectuals gathering together, consideration and lively discussion is held with the people of the region regarding various problems related to the environment and culture of each area of Japan. The first lecture was held in September 2005, in Toyama City, on the theme of "Snow and People-Sustaining Life in the Japan Sea Area", and was jointly sponsored by Toyama Prefecture and the Japan Seaology Promotion Organization. The 2006 lecture was held as follows.

**The 2nd RIHN Area Seminar**
"Local Environments in Kagoshima—Volcano, Water and Food—"
Date: 18 September, 2006
Venue: "The Reimei kan" (Shiroyama-machi, Kagoshima City, Kagoshima)
Chairman: SATO, Yo-ichiro (RIHN)

## 4. Presentation of Research Project

The project leader presents information on the progress of all research projects and responds to questions in front of not only the RIHN research education staff, but also office staff and research collaborators from outside the institute. In the 3-day research presentation a total of over 500 people attend. This coming together of all parties in RIHN and active exchange of opinions is an important factor in research activity and is linked to RIHN self-assessment evaluations.

Date: 13–15 December, 2006
Venue: Kyoto Terrsa

## 5. Other Meetings for Research Exchange

### 5-1. RIHN Seminars

RIHN Seminars are organized to provide opportunities for RIHN's scientists to share the latest topics and research trends in different fields of global environment research with speakers invited from Japanese or foreign institutes, and to get inspired with new directions of research; these seminars also serve to create substantial collaborations in research between RIHN and such other institutes. Seminars are held several times a year, where well-studied and reflected subjects of different fields are chosen for discussion.

The 24th 11 May, 2006
Takeshi NAKATSUKA (Institute of Low Temperature Science, Hokkaido University)
Evaluation of Feasibility and Sustainability of "Sustainable Social Systems" by Evolutionary Approach

The 25th 31 August, 2006
Takashi KATO (Faculty of Letters, Chiba University)
Five social types considering the nature and the divine realities

The 26th 10 January, 2007
Richard B. PRIMAK (BOSTON Univ. Biology Department)
Toropical rain forests: an ecological, biogeographical comparison and their conservation

### 5-2. Luncheon Meeting (Danwakai)

At RIHN where institute members, as well as visiting professors, part-time researchers, foreign researchers and so on, converge to freely present their individual themes on global environmental study, these Luncheon meetings provide an unique opportunity for mutual inquiry and exchange of opinions. As meetings serve as an important venue for promoting creative thinking and constructive debates and will be held virtually on a biweekly basis.

**April 2006–March 2007**

No. 89 4 April, 2006
Takahiro ENDO (Assistant Professor)
"Impressions on the 4th World Water Forum"

No. 90 16 May, 2006
Masahito NAKAGAWA (Research Fellow)

"Herbarium specimen and climatic change"

No. 91 30 May, 2006
Naohumi NOMURA (Research Fellow)
"Toughness reduces productivity: ecophysiological consideration of rheophytic plants"

No. 92 6 June, 2006
Chihiro MIYAZAKI (Senior Research Fellow)
"Development of high-resolution dataset of precipitation"

No. 93 20 June, 2006
Aya HATADA (Senior Research Fellow)
"Population Ecology of Luehdorfia japonica in heavy snowfall area"

No. 94 4 July, 2006
Naoki HAYASHI (Research Fellow)
"Rural Planning and "Chikyu Kankyo Gaku""

No. 95 18 July, 2006
Akio O-NISHI (Senior Research Fellow)
"Understanding water use change under rapid socio-economic growth in the Yellow River basin"

No. 96 5 September, 2006
Yayoi TAKEUCHI (Research Fellow)
"The ecological and genetic consequences of seed and pollen dispersal of four dipterocarp species"

No. 97 19 September, 2006
Yoichiro SATO (Professor) and Makoto TANIGUCHI (Associate Professor)
"Aim of the RIHN first International Symposium"

No. 98 3 October, 2006
Akihiro SEO (Research Fellow)
"Molecular phylogeography of plants in the Ryukyu Islands"

No. 99 17 October, 2006
Takeo MIYOSHI (Senior Research Fellow)
"Measurement of ambient aerosols at Fukue Island, Nagasaki and Cape Hedo, Okinawa"

No. 100 21 November, 2006
Masanori KATSUYAMA (Senior Research Fellow)
"Water Yielding Functions of Forest —Remarks of a Forest Hydrologist—"

No. 101 5 December, 2006
Futoshi NISHIMOTO (Research Fellow)
"Human Evolutionary Implications of Marriage and Affinal Relationship"

No. 102 19 December, 2006
Akitake IGETA (Research Fellow)
"An effective presentation method of scientific data of local study, and new indicators for river environmental diagnosis" (Research data from Project 3-1)

No. 103 30 January, 2007
Sei CHIN (Hohai University)
"Bureaucratic Water Management in Hei-he River and its water use"

No. 104 20 February, 2007
Fernando SIRINGAN (University of the Philippines)
"Deciphering the record of salinity shifts in the past several thousand years in Laguna de Bay, Philippines"

No. 105 27 February, 2007
Mitsuyuki INOUE (Research Fellow) and Mitsuko WATANABE (Research Fellow)
"Underground irrigation systems in the Hexi Corridor"
No. 106 6 March, 2007
Ryo TSUJINO (Research Fellow)
"Relationship between plants and topography in the forest"

### 5-3. Evening Seminars

Modeled on the format of the Study meetings, the evening seminars are intended to promote the free exchange of opinions and to stir up discussion. Although these seminars will of course be far more limited timewise than the aforementioned Luncheon meetings and RIHN Research Seminars, they are important as discussion-centered Study meetings. Ordinarily these Study meetings will be held on a monthly basis and beginning at five p.m. last approximately two hours. As research presenters nominate the next round of presenters, a special feature of these Evening Seminars is the presentation of early buds of information on creative research being done by researchers in diverse academic fields.

No. 27 7 June, 2006
Futoshi NISHIMOTO (Research Fellow)
"Can nonsense save the earth?: Reviewing Monty Python's Flying Circus"
No. 28 5 July, 2006
Rhett HARISON (Research Fellow)
A film "Chang (Elephant): A drama of the wilderness" (1927)
No. 29 9 August, 2006
Takahiro ENDO (Assistant Professor)
"Toward RIHN international symposium—invitation to poster session—"

## 6. Publications

### 6-1. RIHN Series

Volume 4 "*Mori wa Dare no Mono ka*" (Who claims forests ownership?) edited by Toshitaka HIDAKA and Tomoya AKIMICHI, Showado, March 2007 (in Japanese)

### 6-2. RIHN Library

These are scientific publications covering a wide range of RIHN research activity. In 2006 the following 3 publications were published.

Toshiki OSADA ed. Indus Civilization: Text and Context MANOHAR Publication, New Delhi, India, 2006

Introduction: Toshiki OSADA (Professor, RIHN)

1. Indus Civilization: An Overview: Jeewan Singh KHARAKWAL (Associate Professor, JRN Rajasthan Vidyapeeth University, India)
2. Central Asian Roots and Acculturation in South Asia: Linguistic and Archaeological Evidence from Western Central Asia, the Hindukush and Northwestern South Asia for Early Indo-Aryan Language and Religion: Michael WITZEL (Professor, Harvard University)
3. <Brief Communication>

Rice and the Indo Civilization, Yo-Ichiro SATO (Professor, RIHN)

Bibliography

Masayoshi NAKAWO ed. "Himaraya to Chikyu Ondanka (Himalayan glaciers under global warming)" Showado, March 2007

Toshitaka HIDAKA and Yozaburo SHIRAHATA ed. "Hito wa Naze Hana o Mederu noka (Origin of human beings love for flowers—Why do humans love flowers?)" Yasaka-shobo, March 2007

### 6-3. RIHN News: *Humanity & Nature Newsletter*

These periodicals started in April 2006 and release information to the research community and society on what RIHN is about and the latest news on the type of activities being engaged in. These are published bimonthly in an A4 format with all-color, easy-to-read content. In 2006 issues No. 1–No. 6 were published.

### 6-4. Other Publications

Global environmental problems are often a part of general teaching material in school education. However, possibly because even teachers find the exact concept of a global environmental problem difficult to understand, there are many cases in study where it is covered in an area such as 'garbage disposal' or a certain type of 'moral discussion'. The publication "*The earth in future—talks to children*" edited by Toshitaka Hidaka and RIHN, (July 2006, published by Kodansha) is written for adults talking to children and global environmental problems are covered in an easy-to-understand manner.

# Social Activities

## 1. Articles in Newspaper

Articles under the title "RIHN's news from Kyoto" were serially appeared on every Saturday. Detail of each article in 2006 is as follows.

| No. | Date | Authors and Panelists | Title |
|---|---|---|---|
| 1 | May 27, 2006 | HIDAKA, Toshitaka | Aiming at a fundamental solution of the environmental problems |
| 2 | June 3, 2006 | WATANABE, Tsugihiro | Measures with "Mitameshi: Adaptive Management" and "Mitoshi: Projection" |
| 3 | June 10, 2006 | FUKUSHIMA, Yoshihiro | Sediment problems having been in trouble during three thousand years |
| 4 | June 17, 2006 | UMETSU, Chieko | "Vulnerable sector of the society" in global environmental issues |
| 5 | June 24, 2006 | KAWAMOTO, Kazuaki | Can atmospheric particles change the air temperature also? |
| 6 | July 1, 2006 | ICHIKAWA, Masahiro | Anthropogenic forest-based mosaic landscape in Tropic Asia |
| 7 | July 8, 2006 | SHIRAIWA, Takayuki | Amur river basin as a "Giant" Fish-Breeding Forest |
| 8 | July 15, 2006 | TANIGUCHI, Makoto | Chance of learning wisdom from frailer |
| 9 | July 22, 2006 | FUKUNAGA, Kenji | Genetic diversity is necessary for stable food production |
| 10 | July 29, 2006 | NAKANO, Takanori | A fear of health condition in Japan, resource import power |
| 11 | August 5, 2006 | YACHI, Shigeo | On watershed management methodology —An example of Lake Biwa agricultural turbid water problem— |
| 12 | August 12, 2006 | TAKASO, Tokushiro | Difficulties in nature preservation and culture inheritance in Yaeyama |
| 13 | August 19, 2006 | OSADA, Toshiki | Environmental problems from prehistoric time |
| 14 | August 26, 2006 | KATO, Yuzo | Unbalanced distribution of water resources is the issue in semi-ared areas |
| 15 | September 2, 2006 | NISHIMOTO, Futoshi | Glutinuous Rice Glues the People Together: Rice Culture in the Ethnic Minority Village in Laos |
| 16 | September 9, 2006 | KUBOTA, Junpei | Minimizing impacts on the environment by migration as an indigenous knowledge of nomadic pastoralism |
| 17 | September 16, 2006 | SAITO, Kiyoaki | The Kamo-river and Habitat-segregation |
| 18 | September 23, 2006 | YOSHIOKA, Takahito | Your own narrative on environments |
| 19 | September 30, 2006 | ENDO, Takahiro | "institutional" response to drought |
| 20 | October 7, 2006 | YUMOTO, Takakazu | Every effort is required to recover the nature |

| | | | |
|---|---|---|---|
| 21 | October 14, 2006 | KAWABATA, Zen'ichiro | Human wisdom can enable us to coexist with pathogens |
| 22 | October 21, 2006 | ŌNISHI, Hideyuki | Landscape history: An inquiry into the new relationship with Nature |
| 23 | October 28, 2006 | NAKANO, Takanori | Complex air pollution extending over East Asia |
| 24 | November 11, 2006 | ZHENG, Yuejun | To understand the diversity of environmental consciousness |
| an extra | November 18, 2006 | SAITO, Kiyoaki | RIHN 1st International Symposium Photo Contest "Water and Better Human Life" 5 excellent photos |
| 25 | November 25, 2006 | OKUMIYA, Kiyohito | Threatening lifestyle-related diseases in Tibet |
| 26 | December 2, 2006 | AKIMICHI, Tomoya | Mountains spring streaming through the shrine |
| 27 | December 9, 2006 | YATAGAI, Akiyo | Forcusing on the precipitation data |
| 28 | December 16, 2006 | KINOSHITA, Tetsuya | Dilemma between natural floodings of Yellow River and developments on its basin |
| 29 | December 23, 2006 | AKIMICHI, Tomoya | Resource destruction and decline in progress |
| 30 | January 13, 2007 | SATO, Yo-Ichiro | Were there "European Population" in ancient Kyoto? |
| 31 | January 20, 2007 | HAYASAKA, Tadahiro | Is it true that the Antarctic ice decays due to global warming? |
| 32 | January 27, 2007 | HATADA, Aya | Biodiversity around you |
| 33 | February 3, 2007 | ONISHI, Takeo | Iron bonds the Sea of Okhotsk and the Amur River |
| 34 | February 10, 2007 | UMEZAWA, Yu | Degradation of Coral Reefs by Algal Bloom |
| 35 | February 17, 2007 | TANAKA, Takuya | A space for discussing the environment of a river |
| 36 | February 24, 2007 | TAKASO, Tokushiro | Importance of watery places |
| 37 | March 3, 2007 | MORIYA, Kazuki | Drying up lakes on Heihe Basin |
| 38 | March 10, 2007 | KANAE, Shinjiro | World connected with water |
| Discussion 1 | March 17, 2007 | TANAKA, Koji / AKIMICHI / SATO, Y. / SAITO | Concluding one year of running the newspaper column |
| Discussion 2 | March 31, 2007 | TANAKA, Koji / AKIMICHI / SATO, Y. / SAITO | Concluding one year of running the newspaper column |
| Discussion 3 | April 7, 2007 | TANAKA, Koji / AKIMICHI / SATO, Y. | Gathering ideas, including on implementing regulations — Based on a theme that is closely-related to living — Also utilizing the Eastern way of thinking — Concluding one year of running the newspaper column |
| Discussion 4 | April 14, 2007 | TANAKA, Koji / AKIMICHI / SATO, Y. / SAITO | There are also problems other than global warming — Various strengths that we would like to utilize: Setting an example for global environmental study — Concluding one year of running the newspaper column |

## 2. Press Conference

As a public communication activity, RIHN has official press conferences periodically to release information on RIHN's academic activities such as research findings, symposia, publications and update environmental topics.

This activity is an important to link RIHN with tax payers through the press.

We held two press conferences on 5 September 2006 and on 7 March 2007 in the last fiscal year.

# Institutional and External Joint Research

## An Integrative Study on the Human and Water in Humid Asia

**Leader: AKIMICHI, Tomoya (RIHN)**

Under the general theme of "Interdisciplinary Research on Exchange between Japan and Eurasia" of the National Institutes for the Humanities (NIHU), this research aims to explore human's interactions with water in humid Asia where people have experienced both benefits and disasters caused by water over a long period of time. Particularly, we examine history, culture, local knowledge and practices, and cosmology borne in the interactions between humans and water, and challenge to synthesize a theory on people and water in Asia in the human history.

Major research members include staffs of Research Institute for Humanity and Nature (RIHN), National Museum of Ethnology (NME), National Museum of Japanese History (NMJH), International Research Center for Japanese Studies (IRCJS), and National Institute of Japanese Literature (NIJL), all belonging to the NIHU, and those from National, Public and Private Universities in Japan.

### 1. Joint Research Meeting

The first meeting

Date: 2006.4.22

Venue: NIJL, Shinagawa, Tokyo

1. "From political economy to political ecology: experiences in the 4th World Water Forum, Mexico City" ABE, Kenichi (Kyoto University)
2. "Nature and local inhabitants in lower Ganga Basin: a case study in Sundaruban, India" IKEYA, Kazunobu (NME)
3. "Use of water in Maya Civilization: a comparison with the humid Tropics" YASUDA, Yoshinori (IRCJS)

The second meeting

Date: 2006.7.15

Venue: NME, Suita, Osaka

1. "Problems and prospect in the Inter-Institutional and External Joint Research 'Water and People'" AKIMICHI, Tomoya (RIHN)
2. "A preliminary report of field research in India and Nepal in 2005" MINAMI, Makito (NME)
3. "Landscape of Sumida River and the establishment of Mukojima 'Hyakka-en'" SUZUKI, Jun (NIJL)

The third meeting

Date: 2006.10.21

Venue: NME, Suita, Osaka

1. "From a field research in Dali, Yunnan, China: Life of the Bai people and cormorant fishing in Erhai Lake" AKIMICHI, Tomoya (RIHN)
2. "Quantitative evaluation of landscape: statistical analysis by GIS technique" HARA, Sho-ichiro (Kyoto University)
3. "Political option in the water resource management: comparative views" ENDO, Takahiro (RIHN)
4. "Emergence and assessment of paddy fields: events caused by artificial climate alteration in Lake Biwa" FUKUZAWA, Hitoshi (Tokyo Metropolitan University)

The fourth meeting

Date: 2007.1.19

Venue: IRCJS, Kyoto

1. "A proposal for the publications of a series of 'Water History and Civilization' by UNESCO" NAKAWO, Masayoshi (RIHN)
2. "Water in eyes and water in touch: a consideration of water in literatures during Heian and Kamakura periods" CHIMOTO, Hidefumi (Nara Women's University)

3. "Valuable resources and conflicts over resources: differences in reality and the cognition over the preciousness in the conflicts over water resources" YAMAGUCHI, Kensuke (RIHN)

The fifth meeting

Date: 2007.3.2–3.4

Venue: Namiita Kanko Hotel (Otsuchi Town, Iwate)

1. "Nature and water in Otsuchi." AKIMICHI, Tomoya (RIHN)
2. "Nature and Culture in Otsuchi." SASAKI, Ken (Otsuchi Town)
3. "Two types of conservation." MORI, Seiichi (Gifu Keizai University)
4. "Effects of surrounding environments on groundwater." SUMI, Tetsuya (Daido University of Industry)
5. "Does the water exist to nurture a man of genious ? " KUME, Takashi (RIHN)

**2. Renkei-Juku (A school for the students to wish to learn "Water and People" Research open to the public)**

The first lecture

Date: 2006.9.15

Venue: Research Institute for Humanity and Nature (Kyoto City)

"Attraction of the Research of 'Water and People'" AKIMICHI, Tomoya (RIHN)

The second lecture

Date: 2006.10.14

Venue: Niijima- Kaikan (Kyoto City)

"The Rise and Fall of Maya and Angkor Civilizations and Water." YASUDA, Yoshinori (IRCJS)

The third meeting

Date: 2006.11.18

Venue: Niijima-Kaikan (Kyoto City)

"Water and Traditional Vegetable Food in Kyoto" SATO, Yo-Ichiro (RIHN)

The fourth meeting

Date: 2006.12.16

Venue: Niijima-Kaikan (Kyoto City)

"Sake and Underground Water in Kyoto" TANIGUCHI, Makoto (RIHN)

The fifth meeting

Date: 2007.1.20

Venue: Niijima-Kaikan (Kyoto City)

"Water and Belief: Consideration of its Favour and Hazard" KOMATSU, Kazuhiko (IRCJS)

The sixth meeting

Date: 2007.2.17

Venue: Niijima-Kaikan (Kyoto City)

"Water in Kyoto and Human Impacts on It" NAKANO, Takanori (RIHN)

**3. Symposia**

**1. "World Heritage, Water and People"**

For details to p. 215.

**2. "Water and Civilization: Interpretation of Human Civilization from Water Problem"**

Organizer: NIHU

<Program>

Welcome Address: ISHI, Yoneo (President, NIHU)

General Introduction: AKIMICHI, Tomoya (RIHN)

Presentation

(1) "History and Culture of Mesopotamia and Water Problems" WATANABE, Chikako (Osaka Gakuin College)

(2) "Agriculture, Water and the Civilization" SATO, Yo-Ichiro (RIHN)

(3) "People and Water in Silk Road" KUBOTA, Jumpei (RIHN)

(4) "Angkor Wat and the Civilization of Water: A New Evidence found from Geological Map on the Scale of 1 : 500" ISHIZAWA, Yoshiaki (St. Sophia University)

(5) "The Japanese Civilization during the Medieval Period and Climate Change" GOMI, Fumihiko (NIHU, The Broadcasting University)

General Discussion chaired by AKIMICHI, Tomoya (RIHN)

## 4. Publications

**[Book]**

AKIMICHI, Tomoya ed. 2007 *Water and World Heritage: Landscape, Environment and Life*. Shougakukann
Authors: AKIMICHI, Tomoya, Y. UNI, H. MAKITA, K. YUMOTO, J. UCHIYAMA, A. MURAMATSU, S. MESAKI, E. HATERUMA, K. ABE, H. OHNISHI, K, CHUN, A. Zhu and E. NITTA.

**[Research Journal]**

2006.10 *People and Water*. Vol. 1. Special Issue: Water and Human Body, Ed. by NAKAMURA, Yasuo (NIJL), Showadou.
Authors: NAKAMURA, Yasuo, Y. TSUJIMOTO, M. AIDA, T. IDA, T. KOYANO, H. EDO, N. SHINTANI, Y. OHTAKA, M. TANIGUCHI, M. KUBO, K. ABE, and J. SUZUKI

2007.3 *Water and People.* Vol. 2. Special Issue: Water and Society, Ed. by ENDO, Takahiro (RIHN), Showadou.
Authors: ENDO, Takahiro, S. KANAE, C. UMETSU, M. MINAMI, K. NONAKA, A. YOSHIKOSHI, T. HAMAZAKI, K. IKEYA, T. SHNOHARA, K. FUJINAWA, and F. MURATA

# Individual Achievements

## AKIMICHI, Tomoya ——— Professor

Born in 1946.

**—Curriculum Vitae—**

**[Academic Career]**

Department of Anthropology, Faculty of Science, The University of Tokyo, D. Course (1977)

Department of Anthropology, Faculty of Science, The University of Tokyo, M. Course (1974)

Department of Zoology, Faculty of Science, Kyoto University (1968)

**[Professional Carrier]**

Professor, Research Institute for Humanity and Nature (2002)

Head of Department, Department of Cultural Research, National Museum of Ethnology (1999)

Adjunct Professor, School of Advanced Sciences, The Graduate University of Advanced Studies (1998)

Professor, Department of Cultural Research, National Museum of Ethnology (1995)

Professor, 1st Research Department, National Museum of Ethnology (1992)

Adjunct Associate Professor, Faculty of Cultural Research, The Graduate University of Advanced Studies (1988)

Associate Professor, 1st Research Department, National Museum of Ethnology (1987)

Assistant Professor, 2nd Research Department, National Museum of Ethnology (1977)

**[Higher Degrees]**

D.Sc. (The University of Tokyo, 1986), M.Sc. (The University of Tokyo, 1974)

**[Fields of Specialization]**

Ecological Anthropology, Ethno-Biology

**[Academic Society Memberships]**

The Society of the Bio-Sophia Studies, The Society of Human and Animal Relations, The Society of the Environmental Sociology, The Society of Ecological Anthropology, The Japanese Society of Coral Reef Studies, The Society of Tropical Ecology

**[Awards]**

Daido-Seimei Chiiki-Kenkyu Shorei-Sho in 1998 (Award for Promotion of Area Studies by Daido Life Insurance Company in 1998)

**—Major Publications—**

**[Books]**

Tomoya AKIMICHI

2005 *Maritime Peoples of the Pacific: An Anthropological Study*. Seoul: The Ethnology Garden Publisher. (in Korean)

Tomoya AKIMICHI, Mitsuo ICHIKAWA and Ryutaro OHTSUKA eds.

2006 *Ecological Anthropology*. Kunming: Yunnan University Press (in Chinese)

**[Articles]**

Tomoya AKIMICHI

2005 "The Sea of Coral Fish" (Special Issue on Biodiversity and Cultural Diversity. *Kikan Minzokugaku* 112: 23-30. (in Japanese)

Hiroya KAWANABE and Tomoya AKIMICHI

2005 "Special Theme 2 Rethinking Carp as Food- History and Culture of Carp Food Culture" *Bio-Story* 3: 24-33. (in Japanese)

Tomoya AKIMICHI

2005 "Nomenclature of the Organism- To investigate Bajau Folk Taxonomy" *Bio-Story* 4: 82-83. (in

Japanese)

Yoshiyuki TSURUMI and Tomoya AKIMICHI (interviewer)

2005 "To search for the Forgotten History of the Sea" In Yoshiyuki TSURUMI *Dialogue: To walk and to think.* Tokyo: Ohta Shuppan, pp: 495-512. (re-record) (in Japanese)

Keiji IWATA and Tomoya AKIMICHI (interviewer)

2005 "Fieldwork in the Mysterious Space: On the Experience of Animism" In Keiji IWATA *Tree becomes humans and humans become tree: Animism in the contemporary world.* Kyoto: Jinbun Shoin, pp. 224-240. (re-record) (in Japanese)

Tomoya AKIMICHI

2005 "Rethinking the Commons: Between the Supernatural and the Natural World" (Special Symposium: Commons: Its Significance and Problems in the Modern Age) *Public Finance and Public Policy* 27(2): 27-30. (in Japanese)

2005 "Exploring an Eco-management Scheme for Migratory Marine Species: Perspective from Asia and the Pacific". *The Studies in Regional Development* 37(1): 81-101.

2005 "Change in Forest Environment and Junglefowl- The Ethnic Minorities in Yunnan, China and Laos" In Kazunobu IKEYA ed., *Forest People in Tropical Asia: Environmental Anthropology of the Natural Resource Use*, Kyoto: Jinbun Shoin, pp. 123-148. (in Japanese)

Tomoya AKIMICHI, Kan-ichi NOMOTO, Norio AKASAKA and Hiromi TAGUCHI

2005 "Discussion: Folk System in the Satoyama and Sato-Umi: Transformation and Construction of New Stage of Human-environmental Relations" *Kikan Tohokugaku* May, 2005, pp. 6-27. (in Japanese)

Tomoya AKIMICHI

2005 "Cultural History—Common Property and the Joint Use" Yoshihisa AWAJI, Takashi KAWAMOTO, Kazuhiro UEDA, Kin-ichi HASEGAWA eds.Readings Environment. vol.1 Nature and Humans. Tokyo: Yuhikaku, pp. 105-111. (in Japanese)

2005 "Chapter 9 Fishery Geography Section 2 Anthropological View" The Society of Fishery Economics ed. *Results and Overview of Studies in Fisheries Economy.* Tokyo: Seizando Shuppan, pp. 252-256. (in Japanese)

2005 "Folk-Knowledge on Fish: Diversity and Tradition" Tohru TANIUCHI, Tetsuji NAKABO, Hiroaki MUNEMIYA, Akira TANIGUCHI, Ichiro AOKI, Akinori HINO, Seiichi WATANABE, Hiroki ABE, Takeo FUJII and Tomoya AKIMICHI eds., *The Encyclopedia of Science of Fish*, Tokyo: Asakura Shoten, pp. 526-534. (in Japanese)

Tomoya AKIMICHI ed.

2005 *Report of the Study Meeting of the Commons and the Eco-history* (Special Field of Grant in aid of the Ministry of Education, Culture, Science, Technology and Sports, Joint study meeting of Eco-history group of Anthropology of Resource and the Study of the Commons), 183pp. (in Japanese)

Tomoya AKIMICHI

2005 "Who saves Sacred Water from Pollution? Towards an Integrated Study on Human and Water Interactions. (panel presentation)" In Kenichi ABE, Noriko IIZUKA and Otte ALEXANDER eds., *Water and Cultural Diversity Mediating for Sustainable Development.* 4th World Water Forum session FT4-32. Centro Banamex, Mexico City, 20th March 2006, pp. 24-27.

Tomoya AKIMICHI

2006 "Trochus Connection—The Eco-History on the Coral Reef Resource Management in the Western Pacific" Michiko INTOH ed., *Anthropology of the Environment and Resource Use: Life and Culture in the Western Pacific Islands.* Tokyo: Akashi-shoten, pp. 15-35. (in Japanese)

Tomoya AKIMICHI, Mitsuo ICHIKAWA and Ryutaro OHTSUKA

2006 "Introduction: Areas and Persprective in Ecological Anthropology". In Tomoya AKIMICHI, Mitsuo ICHIKAWA and Ryutaro OHTSUKA eds., Ecological Anthropology, Kunming: Yunnan University Press, pp. 1-9. (in Chinese)

Tomoya AKIMICHI

2006 "Resource and Ownership with Reference to Marine Resource". In Tomoya AKIMICHI, Mitsuo ICHIKAWA and Ryutaro OHTSUKA eds., Ecological Anthropology, Kunming: Yunnan University Press, pp. 118-130. (in Chinese)

**[Miscellaneous]**

Komei SASAKI, Tomoya AKIMICHI and Kenichi ABE

2005 "On the Scope of Shoyo-Jurin Culture" (Special Issue A New Shoyo-Jurin Culture) *Kagaku* 75(4): 428-438.

Akishinonomiya FUMIHITO, Tomoya AKIMICHI, and Masami HASEGAWA

2005 "SOUKENDAI Integrated Study Biosystem Science and Joint Study" *Sokendai Journal* 7: 26-31.

Tomoya AKIMICHI

2005 "Book Review Japanese Culture viewed from Paddy Field Fishery" *Nihon Dokusho Shinbun*

2005.8 "Stickleback and Bio-Sophia: Linking Water, Fish and Local Area" 2nd Stickleback All Japan Summit in Ono~Considering Water Environment in Japan from Stickleback Conservation: A Research Report of Stickleback Habitat at Honganshozu and Freshwater Biota in Rivers in Ono City. Ono Committee of Education, pp. 4-11.

2005.11 "Mountain God, Scorpion Fish, and Yamanokami Gobby"(p. 87), "Octopus Fishing" (p. 195), "Folklore on Poison Fishing" (p. 223), "Stone Weir Fishing" (p. 240), "Fish Skin Cloth" (p. 280), "Sacred Fish and Fish God" (p. 341), "Conservation of Grouper and Food Culture" (p. 361), "Abi Fishing" (p. 382), "Flying Fish Fishing" (p. 413), "Shark-Tooth Weapon" (p. 559), in Tohru TANIUCHI, Tetsuji NAKABO, Hiroaki MUNEMIYA, Akira TANIGUCHI, Ichiro AOKI, Akinori HINO, Seiichi WATANABE, Hiroki ABE, Takeo FUJII and Tomoya AKIMICHI eds., *The Encyclopedia of Science of Fish*, Tokyo: Asakura Shoten. (in Japanese)

2005.11 "Sea Current and Trade Winds" (pp. 24-28), "Fauna in Micronesia" (pp. 33-36), "Use and Conservation of Marine Resource" (pp. 113-116), "Variety of Fishing Techniques" (pp. 117-120), "Canoe and Navigational Skills" (pp. 121-124), "Sidereal Compass and Stick Chart" (pp. 125-128). Michiko INTOH ed., Fifty eight chapter for the guide to Micronesia, Tokyo: Akashi-Shoten. (in Japanese)

2005.12.16 "Human Becomes a Tree" *Books Forthcoming: The first half of January*, Nihon-Shoseki-Shuppan-Kyokai, p. 5. (in Japanese)

2006.2.16 "Conservation of Medaka" *Books Forthcoming: The first half of March*, Nihon-Shoseki-Shuppan Kyokai, p. 7. (in Japanese)

2006.3 "Rethinking Ordinary Fish" A Report of the Symposium on Freshwater Fish Conservation, Gifu Prefecture, pp. 45-51. (in Japanese)

2006.3 "Panel Discussion: Conservation in Daily Life". In A Report of the Symposium on Freshwater Fish Conservation, Gifu Prefecture, Gifu Prefecture, pp. 88-104. (in Japanese)

2006.3 "Preface to Water and People" *Water and People* vol. 0: 1. (in Japanese)

2006.3.1 "Illusionary Community in East Asia" *Books Forthcoming: The latter half of May,* Nihon-Shoseki-Shuppan-Kyokai, p. 9.

2006.3.15 "Local Riparian Culture in Laos" *Seikyo-Shinbun*, Seikyo-Shinbun Newspaper company.

**—Social Activities and Public Lectures—**

2005.5.11 "Growing and Development of the Bio-Sophia" (Lecture) Tokyo: Tokyo University of Agriculture

2005.5.19 "The World of Bio-Sophia" (Memorial Lecture) Japanese Association of Zoos and Aquariums. Mito City

2005.6.12 "Future of the Eco-commons Water, People and Organisms in the Tropics: From the Mekong River to the Wallacea" (Keynote Speech), The Japan Society of Tropical Ecology the Annual meeting, Kyoto University, Kyoto City

2005.6.23 "The World of the Eco-History Study" International workshop between Japan and China. Kunming, China

2005.7.9 "Snow and People" (commentator) 1st RIHN Chiiki Seminar, Toyama City

2005.10.9 "Fish and Food in Southeast Asia" The 8th RIHN Seminar for the Citizen, Kyoto City

2005.10.19 "Landscape in the Paddy Field" RIHN Inaugural International Pre-Symposium 'Bridging Times and Seas: Historical Landscape Change on the Shores of Northern Inland Seas'. Kyoto City

2005.10.22 "The Eco-Commons in the Plant Harvest in Asia" (Organizer) The Committee of Anthropology of Resource Use and Symbolism, Kyoto City

2005.10.25 "People and Fish in Laos, Freshwater Fish Resource Management during the Past Decade" (Keynote Lecture) The Study meeting of Aquaculture in Laos, The University of Tokyo, Tokyo

2005.11.19 "How to Conserve Freshwater Fish: Consideration of Ordinary Fish" (Lecture) A Symposium on the Freshwater Fish Conservation, Gifu. Ohgaki City

2005.12.18 "Cultural History of Lion and People" 8th Symposium of the Animals and Human Relations (Coordinator) Kyoto City

2006.1.22 "Dugong Conservation and Local Culture in the Andaman Sea, Thailand" SOKENDAI International Symposium: Topics in Environmental Issues in Asia: Conservation Strategy, Culture and Politics. (Coordinator and Speaker) Hayama Cho

2006.3.10 "The Implication of Outbreak of Nomura's Jellyfish" (Lecture) Kyoto Asnie, Kyoto City

2006.3.25–26 The 12th Annual General Meeting of the Society of Human and Animal Relations. (Representative) Azabu University, Machida City

**—Activities in Academic Societies—**

Member, Planning and Coordination Committee of the National Institute for the Humanities (NIHU) (2003–), Director of Science, Ministry of Education, Science, Technology and Sports (2002–), President of the Society of the Bio-Sophia (2004–), President of the Society of Human and Animal Relationships (1999–2006), Vice President, The Society of Domestic Fowl Studies (2001–), Member, Evaluation Committee of Research Proposal in Lake Biwa Museum (1998–), Joint Researcher, National Museum of Ethnology (2002–), Member, Promoting Organization of the Japan Sea Study (2003–), Member, Consulting Committee of Nagao Foundation (2003–), Member, Social Education Committee of Kyoto City (2004–), Editor-in-Chief, A Newsletter of Ocean Policy Research Foundation (2004–)

**—Research Activities—**

**[Field Research in Foreign Countries]**

2005.6. China (International Workshop in Yunnan University and visit to a UNESCO World Heritage in Jendu, Sichuwan)

2005.7–8 Laos (Fieldwork for aquatic resource use and management in southern Laos)

2005.11 Thailand (Ethno-ecological study of junglefowl and domestic fowl in Chiang Rai, northern Thailand)

2006.1 Laos (A study on the conservation and management of fish resource in southern Laos)

2006.3 China (A filed study on the non-timber forest products in Yunnan Province)

**—Supervision and Host (Number of DC Students and JSPS Research Fellows)—**

Special post-graduate course student of Sokendai (1)

## ANDO, Atsushi — Project Research Assistant

Born in 1974.

**—Curriculum Vitae—**

**[Academic Career]**

Department of Geology & Paleontology, Graduate School of Science, Tohoku University, D. Course (2003)

Department of Geology & Paleontology, Graduate School of Science, Tohoku University, M. Course (1999)

Department of Geology, Faculty of Science, Shinshu University, D. Course (1997)

**[Professional Career]**

Research Promotion Assistant, Research Institute for Humanity and Nature (2006)

Research Fellow, Japan Society for the Promotion of Science, Chiba University (2003)

**[Higher Degrees]**

D.Sc. (Tohoku University, 2003), M.Sc. (Tohoku University, 1999)

**[Field Specialization/Background]**

Geology, Paleontology, Isotope Geochemistry

**[Academic Society Memberships]**

The Geological Society of Japan, The Sedimentological Society of Japan, The Paleontological Society of Japan, American Geophysical Union

**—Major Publications—**

**[Papers (reviewed)]**

Ando, A., H. Kawahata, T. Kakegawa (2006) Sr/Ca ratios as indicators of varying modes of pelagic carbonate diagenesis in the ooze, chalk and limestone realms. *Sedimentary Geology* 191: 37-53.

Ando, A., T. Kakegawa, R. Takashima, T. Saito (2003) Stratigraphic carbon isotope fluctuations of detrital woody materials during the Aptian Stage in Hokkaido, Japan: Comprehensive $\delta^{13}C$ data from four sections of the Ashibetsu area. *Journal of Asian Earth Sciences* 21: 835-847.

Ando, A., T. Kakegawa, R. Takashima, T. Saito (2002) New perspective on Aptian carbon isotope stratigraphy: Data from $\delta^{13}C$ records of terrestrial organic matter. *Geology* 30: 227-230.

**—Research Activities—**

**[Field Research in Japan]**

| | |
|---|---|
| July, 2006 | Wakayama Experimental Forest of Kyoto University, Wakayama Prefecture (Water sampling and analysis) |
| August, 2006 | Kagawa Prefecture (Water sampling and analysis) |
| September, 2006 | Watershed of the Yura River, Kyoto Prefecture (Water sampling and analysis) |
| October, 2006 | Yatsuga-take–Kawakami Experimental Forest of the University of Tsukuba, Nagano Prefecture (Water sampling and analysis) |

## ARIMURA, Makoto — Project Research Associate

Born in 1972.

**—Curriculum Vitae—**

**[Academic Career]**

Langues, Histoire et Civilisations des Mondes Anciens, University of Lyon 2, D. Course (2001)

Langues, Histoire et Civilisations des Mondes Anciens, University of Lyon 2, DEA Course (2000)

Department of Archaeology, Graduate School of History and Anthropology, University of Tsukuba, D. Course (1997)

Department of Archaeology, Graduate School of History and Anthropology, University of Tsukuba, M. Course (1995)

Faculty of Human Science, University of Tsukuba (1991)

**[Professional Career]**

Project Research Associate, Research Institute for Humanity and Nature (2006)

Postdoctoral Fellow for Research Abroad, Japan Society for Promotion of Science (2002)

Research Fellow (DC1), Japan Society for Promotion of Science (1997)

**[Higher Degrees]**

Ph.D (Université Lyon 2, 2007), DEA (Université Lyon 2, 2001), M.A. (University of Tsukuba, 1997)

**[Field Specialization/ Background]**

West Asian Prehistory

**[Academic Society Memberships]**

Japanese Society for West Asian Archaeology

**—Major Publications—**

**[Books]**

Arimura M. 2003a, Chipped Stone Artifacts, In: Iwasaki T. and Tusneki A (eds), Archaeology of the Rouj Basin. vol. 1, Tsukuba: Department of Archaeology, Institute of History and Anthropology, University of Tsukuba: 57-97.

Arimura M. 2003b, The Lithic Production System in Northwestern Levant from the LPPNB to the Early Pottery Neolithic: a View from Tell el-Kerkh 2, In: Iwasaki T. and Tusneki A (eds), Archaeology of the Rouj Basin. vol. 1, Tsukuba: Department of Archaeology, Institute of History and Anthropology, University of Tsukuba: 155-165.

**[Articles]**

Yamazaki Y, Maeda O and Arimura M. 2004, Flint Axes and Neolithic Debitage in the Prehistory Collection of Aleppo Museum, Syria. *Neo-Lithics* 2/04: 26-30.

A. Tsuneki, M. Arimura, O. Maeda, K. Tanno, T. Anezaki, 2006, The Early PPNB in The North Levant: A New Perspective from Tell Ain el-Kerkh, Northwest Syria. *Paléorient* 32/1: 47-71.

**—Research Activities—**

**[Field Research in Japan]**

| | |
|---|---|
| June 2006 | Ain Dara, Aleppo Prefecture, Syria (Meeting on the future archaeological projects at Ain Dara) |
| June–August 2006 | Kasakh valley, Yerevan, Armenia (Archaeological investigations of prehistoric sites in Armenia) |
| January 2007 | Xuanzang, China (Meeting on the future projects in the Tarim basin). |

**—Oral Presentation—**

4 March 2004 '*Lithic Industry of the Early PPNB Layers at Tell Ain el-Kerkh, Northwest Syria*' (5th International Workshop on PPN Chipped Stone Industries in the Near East, Fréjus, France)

**—Public and School Lectures—**

3 March 2005 '*L'évolution des cultures lithiques «locales» du nord-ouest de la Syrie: Tell Ain el-Kerkh, site néolithique précéramique et céramique (ca. 8 400-5 700 B.C.) dans le bassin du Rouj*' (Université Toulouse II, France)

28 March 2007 'Origin of the Farming communities in West Asia' (The Society for Researches on Native Livestock, Azabu University)

## BAUSCH, Ilona ——— Invited Research Fellow (July 2006–July 2007)

Born in 1969.

**—Curriculum Vitae—**

**[Academic Career]**

Department of East Asian Studies, University of Durham, Ph.D. Course Japanese Archaeology (2005)

Department of Japanese Language and Culture, Leiden University, combined BA and MA. Course Japanese Language and Culture (1994)

**[Professional Career]**

Invited Research Fellow, Research Institute for Human and Nature (2006–7)

Part-time lecturer in Japanese Studies, Department of Japanese Language and Culture, Leiden University (2004–6)

Guest lecturer in Japanese Archaeology, Faculty of Archaeology, Leiden University (2005–6)

**[Higher Degrees]**

Ph.D. (Durham University, 2005), M.A. (Leiden University, 1994)

**[Specialized Fields/Background]**

Social archaeology

**—Major Publications—**

**[Books]**

Bausch, I. R. (2004) 'Hisui no umi no monogatari: Jômon no daikouekimou to hisuikaigan no shakaiteki impakuto' ('A tale of the Jadeite Coast: long-distance exchange networks and the social impact of the Japan Sea Coast'), in Hiroshi Kanaseki, Junzo Uchiyama, Sei'ichi Nakai and Koji Takahashi (eds.), *Nihonkai: Higashi Ajia no Chichuka i* (Japan Sea: The Mediterranean of East Asia), 102–139. Toyama: Katsura Shobou. (in Japanese).

**[Articles]**

Bausch, I. R. (2005) 'Some considerations on Jomon serpentinite polished adze and jadeite ornament production sites along the Japan Sea Coast'. *Bulletin of the International Jomon Culture Conference,* 1: 15-24 (English), 105-111 (Japanese).

**—Activities in Academic Societies—**

12 May 2006 'The role of clay figurines in the Middle Jomon period.' Leiden University, Faculty of Humanities, Department of Japanese and Korean Studies, International Student Workshop "An afternoon of Japanese Archaeology" [co-organised with SISJAC and SOAS University], Leiden, The

| | |
|---|---|
| | Netherlands |
| 17 June 2006 | 'The perception and use of stone sources in the Middle Jomon.' Cambridge University, Faculty of Archaeology Conference "Culture and Nature in Japanese Archaeology", MacDonald Institute, Cambridge, United Kingdom |
| 21 July 2006 | 'The Prehistoric Exchange activities in the Hokuriku region ("Neomap Hokuriku Working Group", in Japanese), RIHN, Kyoto |
| 29 September 2006 | 'The multiple role of clay figurines in the Middle Jomon period'; panel discussant. Ritsumei University/Oxford University International Symposium: "How objects and images make people", Ritsumeikan University, Kyoto |
| 10 November 2006 | 'Inoshishi and landscape part 1: the wildboar in the global landscape perspective' ("Neomap Wild Boar and Landscape Seminar", in Japanese), RIHN, Kyoto |
| 8 December 2006 | 'Inoshishi and landscape part 2: Global methods of preventing wild boar induced-damage'. ("Neomap Wild Boar and Landscape Seminar", in Japanese), RIHN, Kyoto |
| 20 December 2006 | 'Middle Jomon clay figurine fragmentation practices and exchange'. Sainsbury Institute for the Study of Japanese Arts and Cultures Workshop "Reconfiguring prehistoric figurines: perspectives from the Balkans and Japan", Norwich, United Kingdom |

**—Research Activities—**

**[Field Research in Japan]**

| | |
|---|---|
| July–August 2006 | Hokuto City in Yamanashi Prefecture (Excavation of Umenoki site) |
| October 2006 | Hokuto City in Yamanashi Prefecture (Excavation of Umenoki site; Research on landscape changes during the Jomon era) |

**[Field Research in Foreign Countries]**

| | |
|---|---|
| October 2006 | Tianluoshan site, Hemudu site, and Ningbo City, Zhejiang Province, China |
| December 2006–February 2007 | The Netherlands and United Kingdom: collection of data concerning landscape history |

(Research on the Neolithisation and Modernisation periods)

**—Social Activities and Public Lectures—**

**[Public Lectures]**

| | |
|---|---|
| 13 February 2007 | 'Wild boar and its changing role in the landscape', Leiden University Department of Japanese and Korean Studies, Leiden, the Netherlands |
| 17 February 2007 | 'Jomon exchange networks in Central Japan', Leiden University Faculty of Archaeology, Leiden, the Netherlands |
| 8 March 2007 | 'Jomon jadeite and amber tales' (in Japanese), Hamayashiki Open Seminar, Suita-city, Osaka |

## BURNETT, William C. ——— Invited Research Fellow

Born in 1945.

**—Curriculum Vitae—**

**[Academic Career]**

Upsala College, B. S. Geology (1968)

University of Hawaii, M. S. Geochemistry (1971)

University of Hawaii, Ph. D. Marine Geochemistry (1974)

**[Professional Career]**

Carl Henry Oppendheimer Professor (2003–present); Professor (1987–present); Department Chairman (1991–1994); Associate Professor (1981–1987); Assistant Professor (1977–1981); Department of Oceanography, Florida State University, Tallahassee, Florida. Visiting Scientist, Institute of Nuclear Geophysics, Federal University of Brazil, Salvador, Brazil; 1976–1977, Postdoctoral Researcher and Adjunct Assistant Professor, Department of Earth and Space Sciences, State University of New York, Stony Brook, New York; 1974–1976

**[Higher Degrees]**

B.S. Geology (Upsala College, 1968), M.S. Geochemistry (University of Hawaii, 1971), Ph.D. Marine Geochemistry (University of Hawaii, 1974)

**[Field Specialization/Background]**

Geochemistry

**—Major Publications—**

**[Papers (reviewed)]**

Corbett, D. R., K. Dillon, W. C. Burnett, and G. Schaefer, 2002, The spatial variability of nitrogen and phosphorus concentration in a sand aquifer influenced by onsite sewage treatment and disposal systems: A case study on St. George Island, Florida. *Environmental Pollution*, 117(2), 337-345.

Burnett, W. C., J. Chanton, J. Christoff, E. Kontar, S. Krupa, M. Lambert, W. Moore, D. O'Rourke, R. Paulsen, C. Smith, L. Smith, and M. Taniguchi, 2002. Assessing methodologies for measuring groundwater discharge to the ocean. *EOS*, 83, 117-123.

Nour, S., W. C. Burnett, and E. P. Horwitz, 2002. Th-234 analysis in marine sediments via extraction chromatography and LSC. *Applied Radiation & Isotopes*, 57, 235-241.

Povinec, P. P., C. Badie, A. Baeza, G. Barci-Funel, T. D. Bergan, R. Bojanowski, W. Burnett and 22 others, 2002. Certified reference material for radionuclides in seawater IAEA-381 (Irish Sea Water). *Journal of Radioanalytical and Nuclear Chemistry*, 251, 369-374.

Taniguchi, M., W. C. Burnett, J. E. Cable, and J. V. Turner, 2002. Investigations of submarine groundwater discharge. *Hydrological Processes*, 16, 2115-2129.

Taniguchi, M., W. C. Burnett, J. E. Cable, and J. V. Turner, 2003. Assessment methodologies for submarine groundwater discharge. In: *Land and Marine Hydrogeology* (eds., M. Taniguchi, K. Wang, and T. Gamo), Elsevier Publications, 1-25.

Burnett, W. C., J. E. Cable, and D. R. Corbett, 2003. Radon tracing of submarine groundwater discharge in coastal environments. In: *Land and Marine Hydrogeology* (eds., M. Taniguchi, K. Wang, and T. Gamo), Elsevier Publications, 25-43.

Dillon, K, W. Burnett, G. Kim, J. Chanton, D. R. Corbett, K. Elliot and L. Kump, 2003. Groundwater flow and phosphate dynamics surrounding a high discharge wastewater disposal well in the Florida Keys. *Journal of Hydrology*, 284, 193-210.

Sonke, J. E., W. C. Burnett, J. A. Hoogewerff, S. R. van der Laan, J. Vangronsveld, and D. R. Corbett, 2003. Reconstructing 20th century lead pollution and sediment focusing in a peat land pool (Kempen, Belgium), via 210Pb dating. *Journal of Paleolimnology*, 29, 95-107.

Burnett, W. C., H. Bokuniewicz, M. Huettel, W. S. Moore, and M. Taniguchi, 2003. Groundwater and porewater inputs to the coastal zone. *Biogeochemistry*, 66, 3-33.

Taniguchi, M., W. C. Burnett, C. F. Smith, R. J. Paulsen, D. O'Rourke, S. Krupa and J. L. Christoff, 2003. Spatial and temporal distributions of submarine groundwater discharge rates obtained from various types of seepage meters at a site in the northeastern Gulf of Mexico. *Biogeochemistry*, 66, 35-53.

Lambert, M. J. and W. C. Burnett, 2003. Submarine groundwater discharge estimates at a Florida coastal site based on

continuous radon measurements. *Biogeochemistry*, 66, 55-73.

Chanton, J. P., W. C. Burnett, M. Taniguchi, H. Dulaiova, and D. R. Corbett, 2003. Seepage rate variability drived by Atlantic tidal height. *Biogeochemistry*, 66, 187-202.

Burnett, W. C. and H. Dulaiova, 2003. Estimating the dynamics of groundwater input into the coastal zone via continuous radon-222 measurements. *Journal Environmental Radioactivity*, 69, 21-35.

de Oliveira, J., L. A. Farias, B. P. Mazzilli, W. C. Burnett, J. Christoff, E. S. Braga, and V. V. Furtado, 2003. Reconnaissance of submarine groundwater discharge at Ubatuba coast –Brazil, using 222Rn as a natural tracer. *Journal Environmental Radioactivity*, 69, 37-52.

Moon, D. S., W. C. Burnett, S. Nour, E. P. Horwitz, and A. Bond, 2003. Preconcentration of radium isotopes from natural waters using MnO2 Resin. *Applied Radiation & Isotopes*, 59, 255-262.

Nour, S., A. El-Sharkawy, W. C. Burnett, and E. P. Horwitz, 2004. Radium-228 determination of natural waters via concentration on manganese dioxide and separation using Diphonix ion exchange resin. *Applied Radiation & Isotopes*, 61, 1173-1178.

Dulaiova, H. and W. C. Burnett, 2004. An efficient method for gamma spectrometric determination of 226,228Ra via Mn fibers. *Limnology and Oceanography Methods*, 2, 256-261.

Stringer, C. and W. C. Burnett, 2004. Sample bottle design improvements for radon emanation analysis of natural waters. *Health Physics*, 87, 642-646.

Dulaiova, H., R. Peterson, W. C. Burnett, and D. Lane-Smith, 2005. A multi-detector continuous monitor for assessment of 222Rn in the coastal ocean. *Journal of Radioanalytical and Nuclear Chemistry*, 263(2), 361-365.

Kim, G., S. -J. Kim, K. Harada, M. K. Schultz, and W. C. Burnett, 2005. Enrichment of excess 210Po in anoxic ponds. *Environmental Science & Technology*, 39, 4894-4899.

Dulaiova, H. and W. C. Burnett, 2006. Radon loss across the water-air interface estimated from 222Rn-224Ra. *Geophysical Research Letters*, 33, L05606, doi:10. 1029/2005GL025023.

Burnett, W. C. and H. Dulaiova, 2006. Radon as a tracer of submarine groundwater discharge into a boat basin in Donnalucata, Sicily. *Continental Shelf Research*, 26, 862-873.

Taniguchi, M., W. C. Burnett, H. Dulaiova, E. A. Kontar, P. P. Povinic, and W. S. Moore, 2006. Submarine groundwater discharge measured by seepage meters in Sicilian coastal waters. *Continental Shelf Research*, 26, 835-842.

Dulaiova, H., W. C. Burnett, G. Wattayakorn, and P. Sojisuporn, 2006. Are groundwater inputs into river-dominated areas important? The Chao Phraya River – Gulf of Thailand. *Limnology and Oceanography*, 51, 2232-2247.

Povinec, P. P., P. K. Aggarwal, A. Aureli, W. C. Burnett, E. A. Kontar K. M. Kulkarni, W. S. Moore, R. Rjar, M. Taniguchi, and 11 others. 2006. Characterzation of submarine groundwater discharge offshore south-eastern Sicily. *Journal Environmental Radioactivity*, 89, 81-101.

Burnett, W. C., P. K. Aggarwal, H. Bokuniewicz, J. E. Cable, M. A. Charette, E. Kontar, S. Krupa, K. M. Kulkarni, A., W. S. Moore, J. A. Oberdorfer, J. Oliveira, N. Ozyurt, P. Povinec, A. M. G. Privitera, R. Rajar, R. T. Ramessur, J. Scholten, T. Stieglitz, M. Taniguchi, J. V. Turner, 2006. Quantifying submarine groundwater discharge in the coastal zone via multiple methods. *Science of the Total Environment*, 367, 498-543.

Dulaiova, H., W. C. Burnett, J. P. Chanton, W. S. Moore, H. J. Bokuniewicz, M. A. Charette, and E. Sholkovitz, 2006. Assessment of groundwater discharges into West Neck Bay, New York, via natural tracers. *Continental Shelf Research*, 26, 1971-1983.

Burnett, W. C., G. Wattayakorn, M. Taniguchi, H. Dulaiova, P. Sojisuporn, S. Rungsupa, and T. Ishitobi, 2006. Groundwater-derived nutrient inputs to the Upper Gulf of Thailand. *Continental Shelf Research*, 27(2), 176-190.

Dimova, N., W. C. Burnett, E. P. Horwitz, and D. L. Smith, 2006. Automated measurement of 224Ra and 226Ra in

water. *Applied Radiation and Isotopes,* doi:10.1016/j.apradiso.2006.10.005.

Swarzenski, P. W., W. C. Burnett, W. J. Greenwood, B. Herut, R. Peterson, N. Dimova, Y. Shalem, Y. Yechieli, and Y. Weinstein, 2006. Combined time-series resistivity andgeochemical tracer techniques to examine submarine groundwater discharge at Dor Beach, Israel. *Geophysical Research Letters*, 33, L24405, doi:10.1029/2006GL028282.

Burnett, W. C., H. Dulaiova, C. Stringer, and R. Peterson, 2007. Submarine groundwater discharge: its measurement and influence on the coastal zone. *Journal of Coastal Research*, Spec. Issue 39, in press.

Oliveira, J., A. C. R. Elísio, W. E. Teixeira, A. C. Peres, W. C. Burnett, P. P. Povinec, B. L. K. Somayajulu, and E. S. Braga, 2007. Isotope techniques for assessment of submarine groundwater discharge and coastal dynamics in Ubatuba coastal areas, Brazil. *Journal of Coastal Research*, Spec. Issue 39, in press.

Taniguchi, M., W. C. Burnett, H. Dulaiova, F. Siringan, J. M. Foronda, G. Wattayakorn, S. Rungsupa, and E. A. Kontar, 2007. Groundwater Discharge as an Important Land-Sea Pathway in Manila Bay, Philippines. *Journal of Coastal Research*, in press.

Burnett,W. C., N. Dimova, H. Dulaiova, D. Lane-Smith, B. Parsa, and Z. Szabo, 2007. Measuring thoron (220Rn) in natural waters. Book chapter in "Environmental Radiochemical Analysis", *Royal Society of Chemistry*, in press.

Dulaiova, H. and W. C. Burnett, 2007. Evaluation of the flushing rates of Apalachicola Bay, Florida via natural geochemical tracers. *Marine Chemistry*, in revision.

Charette, M. A., W. S. Moore, and W. C. Burnett, 2007. Uranium- and thorium-series nuclides as tracers of submarine groundwater discharge. In: "*U-Th Series Nuclides in Aquatic Systems*," Elsevier, Amsterdam, in revision.

Burnett, W. C., R. Peterson, W. S. Moore, and J. de Oliveira, 2007. Radon and radium isotopes as tracers of submarine groundwater discharge—results from the Ubatuba, Brazil SGD assessment intercomparison. Estuarine, *Coastal and Shelf Science*, submitted.

Povinec, P. P., M. K. Pham, G. Barci-Funel, R. Bojanowski, T. Boshkova, W. Burnett, and 37 others, 2007. Reference material for radionuclides in sediment, IAEA-384 (Fangataufa Lagoon sediment). *Journal of Radioanalytical and Nuclear Chemistry*, submitted.

Peterson R. N., W. C. Burnett, C. R. Glenn, and A. J. Johnson, 2007. A box model to quantify groundwater discharge along the Kona coast of Hawaii using natural tracers. International Association of Hydrological Sciences (IAHS) Special Volume "*A New Focus on Groundwater-Seawater Interactions*," submitted.

Burnett, W. C., I. Santos, Y. Weinstein, P. W. Swarzenski, and B. Herut, 2007. Remaining uncertainties in the use of Rn-222 as a quantitative tracer of submarine groundwater discharge. International Association of Hydrological Sciences (IAHS) Special Volume "*A New Focus on Groundwater-Seawater Interactions*," submitted.

Weinstein, Y., Y. Shalem, W. C. Burnett, P. W. Swarzenski, and B. Herut, 2007. Temporal variability of Submarine Groundwater Discharge: assessments via radon and seep meters, the southern Carmel Coast, Israel. International Association of Hydrological Sciences (IAHS) Special Volume "*A New Focus on Groundwater-Seawater Interactions*," submitted.

Weinstein, Y., W. C. Burnett, P. W. Swarzenski, Y. Shalem, Y. Yechieli, and B. Herut, 2007. Fresh groundwater discharge and seawater recycling—the role of aquifer heterogeneity: an example from the Carmel coast, Israel. *Journal of Geophysical Research*, submitted.

Taniguchi, M., T. Ishitobi, W. C. Burnett, and G. Wattayakorn, 2007. Evaluating ground water—seawater interactions via a combined resistivity and seepage meter approach. *Ground Water*, submitted.

**—Professional service—**

Chair, Scientific Committee on Oceanic Research (SCOR) Working Group 112, "Groundwater Discharge to the Coastal Zone," 1997–2002

Working Group also co-sponsored by LOICZ (Land-Ocean Interaction in the Coastal Zone) and UNESCO's IOC (Intergovernmental Oceanographic Commission) and IHP (International Hydrological Program)

Vice-President, IUGG joint commission of the International Association of the Physical Sciencesof the Ocean (IAPSO) and the International Association of Hydrologists (IAHS) on"Groundwater-Seawater Interactions," 2001–2003

Editorial Board, Journal of Environmental Radioactivity, 1998–present

## CHEN, Jianyao ——Invited Research Fellow

Born in 1966.

**—Curriculum Vitae—**

**[Academic Carrier]**

Department of Earth Science, Chiba University, PhD in Regional Environmental Science (2003)

Department of Hydrology, Institute of Geography, Chinese Academy of Sciences (CAS), PhD in Hydrology and Water Resource (1999)

International Institute for Aerospace and Earth Science (ITC), the Netherlands, M.Sc. in Remote Sensing and GIS (1995)

Department of Hydrology, Institute of Geography, Chinese Academy of Sciences (CAS), M.Sc. in Hydrology and Water Resource (1990)

Department of Geography, Nanjing University, B.Sc. (1987)

**[Professional Carrier]**

Prof., School of Geographical Science and Planning, Sun Yat-sen University (2004)

Invited research fellow, Research Institute for Humanity and Nature (2004.9–12; 2006.6–9)

Research Fellow, in Research Institute for Humanity and Nature (RIHN) (2003)

Associate Professor, Department of Hydrology, Institute of Geography, CAS (1997)

Assistant Professor, Department of Hydrology, Institute of Geography, CAS (1990)

**[Higher Degrees]**

Ph.D. (Chiba University 2003, CAS 1999), M.Sc. (ITC 1995, CAS 1990)

**[Specialized Fields/Background]**

Hydrology, Physical Geography, Isotopic Hydrology, Groundwater, RS and GIS

**[Academic Society Memberships]**

Chinese Geographical Union, IAHS

**—Major Publications—**

**[Articles]**

Chen JY, Fukushima Y, Taniguchi, M, 2005. Water use and its impact zone in the lower reach of the Yellow River. In Proceedings of the 2nd Yellow River Forum on keeping healthy life of the river, *Volume I*, Shang H (ed). The Yellow River Conservancy Publishing House, Zhengzhou: 97-106.

Chen JY, Fukushima Y, Taniguchi M, 2006. Study on sustainability of irrigation agriculture by diversion in the lower reach of the Yellow River. In Recharging system for protecting and enhancing groundwater resources, Proceedings of 5th International Symposium on Management of Aquifer Recharge, ISMAR5. IHP-VI. Series on Groundwater No. 13, UNESCO: 186-191.

Chen JY, Ke D, Zhao XF, Fukushima Y, Taniguchi M, 2006. Characteristics of sediment and nutrient flows in the lower reach of the Yellow River. In *Climate variability and change- hydrological impacts*, Demuth S, Gustard A,

Planos E, Scatena F, Servat E (eds). IAHS Publication 308: 612-616.
Chen JY, Wang Y, Zhang HB, Zhao XF, 2006. Overview on the studies of nitrate pollution in groundwater, *Progress in Geography* Vol. 25, No. 1: 34-44.
Tang CY, Chen JY, Song XF, Zhang WJ, 2006. Effects of wastewater irrigarion on groundwater quality and quantity in the surburb of Shijiazhuang City, China. *Resources Science*, Vol. 128, No. 1: 102-108.
Chen JY, Tang CY, Yu JJ, 2006. Use of $^{18}O$, $^{2}H$ and $^{15}N$ to identify nitrate contamination of groundwater in a wastewater irrigated field near the city of Shijiazhuang, China, *Journal of Hydrology* 326: 367-378.

**—Activities in Academic Societies—**

2005 Chen JY, Tang CY, Fukushima Y, Taniguchi M, Water use and its impact zone in the lower reach of the Yellow River. 2nd *International Yellow River Forum on River Basin Management, Volume IV*, Oral presentation, Zhengzhou, China

2006 Chen JY, Zhao XF, Dong YJ, Tang CY, Lu YT, Impacts of urbanization on water quality in the Pearl River Delta, China. 2nd GWSP-Asia Whokshop, Guangzhou, China. Organizer and Chairman of the Workshop

2006 PI, for the APN project, related to the workshop in Guangzhou

**—Research Activities—**

Sept, 2006 Field survey and water sampling in the delta of the Yellow River, China

## CHEN, Jing ——Invited Research Fellow

Born in 1964.

**—Curriculum Vitae—**

**[Academic Career]**

Faculty of Agriculture, Tokyo University of Agriculture and Technology, D. Course (2000)
Faculty of Biology and Environmental Science, University of Japan M. Course (1997)
China Institute of Water Resources and Hydropower Research, M. Course (1988)
Water Conservancy and Irrigation Engineering, College of Water Conservancy and Hydropower Engineering, Hohai University, B. Course (1985)

**[Professional Career]**

Doctor's tutor, Department of Modern Agricultural Engineering, Hohai University (2004)
Professor, College of Water Conservancy and Hydro-power Engineering, Hohai University (2001)
Lecturer, College of Water Conservancy and Hydro-power Engineering, Hohai University (2000)

**[Higher Degrees]**

D.Sc. (Tokyo agro-industrial University, 2000), M.Sc. (China Institute of Water Resources and Hydropower Research, 1988)

**[Field Specialization/Background]**

Water Resource Management, Riverbasin Water Resource Management, Management system and mechanism of rural water conservancy, Agricultural resources and environment (agricultural water conservancy and agricultural ecosystem)

**[Academic Society Memberships]**

Chinese Hydraulic Engineering Society, The Japanese Society of Irrigation, Drainage and Rural Engineering, The Soil and Water Conservation Research Association of Southern China (Director)

**—Major Publications—**

**[Books]**

Chen Jing, Hu Zhengping (2006) "The Developmental Pattern of Water Conservancy in Developed Areas".

The Office of National Comprehensive Development of Agriculture, Chen Jing (2005) "Theory and Practice of Water User Association ".

Chen Jing, Mizutani (2002) "MasakazuLarge-Scale Irrigation Systems in the Tone-gawa River Basin, Japan. Water and Societal Environment in Monsoon Asia".

**[Main thesis]**

Chen Jing, Chen Dan, Chu Lin-lin, et al. (2007) Quantitative analysis on payment ability of urban households for water use. *Journal of Hydraulic Engineering*, 38(8): 1016-1020.

Chen Jing, Chen Dan, Lu Jun, et al. (2007) Study on agricultural water pricing bearing capacity based on willingness investigation. *China Rural Water and Hydropower*, (2): 11-13.

Chen Dan, Chen Jing, Luo Zhao-hui (2006) Evaluation method of natural water resources based on emergy theory and its application. *Journal of hydraulic*, 37(10): 1188-1192.

Chen Jing, Feng Guangzhi (2006) Discussion and analysis about the auction of rural water conservancy assets based on ownership theory. *China Water Resources*, (9).

Chen Jing, Zu Ke-cheng, Li Yu-song (2004) Theoretical research on management mode for rural water conservancy. *Journal of Hohai University (Natural Sciences)*, 32(1): 95-99.

Chen Jing, Gu Qiang-sheng, Zhong Yue etc (2004) Management mode of rural small-scale water conservancy. *Journal of Hohai University(Natural Sciences)*, 32(2).

Feng Guang-zhi, Chen Jing (2004) Case investigation on participatory irrigation management. *China Rural Water And Hydropower*, (7): 1-3.

Feng Guang-zhi, Chen Jing (2004) Post-evaluation of the case about the construction of Water Users Association. *China Rural Water and Hydropower*, (9): 1-3.

Chen Jing (2003) Some exploratory ideas about river basin water resources management system. *China Water Resources*, (1): 29-31.

Chen Jing, Chen Dan (2003) Study of the positive externalities of irrigation. *Journal of Hohai University (Philosophy and Social Sciences)*, 5(6): 84-86.

Chen Jing (2002) Analysis about establishment and examination of water rights in Japan. Proceedings of Chinese Hydraulic Engineering Society. Water Conservancy and Electric Power Press.

**—Research Activities—**

| | |
|---|---|
| 2002 | Research on agriculture's water-saving mechanism |
| 2002 | Investigation and research on current agricultural water management of Jiang-ning district in Nanjing |
| 2003 | Research and application of key technology for Rural Water Conservancy Modernization in Coastland |
| 2003 | Research of "The Changjiang River law" and comprehensive riverbasin management |
| 2003 | Adaptability appraisal on the basis of the water resource in Heihe River (China and Japan) |
| 2003 | Rapid changes of hydrology in the Yellow River and the relation with agriculture water in recent years (China and Japan) |
| 2003 | Chinese Holland Poverty Alleviation Project—Investigation on Participatory Irrigation Management Reforms on Piyuan Canal Irrigation in Anhui Province |
| 2004 | Investigation and research on water and soil conservation of five major reservoirs of Huaihe River |
| 2004 | Water management theory and the application in Tai Lake water resources management |

2004 Investigation on Participatory Irrigation Management (PIM) in the eight major irrigation areas in China
2004 Research on riverbasin management and district management of the Changjiang River in Anhu
2004 Research on water management systems of Wu-an irrigation district
2006 The effect of government subsidized agricultural water market in the agricultural water saving

**—Presentation—**

2006 Chen Jing "The effect of agriculture water using of middle reaches on the hydrologic cycle in the Heihe Water Basin" The 2006 International Symposium of humanistic and environment on black water city (Ejina Banner, China)
August, 2006 Chen Jing "Farmers' willingness to pay for improving irrigation water supply services in Wu'an Irrigation District of China" 4th Annual Academic Conference of Chinese Society of Agriculture Soil and Water Engineering (Hohai University)

**—Supervision and Host—**

11 graduate students and 4 PD fellows from School of Agricultural Engineering, Hohai University

## CHENG, Zhi (Kicengge) ——— Research Fellow (JSPS)

Born in 1968.

**—Curriculum Vitae—**

**[Academic Career]**

Department of Oriental History, Graduat school of Letters, Kyoto University, D. Course (2003)
Department of Oriental History, Graduat school of Letters, Kyoto University, M. Course (2000)
Deparment of Chinese language literature, Ili Normal University, China (1990)

**[Professional Career]**

Research Fellow, Faculty of Letters, Kyoto University (2004)
JSPS Research Fellow, Research Institute for Humanity and Nature (2005)
Senior Researcher, Research Institute for Humanity and Nature (2006)

**[Higher Degrees]**

Litt.D. (Kyoto University, 2004), Litt.M. (Kyoto University, 2000)

**[Fields of Specialization/Background]**

Oriental History, History of Qing Empire, Manchu Philology

**[Academic Society Memberships]**

Tōyōshi Kenkyūkai (The Society of Oriental), Shigaku Kenkyūkai (The Society of Historical Research), Manzokushi kenkyūkai (The Japanese Association for Manchu and Qing studies)

**—Major Publications—**

**[Articles]**

Cheng Zhi (Kicengge) (2007) A map of Amur valley in Manchu language, Daichi no shōzō, Kyōto university press, pp. 193-222. (in Japanese)
Cheng Zhi (Kicengge) (2006) Study of the "Manchu Dailiyoo i kooli" The dailiyoo i kooli ningguci; singdzung Ryo bunka RyoneishC Chōsa Houkoku Shō, Kyōto Daigaku Daigakuin Bungaku Kenkyūka 21seiki COE Puroguramu, Faculty of Letters, Kyōto university, The 21st Century COE Program, pp. 61-101. (in

Japanese)
Cheng Zhi (Kicengge) (2006) On the Origin of the Eight-Banner *Niru* and the Classification of the *Niru*, The Tōyōshi-Kenkyū (The Journal of Oriental Researches) Vol. LXV, No.1. pp. 1-34. (in Japanese)
Yuzo Kato, Kicengge (2005) Climate and Irrigation systems of the Heihe River Basin in the Qin Dynasty, Project Report on an Oasis-region Vol. 5 No. 2. 2005, pp. 141-145.
Cheng Zhi (Kicengge) (2005) The Manchurian Version of the Three History, Ryo bunka Keiryou ittai Chōsa Houkoku Shō, Kyōto Daigaku Daigakuin Bungaku Kenkyūka 21seiki COE Puroguramu, Faculty of Letters, Kyōto university, The 21st Century COE Program, pp. 133-152. (in Japanese)
Cheng Zhi (Kicengge) (2002) Six annotated translation of Early Ch'ing Manchu documents. Disquisitions on the Past & Present, No.7. pp. 81-102. (in Chinese)
Cheng Zhi (Kicengge) (2001) The Formation of the *Niru* of the Oroncon under the Qing Dynasty and an Aspect of *Butha* Society, The Tōyōshi-Kenkyū (The Journal of Oriental Researches) Vol. LX, No. 3. pp. 1-38. (in Japanese)

## ENDO, Takahiro — Assistant Professor

Born in 1974.

**—Curriculum Vitae—**

**[Academic Career]**

Department of Political Science, Faculty of Law, Keio University, D. Course (2002)
Department of Political Science, Faculty of Law, Keio University, M. Course (1999)
Department of Political Science, Faculty of Law, Keio University (1997)

**[Professional Career]**

Assistant Professor, Research Institute for Humanity and Nature (2004)
Part-Time Lecturer, Department of Political Science, Faculty of Law, Keio University (2004)

**[Higher Degrees]**

Ph.D. (Law) (Keio University, 2002), Master (Law) (Keio University, 1999)

**[Field Specialization/Background]**

Political Science (Political Theory)

**[Academic Society Memberships]**

The Japan Public Choice Society, Japanese Political Science Association, Public Policy Studies Association, The Japan Association of International Relations, The Japanese Association of Law and Political Science

**—Major Publications—**

**[Papers (non-reviewed)]**

Endo, T. (2006) "The Role of Government in the Water Rights Market," *Proceedings of the 3rd International Conference on Hydrology and Water Resources in Asia Pacific Region (APHW 2006)*, Bangkok, Thailand.

**[Articles]**

Endo, T. (2006) "Headwaters Management—On Headwaters Tax—," *Human and Water* 2: 2-5. (in Japanese)

**—Research Activities—**

**[Field Research in Japan]**

| | |
|---|---|
| May 2006 | The United States (Research on water trading in Oregon) |
| August 2006 | The United States (Research on water management in California) |

**—Oral Presentation—**

July 1, 2006 Endo, T. The Roles of Government in the Water Allocation—On California Drought Water Bank—, the 10th Annual Meetings of the Japan Public Choice Society (Kyoto University, Kyoto, Japan) (in Japanese)

October 18, 2006 Endo T. The Roles of Government in the Water Rights Market, the 3rd International Conference on Hydrology and Water Resources in Asia Pacific Region (APHW 2006), Bangkok, Thailand

## FUJIHARA, Yoichi ——— Research Fellow (JSPS)

Born in 1977.

**—Curriculum Vitae—**

**[Academic Career]**

Graduate School of Science and Technology, Kobe University, D. Course (2004)

Graduate School of Science and Technology, Kobe University, M. Course (2001)

Faculty of Agriculture, Kobe University (1999)

**[Professional Career]**

JSPS Research Fellow, Research Institute for Humanity and Nature (2006)

Technician, Research Institute for Humanity and Nature (2005)

Researcher, Disaster Prevention Research Institute, Kyoto University (2004)

**[Higher Degrees]**

Ph.D. (Kobe University, 2004), M.Sc. (Kobe University, 2001)

**[Field Specialization/Background]**

Hydrology

**[Academic Society Memberships]**

Japanese Society of Irrigation, Drainage and Reclamation Engineering, Japan Society of Hydrology and Water Resources, Japan Society of Civil Engineering

**—Major Publications—**

**[Papers (reviewed)]**

Haruya TANAKAMARU, Yoichi FUJIHARA (2006) Multi-Objective Optimization of Rainfall-Runoff Models Using the Compromise Programming, Transactions of the Japanese Society of Irrigation, Drainage and Reclamation Engineering, 241: 107-115.

Yoichi FUJIHARA, Toshiharu KOJIRI (2007) Uncertainties in Global Warming Impacts on Water Resources, Annual Journal of Hydraulic Engineering, 51: 427-432.

**[Articles]**

Yoichi FUJIHARA, Toshiharu KOJIRI, Hiroki IRIE, Noboru SAKATA (2006) 'Impacts of Climate Change on the Water Utilization Planning of Reservoirs' "Japan Dam Engineering Center Report 200505" (in Japanese)

**—Oral Presentation—**

April 4–8, 2006 Yoichi FUJIHARA, Kenji TANAKA, Tsugihiro WATANABE, and Toshiharu KOJIRI "Potential Impacts of Climate Change on the Hydrology and Water Resources of the Seyhan River Basin" The International Symposium on Water and Land Management for Sustainable Irrigated Agriculture (Cukurova University, Adana, Turkey)

August 8–10, 2006 Yoichi FUJIHARA, Kenji TANAKA, Toshiharu KOJIRI, Tsugihiro WATANABE "Impacts of

climate change on the water resources of the Seyhan River Basin and adaptation" The Japanese Society of Irrigation, Drainage and Reclamation Engineering Annual Meeting 2006 (Utsunomiya University, Ustunomiya)

November 17, 2006 Yoichi FUJIHARA, Kenji TANAKA, Tsugihiro WATANABE, Toshiharu KOJIRI "Impacts of Global Warming on the Water Resources of the Seyhan River Basin, Turkey" Symposium on Hydrology and Water Environment (Shimane University, Matsue)

March 6–8, 2007 Yoichi FUJIHARA, Toshiharu KOJIRI "Uncertainties in Global Warming Impacts on Water Resources" Annual Meeting of Hydraulic Engineering (Hosei University, Koganei)

March 22–24, 2007 Yoichi FUJIHARA, Kenji TANAKA, Tsugihiro WATANABE, and Toshiharu KOJIRI "Assessing the Impact of Climate Change on the Water Resources of the Seyhan River Basin, Turkey" International Congress on River Basin Management (Gloria Golf Resort Hotel, Antalya, Turkey)

## FUKUNAGA, Kenji ——Senior Researcher

Born in 1969.

**—Curriculum Vitae—**

**[Academic Career]**

Department of Agricultural Biology, Graduate School of Agriculture, Kyoto University, D. Course (1998)
Department of Agricultural Biology, Graduate School of Science, Kyoto University, M. Course (1994)
Faculty of Agriculture, Kyoto University (1992)

**[Professional Career]**

Senior Researcher, Research Institute for Humanity and Nature (2006)
Stuff of International Center for Japanese Studies (2004)
Postdoctral Researcher, Universite de Rennes 1, France (2003)
Postdoctral Researcher, Department of Genetics, University of Wisconsin, US (2002)
Reseach Fellow, Japan International Center for Agricultural Sciences (2001)
Research Fellow, Japan Society for Promotion of Science (1998)

**[Higher Degrees]**

D.Agr. (Kyoto University, 1998), M.Agr. (Kyoto University, 1994)

**[Field Specialization/Background]**

Plant Genetics, Crop Evolution

**[Academic Society Memberships]**

The Society of Plant Breeding, Japan, Society of Economic Botany, US

**—Major Publications—**

**[Books]**

Kawase, M. and K. Fukunaga (2003) Genetic diversity of foxtail millet, and green foxtail. Natural History of Millet (ed. H. Yamaguchi and M. Kawase). Hokkaido University Press. (In Japanese).

**[Papers (reviewed)]**

Fukunaga, K., Z. M. Wang, K. Kato and M. Kawase (2002) Geographical variation of nuclear genome RFLPs and genetic differentiation in foxtail millet, *Setaria italica* (L.) P. Beauv. *Genetic Resources and Crop Evolution* 49: 95-101.

Fukunaga, K., M. Kawase and K. Kato (2002) Structural variation in the *Waxy* gene and differentiation in foxtail

millet [*Setaria italica* (L.) P. Beauv.]: implications for multiple origins of the waxy phenotype. *Molecular Genetics and Genomics* 268: 214-222.

Fukunaga, K. and K. Kato (2003) Mitochondrial DNA variation in foxtail millet, *Setaria italica* (L.) P. Beauv. *Euphytica* 129: 7-13.

Fukunaga, K., J. Hill, Y.Vigouroux, Y. Matsuoka, J. Sanchez G., K. Liu, E. Buckler and J. Doebley (2005) Genetic diversity and population structure of teosinte. *Genetics*. 169: 2241-2254.

Fukunaga, K., K. Ichitani, S. Taura, M. Sato and M. Kawase (2005) Ribosomal DNA intergenic spacer sequence in foxtail millet, *Setaria italica* (L.) P. Beauv. and its characterization and application to typing of foxtail millet landraces. *Hereditas* 142: 38-44.

Kawase M., K. Fukunaga and K. Kato (2005) Diverse origins of waxy foxtail millet crops in East and Southeast Asia mediated by multiple transposable element insertions. *Molecular Genetics and Genomics*. 274: 131-140.

Fukunaga, K., K. Ichitani, M. Kawase (2006) Phylogenetic analysis of the rDNA intergenic spacer subrepeats and its implication for the domestication history of foxtail millet. *Theoretical and Applied Genetics* 113: 261-269.

**[Articles]**

Fukunaga, K., H. Nasu and Y. I. Sato (2005) An attempt of the wheat/barley ancient DNA analysis of the samples from Kaman-Kalehöyük. *Anatolian Archaeological Studies XIV* 131: 165-166.

Fukunaga, K., and M. Kawase (2005) Origin of waxy foxtail millet—ethonobotany and molecular genetics. *Iden* 59: 70-75 (in Japanese).

Tanaka, K., Y. Akashi, K. Fukunaga, H. Nishida, Y. Yoshino, K. Kato (2005) Polyphyletic origins of cultivated melon inferred by nuclear and chroloplast genomes. *10th International Congress of SABRAO* B-27, Tsukuba, Japan.

Fukunaga, K. (2006) Awa no keihu kara mita ikutumono nihon – idengakuteki kaiseki no genjo (Multiple dispersal pathways of foxtail millet into Japan—From the genetic point of view—) *Kikan TOHOKUGAKU7*: 162-180 (in Japanese).

Tanaka, K., K. Fukunaga, M. T. Khaing, Y. Akashi, H. Nishida, K. Kato (2006) Polyphyletic origin of cultivated melon inferred from analysis of its chloroplast genome. *Cucurbit. Proc. 2006*, 372-379.

**—Research Activities—**

**[Field Research in Japan]**

September 19, 2006–October 3, 2006 Research of millet in Tohoku region in Japan

**—Academic and Social Activities—**

Japanese Society of Plant Breeding

Society of Economic Botany (US)

**—Oral Presentation—**

Ichitani, K., K. Fukunaga, M. Shimohigashi, M. Sato (2003) Classification of foxtail millet landraces by PCR-RFLP of rDNA spacer region. 103rd meeting of Soc. Japanese Soc. of Plant Breeding. Chiba University. Breeding Research 5 (Suppl.1): 218 (in Japanese).

Kawase, M., John Ba Maw, K. Fukunaga, K. Kato (2003) Genetic variation of foxtail millet, *Setaria italica* (L.)P. Beauv. in Myanmar and its vicinity. 103rd meeting of Soc. Japanese Soc. of Plant Breeding. Chiba University. Breeding Research 5 (Suppl.1): 243 (in Japanese).

Kawase, M. K. Fukunaga, K. Kato (2003) Variation and geographical distribution of foxtail millet GBSSI gene. 104th meeting of Soc. Japanese Soc. of Plant Breeding. Kobe University. Breeding Research 5 (Suppl.2): 238

(in Japanese).

Fukunaga, K., J. Hill, Y. Vigouroux, Y. Matsuoka, J. Sanchez G., K. Liu, E. Buckler, J. Doebley (2004) Genetic diversity and population structure of teosinte. 106th meeting of Soc. Japanese Soc. of Plant Breeding. Mie University. Breeding Research 6 (Suppl.2): 339 (in Japanese).

Tanaka, K., Y. Akashi, K. Fukunaga, Y. Yoshino, H. Nishida, K. Kato (2004) Polyphyletic origin of cultivated melon as revealed by PS-ID polymorphisms in chroloplast genome. 106th meeting of Soc. Japanese Soc. of Plant Breeding. Mie University. Breeding Research 6 (Suppl.2): 353 (in Japanese).

Fukunaga, K. (2005) Origin of waxy foxtail millet. International Research Center for Japanese Studies Team Research. "Flora and culture in Japan" organized by Assoc. Prof. K. Mitsuta. At IRCJS August 6, 2005 (in Japanese).

Ainouche, M. L., A. Salmon, J. F. Wendel, K. Fukunaga, M. Ricou, P. Fortune, K. Schierenbeck (2005) Recent polyploidy and genome evolution in *Spartina* (Poaceae) XVII International Botanical Congress p.12. Vienna 17-23 July 2005.

Shibauchi, S., K. Fukunaga, Y. I. Sato (2005) Constuction of SCAR markers for discrimination of Tropical japonica and temperate japonica. 107/108 meeting of Japanese Soc. of Plant Breeding. Tsukuba University. Breeding Research 7 (Suppl. 1, 2) 309 (in Japanese).

Fukunaga, K. (2006) Teosinte, and Origin of maize- Phylogeny and genes involved in domestication. (National Museum of Ethnology Joint Research Project: An Ethnobiological Study of Domestication' (orginized by Prof. Norio Yamamoto) Sep.3 at Obihiro University of Agriculture and Veterinary Medicine. (in Japanese).

Fukunaga, K. (2006) Evolution of Waxy gene by insertion of transposable elements under human selection. 110th meeting of Soc. Japanese Soc. of Plant Breeding. Sympodium I. Extended characterization and application of crop transposable elements in Chuoku-Ahikoku Area (Originized by M. Tomita). Ehime University. Breeding Research 8 (Suppl.2) 6-7 (in Japanese).

Fukunaga, K., K. Ichitani and M. Kawase (2006) Phylogenetic analysis of the rDNA inter genic spacer subrepeats and its implication for the domestication history of foxtail millet. 110th meeting of Soc. Japanese Soc. of Plant Breeding. Ehime University. Breeding Research (Suppl. 2) 242 (in Japanese).

**—Poster Presentation—**

Fukunaga, K. and M. Kawase (2005) Origin of waxy foxtail millet. XVII International Botanical Congress p. 629. Vienna 17-23 July 2005.

## FUKUSHIMA, Yoshihiro ——————————————————Professor

Born in 1942.

**—Curriculum Vitae—**

**[Academic Carrier]**

Department of Forestry, Faculty of Agriculture, Kyoto University, Bachelor Course (1966)

**[Professional Carrier]**

Professor, Research Institute for Humanity and Nature, Inter-University Research Institute Corporation, National Institutes for the Humanities (2004)

Professor, Research Institute for Humanity and Nature, Inter-University Research Institute, Ministry of Culture, Sports, Sciences and Technology (2001)

Professor, Institute for Hydrospheric-Atmospheric Sciences, Nagoya University (1994)

Associate Professor, Kyoto University (1989)

Instructor, Kyoto University (1966)

**[Higher Degree]**

D.Agri (Kyoto University, 1981)

**[Field Specialization/Background]**

Mountain Hydrology, Forest Hydrology, Macro-scale Hydrology

**[Academic Society Memberships]**

Japan Society of Hydrology and Water Resources

**[Awards]**

Ecological Prize for Lake Biwa (1992)

**—Major Publications—**

**[Books]**

Fukushima, Y., 2006, The role of Forest in forested wetland. Environmental Role of Wetlands in Headwaters. *NATO Environmental Series, Springer,* Vol.63, 17-48.

**[Articles]**

Kobayashi,N., T. Hiyama, Y. Fukushima, M. L. Lopez, T. Hirano and Y. Fujinuma, 2007, Nighttime transpiration observed over a larch forest in Hokkaido, Japan. *Water Resources Research*, Vol.43, 1-15.

Higuchi, A., T. Hiyama, Y. Fukuta, R. Suzuki, Y. Fukushima, 2007, The behavior of a surface temperature/ vegetationindex (TVX) matrix derived from 10-day composite AVHRR images over monsoon Asia. *Hydrological Processes*, 21 (9), 1148-1156.

Matsuoka, M., T. Hayasaka, Y. Fukushima and Y. Honda, 2007, Land cover in East Asia classified using Terra MODIS and DMSP OLS products. *International Journal of Remote Sensing*, Vol. 28, Nos. 1-2, 221-248.

**—Research Activities—**

**[Field Research in Foreign Countries]**

Sept. 2006 Field trip on the actual water use and sediment yield in Wudding River of the mid-Loess Plateau

**—Social Activities and Public Lectures—**

**[Social Activities]**

16–17 May 2006 Address as a guest speaker entitled what does it mean the Yellow River problems? NSFC-JST Bilateral Workshop on Environmental Assessments and Promotion Technology (Beijing China)

8 May 2006 What a problem may let occur by the overuse on water resources in semi-arid region? Research Institute of Disaster Prevention, Kyoto University

**[Public Lectures]**

27 November 2006 The role of Forest on Hydrology of Headwater, The 16th Training Course on International Hydrological Program, UNESCO held in Hydrospheric Atmospheric Research Center, Nagoya University

## HANDOH, Itsuki C. ——— Project Senior Researcher

Born in 1974.

**—Curriculum Vitae—**

**[Academic Career]**

Department of Marine Science and Technology, Faculty of Fisheries Sciences, Tokyo University of Fisheries, Bachelor Course (1996)

School of Environmental Sciences, University of East Anglia, Ph.D. Programme (2000)

**[Professional Career]**

Research Assistant, Department of Ocean Sciences, Tokyo University of Fisheries, Tokyo, Japan (1996)

Teaching Assistant, School of Environmental Sciences, University of East Anglia, UK (1998)

Senior Research Associate, School of Environmental Sciences, University of East Anglia, UK (2001)

Research Associate, Department of Applied Mathematics, University of Sheffield, UK (2004)

Tutor, Department of Applied Mathematics, University of Sheffield, UK (2005)

Consultant, Department of Applied Mathematics, University of Sheffield, UK (2005)

Visiting Scholar, Department of Geography, University of Sheffield, UK (2006)

Senior Research Fellow, Research Institute for Humanity and Nature (2006)

**[Higher Degree]**

Ph.D. (University of East Anglia, UK 2001)

**[Field of Specialty/Background]**

Earth System Sciences, Mathematical Modelling

**[Academic Memberships]**

The American Geophysical Union, The Biostory Society

**—Major Publications—**

**[Peer-reviewed papers]**

Inoue, M., Handoh, I. C., and Bigg, G. R. (2002). Bimodal distribution of tropical cyclogenesis in the Caribbean: characteristics and environmental factors, Journal of Climate, 15: 2897-2905.

Handoh, I. C., Bigg, G. R., and Jones, E. J. W. (2003). The evolution of upwelling in the Atlantic Ocean basin, Palaeogeography, Palaeoclimatology, Palaeoecology, 202: 31-58 (10.1016/ j.palaeo.2003.07.001).

Handoh, I. C., and Lenton, T. M. (2003). Periodic mid-Cretaceous Ocean Anoxic Events linked by oscillations of the phosphorus and oxygen biogeochemical cycles, Global Biogeochemical Cycles, 17: 1092 (10.1029/2003GB002039).

Kohsaka, R., and Handoh, I. C. (2006). Perceptions of "Close-to-Nature Forestry" by German and Japanese groups: inquiry using visual materials of "cut" and "dead" wood, Journal of Forest Research, 11: 11-19. DOI 10.1007/s10310-005-0177-4

Handoh, I. C., Matthews, A. J., Bigg, G. R., and Stevens, D. P. (2006a). Inter-annual variability of the tropical Atlantic independent of and associated with ENSO: Part I. North Tropical Atlantic, International Journal of Climatology, 26: 1937-1956.

Handoh, I. C., Bigg, G. R., Matthews, A. J., and Stevens, D. P. (2006b). Inter-annual variability of the tropical Atlantic independent of and associated with ENSO: Part II. South Tropical Atlantic, International Journal of Climatology, 26: 1957-1976.

**—Oral Presentation—**

April, 2002 Lenton, T. M., and Handoh. I. C., Periodic mid-Cretaceous Ocean Anoxic Events linked by

oscillations of the phosphorus and oxygen cycles, EGS conference, Nice, France (Solicited)

November, 2002 Handoh, I. C., Intra-seasonal variability of the phytoplankton biomass in relation to the Madden-Julian Oscillation, The Tropical Workshop, University of Reading, Reading, UK

June, 2003 Handoh, I.C., Surface heat fluxes in the "coupled" tropical Atlantic events, COAPEC Heat Flux Workshop, Norwich, UK

September, 2003 Handoh, I. C., Matthews, A. J., Bigg, G. R., and Stevens, D. P., Dominant coupled ocean-atmosphere inter-annual modes, the Royal Meteorological Society Conference, Norwich, UK

September, 2003 Handoh, I. C., Matthews, A. J., Bigg, G. R., and Stevens, D. P., Dominant coupled ocean-atmosphere inter-annual modes, International Conference on Earth System Modelling, Hamburg, Germany

March, 2004 Handoh, I. C., O'Mahony, P., Matthews, A. J., Bigg, G. R., and Stevens, D. P., Inter-annual variability and ocean-atmosphere feedbacks in the tropical Atlantic, Feedbacks in the Earth System, London, UK

May, 2005 Handoh, I. C., O'Mahony, P., Matthews, A. J., Bigg, G. R., and Stevens, D. P., Coupled ocean-atmosphere interactions in the tropical Atlantic and their effects on global climate, COAPEC Final Meeting, London, UK

**—Poster Presentation—**

December, 2002 Handoh, I. C., and Lenton, T. M., Periodic mid-Cretaceous Ocean Anoxic Events linked by oscillations of the phosphorus and oxygen cycles: The feedback processes. Black Shale meeting, the Geological Society, London, UK

November, 2006 Yatagai, A., Handoh, I. C., Watanabe, T., Kubota, J., Kanae, S., Kitoh, A., Kamiguchi, K., and Arakawa, O., Asian Precipitation—Highly-Resolved Observational Data Integration Towards Evaluation of the Water Resources (APHRODITE's Water Resources). The RIHN 1st International Symposium, Kyoto, Japan

**—Scientific reports—**

July, 2004 EU SIBERIA-II Project Deliverables 44/2000, and 50, 53, 60/7000. Model–data interfaces (1 and 2) interface algorithms 2

August, 2004 EU SIBERIA-II Project Deliverable 64 and 65/8000. DBs and HR model & evaluation of HR for 2002 and 2003

September, 2004 EU SIBERIA-II Project Deliverable 69/7000. Spatially distributed Data on NPP and NBP for 2002 and 2003 (The NPP–NBP model)

October, 2004 EU SIBERIA-II Project Deliverable 40/7000. Comparison of carbon accounting and EO data with vegetation model simulation

December, 2004 EU SIBERIA-II Project Deliverables 73/2000, 79/7000, and 80/7000. Software implementation, interface algorithms and software modules 2

January, 2005 EU SIBERIA-II Project Deliverable 76/7000. Data recommendation for biophysical parameter estimation

July, 2005 EU SIBERIA-II Project Deliverable 78/7000. Model-logic report 3

July, 2005 EU SIBERIA-II Project Deliverable 83/8000 Provision of software modules

July, 2005 EU SIBERIA-II Project Deliverables 94 & 95/8000. Demonstration of system performance, and software and audio visual demo

August, 2005 EU SIBERIA-II Project Deliverable 91/2000. Document and software on GHG accounting algorithms

October, 2005 EU SIBERIA-II Project Final Report

**—External funds—**

2003 Japan Society for the Promotion of Science Grant-in-Aid for Scientific Research (Category C). Inverse problem of non-linear phenomenon. Collaborator

2004–2005 European Union SIBERIA-II Project. Recognised Researcher

**—Public Lecture—**

18 February, 2004 Global Climate Change and Our Urban Environments, Environmental Quality in the 21st Century City—Air, Water, and Waste. The Daiwa Anglo-Japanese Foundation Seminar, Daiwa Foundation Japan House, London, UK

## HARRISON, Rhett Daniel ——————————————Invited Research Fellow

Bone in 1970.

**—Curriculum Vitae—**

**[Academic Career]**

Co-organiser of the first CTFS-AA graduate field biology course in Pasoh (2001)

Department of Science, Kyoto University (1994–2000)

Bachelor of Science, Honors, Zoology, University of Durham, United Kingdom (1988–1991)

**[Professional Career]**

Visiting foreign researcher, Research Institute for Humanity and Nature Kyoto, Japan (2005–present)

Smithsonian post-doctoral fellow, Smithsonian Tropical Research Institute, Panama (2002–2005)

Japanese Society for Promotion of Science post-doctoral fellow, Kyoto University, Japan (2000–2002)

**[Higher Degrees]**

Doctor of Philosophy (Kyoto University, 2000), Master of Science (Kyoto University, 1996)

**—Major Publications—**

**[Papers]**

Harrison, R. D. 2007. Adaptive significance ofphenological variation among hemi-epiphytic figs in Borneo. *Symbiosis* (in press).

Harrison, R. D. and J.-Y. Rasplus. 2006. Dispersal of fig pollinators in Asian tropical forests. *Journal of Tropical Ecology* 22: 631-639.

Harrison, R. D., N. Ronsted, and Y-Q Peng. 2007. Fig and fig wasp biology: A perspective from the East. *Symbiosis* (in press).

Khoo, M-S, C. Hong-Wa, and R. D. Harrison (editors) 2005. Proceedings of the International Field Biology Course 2006, Sinharaja, Sri Lanka. 30 July 28 August 2006. Center for Tropical Forest Science Arnold Arboretum Asia Program.

**—Oral Presentation—**

July 5, 2006 a film "Chang (Elephant): A drama of the wilderness" (1927) 28th Bacchus saloon (RIHN)

**—Research Activities—**

April–June, 2006 Sarawak, Malaysia (Research on Dispersal of fig pollinators in tropical forests)

## HASHIMURA, Osamu — Project Researcher

Born in 1972.

**—Curriculum Vitae—**

**[Academic Career]**

Department of History, Graduate School of Literature, Kokugakuin University, D. Course (2005)

Department of Geography, Graduate School of Education, Tokyo Gakugei University, M. Course (1997)

Faculty of Literature, Kokugakuin University (1995)

**[Professional Career]**

Researcher, Research Institute for Humanity and Nature (2006)

Part time Lecture, Ryukoku University (2006)

Research assistant, Research Institute for Humanity and Nature (2005)

Part time Lecturer, Osaka University of foreign language (2005)

Research Fellow, Japan Society for Promotion of Science (1998)

**[Higher Degrees]**

D. History. (Kokugakuin University, 2005), M. Education. (Tokyo Gakugei University, 1997)

**[Field Specialization]**

Japan, Laos, Costa Rica

**[Background]**

Historical Geography, History, Folklore

**[Academic Society Memberships]**

The Association of Japanese Geographers, The Association of Historical Geographers, The Folklore Society of Japan, The Japanese Society of Fisheries Economics

**—Major Publications—**

**[Papers (reviewed)]**

Hashimura, O. (2005) The Relationship between the Occupation and Use of Early Modern Fishing Grounds and Ecology:From Early Modern Materials on Disputes and Drawings From Goto Island and Amakusa Island. *Bulletin of the National Museum of Japanese History* 123: 129-152 (in Japanese).

Hashimura, O. (2004) A gaining of residence and fishing right by a fishing emigrant in the Feudal Edo era, Goto Islands. *The Journal of the Japanese* Society of Fisheries Economics 49-1: 1-21 (in Japanese).

Hashimura, Osamu (2003) *The Regional Distribution of Tsuke as FAD (Fish Aggregative Divice) for Dolphin Fish, the Sea of Japan. Senri Ethnological Report,* 46: 199-223 (in Japanese).

**[Articles]**

Hashimura, Osamu (2006) Seasonal change of the use of Fishing equipment in Southern Lao "The report of Transdisciplinary Study on the Regional Eco-History in Tropical Monsoon Asia: 1945-2005, RIHN, 2005: 424-434 (in Japanese).

**—Research Activities—**

**[Field Research in Laos]**

March 2007 Vientiane (Research on fishery)

**—Academic and Social Activities—**

Special writer of The History of UTO City, Kumamoto prefecture (2004–)

## HATADA, Aya — Project Senior Researcher

Born in 1975.

**—Curriculum Vitae—**

**[Academic Career]**

Department of Botany, Graduate School of Science, Kyoto University, D. Course (2003)

Department of Zoology, Graduate School of Science, Kyoto University, M. Course (2000)

Faculty of Science, Kyoto University (1998)

**[Professional Career]**

Senior Researcher, Research Institute for Humanity and Nature (2006)

Research Fellow, Echigo-Matsunoyama Museum of Natural Science (2003)

Research Fellow, JSPS (2002)

**[Higher Degrees]**

D.Sc. (Kyoto University, 2003), M.Sc. (Kyoto University, 2000)

**[Field Specialization/Background]**

Environmental Education, Tropical Ecology, Population Ecology

**[Academic Society Memberships]**

The Ecological Society of Japan, The Japanese Society of Applied Entomology and Zoology, The Entomological Society of Japan, The Japanese Society of Environmental Entomology and Zoology, The Japanese Society of Environmental Education

**—Major Publications—**

**[Papers (reviewed)]**

Hatada, A, T. Itioka, R. Yamaoka, T. Itino (2002) Carbon and nitrogen contents of food bodies in three myrmecophytic species of *Macaranga*: implications for antiherbivore defense mechanisms. *Journal of Plant Research* 115: 179-184.

Masaki, T, H. Sugita, T. Kanazashi, T. Nagaike, T. Ota, G. Hitsuma, A. Sakai, N. Arai, T. Ichie, M. Kamisako, T. Kanbayashi, A. Hatada, K. Matsui, S. Sawada, T. Nakashizuka (2003) Results of Different Managements for Natural Regeneration of Two Beech Forests in Tohoku District and Their Ecological Process. *Journal of the Japanese Forestry Society* 85: 259-264 (in Japanese).

Nakashizuka, T, K. Matsui, A. Makita, T. Kanbayashi, T. Masaki, T. Nagaike, H. Sugita, T. Kanazashi, T. Seki, T. Ohta, G. Hitusma, T. Yagi, T. Hashimoto, A. Sakai, D. Kabeya, K. Takata, K. Hoshizaki, A. Ushimaru, M. Abe, S. Ohba, T. Fukuda, N. Arai, M. Kamisako, K. Tanaka, T. Ichie, M. Suguki, Y. Inui, M. Nakagawa, H. Kurokawa, N. Fujimori, H. Samejima, A. Hatada, M. Hori, S. Sawada (2003) Monitoring dynamics of beech forests with different structure in Shirakami Mountains. *Tohoku Journal of Forest Science* 8: 67-74 (in Japanese).

Mitsuhashi, H, A. Hatada (2005) Introduction of museum-oriented ecology. *Japanese Journal of Ecology* 55: 453-455 (in Japanese).

Nagano, M, A. Hatada, T. Sawahata (2005) Ecological role and challenges of community-based rural museums. *Japanese Journal of Ecology* 55: 456-465 (in Japanese).

Hatada, A, H. Mitsuhashi (2005) Future directions of museums linking ecological issues; synthesis of special feature, "Museum-oriented Ecology". *Japanese Journal of Ecology* 55: 490-493 (in Japanese).

Hatada, A, K. Hirano (2006) Comprehensive study program in an elementary school combined with invasive-species monitoring in a rural area. *Japanese Journal of Conservation Ecology* 11: 115-123 (in Japanese).

**—Research Activities—**

**[Field Research in Japan]**

April and May, 2003 Matsunoyama Town, Niigata Prefecture (Research on population dynamics of *Luehdorfia japonica*)

April, May and June, 2004 Matsunoyama Town, Niigata Prefecture (Research on population dynamics of *Luehdorfia japonica*)

September, 2004 Matsunoyama Town, Niigata Prefecture (Research on comprehensive study combined with invasive-species monitoring)

May, June and July, 2005 Tokamachi City, Niigata Prefecture (Research on population dynamics of *Luehdorfia japonica*)

July and September, 2005 Tokamachi City, Niigata Prefecture (Research on comprehensive study combined with invasive-species monitoring)

May, June and July, 2006 Tokamachi City, Niigata Prefecture (Research on population dynamics of *Luehdorfia japonica*)

**[Field Research in Foreign Country]**

June and October, 2002 Sarawak, Malaysia (Research on resource allocation in *Macaranga* myrmecophytes)

**—Academic and Social Activities—**

Editorial board of Japanese Journal of Ecology (1994–)

**—Oral Presentation—**

August 13, 2002 Hatada, A., T. Itioka, P. Meleng, H. Kaliang, T. Nakashizuka. Difference in resource allocation for ant defense among three sympatric Macaranga myrmecophytes in a Bornean forest. 8th International Congress of Ecology (COEX Convention Center, Seoul, Korea)

March 20, 2003 Hatada, A., M. Nomura, T. Itioka, T. Nakashizuka. Diversity of anti-herbivore defense strategies in the genus *Macaranga*. 50th Annual Meeting of Ecological Society of Japan (Tsukuba International Convention Center, Tsukuba, Ibaragi Prefecture)

March 26, 2005 Hatada, A., K. Matsumoto. Effects of vegetation coverage and host plant density on oviposition and survival of *Luehdorfia japonica*. 49th Annual Meeting of Japanese Society of Applied Entomology and Zoology (Tamagawa University, Machida, Tokyo Prefecture)

September 25, 2005 Hatada, A., K. Matsumoto. Can larvae of *Luehdorfia japonica* fed on old leaves grow well? 65th Annual Meeting of Entomological Society of Japan (Okayama University, Okayama, Okayama Prefecture)

September 16, 2006 Hatada, A., K. Matsumoto. Can larvae of *Luehdorfia japonica* fed on old leaves grow well?—Part 2—. 66th Annual Meeting of Entomological Society of Japan (Kagoshima University, Kagoshima, Kagoshima Prefecture)

**—Poster Presentation—**

July 28, 2002 Hatada, A., T. Itioka, P. Meleng, H. Kaliang, T. Nakashizuka. Difference in resource allocation for ant defense among three sympatric *Macaranga* myrmecophytes in a Bornean forest. 14th International Congress of International Union for the Study of Social Insects (Hokkaido University, Sapporo, Hokkaido Prefecture)

August 28, 2004 Hatada, A., K. Matsumoto. Effects of vegetation coverage and host plant density on oviposition and survival of *Luehdorfia japonica*. 51st Annual Meeting of Ecological Society of Japan (Kushiro International Convention Center, Kushiro, Hokkaido Prefecture)

March 27, 2006 Hatada, A., K. Hirano. Comprehensive study program combined with monitoring of *Solidago altissima L.* in a rural area. 53rd Annual Meeting of Ecological Society of Japan (Toki messe, Niigata, Niigata Prefecture)

August 19, 2006 Hatada, A., K. Hirano. Invasive-species as materials in environmental education—comprehensive study combined with monitoring of *Solidago altissima L.*—. 17th Annual Meeting of Japanese Society of Environmental Education (Rakuno gakuen University, Ebetu, Hokkaido Prefecture)

March 20, 2007 Hatada, A., M. Ichikawa, T. Nakashizuka. Teaching materials can appeal the importance of biodiversity conservation. 54th Annual Meeting of Ecological Society of Japan (Ehime University, Matsuyama, Ehime Prefecture)

## HAYASAKA, Tadahiro ——— Professor

Born in 1959.

**—Curriculum Vitae—**

**[Academic Carrier]**

Department of Geophysics, Graduate School of Science, Tohoku University, Dr.Sc (1984)

Department of Geophysics, Graduate School of Science, Tohoku University, M.Sc. (1982)

**[Professional Carrier]**

Professor, Research Institute for Humanity and Nature (2001)

Professor, National Institute of Polar Research (1999)

Professor, Graduate School of Science, Tohoku University (1999)

Associate Professor, Faculty of Science, Tohoku University (1994)

Assistant Professor, Faculty of Science, Tohoku University (1990)

Research Fellow, Japan Society for the Promotion of Science (1988)

**[Degrees]**

Dr.Sc. (Tohoku University, 1988), M.Sc. (Tohoku University, 1984)

**[Specialized Fields/Background]**

Meteorology, Atmospheric Physics

**[Academic Society Memberships]**

The Meteorological Society of Japan

Japan Association of Aerosol Science and Technology

**—Major Publications—**

**[Reviewed Papers]**

Hayasaka, T., K. Aoki, A. Shimizu, N. Sugimoto, I. Matsui, S. Satake, and Y. Muraji, 2006: Vertical distribution and optical properties of aerosols observed over Japan in spring 2005, *Proceedings of the 23rd International Laser radar Conference, 24-28 July, 2006, Nara, Japan*, 639-642.

Hayasaka, T., K. Kawamoto, J.-Q. Xu and G.-Y. Shi, 2006: Long-term trend of surface shortwave radiation over China. *IRS2004: Current Problems in Atmospheric Radiation (Edited by H. Fischer and B.-J. Sohn)*, A. Deepak Publishing, 395-398.

Kawamoto, K., T. Hayasaka and I. Uno, 2006: Correspondence of the low cloud microphysics to the aerosol amount over China. *IRS2004: Current Problems in Atmospheric Radiation (Edited by H. Fischer and B.-J. Sohn)*, A. Deepak Publishing, 443-445.

Kawamoto, K., T. Hayasaka, I. Uno, and T. Ohara, 2006: A correlative study on the relationship between modeled anthropogenic aerosol concentration and satellite-observed cloud properties over East Asia. *J. Geophys. Res.* 111, D19201, doi:10.1029/2005JD006919.

Kuji, M., S. Hayashida, M. Shiobara, M. Yabuki, K. Hara, H. Kobayashi, T. Hayasaka, and S. Satake, 2006: Characteristics of sulfate haze over East Asia retrieved with satellite and ground-based remote sensing data. *Proceedings of SPIE* 6408, 64080R.

Arao, K., M. Nishikawa, S. Hatakeyama, A. Takami, S. Matsuyama, and T. Hayasaka, 2006: Atmospheric Turbid Conditions due to Fine Particles in Recent Years at Nagasaki, Japan. *J. Environmental Studies, Nagasaki University*, 9, 23-30.

Matsuoka, M., T. Hayasaka, Y. Fukushima, and Y. Honda, 2007: Land Cover in East Asia Classified using Terra MODIS and DMSP OLS Products. *International Journal of Remote Sensing*, 28, 221-248, doi:10.1080/01431160600675911.

**—Activities in Academic Societies—**

**[Committee Member etc.]**

| | |
|---|---|
| 2001–present | IAMAS International Radiation Commission Member |
| 2001–present | WCRP GEWEX Radiation Panel Member |
| 1996–present | Editorial board member of "Kishou Kenkyu Note", The Meteorological Society of Japan |

**—Oral Presentation etc.—**

| | |
|---|---|
| 19 April 2006 | Long-term trends of surface shortwave irradiance, aerosols, and cloud in East Asia, *The Japan Prize Workshop*, Hotel New Ohtani, Tokyo, Japan |
| 29 May–2 June 2006 | Quality control and long-term variation of surface shortwave radiation in China, *Baseline Surface Radiation Network, 9th Science and Review Workshop*, Lindenberg, Germany |
| 6–7 July 2006 | Long-term analyses of surface shortwave irradiance, clouds, and aerosols over China (pyranometer 1960-2000), *GEWEX Cloud Assessment Workshop*, Madison, Wisconsin, USA |
| 31 July–2 August 2006 | Potential radiative forcings to the surface shortwave irradiance over China, *2nd Asia-Pacific Radiation Symposium*, Ishikawa Kouseinenkin-kaikan, Kanazawa, Japan |
| 7–8 November 2006 | Changes in water cycle in human-nature system over East Asia, *RIHN 1st International Symposium "Water and better human life in the future"*, Kyoto International Conference Hall, Kyoto, Japan |
| 9–12 November 2006 | Potential radiative forcings to the surface shortwave irradiance over China, *ESSP Open Science Conference*, Beijing International Convention Center, Beijing, China |

**—Social Activities and Public Lectures—**

| | |
|---|---|
| 2006 | On the Kyoto Protocol, *"Kyoto Cha-Cha-Cha", KBS Kyoto TV*, 5 December, 2006 |
| 2007 | On the global warming, Mainichi-Shinbun, 20 January, 2007 |
| 2007 | Guest at "Hito-meguri, Oto- meguri by Koji Yamazaki", KBS Radio, 20 March, 2007 |

## HAYASHI, Naoki — Researcher

Born in 1972.

**—Curriculum Vitae—**

**[Academic Career]**

Graduate school of Agriculture, Kyoto University, D. Course (2002)

Graduate school of Agriculture, Kyoto University, M. Course (1999)

Faculty of Agriculture, Kyoto University (1997)

**[Professional Career]**

Researcher, Research Institute for Humanity and Nature (2006)

Teaching Associate, Graduate school of Agriculture, Kyoto University (2004)

Teaching Associate, Faculty of Agriculture, Kyoto University (2003)

**[Higher Degrees]**

D. Agriculture (Kyoto University, 2002)

**[Field Specialization/Background]**

Rural planning, Irrigation engineering

**[Academic Society Memberships]**

JSIDRE (The Japanese Society of Irrigation, Drainage and Rural Engineering), ARP (The Association of Rural Planning), SES (Society of Environmental Science, Japan), The Human Geographical Society of Japan, The Japanese Society for Environmental Sociology

**—Major Publications—**

**[Books (edited)]**

Hayashi N., S. Kubo, N. Nagai (2007) "Shiraberu Matomeru Shidou ni ikasu Pasokon & deta katsuyou hou" Higashiyama Shobou (in Japanese).

**[Papers (reviewed)]**

Hayashi N., S. Saitoh, T. Takahashi (2005) Migration of the young and improvement in the infrastructure in rural areas of Kyoto Prefecture—Mainly from 1990 to 2000—. *Journal of Rural Planning Association* 24(2): 115-122.

Iida Y., T. Takahashi, N. Hayashi (2004) Effects on Regional Activation and Farming Incentive by Farmers' Market. *Transaction of Rural Planning* 6: 211-216.

Hayashi N., S. Saitoh, T. Takahashi (2004) Migration of the Young and Mature People in Rural Region. *Transaction of Rural Planning* 6: 295-300.

Maekawa H., N. Hayashi, T. Takahashi (2004) A Study of Characteristic and Support of a Neighbourhood Association in Rural Area. *Journal of the Japanese Society of Irrigation, Drainage and Reclamation Engineering* 72(10): 27-30.

Hayashi N., S. Saitoh, T. Takahashi (2003) Rural-to-Urban Migration of the Young Males and the Industrial Structure. *Transaction of Rural Planning* 5: 31-36.

Hayashi N., T. Takahashi (2002) Patrols to Prevent the Dumping of Garbage at Irrigation Ponds. *Transaction of Rural Planning* 4: 37-42.

Hayashi N., T. Takahashi (2002) Measures Derived from Classification of Problems on the Managements of Irrigation Ponds by Multivariate Analysis. *Journal of the Japanese Society of Irrigation, Drainage and Reclamation Engineering* 70(6): 39-44.

**[Articles]**

2007 'Strategic Rural Reorganization Study under a Declining Population' "Journal of Rural Planning

Association", The Association of Rural Planning 25(4): 564-567.

2006 'Rural Planning for Decreasing Population Society' "Journal of Rural Planning Association", The Association of Rural Planning 24(4): 276.

**—Academic and Social Activities—**

Chairman, 62nd Annual Meeting, The Japanese Society of Irrigation, Drainage and Reclamation Engineering (Kyoto Branch) (2005)

Chairman, 61st Annual Meeting, The Japanese Society of Irrigation, Drainage and Reclamation Engineering (Kyoto Branch) (2004)

**—Oral Presentation—**

August, 2002 Hayashi N., T. Takahashi "Patrols for Environmental Preservation at Irrigation Ponds" H14 Annual Meeting, The Japanese Society of Irrigation, Drainage and Reclamation Engineering (Mie Center for the Arts, Tsu City)

November, 2002 Hayashi N., T. Takahashi "Nouson chiiki ni okeru jinkou idou ni kansuru kisoteki kenkyuu" 59th Annual Meeting, The Japanese Society of Irrigation, Drainage and Reclamation Engineering (Kyoto Branch) (Niigata Unison Plaza, Niigata City)

July, 2003 Hayashi N., S. Saitoh, T. Takahashi "Migration of the Younger Generation in Rural regions" H15 Annual Meeting, The Japanese Society of Irrigation, Drainage and Reclamation Engineering (Okinawa Harbor View Hotel, Naha City)

November, 2003 Hayashi N., S. Saitoh, T. Takahashi "Migration of Younger Generation and Improvement of Living Environment" 60th Annual Meeting, The Japanese Society of Irrigation, Drainage and Reclamation Engineering (Kyoto Branch) (Hida Earth Wisdom Center, Takayama City)

September, 2004 Hayashi N., S. Saitoh, T. Takahashi "Migration in the Prime of Life at Rural Regions" H16 Annual Meeting, The Japanese Society of Irrigation, Drainage and Reclamation Engineering (Hokkai-Gakuen University, Sapporo City)

November, 2004 Hayashi N., S. Saitoh, T. Takahashi "Range of City Effect on Rural Region" 61st Annual Meeting, The Japanese Society of Irrigation, Drainage and Reclamation Engineering (Kyoto Branch) (Piazza Omi, Otsu City)

August, 2005 Hayashi N., S. Saitoh, T. Takahashi "Trend and Future of Japanese Agricultural Labor" H17 Annual Meeting, The Japanese Society of Irrigation, Drainage and Reclamation Engineering (Gifu University, Gifu City)

October, 2005 Hayashi N., S. Saitoh "Keiji chiku no nousanbustu chokubaijo no syou ken" 62nd Annual Meeting, The Japanese Society of Irrigation, Drainage and Reclamation Engineering (Kyoto Branch) (Ishikawa Industrial Promotion Center, Kanazawa City)

August 8, 2006 Hayashi N., S. Saitoh (2006) "Sales Per Customer Visit in Farmer's Markets, KEIJI-Area" H18 Annual Meeting, The Japanese Society of Irrigation, Drainage and Reclamation Engineering (Utsunomiya University, Utsunomiya City)

September 4, 2006 Hayashi N., T. Yoshioka, S. Saitoh "Survey on Interests in Watershed Environments (3)—Interests in Environment and Intentions of Conservation Behavior—" 2006 Annual Meeting, Society of Environmental Science, Japan (Sophia University, Chiyoda)

November 9, 2006 Hayashi N., S. Saitoth "Improvement in Quality and Service in Farmer's Markets, KEIJI-Area" 63rd Annual Meeting, The Japanese Society of Irrigation, Drainage and Reclamation Engineering (Kyoto Branch) (Osaka River-Side Hotel, Osaka City)

**—Other Activity—**

2007–2008 MEXT Grant-in-Aid for Young Scientists (B) "Kasochi kara no syuuraku iten ni kansuru kisoteki kenkyuu"

## HIDAKA, Toshitaka — Director-General

Born in 1930.

Professor emeritus of Kyoto University
Professor emeritus of the University of Shiga Prefecture

**—Curriculum Vitae—**

**[Academic Career]**

Research student at Faculty of Science, the University of Tokyo (1958)
Graduate School, Faculty of Science, the University of Tokyo (1957)
Department of Zoology, Faculty of Science, the University of Tokyo (1952)

**[Professional Career]**

Advisor of Shiga Prefecture (2001–)
Director-General of the National Research Institute for Humanity and Nature (2001–2007)
The first President of the University of Shiga Prefecture (1995–2001)
Advisor of the Preparation Committee, the University of Shiga Prefecture (1993–1995)
Dean of the Faculty of Science at Kyoto University (1989–1991)
Professor of Zoology at the Department of Zoology, Faculty of Science, Kyoto University (1975–1993)
Professor of Biology at the Faculty of Agriculture, Tokyo University of Agriculture and Technology (1965–1975)
Associate Professor of Biology and Agricultural Entomology at the Faculty of Agriculture, Tokyo University of Agriculture and Technology (1960–1975)
Lecturer of Biology and Agricultural Entomology at the Faculty of Agriculture, Tokyo University of Agriculture and Technology (1959)

**[Higher Degrees]**

D.Sc. (the University of Tokyo, 1961)

**[Field Specialization/Background]**

Ethology

**[Academic Society Memberships]**

Japan Ethological Society, the Entomological Society of Japan, Society of Evolutionary Studies, Japan, Ecological Society of Japan, Japanese Society of Applied Entomology and Zoology, the Society of Population Ecology, Animal Behavior Society, the Japanese Society of Systematic Zoology, Japan Association for International Center of Insect Physiology and Ecology, the Japanese Society for Comparative Physiology and Biochemistry, International Society for Neuro-ethology, Société Zoologique de France, Primate Society of Japan, Japan Association for African Studies, the Japanese Society for Wild Silk Moths, the Japan Society of Tropical Ecology, the Lepidopterological Society of Japan, the Japan Association for Social and Economic System Studies, etc.

**[Awards]**

Mainichi Publishing Cultural Award in 1976
The 10th Dr. Kumagusu Minakata Award in 2000
The Cultural and Artistic Award of Kyoto Shimbun Grand Prize in 2000
Shiga Cultural Award in 2001

The 50th Japan Essayist club Award in 2002
Eminent Merits Prize of Kyoto Prefecture Culture Prize in 2007

**—Major Publications—**

**[Books Written and Edited]**

HIDAKA, Toshitaka and RIHN ed., 2006, "The earth in future—talks to children" Kodansha (in Japanese).
HIDAKA, Toshitaka and AKIMICHI, T. ed., 2006, "Whose are the woods?" Showado (in Japanese).
HIDAKA, Toshitaka and SHIRAHATA Y. ed., 2007, "Why men admire flowers?" Yasaka-shobo.

**[Books of Single Authorship]**

HIDAKA, Toshitaka, 2006, "My world stories" Tamagawa University Press (in Japanese).
HIDAKA, Toshitaka, 2006, "How are men animals?" Shincho-bunko (in Japanese).

**[Books of joint authorship]**

HIDAKA, Toshitaka and others, 2006, "The citizen's research contest" The 30-Year-History of Toyota Foundation": 144-145 (in Japanese).
HIDAKA, Toshitaka, and others, 2006, "Decrease in population" Nihon-keizai-shimbunsha: 216-221 (in Japanese).

**[Articles of Magazines]**

Apr. 2006 "Why 'Natural History' now?" Zenjin, Tamagawa University Press (4) vol. 693: 24-25 (in Japanese)
"How to get along well with Nature?" *Nami*, Shincho-sha (4): 50-51 (in Japanese)
"Merit and demerit of the Reality" *Kaze-no-tabibito*, Eurasian Travel Co., Ltd., vol. 19 (in Japanese)
"Encounter with aquatic insects" *Nihon Kyoiku*, Nihon Kyoiku Kai (No. 345): 22-23 (in Japanese)

May 2006 "What is RIHN?" *Subaru*, Shuei-sha (5): 110-111 (in Japanese)
"The plants called 'Aoi'" *Nami*, Shincho-sha (5): 68-69 (in Japanese)

Jun. 2006 "Variance in "counting the springs" *Nami*, Shincho-sha (6): 46-47 (in Japanese)
"Can man see the actual object?" *Kaze-no-tabibito*, Eurasian Travel Co., Ltd., vol. 20 (in Japanese)
"What is Science?" *Nikkei Science*, Nikkei Science Co., Ltd., (vol.6): 1 (in Japanese)
"'Aquatic' because 'terrestrial'" *Nihon Kyoiku*, Nihon Kyoiku Kai (No. 346): 24-25 (in Japanese)

Jul. 2006 "What is the Synthesis?" *Nami*, Shincho-sha (7): 50-51 (in Japanese)
"Snorkel" *Nihon Kyoiku*, Nihon Kyoiku Kai (No. 347): 22-23 (in Japanese)

Aug. 2006 "The thought of flesh eating" *Nami*, Shincho-sha (8): 50-51 (in Japanese)
"Universities as the stone age" *Kessho*, Chubu University (7): 66-69 (in Japanese)
"To store the air" *Nihon Kyoiku*, Nihon Kyoiku Kai (No. 348): 24-25 (in Japanese)
"Love—this uncertain richness" *Kaze-no-tabibito*, Eurasian Travel Co., Ltd., vol. 20 (in Japanese)

Sep. 2006 "To wait" *Nami*, Shincho-sha (9): 80-81 (in Japanese)
"The physical gills" *Nihon Kyoiku*, Nihon Kyoiku Kai (No. 349): 22-23 (in Japanese)

Oct. 2006 "Conscious and unconscious" *Kaze-no-tabibito*, Eurasian Travel Co., Ltd., vol. 22 (in Japanese)
"Half-aquatic insects" *Nihon Kyoiku*, Nihon Kyoiku Kai (No. 350): 24-25 (in Japanese)
"How animals are living?" Aging & Health, Japan Foundation for Aging and Health (36) 40-41 (in Japanese)

"Vietnam visited" *Nami*, Shincho-sha (10): 50-51 (in Japanese)
"The modest life" *Kyo kara yuyu*, Shingaku-sha, Autumn Issue: 37-39 (in Japanese)
Nov. 2006 "The 'true' gills?" *Nihon Kyoiku*, Nihon Kyoiku Kai (No. 350): 24-25 (in Japanese)
"The futurability" *Nami*, Shincho-sha (11): 50-51 (in Japanese)
Dec. 2006 "The classmates" *Nami*, Shincho-sha (11): 76-77 (in Japanese)
"The tracheal gills" *Nihon Kyoiku*, Nihon Kyoiku Kai (No. 352): 26-27 (in Japanese)
"The mind and life" *Kaze-no-tabibito*, Eurasian Travel Co., Ltd., vol. 23 (in Japanese)
Jan. 2007 "Screw and hovercraft" *Nami*, Shincho-sha (1): 66-67 (in Japanese)
"The reality of tracheal gills" *Nihon Kyoiku*, Nihon Kyoiku Kai (No. 353): 26-27 (in Japanese)
Feb. 2007 "Cicadas of Northern Kyoto" *Nami*, Shincho-sha (2): 66-67 (in Japanese)
"What is the happiness?" *Kaze-no-tabibito*, Eurasian Travel Co., Ltd., vol. 24 (in Japanese)
"Double assurance" *Nihon Kyoiku*, Nihon Kyoiku Kai (No. 354): 28-29 (in Japanese)
Mar. 2007 "André Gide" *Chuo-koron*, Chuo-koron-sha: 279
"Why aquatic again?" *Nihon Kyoiku*, Nihon Kyoiku Kai (No. 355): 18-19 (in Japanese)
"The woods and forest" *Nami*, Shincho-sha (3): 54-55 (in Japanese)

**[Articles of newspapers]**

Apr. 1, 2006 "Finally RIHN is going to Kamigamo" Kyoto Shimbun (in Japanese)
May 19 "Luck of foreign creatures" Kyoto Shimbun (in Japanese)
May 27 "Aiming at the fundamental solution of environmental problems—What is RIHN?" Mainichi Shimbun (in Japanese)
Jul. 1 "Thinking in the rainy season" Kyoto Shimbun
Jul. 25 "Bombardment echoing over the mountains—5 months in Tohoku region" Chunichi Shimbun (in Japanese)
Aug. 12 "Design and function" Kyoto Shimbun (in Japanese)
Aug. 17 "The numbers of cicadas have been decreasing" Yomiuri Shimbun (in Japanese)
Sep. 18 "I learned from him what is study.—mourning over the death of Prof. Kinya Abe" (in Japanese)
Sep. 25 "Human beings and animals grow up by themselves" Nihon Kyoiku Shimbun (in Japanese)
Sep. 28 "Insects have disappeared" Kyoto Shimbun (in Japanese)
Nov. 4 "Bully and compulsory subjects in education" Kyoto Shimbun (in Japanese)
Dec. 16 "Tradition and creation" Kyoto Shimbun (in Japanese)
Jan. 27, 2007 "The tenth anniversary of Kyoto protocol" Kyoto Shimbun (in Japanese)
Feb. 20 "Research activities in a big room—in order to convey the research achievements to the public" Fuji-Sankei business eye (In Japanese)
Mar. 3 "Unexpected results of global warming" Kyoto Shimbun (in Japanese)

**[Articles of magazines (interview, round-table talk etc.)]**

Apr. 2006 "The newborn base in Kyoto for researching environmental problems" *Kyo no Midori*, Green Association of Kyoto (38): 9-11 (in Japanese)
Jul. 2006 "The Culture of man and the culture of animals" *Zenjin*, Tamagawa University Press (vol. 693): 10-16 (in Japanese)
"What is Human Environment?" *Guidebook 2007 of University of Human Environment*, University of Human Environment: 4-9 (in Japanese)
"Crossroad Interview" *Crossroad*, JICA (7): 16-19 (in Japanese)
Oct. 2006 "The age living with the global environmental problems" *MOH Tsushin* (14): 3-10 (in Japanese)

Jan. 2007 "Toshitaka Hidaka — INTERVIEW" *JAPAN PLUS*: 36-39 (in English)

Feb. 2007 "Extra-marital affairs occur because of the practice of monogamy" (Special Interview) Bungeishunju, Bungeishunju Co., Ltd. (Extra edition of February): 70-77 (in Japanese)

**[Articles of newspapers (interview, round-table talk, etc.)]**

Apr. 1, 2006 "Birds and insects count days until spring comes" Asahi Shimbun (in Japanese)

Apr. 8, 2006 "The country using 2 kinds of calendars—the season in which living creatures start moving actively" Asahi Shimbun (in Japanese)

May 25, 2006 "Only man damages the earth—The diversity is the key to solve it" Nihon Keizai Shimbun (in Japanese)

Jun. 10, 2006 "Japanese lesson by Chiaki Ishihara", Yomiuri Shimbun (in Japanese)

Jul. 1, 2006 "Colored glasses" Nihon Keizai Shimbun (Plus one) (in Japanese)

Jul. 10, 2006 "Why is biodiversity important? — pointing out the issues of Human Culture which eliminates natural enemies" Shinano Mainichi Shimbun (in Japanese)

Jul. 23, 2006 "Water crisis from the viewpoints of archeology and environmental science — Where did the water and greens of oasis go?" Akahata Shimbun (in Japanese)

Jul. 28, 2006 "What is the meaning of purring of cats?" Asahi Shimbun (in Japanese)

Nov. 6, 2006 "A cat bore a dog!?" Nikkan Sports Shimbun (in Japanese)

Nov. 23, 2006 "Environmental problem and the Futurability — the new way of thinking is needed—from the International Symposium of RIHN" Seikyo Shimbun (in Japanese)

Dec. 3, 2006 "The curious ethologist—My Natural History" Nara Shimbun (in Japanese)

Dec. 11, 2006 "Questioning was the starting point" Nihon Keizai Shimbun (in Japanese)

Dec. 12, 2006 "I lived peacefully for the first time!" Nihon Keizai Shimbun (in Japanese)

Dec. 13, 2006 "I learned how important was the flash of idea" Nihon Keizai Shimbun (in Japanese)

Dec 14, 2006 "The beaches and grassy plains of the island" Nihon Keizai Shimbun (in Japanese)

Dec. 15, 2006 "The strong supporter of my books" Nihon Keizai Shimbun (in Japanese)

Jan. 20, 2007 "Now is the time to look for the futurability" Kyoto Shimbun (in Japanese)

Feb. 18, 2007 "The New environmental policies from Kyoto" Kyoto Shimbun (in Japanese)

Mar. 14, 2007 "2 years from effectiveness of the Kyoto Protocol — Let's think what we can do for the global environment" Mainichi Shimbun (in Japanese)

Mar. 19, 2007 "No bully in animals" Chunichi Shimbun (in Japanese)

Mar. 22, 2007 "Spread the word Futurability — Prof. Hidaka, the first Director-General of RIHN" Yomiuri Shimbun (in Japanese)

Mar. 29, 2007 "Throw arrogance away and think the human culture again. Prof. Hidaka, retiring this month, looked back the 6 years" Kyoto Shimbun (in Japanese)

**—Social Activities—**

**[Committee members, etc.]**

Director-General, Kyoto Municipal Science Center for Youth

Commissioner, Steering Committee, Super-Science High School, Board of Education of Kyoto City

Chairperson, Steering Committee, Biwako Price for Ecology

Commissioner, Steering Committee, Institute of Tropical Medicine, Nagasaki University

Associate Researcher, Center for Southeast Asian Studies, Kyoto University

Commissioner, Steering Committee, Institute of Low Temperature Science, Hokkaido University

Commissioner, 100-person Committee, Kansai Forum of Global Environment

Councilor, Japan Aerospace Exploration Agency, Institute of Astronautical Science

Commissioner, Steering Committee, Takara Harmonist Foundation
Councilor, Research Institute of Innovative Technology for the Earth
Councilor, Shimonaka Memorial Foundation
Councilor, World Wide Fund for Nature Japan
Councilor and Chairperson, Steering Committee, Biwako Hall
Commissioner, Nakayama Science Foundation, Kyoto University
Director, Nakayama Science Foundation
Councilor, Inamori Foundation
Adviser, Conference for Hojo-no-sato and Akanoi Gulf Basin
Commissioner, Selection Committee, International Cosmos Prize, the International Garden and Greenery Exposition
Commissioner, Screening Committee, Science Section, Nikkei Asia Prizes
Vice Director, Kyoto Model-Forest Association
Commissioner, Commendation Committee, Kyoto Prize for Creative Persons
Commissioner, Selection Committee, Greenery Science Prize, Cabinet Office, Government of Japan
Lecturer, Japanese Language and Culture Course, the International Center, Kyoto University
Councilor, the Kyoto University Foundation
Advisor and Chairperson of Advisory Committee, Shiga University of Medical Science
Adviser, Nature Film Network

## HIDE, Robin Lamond——Invited Research Fellow

Born in 1943.

**—Curriculum Vitae—**

**[Academic Career]**

Department of Anthropology, Columbia University, NY, USA, D. Course (1981)
Department of Social Anthropology, Cambridge University, UK, BA/M. Course (1966)

**[Professional Career]**

Independent researcher, Visiting Fellow, Department of Anthropology, and Resource Management in Asia Pacific Program, RSPAS, The Australian National University (1997)
Research Fellow, Department of Human Geography, RSPAS, The Australian National University (1990)
Senior Research Fellow, Human Nutrition, Papua New Guinea Institute of Medical Research, Madang, Papua New Guinea (1987)
Experimental Officer, Papua New Guinea Subsistence Agriculture Project, CSIRO, Division of Land and Water Resources (1984)
Visiting Fellow, Development Studies Centre, The Australian National University (1983)

**[Higher Degrees]**

Ph.D. Anthropology (Colombia University, 1981)

**[Field Specialization/Background]**

Anthropology and Resource Management

**[Academic Society Memberships]**

Australian Anthropology Society

**—Major Publications—**

**[Books (edited)]**

Pawley, A., Attenborough, R., Golson, J., and Hide, R. (eds.) (2005) *Papuan Pasts: cultural, linguistic and biological histories of Papuan-speaking peoples*. PL 572. Canberra, Pacific Linguistics, Research School of Pacific and Asian Studies, The Australian National University, xxiii + 817 p.

**[Books]**

Hide, R. (2003) *Pig Husbandry in New Guinea: A Literature Review and Bibliography,* ACIAR Monograph No. 108. Canberra, Australian Centre for International Agricultural Research, xvi + 291 p.

**[Papers (reviewed)]**

Swadling, P., and R. Hide (2005) Changing landscape and social interaction: looking at agricultural history from a Sepik-Ramu perspective. In: Pawley, A., Attenborough, R., Golson, J., and Hide, R. (eds.) *Papuan Pasts: cultural, linguistic and biological histories of Papuan-speaking peoples*. PL 572. Canberra, Pacific Linguistics, Research School of Pacific and Asian Studies, The Australian National University, pp. 289-328.

Müller, I., Tulloch, J., Marfurt, J., Hide, R., and Reeder, J. C. (2005) Malaria control in Papua New Guinea results in complex epidemiological changes, In: *Papua New Guinea Medical Journal*, 48(3-4), 151-7.

Hide, R. (2005) Introduction to the chapters on environmental and social sciences. In: Pawley, A., Attenborough, R., Golson, J., and Hide, R. (eds.) *Papuan Pasts: cultural, linguistic and biological histories of Papuan-speaking peoples*. PL 572. Canberra, Pacific Linguistics, Research School of Pacific and Asian Studies, The Australian National University, pp. 517-523.

Müller, I., Betuela, I., and Hide, R. (2002) Regional patterns of birth weights in Papua New Guinea in relation to diet, environment and socio-economic factors. In: *Annals of Human Biology* 29(1), 74-88.

Hide, R. (2001) Some methodological problems with the nutritional assessment of the 1997-98 El Nino Drought in Papua New Guinea. In: Bourke, R. M., Allen, M. G., and Salisbury, J. G. (eds.) *Food Security for Papua New Guinea. Proceedings of the Papua New Guinea Food and Nutrition 2000 Conference, PNG University of Technology, Lae 26-30 June 2000.* Canberra, Australian Centre for International Agricultural Research, pp. 222-230.

**[Articles]**

2006 Hartemink, A. E. and Hide, R. 'Bio-invasion and *Piper aduncum*', Hartemink, A. E. (ed.) "Invasion of Piper aduncum in the shifting cultivation systems of Papua New Guinea". Wageningen, ISRIC-World Soil Information, 3-20.

2004 Filer, C., Haberle, S., Hide, R., Lawrence, D., Smith, B., and Hitchcock, G. 'Interactions Between Local/ Indigenous Communities and the Natural Environment in Far North Queensland and Southern New Guinea A PARTIAL REVIEW OF RESEARCH TO DATE' "Resource Management in Asia-Pacific Working Paper No.52"

2004 'The German Yacht Komet' On the website: http://www.pngaa.net/Articles/articles_Komet.htm.

2003 'Do cassowaries "fish"?', "The New Guinea Tropical Ecology and Biodiversity Digest", February 2003 (Issue 13), 6.

**—Research Activities—**

**[Field Research in Foreign Countries]**

January 1999 Editing the Majnep and Bulmer book manuscript of *Animals the Ancestors Hunted*, an ethno-zoological account of animals and hunting in Papua New Guinea (published in 2007)

June 2001 Compiling and writing a review of the literature on pigs in New Guinea (published in 2003)

January 2002 Completion of a history of early (1946-61) agricultural censuses and surveys of Papua New

Guinea

January 2006 A review of the ethnobatany of New Guinea. This is monogragh length treatment (c. 200 pages), combining both literature review and bibliography

**—Oral Presentation—**

April 23, 2003 "Mound sharing by megapodes at Mt. Karimui, Simbu Province, PNG: A footnote to the natural history of New Guinea", De Ralph Bulmer à Peter Dwyer: Pour une Nouvelle Approche Ethno-écologique en Océanie, 23 Avril 2003 (au Musee de l'Homme, Paris, France)

January 13, 2007 'Megapodes in New Guinea cultures: material and mystical relations', Seminar of a research project for Institute of Tropical Medicine and Hygiene, Nagasaki University. "Demographic, health and nutritional transition in Asia and Oceania regions: Review of the case studies" (Tokyo University, Tokyo prefecture)

January 28, 2007 'Researching pig management strategies in Sinasina, Simbu Province, Papua New Guinea: a retrospective', Annual meeting of a research project for Institute of Tropical Medicine and Hygiene, Nagasaki University. "Demographic, health and nutritional transition in Asia and Oceania regions: Review of the case studies" (Institute of Tropical Medicine and Hygiene, Nagasaki University, Nagasaki prefecture)

February 1, 2007 'Plants, agriculture and environmental change in New Guinea prehistory: an over view with an outline of ethnobotanical research', Seminar of Sato Project, "Vegeculture and Environmental Change in Southeast Asia and Oceania" (Research Institute of Humanity and Nature, Kyoto City, Kyoto prefecture)

## HONDA, Yoshiaki — Visiting Associate Professor

Born in 1960.

**—Curriculum Vitae—**

**[Academic Career]**

Civil Engineering, Graduate School of Engineering University of Tokyo, D. Course (1991)

Environmental maintenance Engineering, Graduate school of engineering system, Yamanashi University, M. Course (1988)

Environmental maintenance Engineering, Yamanashi University, Undergraduate Course (1986)

**[Professional Career]**

Assistant Professor, Industrial Science research Center, University of Tokyo (1991)

Lecturer, Center for Environmental Research, Yokohama National University (1993)

Associate Professor, Center for Environmental Remote Sensing, Chiba University (1995)

**[Higher Degrees]**

D.Eng. (University of Tokyo, 1991), M.Eng. (Yamanashi University, 1988)

**[Field Specialization/Background]**

Global Environment Engineering evaluation, Vegetation satellite study

**[Academic Society Memberships]**

Japan Society of photogrammetry and Remote Sensing, Associatin of International Research Initiatives for Environmental Studies, Japanese Association of surveyors

**—Major Publications—**

**[Books (edited)]**

Niita H., J. Nose, T. Itou, A. Sumi, Y. Abe, H. Tanaka, S. Asano, T. Matsuo, M. Murakami, G. Naito, Y. Kondoh, Y. Matsuda, T. Yasunari, S. Yoden, H. Niino, S. Takahashi, M. Watanabe, T. Hirooka, Y. Kouyabu, H. Mukaigawa, T. Muramatsu, K. Ninomiya, T. Nakazawa, H. Ueda, F. Kimura, K. Nakai, M. Masamitsu, N. Mannouji, T. Hayasaka, R. Oki, T. Tanouchi, M. Shiraki, K. Kurihara, Y. Nagasawa, H. Nakamura, M. Tsuneda, H. Oonishi, M. Ishii, A. Itagaki, R. Sasaki, K. Akatsu, H. Tsujimoto, Z. Uchijiwa, K. Ooya, Y. Sakamoto, I. Isozaki, T. Morikawa, M. Tokuno, T. Asakura, K. Takase, K. Murayama, S. Sakai, T. Abo, K. Shimizu, N. Shimoyama, Y. Yolote, T. Morita, T. Masui, T. Tokioka, H. Harasawa, Y. Miyazaki, Y. Yamanaka, Y. Niomura, T. Koike, S. Okamoto, Y. Honda, K. Taichi, E. Tajika, A. Abe, Y. Kakamura, Y. Arisawa (2005) 'Climate handbook', 3rd series. Asakura Shouten. 851-855 (in Japanese).

**[Papers (reviewed)]**

Honda Y. (2002) Use of aerial observations system based on industrial unmanned helicopter. *Survey* 8 (Monthly): 26-30.

Chen L, S. Furumi, X. Yun, K. Muramatsu, Y. Honda, K. Kajiwara, N. Fujiwara (2006) Sensitivity Analysis of Net Primary Production Estimation using a Semi-empirical BRDF Model and Reflectance Observed by RC Helicopter for Japanese Cedar Forest. Journal of Japan Society of photogrammetry and Remote Sensing 45-6: 25-40.

Chen L, S. Furumi, Y. Honda, K. Kajiwara (2006) Influence of BRDF on the estimation of coniferous forest NPP. Doshita University World business review. 8-1: 32-41

Yamamoto H., T. Hashimoto, M. Seki, N. Yuda, T. Mitomi, H. Yoshioka, Y. Honda, T. Igarashi (2004) Land area environmental monitoring using ADEOS-II/GLI data. *Association of electronics, information and communication engineers-* Makoto Manawazahou. SANE2004. 32: 29.

Y. Honda, K. Kajiwara (2004) Land surface vegetation change in Southeast Asia. *Climate* 51-11: 18-24.

Yamamoto H., T. Hashimoto, T. Mitomi, Y. Hiroki, Y. Honda, T. Higarashi (2003) Land area monitoring based on ADEOS-II/GLI products. *The Remote Sensing Society of Japan.* Remote sensing society annual lecture papers' collection.

Li Kim Thoa, Y. Honda, Koji Kajiwara, Asako Konda (2002) Automated Classification for Vegetation of Ninh Thuan, Binh Thuan and Lam Dong Provinces in Vietnam by Simulated GLI Data from Landsat TM. *Journal of Japan Society of photogrammetry and Remote Sensing* 41-6: 4-13.

T. SANJAA, B. ZAMBA, K. KAJIWARA AND Y. HONDA (2005) Satellite-derived estimates of evapotranspiration in the arid and semi-arid region of Mongolia. *International Journal of Environmental Studies*, Vol.62, No. 5: 517-526 (10).

**[Articles]**

Honda Y. 2005 'Global Biomass Estimation Practical Use Project (GloBE PUP), Basic Research Programs (Solution Oriented Research for Science and Technology)'. Research Implementation, interim report.

Honda Y. 2002. 'Project for establishment of plant production estimation using remote sensing' 1997~2002 fiscal years, Strategic creation research promotion business (Earth fluctuation mechanism). Research final report.

Honda Y. 2005 'Biogeocenosis Installation for Research and Development (BIRD)'. Journal of Japan Society of photogrammetry and Remote Sensing 44-2: 73-75.

**—Research Activities—**

**[Field Research in Japan]**

February 22, 2005 Vegetation physical quantity estimation from satellite remote sensing and ground field observations, lecture meeting, (light and food, agriculture), search for biophotonics

| | |
|---|---|
| | breakthrough, (Mirai CAN hall, Japanese science future pavilion 7F, Koto Ward, Tokyo) |
| June 15, 2006 | Honda Y. Matter cycle change, observation of vegetation from space, Global environment change observation mission symposium (Diamond plaza, Shinagawa Mitsubishi building, Tokyo Minato Ward, Tokyo) |
| January 11, 2007 | Honda Y. A challenge of global biomass estimation using satellite data: GEOSS Symposium on Integrated Observation for Sustainable Development in the Asia-Pacific Region (GEOSS AP Symposium, Dai-ichi Hotel, Tokyo Seafort and Shinagawa Ward, Tokyo) |
| January 29, 2007 | Honda Y. Challenge of Global Biomass by satellite observations, AMSR/GLI Workshop 2007, Tsukuba space Center, Integrated development promotion building 1F main conference room (Tsukuba city, Ibaraki Prefecture) |
| February 18, 2007 | Honda Y. Connection between satellite observations and ground field measurements. Challenges in the estimation of Vegetation Biomass by satellite observations, 2006 fiscal year open symposium sponsored by the Kanto region ecology association (Present and future of land region ecosystem observation, scale and technique beyond boundaries). Oceanic research and development mechanism, Yokohama Institute (Miyoshi commemoration hall, Yokohama City, Kanazawa Ward, Kanagawa Prefecture) |
| **[Field Research outside of Japan]** | |
| February–March 2003 | Australia Hei Alice Springs (bi-directional reflectance and local observation data collection for plant parameter data base) |
| **[Field investigations]** | |
| [Domestic investigations] | |
| January 2003 | Tomakomai City, Hokkaido. Iburi east area National forest management and forest station management (unmanned helicopter forest floor observation under snow condition) |
| April 2003 | Spectrum reflectance on simple ground surface, Measurement of radiation temperature. Arid land research center, Tottori university, Tottori City, Tottori Prefecture |
| August 2003 | Shelterbelt, Spectrum information on pasture, bi-directional reflectance data retrieval from unmanned helicopter and based on thermal radiometer, in Hokkaido, Nakashibetsu-gun, Konsen East area forest station management, Bekkai-cho, Notsuke-gun, Hokkaido |
| September 2003 | Yatsugatake observation site (fAPAR measurement), Hokuto city, Yamanashi prefecture |
| December 2003 | Kochi Prefecture Takaoka-gun, Niyodo-mura, Chouja mura (topographic features of retarded landslide observations) |
| February–April 2004 | Kagoshima Prefecture, Makurazaki City, Makurazaki National Institute of vegetable and Tea science base field, Okinawa Prefecture, Izena island, Ryukyu University, Yona experimental forest (bi-directional reflectance data acquisition from unmanned helicopter) |
| April 2004 | Yamanashi Prefecture, Hokuto city, Yatsugatake observation site (fAPAR measurement) |
| May 2004 | Yamanashi Prefecture, Hokuto city, Yatsugatake observation site (fAPAR measurement) |
| July 2004 | Shiga Prefecture Yokaichi City, Rice field around Yokaichi City (Multi-observations of rice plant temperature before harvest) |
| July 2004 | Yamanashi Prefecture, Hokuto city, Yatsugatake observation site (fAPAR |

| | |
|---|---|
| | measurement) |
| July 2004 | Okinawa Prefecture Shimajiri-gun, Minamidaito island (Acquisition of sugar cane bi-directional reflectance data) |
| August 2004 | Yamanashi Prefecture, Hokuto city, Yatsugatake observation site (fAPAR measurement) |
| December 2004 | Yamanashi Prefecture, Hokuto city, Yatsugatake observation site (fAPAR measurement) |
| December 2004 | Kochi Prefecture Takaoka-gun Niyodo-mura, Chouja mura (topographic features of retarded landslide observation) |
| April 2005 | Yamanashi Prefecture, Hokuto city, Yatsugatake observation site (fAPAR measurement) |
| July 2005 | Yamanashi Prefecture, Hokuto city, Yatsugatake observation site (fAPAR measurement) |
| August 2005 | Chiba Prefecture, Togane City, forest area observation site (Measurement of tree crown reflectance characteristic and tree crown surface shape of a mixed forest) |
| August 2005 | Yamanashi Prefecture, Hokuto city, Yatsugatake observation site (fAPAR measurement) |
| September 2005 | Yamanashi Prefecture, Hokuto city, Yatsugatake observation site (fAPAR measurement) |
| October 2005 | Nagano prefecture, surroundings of Asama Yama Onio dashi (Understanding of the Structure of ground coating, Terrestrial detection of volcanic zone underground magnetism) |
| November 2005 | Yamanashi Prefecture, Hokuto city, Yatsugatake observation site (fAPAR measurement) |
| December 2005 | Yamanashi Prefecture, Hokuto city, Yatsugatake observation site (fAPAR measurement) |
| December 2005 | Kochi Prefecture Takaoka-gun Niyodo-mura, Chouja mura (topographic features of retarded landslide observation) |
| March 2006 | Yamanashi Prefecture, Hokuto city, Yatsugatake observation site (fAPAR measurement) |
| April 2006 | Yamanashi Prefecture, Hokuto city, Yatsugatake observation site (fAPAR measurement) |
| May 2006 | Yamanashi Prefecture, Hokuto city, Yatsugatake observation site (fAPAR measurement) |
| June 2006 | Yamanashi Prefecture, Hokuto city, Yatsugatake observation site (fAPAR measurement) |
| June 2006 | Hokkaido Kitami-Shi. Spectrum data of bamboo grass species of boreal forests floor from an unmanned helicopter, data acquisition structure |
| July 2006 | Yamanashi Prefecture, Hokuto city, Yatsugatake observation site (fAPAR measurement) |
| July 2006 | Tokyo, Oshima-cho, Izu Oshima (Spectrum data of meadow and bare ground from an unmanned helicopter, data acquisition structure) |
| July–August 2006 | Chiba prefecture, Togane city, forest land observation site (Acquisition of basic information on mixed forest) |
| August 2006 | Nara Prefecture Kashihara City, Nara Prefecture agricultural development center. Kyoto |

| | |
|---|---|
| | Prefecture Soraku-gun, Kizu-cho (Measurement of tree crown reflectance characteristic and tree crown surface shape of rice field from an unmanned helicopter) |
| August 2006 | Yamanashi Prefecture, Hokuto city, Yatsugatake observation site (fAPAR measurement) |
| September 2006 | Yamanashi Prefecture, Hokuto city, Yatsugatake observation site (fAPAR measurement) |
| October 2006 | Akita Prefecture Hiraka-gun jumonji-cho, Tamoseki Omonogawa Ohisa, Akita Prefecture Akita-gun Ogata-son (Measurement of tree crown reflectance characteristic and tree crown surface shape from an unmanned helicopter) |
| October 2006 | Yamanashi Prefecture, Hokuto city, Yatsugatake observation site (fAPAR measurement) |
| November 2006 | Yamanashi Prefecture, Hokuto city, Yatsugatake observation site (fAPAR measurement) |
| December 2006 | Kochi Prefecture Takaoka-gun Niyodo-son, Chouja mura (topographic features of retarded landslide observation) |
| December 2006 | Tottori Prefecture, Tottori City, Ooya coast (Measurement of tree crown reflectance characteristic and tree crown surface shape from an unmanned helicopter) |
| December 2006 | Yamanashi Prefecture, Hokuto city, Yatsugatake observation site (fAPAR measurement) |

**[Other field investigations]**

| | |
|---|---|
| 2002–2007 | Solution Oriented Research for Science and Technology. Global Biomass Estimation Practical Use Project (GloBE PUP) - Research representatives |
| 2005–2007 | JAXA joint research, Simulation of vegetation multi-directional observations based on GLI data. Research summary |
| 2004–2007 | Global environment research funding and integrated promotion funding. Desertification assessment in northeast Asia and pilot study for the development of an early-warning system (EWS) (2) Observation technique standardization for long-term monitoring of desertification index. Research contributors |
| 2006–2007 | Integrated global environment research institute FS. Vegetation change by human activity in Asia. Explanations of carbon cycle change. Project leader |

**—Academic and Social Activities—**

**[Organizational operation, committee etc.]**

President of the photogrammetry society. Photogrammetry society course execution committee. President of the forum for Earth Observation from space (FEOS). Mongolia eco-forum management committee, Science and technology. Science special committee, GCOM committee member.

President of 'Global Estimation of Biomass using the next generation sensor: Institute of Industrial Science, University of Tokyo'. January 10, 2007.

**[Lecture]**

College of land, infrastructure and transport. Lecturer for the specialized course of advanced level measurement training.

**—Oral Presentation—**

**[Domestic]**

| | |
|---|---|
| June 24, 2005 | Ono A., K. Kajiwara, Y. Honda 'Basic research for plant growth (II)' Japan Society of |

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| | photogrammetry and Remote Sensing. Tokyo Big sight conference building, Minato Ward, Tokyo |
| June 24, 2005 | Moriyama M. K. Kajiwara, Y. Honda 'Influence of middle resolution sensors' atmospheric correction on topographic features' Japan Society of photogrammetry and Remote Sensing. Tokyo Big sight conference building, Minato Ward, Tokyo |
| October 26, 2005 | Ono A., K. Kajiwara, Y. Honda. 'Basic research for plant growth (III). Japan Society of photogrammetry and Remote Sensing' Science lecture meeting of autumn of fiscal year 2005. Kumamoto City international exchange hall, Kumamoto City, Kumamoto Prefecture |
| November 11, 2005 | 'Possibility of new Advanced Earth Observing Satellite and the ground observation'. Carbon cycle, heat-trapping gas observation workshop. Metropolitan plaza conference room, Tokyo |
| July 7, 2006 | Ono A., K. Kajiwara, Y. Honda. 'Development of vegetation index for detection of plant growth' Science lecture meeting. Pacifico Yokohama annex hall, Yokohama City, Kanagawa Prefecture. Spring of fiscal year 2006 |
| November 24, 2006 | Ono A., K. Kajiwara, Y. Honda. 'Development of vegetation index for plant growth (II)' Japan Society of photogrammetry and Remote Sensing, Science lecture meeting of autumn of fiscal year 2006. Matsue Telsa (Matsue workers and integrated welfare center), Matsue City, Shimane Prefecture |
| November 24, 2006 | Miyake K., K. Kajiwara, Y. Honda. 'Research on vegetation water stress detection technique' Japan Society of photogrammetry and Remote Sensing, Science lecture meeting of autumn of 2006 fiscal year. Matsue Telsa (Matsue workers and integrated welfare center), Matsue City, Shimane Prefecture |
| November 24, 2006 | Ichinohe S., K. Kajiwara, Y. Honda. 'Extraction of tree crown structural features research based on laser scanner' Japan Society of photogrammetry and Remote Sensing. Science lecture meeting of autumn 2006. Matsue Telsa (Matsue workers and integrated welfare center), Matsue City, Shimane Prefecture |
| January 30, 2007 | Y. Honda. 'Development of database and simulation of vegetation BRDF', AMSR/GLI Workshop 2007. Tsukuba Space Center (TKSC) Integrated development promotion building 1F, Main conference room, Tsukuba city, Ibaraki Prefecture |
| **[Overseas]** | |
| July 26, 2005–July 28, 2005 | Sanjaa T., K. Kajiwara, Y. Honda. Daily Grass Reference Evapotranspiration Estimates: Variability and Relationship to NDVI in Mongolian Grassland region. The First International Symposium on Terrestrial and Climate Change in Mongolia, Mongolia-Japan Center in Mongolia, Mongolia |
| July 26, 2005–July 28, 2005 | Sanjaa T., K. Kajiwara. Y. Honda. Water Balance Model based Evapotranspiration estimation using climate data. The First International Symposium on Terrestrial and Climate Change in Mongolia, Mongolia-Japan Center in Mongolia, Mongolia |
| July 28, 2005 | HONDA Y., H. YAMAMOTO, M. HORI, H. Murakami, N. Kikuchi. Global environment monitoring using the next generation satellite sensor, SGLI/GCOM-C. International Geoscience And Remote Sensing Symposium (IGARSS) 2005, COEX, Seoul, Korea |
| October 12, 2005 | HONDA Y., H. YAMAMOTO, M. HORI, H. MURAKAMI, N. KIKUCHI 'Global environment change monitoring using the next generation satellite sensor, SGLI/GCOM-C'. International Symposium on Remote Sensing 2005. International Convention Center Jeju, Korea |

October 13, 2005 Honma K., K. Kajiwara, Y. Honda 'Development of 3D Structure Measurement System using Laser Scanning data and CCD sensor'. International Symposium on Remote Sensing 2005, International Convention Center Jeju, Korea

November 9, 2005 Matsuoka M., Y. Fukushima, T. Hayasaka, Y. Honda, T. Oki. Analysis of the land cover change in large irrigated districts in the Yellow River basin using time series of Landsat and AVHRR. The 26th Asian Conference on Remote Sensing (ACRS2005), Melia Hanoi Hotel, Vietnam

November 10, 2005 HONMA K., K. KAJIWARA, Y. HONDA. Development of 3D Structure Measurement System using Laser Scanning data and Radio-Controlled Helicopter. The 26th Asian Conference on Remote Sensing (ACRS2005). Melia Hanoi Hotel, Vietnam

August 1, 2006 SANJAA T., K. KAJIWARA, Y. HONDA. A Comparative Study of Split Window Algorithms for Estimating Land Surface Temperature in the Mongolian Grassland. IGARSS 2006 & 27th Canadian Symposium on Remote Sensing, Colorado Convention Center, USA

August 1, 2006 HONDA Y., H. YAMAMOTO, M. HORI, H. MURAKAMI, N. KIKUCHI. A capability study of global environment change monitoring using the next generation satellite sensor, SGLI/GCOM-C. Western Pacific Geophysics Meeting (WPGM), Beijing, China

August 22, 2006 Dim J. R., K. KAJIWARA, Y. HONDA. Satellite observation for desertification monitoring. TOWARD SUSTAINABLE ENVIRONMENT AND HUMAN LIFE IN MONGOLIA, Conference Hall of Mongolia-Japan Center, Mongolia

August 22, 2006 SANJAA T., K. KAJIWARA, Y. HONDA. Satellite observation for evapotranspiration in Mongolian glassland. TOWARD SUSTAINABLE ENVIRONMENT AND HUMAN LIFE IN MONGOLIA, Conference Hall of Mongolia-Japan Center, Mongolia

September 11, 2006 HONDA Y., H. YAMAMOTO, M. HORI, H. MURAKAMI, N. KIKUCHI. The possibility of SGLI/GCOM-C for Global environment change monitoring. Remote Sensing 2006, Stockholm International Fairs, Stockholm, Sweden

**—Poster Presentation—**

May 10, 2006 Chin R., S. Furumi, Y.Honda K. Kajiwara. Use of ADEOS-II/GLI data to assess the impact of BRDF estimation on global vegetation net primary production. The Remote Sensing Society of Japan 42nd (Spring of 2007 fiscal year) Science lecture meeting, Nihon University College of Humanities and Science. Hyakushunen kinenbi hall, Setagaya Ward, Tokyo

**—Graduate school education. Acceptance of researchers etc.—**

JICA trainee (1 person)

**—Supervision and Host—**

Various graduate students and PD fellows

## HONJO, Mie — Project Researcher

Born in 1976.

**—Curriculum Vitae—**

**[Academic Career]**

Department of Zoology, Division of Biological Sciences, Graduate School of Science, Kyoto University, D. Course (2006)

Department of Zoology, Division of Biological Sciences, Graduate School of Science, Kyoto University, M. Course (2001)

Department of Ecosystem Studies, School of Environmental Science, The University of Shiga Prefecture (1999)

**[Professional Career]**

Researcher, Research Institute for Humanity and Nature (2006)

**[Higher Degrees]**

D.Sc. (Kyoto University, 2006), M.Sc. (Kyoto University, 2001)

**[Field Specialization/ Background]**

Aquatic Microbial Ecology, Limnology

**[Academic Society Memberships]**

The Japanese Society of Microbial Ecology, The Japanese Society of Limnology

**—Major Publications—**

**[Papers (reviewed)]**

Honjo M., K. Matsui, N. Ishii, M. Nakanishi and Z. Kawabata, (2007) Viral abundance and its related factors in a stratified lake. *Fundamental and Applied Limnology Archiv für Hydrobiologie,* 168: 105-112.

Honjo, M., K. Matsui, M. Ueki, R. Nakamura, J. A. Fuhrman and Z. Kawabata, (2006) Diversity of virus-like agents killing *Microcystis aeruginosa* in a hyper-eutrophic pond. *Journal of Plankton Research*, 28: 407-412.

Matsui K., N. Ishii, M. Honjo and Z. Kawabata, (2004) Use of the SYBR Green I fluorescent dye and a centrifugal filter device for rapid determination of dissolved DNA concentration in fresh water. *Aquatic Microbial Ecology*, 36: 99-105.

**—Oral Presentation—**

September 17–20, 2004 — Honjo, M., T. Kakihara, T. Fukushima, M. Fujihara, K. Choi, M. Ueki, Z. Kawabata "Diversity and potential algicidal activity of viruses infectious to *Microcystis aeruginosa* in a hyper-eutrophic pond" 69th Annual Meeting of The Japanese Society of Limnology (Niigata University, Niigata Prefecture)

September 17–20, 2004 — Nakamura, R., M. Ueki, M. Honjo, Z. Kawabata "Effects of attached bacteria to *Microcystis* spp. on the decrease of *Microcystis aeruginosa* by an algicidal bacterium" 69th Annual Meeting of The Japanese Society of Limnology (Niigata University, Niigata-shi, Niigata Prefecture)

September 15–18, 2006 — Honjo, M., T. Kakihara, M. Fujihara, K. Choi, M. Ueki, Z. Kawabata "Effect of temperature on the composition and algicidal activity of virus-like agents killing *Microcystis aeruginosa*" 71st Annual Meeting of The Japanese Society of Limnology (Ehime University, Matsuyama-shi, Ehime Prefecture)

**—Poster Presentation—**

May 25, 2002 — Honjo, M., K. Matsui, M. Ueki, R. Nakamura and Z. Kawabata Diversity of cyano-

phages infectious to *Microcystis aeruginosa* in a hyper-eutrophic pond. THE 3rd ALGAL VIRUS WORKSHOP, Hiroshima, Japan

December 18–19, 2003 Honjo, M., K. Matsui, M. Ueki, R. Nakamura, J. A. Fuhrman and Z. Kawabata Diversity of viruses infectious to bloom-forming cyanobacteria, *Microcystis aeruginosa* in a hyper-eutrophic pond. Symposium "Perspectives of the Biodiversity Research in the Western Pacific and Asiain the 21st Century", Kyoto, Japan

November 6–8, 2006 Matsui, K., M. Honjo, M. Ueki, Y. Koumatsu and Z. Kawabata Detection of Koi Herpesvirus (KHV) in freshwater environment. RIHN First International Symposium~Water and Better Human Life in the Future~, Kyoto, Japan

**—Research Activities—**

**[Field Research in Japan]**

November, 2006 Lake Biwa, Shiga Prefecture (Research on detection of Koi Herpesvirus in freshwater environment)

## HOSHIKAWA, Keisuke — Research Fellow (RR)

Born in 1975.

**—Curriculum Vitae—**

**[Academic Career]**

Division of Environmental Science & Technology, Graduate School of Agriculture, Kyoto University, D. Course (2003)

Division of Environmental Science & Technology, Graduate School of Agriculture, Kyoto University, M. Course (2000)

Faculty of Agriculture, Kyoto University (1998)

**[Professional Career]**

Research Fellow, Research Institute for Humanity and Nature (2003)

**[Higher Degrees]**

D.Agr. (Kyoto University, 2004), M.Agr. (Kyoto University, 2000)

**[Field Specialization/Background]**

Irrigation and Drainage, Regional Planning

**[Academic Society Memberships]**

The Japanese Society of Irrigation, Drainage and Reclamation Engineering, The Japan Society of Hydrology and Water Resources, Japan Society of Photogrammetry and Remote Sensing, The Japan Landslide Society

**—Major Publications—**

**[Articles]**

Keisuke HOSHIKAWA, Takanori NAGANO, Takashi KUME and Tsugihiro WATANABE (2006) 'Impact assessment of global warming in the Lower Seyhan Irrigation Project, Turkey', "The Advance Report of ICCAP: The Research Project on the Impact of Climate Changes on Agricultural Production System in Arid Areas" 92-93.

**—Oral Presentation—**

April 8, 2006 Hoshikawa, K., Nagano, T., Kume, T., Watanabe, T. "Development of a model for assess-

ing the performance of irrigation management systems and evaluation of impact of climate changes on the Lower Seyhan Irrigation Project", International Symposium on Water and Land Management for Sustainable Irrigated Agriculture (Cukurova University, Adana, Turkey)

August 10, 2006 Hoshikawa, K., Nagano, T., Kume, T., Watanabe, T. "Impact assessment of global warming on Lower Seyhan Irrigation Project, Turkey", The Japanese Society of Irrigation, Drainage and Reclamation Engineering Annual Meeting 2006 (Utsunomiya University, Utsunomiya Tochigi Prefecture) (in Japanese)

August 31, 2006 Hoshikawa, K., Nagano, T., Watanabe, T. "Development of distributed water balance model with irrigation management information", The Japan Society of Hydrology and Water Resources Annual Meeting 2006 (Okayama University, Okayama, Okayama Prefecture) (in Japanese)

September 26, 2006 Hoshikawa, K., Kume, T., Nagano, T., Watanabe, T. "Estimation of Water Balance of Hetao Irrigation District by Model Application", The International Symposium on Land and Water Management in Arid Regions (Inner-Mongolia Agricultural University, Hohhot, Inner-Mongolia Province, China)

October 17, 2006 Hoshikawa, K., Nagano, T., Kume, T., Watanabe, T. "Evaluation of climate change impacts on the Lower Seyhan Irrigation Project, Turkey", The 3rd conference of Asia Pacific Association of Hydrology and Water Resources (APHW) (Bangkok, Thailand)

## HYODO, Fujio — Project Researcher

Bone in 1974.

**—Curriculum Vitae—**

**[Academic Career]**

Graduate School of Science, Kyoto University, D. Course (2002)
Graduate School of Science, Kyoto University, M. Course (1999)
Faculty of Agriculture, Kyoto University (1997)

**[Professional Career]**

Technical Assitant, Research Institute for Humanity and Nature (2002)
JSPS Postdoctoral Research Fellow, Research Institute for Humanity and Nature (2003, 2004, 2005)
Project Researcher, Research Institute for Humanity and Nature (2006)

**[Higher Degrees]**

D.Sc. (Kyoto University, 2002), M.Sc. (Kyoto University, 1999)

**[Fields of Specialization/Background]**

Animal Ecology, Soil Ecology

**[Academic Society Memberships]**

The Ecological Society of Japan, The Japanese Society of Soil Zoology

**—Major Publications—**

**[Articles]**

Hyodo, F., Tayasu, I. and Wada, E. 2006 Estimation of the longevity of C in terrestrial detrital food webs using radiocarbon ($^{14}C$): how old are diets in termites? Functional Ecology. 20: 385-393.

**—Activities in Academic Societies—**

2007, March Hyodo, F., Tsugeki, K. N., Azuma, J. I., Urabe, J. I., Nakanishi, M., and Wada, E. Changes in stable isotopes, lignin-derived phenols and fossil pigments in the sediments of Lake Biwa: the implications for the anthropogenic effect over the past 100 years. The 54th annual meeting of the Ecological Society of Japan. Matsuyama, Japan

## ICHIKAWA, Masahiro — Associate Professor

Born in 1962.

**—Curriculum Vitae—**

**[Academic Career]**

Graduate School of Human and Environmental Studies, Kyoto University, D. Course (2002)
Graduate School of Human and Environmental Studies, Kyoto University, M. Course (1997)
Environmental Studies for Open Space, Faculty of Horticulture, Chiba University (1984)

**[Professional Career]**

Associate Professor, Research Institute for Humanity and Nature (2003)
Environmental Department, Pacific Consultants Co. Ltd. (1989)
Japan Overseas Cooperation Volunteers in Dominican Rep. (1987)
Development and Planning Department, Pacific Consultants Co. Ltd. (1984)

**[Higher Degrees]**

D. Human and Environmental Studies (Kyoto University, 2002), M. Human and Environmental Studies (Kyoto University, 1997)

**[Field Specialization/Background]**

Area Studies in Insular Southeast Asia

**[Academic Society Memberships]**

The Japan Society of Tropical Ecology, Japanese Society for Tropical Agriculture

**[Awards]**

Kira Price in the Japan Society of Tropical Ecology (2004)
Oze Price from Oze Preservation Foundation (2005)

**—Major Publications—**

**[Books]**

Hidaka, T., T. Akimichi, T. Yumoto, M. Ichikawa, K. Abe, M. Inoue, I. Yamada (2006) 'Change of Satoyama use by the Iban of Borneo and Japanese influences to the change', "Who Owns the Forests? The Future of Asian Forests and People" Showa-do. 61-83.

Yamamoto, N., Someda, H., Mizota, N., Ichikawa, M., etc. (2007) 'Dominican Republic', "Food Culture in the World 13: Central and South America" 106-112.

**[Articles]**

Ichikawa, M. 2006 'Large-scale forest development and land use by the Iban around the Lambir Hills National Park.' In Proceedings of International Symposium on Forest Ecology, Hydrometeorology and Forest Ecosystem Rehabilitation in Sarawak. 104-108. Sarawak Forestry Cooperation (SFC).

SALAM Aziz, ICHIKAWA Masahiro and OSOZAWA Katsuya. 2006 'Ironwood trading from Kalimantan to Sulawesi: A report from several sites of its production, distribution and consumption.' In *Proceedings of the International symposium for the 21st Century COE program "Crossing Disciplinary Boundaries and Re-*

*visioning Area Studies: Perspectives from Asia and Africa*. 397-404. Kyoto University.

**—Research Activities—**

**[Field Research in Foreign Countries]**

| | |
|---|---|
| April 2006, June 2006 | Sarawak, East Malaysia (Research on the natural resources uses and household survey) |
| October 2006 | East Kalimantan, Indonesia (Research on the natural resources production and trading) |
| September 2006 | Sarawak, East Malaysia (Research on the forest-products uses) |
| October 2006 | Central Sulawesi, Indonesia (Natural resource uses by local people under the decentralization policy) |
| Juneary and February 2007 | Brasil (Natural resource and land-use changes) |

**—Academic and Social Activities —**

Officer in general affairs in the Japan Society of Tropical Ecology (2004–), Organizing member for the 15th annual congress of the Japan Society of Tropical Ecology (2005), Organizing member for the International Memorial Symposium for the 15th anniversary of the Japan Society of Tropical Ecology (2005)

**—Oral Presentation—**

| | |
|---|---|
| March 15, 2007 | Ichikawa, M. '100-year-history of the Iban and ecosystem in Sarawak.' In Public symposium of the 54th Japan society of ecology. Ehime university |

**—Poster Presentation—**

| | |
|---|---|
| Nov 9–12, 2006 | SALAM Aziz, ICHIKAWA Masahiro and OSOZAWA Katsuya. Ironwood trading from Kalimantan to Sulawesi: A report from several sites of its production, distribution and consumption. International symposium for the 21st Century COE program "Crossing Disciplinary Boundaries and Re-visioning Area Studies: Perspectives from Asia and Africa". Kyoto Univ. |
| March 14, 2007 | Hatada, A., Ichikawa, M., Nakashizuka, T. Extension of biodiversity conservation by education materials. 54th Japan society of ecology. Ehime university |

**—Public and School Lectures—**

| | |
|---|---|
| July 8, 2006 | 'Change of Satoyama use by the Iban of Borneo and Japanese influences to the change' (5th RHIN Forum, Kyoto International Hall, Kyoto City, Kyoto Prefecture) |
| October 6, 2006 | 'Forest uses and life of the Iban of Borneo' (Hyogo-Amagasaki sinor colleage. Chusho-kigyo kaikan. Amagasaki) |

## IGETA, Akitake — Project Researcher

Born in 1974.

**—Curriculum Vitae—**

**[Academic Career]**

Graduate School of Agriculture, Kagawa University, M. Course (2001)

Faculty of Agriculture, Kagawa University (1999)

**[Professional Career]**

Project researcher, Research Institute for Humanity and Nature (2003)

**[Higher Degrees]**
M.Sc. (Kagawa University, 2001)
**[Field Specialization/Background]**
Limnology, Marine Chemistry

**—Major Publications—**
**[Papers]**
Y. Yamada, A. Igeta, S. Nakashima, Y. Mito, T. Ogasahara, A. Wada, T. Ohno, A. Ueda, F. Hyodo, M. Imada, S. Yachi, I. Tayasu, S. Fukuhara, T. Tanaka, E. Wada 2006 "The runoff of suspended substance, nitrogen and phosphorus by the enforced draining in the padding season —The experiment in the paddy field—. *Japanese Journal of Limnology* 67 (2): p105-112.
Nakano, Takanori, Tayasu, Ichiro, Wada, Eitaro, Igeta, Akitake, Hyodo, Fujio and Miura, Yuuta 2005 "Sulfur and strontium isotope geochemistry of tributary rivers of Lake Biwa: implications for human impact on the decadal change of lake water quality". *Science of the Total Environment* 345: 1-12.

**—Research Activities—**
**[Field Research in Japan]**
April, 2003 to March, 2007 Lake Biwa–Yodo River watershed (Research on river environment)

## INOUE, Mitsuyuki — Project Researcher

Born in 1971.

**—Curriculum Vitae—**
**[Academic Carrier]**
Department of Oriental History, Graduate school of Letters, Kyoto University, D. Course (2001)
Department of Oriental History, Graduate school of Letters, Kyoto University, M. Course (1998)
Department of Oriental History, Faculty of Letters, Kyoto University (1995)
**[Professional Carrier]**
Researcher, Research Institute for Humanity and Nature (2006)
Technical Assistant, Research Institute for Humanity and Nature (2005)
Research Fellow, Research Institute for Humanity and Nature (2003)
Research Assistant, Institute for Research in Humanities, Kyoto University (2002)
Research Fellow, Documentation and Information Center for Chinese Studies, Institute for Research in Humanities, Kyoto University (2001)
**[Higher Degrees]**
D.Lit. (Kyoto University, 2004), M.Lit. (Kyoto University, 1998)
**[Specialized Fields/Background]**
Oriental History
**[Academic Society Memberships]**
Tōyōshi Kenkyūkai (The Society of Oriental History), Shigaku Kenkyūkai (The Society of Historical Research)

**—Major Publications—**
**[Books (edited)]**
Inoue, M., Y. Kato, K. Moriya (2007) "History of the Oasis Region" Shokado (in Japanese).

**[Articles]**

Inoue, M. (2007) 'The development of the map of Yang Ziqi in east Asia.' "Portrait of the earth", pp. 282-297. Kyoto university press. (in Japanese)

Inoue, M. (2007) 'Development of farmland in the middle reaches of the Heihe river basin seen from the irrigation waterway.' "Project report on an oasis-region" 6-2, 123-135. (in Japanese)

Inoue, M. (2007) 'Inquiry record of the underground irrigation waterway similar to Karez'. "Project report on an oasis-region A special volume", 44-52. (in Japanese)

**—Oral Presentation—**

September 2006 Inoue, M. 'On the interruption and the distribution rule of the Heihe river water at the Yongzheng era, Qing dynasty.' "International symposium on the humanity and nature in Kara Khoto region", (Ejina, Inner-Mongolia, China.) (in Chinese)

February 2007 Inoue, M. 'On the history of the underground irrigation waterway in Zhangye and Jiuquan region.' "The 12th desert magazine subcommittee meeting", (Konan university, Kobe, Japan.) (in Japanese)

**—Poster Presentation—**

November 2006 Inoue, M., M. Watanabe, M. Nakawo, 'Underground irrigation systems in the Gansu province, China (part 2); Comparison between the present situation and the historical description', "RIHN first international symposium", (Kyoto, Japan)

## INOUE, Takashi — Visiting Professor

Born in 1952.

**—Curriculum Vitae—**

**[Academic Career]**

School of Law, Waseda University (1976)

**[Professional Career]**

Executive Producer, NHK Tokyo Head Office, General Broadcasting Administration (2006–present)
Executive Producer, NHK Tokyo Head Office, Special Programmes Center (2003–2006)
Executive Manager, Cultural Programme, NHK Enterprises 21, Inc. (2001)
Executive Producer, NHK Enterprises 21, Inc. (2000)
Senior Producer, NHK Tokyo Head Office, Programme Production Department (1998)
Senior Producer, NHK Tokyo Head Office, Special Programme Department (1993)
Senior Producer, NHK Tokyo Head Office, Programme Production Department (1990)
Programme Director, NHK Tokyo Head Office, Programme Production Department (1981)
Programme Director, Yamaguchi Bureau, NHK (Nippon Hoho Kyokai; Japan Broadcasting Corporation) (1976)

**[Higher Degree]**

B. L. (Waseda University, 1976)

**[Fields of Specialization/Background]**

Television documentary production (in the field of civilization/history)

—Major Publications—

[Books]

Was the ancient Taklamakan green? (2006) "The Water and Greenery of the Silk Road. Where did they disappear to?" (ed. HIDAKA, Toshitaka and NAKAWO, Masayoshi), Showado, pp. 1-37.

—Research Activities—

[Field Research in Foreign Countries]

| | |
|---|---|
| July–Aug 2006 | Historical ruin-site research at Gansu Province and Xinjian Uygur ,China |
| Feb 2007 | A research tour of Nanjing University, Jiangsu Province, China |

## ISHITOBI, Tomotoshi — Project Research Assistant

Born in 1980.

—Curriculum Vitae—

[Academic Career]

Graduate School of Education, Nara University of Education, M. Course (2005)

Faculty of Education, Nara University of Education (2003)

[Professional Career]

Project Research Assistant, Research Institute for Humanity and Nature (2006)

Technical Assistant, Research Institute for Humanity and Nature (2005)

[Higher Degrees]

M.Ed. (Nara University of Education, 2005)

[Field Specialization/Background]

Groundwater Hydrology

[Academic Society Memberships]

Japanese Association of Groundwater Hydrology

—Major Publications—

[Papers (reviewed)]

Ishitobi T., M. Taniguchi, J. Shimada (2007) Estimations of groundwater discharge and changes in fresh-salt water interface by measurements of submarine groundwater discharge in the coastal zone. *Journal of Groundwater Hydrology* (in press) (in Japanese).

Ishitobi T., M. Taniguchi, Y. Umezawa, S. Kasahara, S. Onodera, M. Hayashi, K. Miyaoka, M. Hayashi (2007) Investigation of submarine groundwater discharge using several methods in the inter-tidal zone. *(Proceedings of Symposium HS1001 at IUGG2007, Perugia, July 2007). IAHS Publ.*, 312 (in press).

Burnett W. C., G. Wattayakorn, M. Taniguchi, H. Dulaiova, P. Sojisuporn, S. Rungsupa, T. Ishitobi (2007) Groundwater-derived nutrient inputs to the Upper Gulf of Thailand. *Continental Shelf Research*, 27(2): 176-190.

Taniguchi M., T. Ishitobi, J. Shimada (2006) Dynamics of submarine groundwater discharge and freshwater-seawater interface. *Journal of Geophysical Research*, 111, C01008, doi:10.1029/2005JC002924.

Taniguchi M., T. Ishitobi, J. Shimada, N. Takamoto (2006) Evaluations of spatial distribution of submarine groundwater discharge. *Geophysical Research Letters*, 33, L06605, doi:10.1029/2005GL025288.

Ishitobi T., M. Taniguchi, K. Saeki, K. Ono (2005) Quantitive evaluations of submarine groundwater discharge in Suruga Bay, Japan. *Geochemical Journal* 39(3): 97-106 (in Japanese).

Taniguchi M., T. Ishitobi, K. Saeki (2005) Evaluation of time-space distributions of submarine groundwater discharge. *Ground Water*, 43: 336-342.

**—Research Activities—**

**[Field Research in Japan]**

Apr. 2006 Kobe City (Research on groundwater discharge from the seabed)

May. 2006 Uki City (Research on groundwater discharge from the seabed)

Aug. 2006 Nishi-nomiya City (Research on groundwater discharge from the seabed)

Feb. 2007 Amagasaki City (Research on groundwater discharge from the seabed)

**[Field Research in foreign countries]**

Apr. 2006 Manila City, The Philippines (Research on groundwater discharge from the seabed)

Jun. 2006 Bangkok City, Thailand (Research on groundwater discharge from the seabed)

Sep. 2006 Jakarta City, Republic of Indonesia (Research on groundwater discharge from the seabed)

Sep. 2006 Dongying City, Shandong Province, China (Research on groundwater discharge from the seabed)

Oct. 2006 Taipei City, Taiwan (Research on groundwater discharge from the riverbed)

**—Oral Presentation—**

May 2003 Ishitobi, T., M. Taniguchi, 'Study on submarine groundwater discharge in the coastal zone of Suruga Bay, Japan' Japan Geoscience Union Meeting 2003 (Makuhari Messe International Conference Hall, Chiba, Japan) (in Japanese)

Oct. 2003 Ishitobi, T., M. Taniguchi, J. Shimada, 'Changes in submarine groundwater discharge and fresh-salt water interface in Shira-nui area, Kumamoto, Japan' Fall meeting of Japanese Association of Groundwater Hydrology 2003 (Mirai Hall, Gifu, Japan) (in Japanese)

May 2004 Ishitobi, T., M. Taniguchi, J. Shimada, 'Experiment of scale-up of submarine groundwater discharge measurement' Spring meeting of Japanese Association of Groundwater Hydrology 2004 (Chiba University, Chiba, Japan) (in Japanese)

Nov. 2004 Ishitobi, T., M. Taniguchi, J. Shimada, 'Changes in submarine groundwater discharge related with tidal change of neap-spring tide' Fall meeting of Japanese Association of Groundwater Hydrology 2004 (Grandmesse, Kumamoto, Japan) (in Japanese)

May 2005 Ishitobi, T., M. Taniguchi, J. Shimada, 'Changes in submarine groundwater discharge and fresh-salt water interface in the coastal zone' Japan Geoscience Union Meeting 2005 (Makuhari Messe International Conference Hall, Chiba, Japan) (in Japanese)

May 2006 Ishitobi, T., M. Taniguchi, J. Shimada, 'Submarine groundwater discharge variation due to tidal change in the coastal zone' Japan Geoscience Union Meeting 2006 (Makuhari Messe International Conference Hall, Chiba, Japan) (in Japanese)

Jul. 2006 Ishitobi, T., M. Taniguchi, M. Hayashi, 'Effect of Tidal Change and Climate Factor on Submarine Groundwater Discharge' Asia Oceania Geosciences Society (the Singapore Suntec City Convention Centre, Singapore)

Oct. 2006 Ishitobi, T., M. Taniguchi, Y. Umezawa, S. Kasahara, K. Miyaoka, S. Onodera, M. Hayashi, 'Experiment of evaluations of submarine groundwater discharge rates by temperature measurement' Fall meeting of Japanese Association of Groundwater Hydrology 2006 (Geibun-kan, Kurashiki, Japan) (in Japanese)

**—Poster Presentation—**

May. 2005 'Investigation of submarine groundwater discharge in the coastal zone of Yellow River Delta' Japan Geoscience Union Meeting 2005 (Makuhari Messe International Conference Hall, Chiba, Japan) (in Japanese)

Sep. 2005 'Investigation of submarine groundwater discharge in Seto-uchi Inland Sea, Japan' Forum on the study about Seto-uchi Inland Sea, Japan (Nara Centennial Hall, Nara, Japan) (in Japanese)

Dec. 2005 Ishitobi, T., M. Taniguchi, S. Onodera, M. Hayashi, M. Saito, 'Submarine groundwater discharge variation due to tidal change in Seto-uchi Inland Sea, Japan' American Geophysical Union 2005 Fall meeting (Moscone West, San Francisco, CA, U.S.)

## KANAE, Shinjiro — Associate Professor

Born in 1971.

**—Curriculum Vitae—**

**[Academic Career]**

Department of Civil Engineering, Graduate School of Engineering, The University of Tokyo, D. Course (1999)
Department of Civil Engineering, Graduate School of Engineering, The University of Tokyo, M. Course (1996)
Department of Civil Engineering, The University of Tokyo (1994)

**[Professional Career]**

Associate Professor, Research Institute for Humanity and Nature (2003)
Associate Professor, The University of Tokyo (2003)
Lecturer, The University of Tokyo (2003)
Research Associate, The University of Tokyo (1999)

**[Higher Degrees]**

Ph.D. (The University of Tokyo, 1999), M.Eng. (The University of Tokyo, 1996)

**[Field Specialization/Background]**

Hydrology, Civil Engineering

**[Academic Society Memberships]**

Japan Society of Civil Engineers, Japan Society of Hydrology and Water Resources, Asia Pacific Association of Hydrology and Water Resources, The Meteorological Society of Japan

**—Major Publications—**

**[Papers (reviewed)]**

Oki T. and S. Kanae, 2006, Global hydrological cycles and world water resources, *Science*, 313: 1068-1072.

Kanae S., Y. Hirabayashi, T. Yamada and T. Oki, 2006, Influence of "realistic" land-surface wetness on predictability of seasonal precipitation in boreal summer, *J. Climate*, 19: 1450-1460.

Yoshimura K., S. Miyazaki, S. Kanae and T. Oki, 2006, Iso-MATSIRO, a land surface model that incorporates stable water isotopes, *Glob. Planet. Change*, 13: 90-107.

Islam, Md.S., T. Oki, S. Kanae, N. Hanasaki, Y. Agata, and K. Yoshimura, 2007, A grid-based assessment of global water scarcity including virtual water trading, *Water Resources Management*, 21: 19-33.

## KASHIO, Tamaki — Project Researcher

**—Curriculum Vitae—**

**[Academic Career]**

Department of Graduate School of Humanities and Science, Nara Women's University, D. Course (2005)

Department of Economics, Graduate School of Economic, Kyoto University, M. Course (1999)

Department of International relations, Graduate School, International relations, Ristumeikan University, M. Course (1995)

**[Professional Career]**

Lecturer, Faculty of sociology, Ryukoku University (2006)

Lecturer, Faculty of sociology, Ryukoku University (2005)

Research Assistant, Nara Women's University (2003)

**[Higher Degrees]**

Ph.D. (Nara Women's University, 2005), M.A. (Kyoto University, 1999), M.A. (Ristumeikan University, 1995)

**[Field Specialization/Background]**

Rural Sociology, Environmental Sociology, Agricultural Economics

**[Academic Society Memberships]**

The Japanese Association for Rural Studies, the Association for Regional Agricultural and Forestry Economics, the Distribution Studies of Japan

**[Award]**

Awarded by The Association for Regional Agricultural and Forestry Economics, for the Article of The Philosophy of Women's farming, published in *the Journal of Rural Problems* in June 2005

**—Major Publications—**

**[Papers]**

Tamaki Kashio (2006) Changing Agricultural Structure and Perspective of Farm Management: A case of Inae Area,Shiga Prefecture, Japan, "Multi-Disciplinary Research for Understanding Interactions between Humans and Nature in the Lake Biwa-Yodo River Watershed" Lake Biwa-Yodo River Project Final Report Showa-do. 295-310.

Tamaki Kashio (2006) An Introduction of Action Research scheme "Multi-Disciplinary Research for Understanding Interactions between Humans and Nature in the Lake Biwa-Yodo River Watershed" Lake Biwa-Yodo River Project Final Report Showa-do. 595-602.

**[Article]**

2006 *Archives of Japanese Association for Rural Studies. No. 217: 36-37* (in Japanese)

**—Research Activities—**

**[Field Research in Japan]**

August, 2006 field survey in Meihou Village in Gifu Prefecture

April, 2006 field survey in Inae area in Shiga Prefecture

August, 2006 field survey in Inae area in Shiga Prefecture

## KATAGIRI, Shuichiro — Project Senior Researcher

Born in 1970.

**—Curriculum Vitae—**

**[Academic Career]**

Graduate School of Science and Technology, Department of Earth and Planetary Science, Tokyo University, D. Course (1997.4–2001.3)

Graduate School of Science and Technology, Department of Earth and Planetary Science, Tokyo University, M. Course (1995.4–1997.3)

Faculty of Engineering, Waseda University (–1995.3)

**[Professional Career]**

Senior Researcher, Research Institute for Humanity and Nature (2006.4–2007.3)

Research fellow, Research Institute for Humanity and Nature (2004.4–2006.3)

Invited research fellow, National Space Development Agency of Japan (2001.12–2004.3)

COE research fellow, Center for Climate Research, University of Tokyo (2001.4–2001.11)

**[Higher Degrees]**

D.Sc. (Tokyo University, 2001), M.Sc. (Tokyo University, 1997)

**[Academic Society Memberships]**

Meteorological Society of Japan

## KATO, Yuzo — Assistant Professor

Born in 1971.

**—Curriculum Vitae—**

**[Academic Career]**

Graduate School of Law, Kyoto University, D. Course (2000)

Graduate School of Law, Kyoto University, M. Course (1996)

Faculty of Law, Kyoto University (1994)

**[Professional Career]**

Assistant Professor, Research Institute for Humanity and Nature (2001)

Junior Research Fellow, Institute for Research in Humanities, Kyoto University (2001)

Research Associate, Graduate School of Law, Kyoto University (2000)

Research Fellow, Japan Society for Promotion of Science (1997)

**[Higher Degrees]**

LLM (Kyoto University, 1996)

**[Field Specialization/Background]**

Legal History

**[Academic Society Memberships]**

Japan Legal History Association, Research Society for Chinese Legal History

**—Major Publications—**

**[Books (edited)]**

Kato Y., M. Inoue, K. Moriya (2007) "History of the Oasis Region" Shokado (in Japanese).

**[Papers]**

Sohma H., G. Mu, W. Qi, K. Hori, Y. Kato, K. Moriya (2007) 'Signs of Environmental Change marked on the Ruins in Lower Heihe River Basin' "Project Report on an Oasis-region" 6-2: 107-121 (in Japanese).

Qi W., K. Endo, H. Sohma, G. Mu, M. Nakawo, T. Murata, K. Hori, Y. Kato, X. Zheng (2007) 'Agriculture and Natural Environment of Xixia period in Lower Heihe River Basin' "Project Report on an Oasis-region" 6-2: 169-179 (in Japanese).

**[Articles]**

August 26, 2006 'RIHN's dispatch from Kyoto 14' "The Mainichi Newspapers" (in Japanese)

**—Research Activities—**

**[Field Research]**

July, 2006 Avraga Palace Site and Xara Xorin, Mongol (Research on Environmental Changes and Human Activity in Mongol Plateau)

## KATSUYAMA, Masanori ——— Project Senior Researcher

Born in 1975.

**—Curriculum Vitae—**

**[Academic Career]**

Division of Environmental Science and Technology, Graduate School of Agriculture, Kyoto University, D. Course (2002)

Division of Environmental Science and Technology, Graduate School of Agriculture, Kyoto University, M. Course (1999)

Faculty of Agriculture, Kyoto University (1997)

**[Professional Career]**

Senior Researcher, Research Institute for Humanity and Nature (2006)

Technician, Research Institute for Humanity and Nature (2005)

Postdoctoral Fellow, Japan Society for the Promotion of Science (2002)

Research Fellow, Japan Society for the Promotion of Science (2000)

**[Higher Degrees]**

Ph.D. (Agr.) (Kyoto University, 2002), M.Agr. (Kyoto University, 1999), B.Agr. (Kyoto University, 1997)

**[Field Specialization/Background]**

Forest Hydrology, Forestry

**[Academic Society Memberships]**

The Japanese Forest Society, Japan Society of Hydrology and Water Resource, Japanese Association of Hydrological Sciences, International Association of Hydrological Sciences, American Geophysical Union

**[Prize]**

Encouragement Award of The Japanese Forest Society (2006)

**—Major Publications—**

**[Books (edited)]**

5-2 IDEA Project Response- Prediction Model Study Team, Katsuyama, M., Yoshioka, T. (2006) 'Simulation Models of Watershed Biogeochemistry' Research Institute for Humanity & Nature (in Japanese)

**[Papers (reviewed)]**

Kosugi, K., Katsura, S., Katsuyama, M. and Mizuyama, T. (2006) Water flow processes in weathered granitic bedrock and their effects on runoff generation in a small headwater catchment, *Water Resources Research*, 42, W02414, doi:10.1029/2005WR004275

Osaka, K., Ohte, N., Koba, K., Katsuyama, M. and Nakajima, T. (2006) Hydrologic controls on nitrous oxide production and consumption in a forested headwater catchment in central Japan, *Journal of Geophysical Research*, 111, G01013, doi:10.1029/2005JG000026

Kabeya, N., Katsuyama, M., Kawasaki, M., Ohte, N. and Sugimoto, A. (2007) Estimation of mean residence times of subsurface waters using seasonal variation in deuterium excess in a small headwater catchment in Japan, *Hydrological Processes*, 21: 308-322

Kosugi, Y. and Katsuyama, M. (2007) Evapotranspiration over a Japanese cypress forest. II Comparison of the eddy covariance and water budget methods, *Journal of Hydrology*, 334: 305-311

Itoh, M., Ohte, N., Koba, K, Katsuyama, M., Hayamizu, K. and Tani, M. (2007) Hydrologic effects on methane dynamics in riparian wetlands in a temperate forest catchment, *Journal of Geophysical Research*, 112, G01019, doi:10.1029/2006JG000240

Yoshioka, T., Mostofa, K. M. G., Konohira, E., Tanoue, E., Hayakawa, K., Takahashi, M., Ueda, S., Katsuyama, M., Khodzher, T., Bashenkhaeva, N., Korovyakova, I., Sorokovikova, L. and Gorbunova, L. (2007) Distribution and characteristics of molecular size fractions of freshwater-dissolved organic matter in watershed environments: its implication to degradation, *Limnology*, 8: 29-44

Kawasaki, M., Ohte, N., Kabeya, N. and Katsuyama, M., Hydrological control of dissolved organic carbon dynamics in a forested headwater catchment, Kiryu Experimental Watershed, Japan, *Hydrological Processes*, (in press)

**[Articles]**

2007 'Report on Symposium of Biogeochemistry 2006 "Function of Water Resource Conservation in pluvious region"', J. Japan Soc. Hydrol. & Water Resour., 20: 125-126. (in Japanese)

**—Research Activities—**

**[Field Research in Japan]**

April, 2006 Kiryu Experimental Watershed, Shiga Prefecture (Hydrochemical research in forest catchments)

May, 2006 Kiryu Experimental Watershed, Shiga Prefecture (Hydrochemical research in forest catchments)

June, 2006 Kiryu Experimental Watershed, Shiga Prefecture (Hydrochemical research in forest catchments)

July, 2006 Kiryu Experimental Watershed, Shiga Prefecture (Hydrochemical research in forest catchments)

August, 2006 Kiryu Experimental Watershed, Shiga Prefecture (Hydrochemical research in forest catchments)

September, 2006 Kiryu Experimental Watershed, Shiga Prefecture (Hydrochemical research in forest catchments)

October, 2006 Kiryu Experimental Watershed, Shiga Prefecture (Hydrochemical research in forest catchments)

October, 2006 Kyoto University Wakayama Forest Research Station, Wakayama Prefecture (Hydrochemical research in forest catchments)

November, 2006 Kiryu Experimental Watershed, Shiga Prefecture (Hydrochemical research in forest

catchments)

December, 2006 Kiryu Experimental Watershed, Shiga Prefecture (Hydrochemical research in forest catchments)

January, 2007 Kiryu Experimental Watershed, Shiga Prefecture (Hydrochemical research in forest catchments)

February, 2007 Kiryu Experimental Watershed, Shiga Prefecture (Hydrochemical research in forest catchments)

February, 2007 Kyoto University Wakayama Forest Research Station, Wakayama Prefecture (Hydrochemical research in forest catchments)

March, 2007 Kiryu Experimental Watershed, Shiga Prefecture (Hydrochemical research in forest catchments)

**—Oral Presentation—**

August 29, 2006 Suzuki, N., Koba, K., Itoh, M., Osaka, K., Ohte, N., Tobari, Y., Katsuyama, M., Yamada, K., Toyoda, S., Nagata, T. and Yoshida, N.: A measurement of methane flux and its isotope ratio to determine methane dynamics in wetland, ISI 2006, Third International Symposium on Isotopomers, University of California, San Diego, USA

September 17, 2006 Yoshioka, T., Katsuyama, M., Ogawa, A., Sasaki, N., Hino, S. and Shibata, H. 'Carbon and Nitrogen isotope composition of the lake sediment in Lake Shumarinai', 71th Annual Meeting of The Japanese Society of Limnology, Ehime University, Matsuyama, Ehime Prefecture

October 29, 2006 Katsuyama, M., Fukushima, K., Tokuchi, N. 'Comparison of Rainfall-Runoff Characteristics between Forest Catchments with Granitic rock and Sedimentary rock' Annual Meeting of Japanese Association of Hydrological Sciences 2006, Shinsyu University, Matsumoto, Nagano Prefecture

**—Poster Presentation—**

April 2, 2006 Otsuka, I., Ohte, N., Fujimoto, M., Katsuyama, M. and Tani, M. 'Effects of rainfall on production and runoff processes of dissolved organic matter from forest watershed', 117th Annual Meeting of The Japanese Forest Society, Tokyo University of Agriculture, Tokyo

April 2, 2006 Osaka, K., Ohte, N., Koba, K., Katsuyama, M., Yoshimizu, C., Tayasu, I., Nagata, T., Wankel, S. and Kendall, C. 'Analysis of $NO_3^-$ dynamics in a forest catchment using $^{15}N$ and $^{18}O$ of $NO_3^-$', 117th Annual Meeting of The Japanese Forest Society, Tokyo University of Agriculture, Tokyo

April 11, 2006 Itoh, M., Ohte, N., Koba, K., Suzuki, N., Katsuyama, M., Hayamizu, K. and Tani, M.: Hydrobiogeochemical Influences on Methane Emission from Temperate Forested Wetlands in Central Japan, International Conference on Hydrology and Management of Forested Wetlands, New Bern, USA

August 29, 2006 Koba, K., Osaka, K., Tobari, Y., Toyoda, S., Ohte, N., Katsuyama, M., Suzuki, N., Itoh, M., Yamagishi, H., Kawasaki, M., Kim, S., Yoshida, N. and Nakajima, T.: Characterization of N2O in a temperate forested ecosystem, ISI 2006, Third International Symposium on Isotopomers, University of California, San Diego, USA

November 7, 2006 Katsuyama, M., Fukushima, K. and Tokuchi, N., Influence of Geology on Water Yielding Function in Forest Catchments, RIHN (Research Institute for Humanity & Nature) 1st International Symposium "Water and Better Human Life in the Future", Kyoto International Conference Hall Annex Hall, Kyoto

December 14, 2006 Katsuyama, M., Ohte, N. and Kabeya, N., Disagreement of end-members and geographic

sources of streamwater: riparian control mechanism, AGU Fall Meeting, Moscone Center, San Francisco, USA

March 21, 2007 Fukushima, K., Tokuchi, N., Tateno, R., Shimamura, T. and Katsuyama, M. 'Dynamics of nitrogen budget with the succession of plantation forest of Japanese cedar', 54th Annual Meeting of Ecological Society of Japan, Ehime University, Matsuyama, Ehime Prefecture

**—Others (Research Grant)—**

2006 Research Grant of Inamori Foundation, 'Evaluation of water yielding function based on long-term hydrochemical research'

2006–2008 JSPS Grant-in-Aid for Scientific Research, Grant-in-Aid for Young Scientists (B), 'Evaluation of Water conservation function based on comparison of rainfall-runoff characteristics between forest catchments with granitic rock and sedimentary rock'

## KAWABATA, Zen'ichiro——Professor

Born in 1946.

**—Curriculum Vitae—**

**[Academic Career]**

Department of Biology, Graduate School of Science, Tohoku University, unfinished D Degree (1975)
Department of Biology, Graduate School of Science, Tohoku University, M. Course (1973)
Department of Biology, Faculty of Science, Tohoku University (1971)

**[Professional Career]**

Professor, Research Institute for Humanity and Nature (2005)
Professor (Concurrent), Center for Marine Environmental Studies, Ehime University (1999)
Professor, Center for Ecological Research, Kyoto University (1998)
Professor, Department of Environmental Conservation, Ehime University (1996)
Associate Professor, Department of Environmental Conservation, Ehime University (1983)
Lecturer, Department of Environmental Conservation, Ehime University (1981)
Assistant Professor, Faculty of Science, Biological Institute, Tohoku University (1977)
Technician, Faculty of Science, Biological Institute, Tohoku University (1975)

**[Higher Degrees]**

D.Sc. (Tohoku University, 1997), M.Sc. (Tohoku University, 1973)

**[Fields of Specialization/Background]**

Microbial Ecology, Aquatic Ecosystem Ecology

**[Academic Society Memberships]**

The Ecological Society of Japan, The Japanese Society of Microbial Ecology, The Japanese Society of Limnology, Japanese Society of Water Treatment Biology, Japanese Society for Environmental Biotechnology, The Plankton Society of Japan, The Oceanographic Society of Japan, The Japanese Society of Fisheries Sciences, Japan Society on Water Environment, Society of Environmental Science, Japan, The Society of Eco-Engineering, The Society for Studies on Entropy, International Association for Theoretical and Applied Limnology

**[Prize]**

Ehime Publication and Culture Prize, 2000 (with coauthors) (2000)

**—Major Publications—**

**[Books]**

Kawabata, Z., et al. (2006) (ed., The Japanese Society of Limnology) Dictionary on Limnology, Kodansha Scientific, Tokyo, pp. 574. (In Japanese)

Kawabata, Z. (2006) An interaction web between pathogens and humans. (In: (edited by The committee on Education, The Japanese Society of Microbial Ecology) What are microbes?) p. 184-194. Nikka Giren, Tokyo, pp. 204. (In Japanese)

Kawabata, Z. (2006) Introduction for A Seriess of Ecology of Soil and Substratum. Tsuchi-to-Kiso 54(10): 28-29. (In Japanese)

Kawabata, Z. (2006) Ecosystems Characteristics. Tsuchi-to-Kiso 54(10): 30-36. (In Japanese)

**[Journal Papers]**

Dudgeon, D., Arthington, A. H., Gessner, M. O., Kawabata, Z., Knowler, D. J., Leveque, C., Naiman, R. J., Prieur-Richard, A., Soto, D., Stiassny, M. J. and Sullivan, C. A. (2006) Freshwater biodiversity: importance, threats, status and conservation challenges. The Biological Rewiews 81: 163-182.

Honjo, M., Matsui, K., Ueki, M., Nakamura, R. Fuhrman, J. A. and Kawabata, Z. (2006) Diversity of virus-like agents killing Microcystis aeruginosa in a hyper-eutrophic pond. Journal of Plankton Research 28: 407-412.

Uchii, K., Matsui, K., Yonekura, R., Tani, K., Kenzaka, T., Nasu, M. and Kawabata, Z. (2006) Genetic and physiological characterization of the intestinal bacterial microbiota of bluegill (Lepomis machrochirus) with three different feeding habits. Microbial Ecology 51(3): 277-284.

**[Reports]**

Naiman, R. J., Prieur-Richard, A-H., Arthington, A., Dudgeon, D., Gessner, M. O., Kawabata, Z., Knowler, D., O'Keeffe, J., Leveque, C., Soto, D., Stiassny, M. Sullivan, C. (2006) freshwaterBIODIVERSITY: Challenges for freshwater biodiversity research. DIVERSITAS Report N° 5. 48 pp.

Kawabata, Z. (2006) Gene dynamics in natural aquatic ecosystems. Report of granted research, The Asahi Glass Foundation. 20.

**[Communication Articles]**

Kawabata, Z. and Czeschlik, D. (2006) Online first publication. Limnology 7: 1-1.

Kawabata, Z. (2006) Being Pathogenic Depends on Human Activities. Opinions From RIHN, Kyoto, Mainichi News Paper. Oct. 24.

**—Activities in Academic Societies—**

Executive Committee of The Japanese Society of Microbial Ecology (1999–2002, 2005–), Editorial Board of Japanese Journal of Water Treatment Biology (1994–), Editorial Board of Plankton Biology and Ecology (2001–), Editorial Board of Journal of Environmental Biotechnology (2001–), Editor-in-Chief of Limnology (2005–)

**—Academic Activities—**

Visiting Researcher of National Institute for Environmental Studies (2001–), Visiting Researcher of Center for Marine Environmental Studies, Ehime University (2001–), Visiting Researcher of Center for Ecological Research, Kyoto University, Member of Executive Committee for Center for Ecological Research, Kyoto University, NEDO Evaluation Committee for Technology, Member of Committee for the Postdoctoral Fellowships for Foreign Researchers of JSPS, GWSP Committee of Science Council of Japan, DIVERSITAS committee for Science Council of Japan, Freshwater Biodiversity Committee of DIVERSITAS and An Instructor for Japan Natural Conservation

**—Oral Presentations—**

**[International Symposia]**

June 6, 2006 Uchii, K., Okuda, N., Karube, Z., Yonekura, R., Matsui, K. and Kawabata, Z. Trophic polymorphism in lake Biwa bluegill, an introduced fish species in Japan: Stable isotopic evidence. ASLO Summer Meeting 2006, Victoria, British Columbia, Canada, Abstract p. 125.

August 20, 2006 Matsui, K., Narita, M. Kawabata, Z. and Endo, G. Evidence for worldwide dissemination of mercury resistance transposon among Bacillus on the basis of directly repeated (DR) sequences. 11th International Symposium on Microbial Ecology, Vienna, Austria, Abstract p. 451.

August 20, 2006 Matsui, K., Kawabata, Z., Narita, M. and Endo, G. Analysis of worldwide dissemination of TnMERI1-like mercury resistance transposon among Bacillus on the basis of directly repeated (DR) sequences.11th International Symposium on Microbial Ecology, Vienna, Austria, Abstract p. 451.

Nov. 6–8, 2006 Omori, K., Ohnishi, H., Ueki, M. and Kawabata, Z. Habitat analysis of a carp in Lake Biwa, Japan. The 1st RIHN International Symposium, Water and Better Human Lif in the Future, Kyoto, poster.

**[Domestic conferences (In Japanese)]**

March 25, 2006 Kawabata, Z. Interaction among environmental degradation by human activities, diseases, and humans. The 53rd Annual Meeting of The Ecological Society of Japan, Niigata, Abstract p. 19.

March 27, 2006 Uchii, K., Okuda, N., Yonekura, R., Matsui, K. and Kawabata, Z. Food preference analysis of blue gill by stable isotopic analysis. The 53rd Annual Meeting of The Ecological Society of Japan, Niigata, Abstract p. 362.

July 3, 2006 Kawabata, Z. Analysis on gene dynamics in natural aquatic environments. The Asahi Glass Foundation, Tokyo, Abstract p. 42.

Sep. 16, 2006 Honjo, M. Kakihara, T., Choi, K., Ueki, M. and Kawabata, Z. Effects of water temperatures on the composition of viral agents killing *Microcystis aeruginosa.* Annual Meeting of The Japanese Society of Limnology, Matsuyama, Abstract p. 148.

Sep. 16, 2006 Ishii, N., Koiso, H., Yanagisawa, H., Miyamoto, K., Takeda, H. and Kawabata, Z. Effects of pre-filtration on quantification of virus like particles. Annual Meeting of The Japanese Society of Limnology, Matsuyama, Abstract p. 90.

Oct. 29, 2006 Matsui, K., Narita, M., Kawabata, Z. and Endo, G. DR (Directly repeated) sequence analysis on mercury resistant trasposon dynamics among Bacillus bacteria. Annual meeting of the Japanese Society of Microbial Ecology, Abstract p. 126.

**—Field Activities—**

Instructor of The Nature Conservation Society of Japan

Field survey: Lake Biwa in Japan in Apr., May, and August (habitat of carp) and Lake Chau-Hu in China in Oct. (habitat degradation).

**—Education and Host—**

One JSPS Postdoctoral Fellow

**—Research Activities as a Leader—**

Analysis of different mechanisms for horizontal gene transfer in aquatic ecosystem using aquatrons.

JSPS Scientific Research, Basic Research A (16207001) (2004–)

**—Social Activities—**

Committee of Dam Water Resources Environment Conservation for the (2005–)

## KAWAMOTO, Haruko — Project Researcher

Born in 1974.

**—Curriculum Vitae—**

**[Academic Career]**

Graduate School of Engineering, Hokkaido University, M. Course (1999)

Faculty of Engineering, Hokkaido University (1997)

**[Professional Career]**

Project Researcher, Research Institute for Humanity and Nature (2007)

**[Higher Degrees]**

M.Sc. (Hokkaido University, 1999)

**[Field Specialization/Background]**

Radar Meteorology, Low Temperature Physics

**[Academic Society Memberships]**

Meteorological Society of Japan, Society of Atmospheric Electricity of Japan

**—Major Publications—**

**[Papers (not reviewed)]**

Kawamoto, H., T. Haneda, F. Kobayashi (2002) Distinguishable Algorithm of Winter Thunderclouds by Meteorological Radar Observation. *Technical report of IEICE SANE* 102(293): 1-6 (in Japanese)

**[Articles]**

2005 'Doppler Weather Radar' "JRC review" Japan Radio Co., Ltd., 48: 40-43 (in Japanese)

**—Oral Presentation—**

August 30, 2002 Kawamoto, H., T. Haneda, F. Kobayashi "Distinguishable Algorithm of Winter Thunderclouds by Meteorological Radar Observation" The Institute of Electronics, Information and Communication Engineers: Space, Aeronautical and Navigational Electronics (the Promotion of Machine Industry, Minato-ku, Tokyo Metropolis) (in Japanese)

October 9, 2002 Kobayashi, F., H. Kawamoto, T. Haneda, T. Shimura, T. Sakai "Characteristics of Winter Thunderclouds Using A Doppler Radar (the 2nd report): Statistical Analysis in '99-'00" Autumn Meeting of Meteorological Society of Japan (Hokkaido University, Sapporo City, Hokkaido)

September 19, 2006 Kobayashi, F., T. Shimura, H. Kawamoto, A. Wada, K. Shinjyo, Characteristics of Winter Thunderclouds and Possibility of Nowcasting Using A Doppler Radar, *28th International Conference on Lightning Protection* (Nikko Hotel Kanazawa, Kanazawa City, Kanazawa Prefecture)

**—Poster Presentation—**

May 24, 2002 Kobayashi, F., H. Kawamoto, T. Haneda, T. Shimura, T. Sakai "Characteristics of Winter Thunderclouds Using A Doppler Radar: Statistical Analysis in '99-'00" Spring Meeting of Meteorological Society of Japan (Omiya Sonic City, Saitama City, Saitama Prefecture)

## KAWAMOTO, Kazuaki — Assistant Professor

Born in 1970.

**—Curriculum Vitae—**

**[Academic Career]**

Department of Earth and Planetary Physics, Graduate School of Science, The University of Tokyo, Doctor of Philosophy (1999)

Department of Earth and Planetary Physics, Graduate School of Science, The University of Tokyo, Master of Science (1996)

Department of Physics, Faculty of Science, Rikkyo University (1993)

**[Professional Career]**

Assistant Professor, Research Institute for Humanity and Nature (2002)

Research Scientist, Mechanical Engineering, Virginia Polytechnic Institute and State University (postdoc researcher, Atmospheric Sciences, NASA Langley Research Center) (1999)

**[Higher Degrees]**

Ph.D. (The University of Tokyo, 1999), M.Sc. (The University of Tokyo, 1996)

**[Fields of Specialization/Background]**

Atmospheric Physics, Satellite Climatology

**[Academic Society Memberships]**

The Meteorological Society of Japan

**—Major Publications—**

**[Papers (reviewed)]**

Kawamoto, K. (2006) Relationships between cloud properties and precipitation amount over the Amazon basin. *Atmospheric Research*, 82, 239-247.

Kawamoto, K., T. Hayasaka, I. Uno and T. Ohara, (2006) A correlative study on the relationship between modeled anthropogenic aerosol concentration and satellite-observed cloud properties over East Asia. *Journal of Geophysical Research*, 111, D19201, doi:10.1029/2005JD006919.

Kawamoto, K., T. Inoue, H. Lutz and J. Schmetz, (2006) Retrieval of optical thickness and effective particle radius of thin low-level water clouds using the split window of Meteosat-8. *SOLA*, 2, 144-147.

Kawamoto, K., T. Hayasaka and I. Uno, (2006) Correspondence of the low cloud microphysics to the aerosol amount over China. *IRS 2004: Current Problems in Atmospheric Radiation*, H. Fischer and B. J. Sohn (editors). p. 443-445.

Hayasaka, T., K. Kawamoto, J. Xu and G. Shi, (2006) Long-term trend of surface shortwave radiation over China. *IRS 2004: Current Problems in Atmospheric Radiation*, H. Fischer and B. J. Sohn (editors). p. 395-398.

**[Articles]**

2006 'Aerosols, clouds and precipitation' "Chikyu-ken Kyoto-Hatsu" Mainichi Newspaper, June 24 (in Japanese)

**—Oral Presentation—**

April 28, 2006 'Satellite remote sensing of clouds and aerosol indirect effects', Seminar at the faculty of science (Toyama University, Toyama, Toyama Prefecture) (in Japanese)

June 15, 2006 'Cloud remote sensing from satellites and the application for understanding aerosol indirect effects', Seminar at NOAA NESDIS (Camp Springs, MD, USA)

June 16, 2006 'Investigation of aerosol indirect effects with satellite derived cloud properties and model-simu-

lated aerosol amount', Seminar at NASA Goddard Space Flight Center (Greenbelt, MD, USA)

July 31, 2006 'Interactions between aerosols and clouds investigated with numerical models and satellite observations', The 2nd Asian Pacific Radiation Symposium (Wel city Kanazawa, Kanazawa, Ishikawa Prefecture)

September 27, 2006 'Earth environmental problems regarding aerosols and satellite imagery analysis', Special seminar on 'Environmental problems in Japan due to yellow sands' (Kumamoto University, Kumamoto, Kumamoto Prefecture) (in Japanese)

November 22, 2006 'Cloud observation by satellites and aerosol indirect effects', RIAM seminar (Kyushu University, Kasuga, Fukuoka Prefecture) (in Japanese)

**—Poster Presentation—**

May 4, 2006 'Effects of aerosols on low clouds over East Asia', Workshop on Remote Sensing of Aerosols (Berlin Free University, Berlin, Germany)

July 10, 2006 'The aerosol indirect effects examined by numerically calculated aerosols and satellite derived clouds', The 12th conference on Atmospheric Radiation (Monona Terrace, Madison, WI, USA)

July 21, 2006 'Changes of cloud properties with precipitation using satellite and ground-based measurements', The 36th COSPAR Scientific Assembly (Beijing Institute of Technology, Beijing, China)

**—Other research activities—**

2002–2007 Special Coordination Funds for Promoting Science and Technology of Japan, A support program for temporarily-employed young scientists, 'Evaluation of atmospheric effects of large-scale anthropogenic activities with satellite data', Principal investigator

2005–2008 Grant-in-Aid for Young Scientists (B) 'Warm/cold rain classification and its relationship with aerosol indirect effects over East Asia using long-term satellite data', Principal investigator

2006 RIAM research funds, Kyushu University, 'A study on climate effects by atmospheric aerosols over East Asia', Co-Investigator

## KHANTASHKEEVA, Tamara V. ——Invited Research Fellow

Born in 1963. (The Republic of Ukraine, USSR)

**—Curriculum Vitae—**

**[Academic Career]**

Buryat Science Center, Siberian Branch, Russian Academy of Science, Department of Nature Protection and Rational Use of National Resources (1993)

Kiev State Pedagogical Institute, Department of Geography and English language (1985)

**[Professional Career]**

Associate professor in the Russian International Academy of tourism, Moscow (2002–)

Senior researcher of the Institute of Geography, Russian Academy of Sciences, Moscow (2001–)

Scientific associated director & senior researcher of the Baikal Institute of Nature Management, the Siberian Branch, Russian Academy of Scinece, Ulan-Ude (1998)

Senior researcher of the Baikal Institute of Nature Management, the Siberian Branch, Russian Academy of Scinece, Ulan-Ude (1996)

Junior researcher of the Baikal Institute of Nature Management, the Siberian Branch, Russian Academy of Scinece,

Ulan-Ude (1993)
Teacher of Geography of Secondary school N 44, Ulan-Ude (1985)
**[Higher Degrees]**
Kandidatskaya degree of Geography (Institute of Geography, Siberian Branch, Russian Academy of Scineces, Irkutsk, 1996)
**[Fields of Specialization/Background]**
Economic and social geography, geography of tourism and recreation
**[Academic Society Memberships]**
The Geographical Society of Russia
**[Awards]**
The Honored diploma of the Russian State Academy of Economics (2007)

**—Major Publications—**

**[Papers]**

Artobolevskiy S., Borodina T., Chasovskiy V., Glezer O., Khantashkeeva T., Volkova I., 2006, Russian-Byelorussian trans boundary cooperation (results of field study in Smolensk and Mogelev regions), *Pskov regionological journal,* No.2: 152-163 (in Russian).

Khantashkeeva T., 2006, Types of spatial transformation of natural resources utilization and their socioecological consequences in eastern regions of Russia, *Spatial organization of production: TPK or clasters?,* the Institute of Geography, Russian Academy of Sciences, Moscow, pp. 42-53. (in Russian).

Khantashkeeva T., Murota T., 2006, Socioecological consequences of closure of natural resources use enterprises (a field study on East Siberia and Far East), *Natural resources of Zabaykalye and problems of geospheric investigations*, ZabSHPU, Chita, pp. 256-259 (in Russian).

Murota T., Khantashkeeva T., 2006, Six types of spatial transformation of natural resources development in East Siberia and Far East, *Siberia and Far East: past, present, and future.* Proceedings of the eleventh British universities Siberian studies seminar, September11-15, 2006, Vladivostok, Russian Federation, p 4.

**[Reports and Others]**

Khantashkeeva T., 2006, Geography of tourism. Methodical supply for students, Moscow international high school of business (institute), Moscow, 21 p.

**—Social Activities and Public Lectures—**

Nov. 7, 2006 Poster presentation "Spatial study of agrotourism and recreation in the Lake Biwa region keeping in mind the watershed sustainability paradigm", RIHN Symposium "Water and Better Human Life", Kyoto, Japan

Dec. 19, 2006 Spatial study of tourism and recreation in the Lake Biwa region, Japan: preliminary results. Oral presentation, Research Institute for Humanity and Nature, Kyoto Japan

**—Field Research —**

June–July, 2006 Field research in the Lake Biwa region to study tourism and recreation development

## KIMOTO, Yukitoshi — Project Senior Researcher

Born in 1973.

**—Curriculum Vitae—**

**[Academic Career]**

Department of Botany, Graduate School of Science, Kyoto University, D. Course (2004)

Division of Human and Environmental Studies, Graduate School of Human and Environmental Studies, Kyoto University, M. Course (2001)

Department of Environmental Studies, Faculty of Integrated Human Studies, Kyoto University (1999)

**[Professional Career]**

Senior Researcher, Research Institute for Humanity and Nature (2006)

Research Fellow, Research Institute for Humanity and Nature (2004)

**[Higher Degrees]**

Ph.D. (Science) (Kyoto University, 2004), M. Human and Environment (Kyoto University, 2001)

**[Specialized fields/Background]**

Plant Systematics, Plant Morphology, Plant Anatomy

**[Academic Society Memberships]**

The Japan Society for Plant Systematics, The Botanical Society of Japan, The Botanical Society of America

**—Major Publications—**

**[Papers (reviewed)]**

Tobe, H., Y. Kimoto, N. Prakash (2007) Development and structure of the female gametophyte in *Austrobaileya scandens* (Austrobaileyaceae). *Journal of Plant Research* 120: 431-436

**—Poster Presentation—**

March 16, 2007 Nakagawa, M., Y. Kimoto, T. Takaso. 'Relationship between development of male flower and lunar rhythm in *Enhalus acoroides* (Hydrocharitaceae)' 6th Annual Meeting of the Japanese Society for Plant Systematics (Niigata University, Niigata, Niigata Prefecture)

## KINOSHITA, Tetsuya — Professor

Born in 1950.

**—Curriculum Vitae—**

**[Academic Career]**

Department of Philosophy, Graduate School of Literature, Kyoto University, D. Course (1979)

Department of Philosophy, Graduate School of Literature, Kyoto University, M. Course (1976)

Faculty of Literature, Kyoto University (1974)

**[Professional Career]**

Professor, Research Institute for Humanity and Nature (2003)

Professor, Faculty of Literature, Okayama University (2001)

Assistant Professor, Faculty of Literature, Okayama University (1984)

Instructor, Faculty of Literature, Okayama University (1981)

Research Assistant, Faculty of Literature, Kyoto University (1979)

**[Higher Degrees]**
M.Sc. (Kyoto University, 1976)
**[Field Specialization/Background]**
Chinese philosophical history
**[Academic Society Memberships]**
The Sinological Society of Japan, the Institute of Eastern Culture, the Society of Oriental Researches, the Society for the Study of Chinese Societies and Cultures

**—Major Publications—**
**[Books]**
Kinoshita T. (2007) "The Position of the Zhu Xi school" Chisen Shokan (in Japanese)
**[Articles]**
Kinoshita T. (2007) An introduction to the history of riparian works to the Yellow River. *Humanity & Nature Newsletter* 2: 6-7
Kinoshita T. (2006) An introduction to the history of riparian works to the Yellow River II. *Proceedings of YRiS Joint Meeting KYOTO 2006.11.15-16* 28-31
Kinoshita T. (2006) On a term 'wu-shi物事' reading in *Zhuzi-yulei*朱子語類 II. *Toyo-kotengaku-kenkyu* 22: 21-40
Kinoshita T. (2006) On a term 'wu-shi物事' reading in *Zhuzi-yulei*朱子語類 I. *Toyo-kotengaku-kenkyu* 21: 65-77
Kinoshita T. (2006) On a trap, a well-known phrase 'ge-wu格物'. *Yomeigaku* 18: 1-59

**—Academic and Social Activities—**
Councilor of The Society for the Study of Chinese Societies and Cultures (2003–)

**—Public and School Lectures—**
December 9, 2006 'Philosophy of working and task' (Institute of Oriental Studies, Toyo University, Bunkyo-ku, Tokyo Metropolitan)

## KOHMATSU, Yukihiro — Assistant Professor

Born in 1973.

**—Curriculum Vitae—**
**[Academic Career]**
Department of Zoology, Faculty of Science, Kyoto University, D. Course (2001)
Department of Zoology, Faculty of Science, Kyoto University, M. Sc. (1998)
Department of Geography, Faculty of Science, Ritsumeikan University (1996)
**[Professional Career]**
Assistant Professor, Research Institute for Humanity and Nature (2003)
Technical Assistant, Research Institute for Humanity and Nature (2002)
Postdoctoral Scientist, Center for Ecological Research, Kyoto University (2001)
**[Higher Degrees]**
D.Sc. (Kyoto University, 2001), M.Sc. (Kyoto University, 1998)
**[Field Specialization/Background]**
Animal Ecology, Geography

**—Major Publications—**

Takahara T., Y. Kohmatsu, A. Maruyama and R. Yamaoka. 2006. Specific Behavioral Responses of *Hyla japonica* Tadpoles to Chemical Cues Released by Two Predator Species. *Current Herpetology* 25(2): 65-70.

Yamamoto T., Kohmatsu Y. and Yuma M. 2006. Effects of summer drawdown on cyprinid fish larvae in Lake Biwa, Japan. *Limnology* 7(2): 75-82.

Ushimaru, A., Kikuchi, S., Yonekura, R., Maruyama, A., Yanagisawa, N., Kagami, M., Nakagawa, M., Mahoro, S., Kohmatsu, Y., Hatada, A., Kitamura, S. & Nakata, K. 2007. The influence of floral symmetry and pollination systems on flower size variation. *Nordic Journal of Botany* 24: 593-598.

## KRECEK, Josef —Invited Research Fellow

Born in 1950.

**—Curriculum Vitae—**

**[Academic Carrier]**

Department of Forest Hydrology, Czech Agricultural University, Prague, D. Course (1977)

Department of Technology, Czech Technical University, Prague, M. Course (1973)

**[Professional Carrier]**

Associate Professor, Faculty of Civil Engineering, Czech Technical University (1999)

Senior scientist, Institute of Applied Ecology, Czech Agricultural University, Prague (1987)

Visiting Research Professor, College of Health Sciences, Texas Woman's University (1994)

Researcher, Forest Research Institute, Prague (1977)

**[Higher Degree]**

Ph.D. (Czech Agricultural University, 1977)

**[Field Specialization/Background]**

Watershed management

**[Academic Society Memberships]**

Association on Headwater Control

**—Major Publications—**

**[Books]**

Edited by Martin Haigh and Josef Krecek: Environmental reconstruction in Headwater Areas, NATO Science Series, Vol.68, *Kluwer Academic Publishers*, 2000.

Edited by Josef Krecek and Martin Haigh: Environmental role of wetlands in Headwaters, NATO Science Series, Vol.63, *Springer*, 2006.

**[Articles]**

Krecek, Josef: Land water phenomena in the Czech Republic. Proc. YRiS Joint Meeting, 32-36, 2006.

Krecek, Josef: Sustainable agriculture and forestry in the Czech Republic, Proc. The 3rd International Workshop on Yellow River Studies, 111-114, 2007.

## KUBOTA, Jumpei — Associate Professor

Born in 1957.

**—Curriculum Vitae—**

**[Academic Career]**

Department of Forestry, Faculty of Agriculture, Kyoto University, D. Course (1987)

Department of Forestry, Faculty of Agriculture, Kyoto University, M. Course (1983)

Department of Forestry, Faculty of Agriculture, Kyoto University (1981)

**[Professional Career]**

Associate Professor, Research Institute for Humanity and Nature (2002)

Associate Professor, Faculty of Agriculture, Tokyo University of Agriculture and Technology (1997)

Assistant Professor, Faculty of Agriculture, Tokyo University of Agriculture and Technology (1987)

**[Higher Degrees]**

D.Agr. (Kyoto University, 1987), M.Agr. (Kyoto University, 1983)

**[Fields of Specialization/Background]**

Forest Hydrology, Erosion Control Engineering

**[Academic Society Memberships]**

The Japanese Forestry Society, The Japan Society of Hydrology and Water Resources, The Japan Society of Erosion Control Engineering

**—Major Publications—**

**[Books]**

Nakawo, M., Huhbator, Y. Konagaya, J. Kubota, A. Yatagai, A. Sakai., T. Ozaki, T. Nakamura, Shinjilt, Chen Jing, Mairisa, K. Kodama, Sarangerel 2007 'Nature and Water Resources in the Heihe River', Toho-shoten, 17-40.

Hidaka T., T. Watanabe, J. Kubota, Y. Sato, T. Yumoto, T., Akimichi, M. Nakawo, T. Nakashizuka, A. Momoki, M. Sugiyama, Y. Konagaya 2006 'Does Afforestation prevent desertification?' Kodan-sha. 41-56.

**[Papers (reviewed)]**

Akiyama, T., A. Sakai, Y. Yamazaki, G. Wang, K. Fujita, M. Nakawo, J. Kubota and Y. Konagaya, 2007, Surfacewater-groundwater interaction in the Heihe River basin, Northwestern China. *Bulletin of Glaciological Research*, 24: 87-94.

Suzuki, K., J. Kubota, T. Ohata, and V. Vuglinsky, 2006, Influence of snow ablation and frozen ground on spring runoff generation in the Mogot Experimental Watershed, southern mountainous taiga of eastern Siberia. *Nordic Hydrology*, 37(1): 21-29.

Suzuki, K., J. Kubota, Y. Zhang, T. Kadota, T. Ohata and V. Vuglinsky, 2006, Snow ablation in an open field and larch forest of the southern mountainous region of eastern Siberia. *Hydrological Sciences Journal*, 51(3): 465-480.

Yamazaki, Y., J. Kubota, T. Ohata, V. Vuglinsky, and M. Mizuyama, 2006, Seasonal changes in runoff characteristics on a permafrost watershed in the southern mountainous region of eastern Siberia. *Hydrological Processes*, 20: 453-467.

**—Oral presentations in international scientific meetings—**

July 13, 2006 "Evaluation of human impacts on water balance in the Heihe River Basin, Western China" Asia Oceania Geosciences Society's 4th Annual Meeting (AOGS 2006), Singapore, Singapore

September 17, 2006 "Evaluation of human impacts on the hydrological cycle on the Heihe River Basin" International

Symposium on the Humanity and Environment of Khara Khoto Region, Ejina, China

November 28, 2006 "Global change and its impact on humans and nature" (invited speaker), The UNESCO regional workshop on "Assessment of Snow-Glacier and Water Resources in Central Asia", Almaty, Kazakhstan

**—Research Activities—**

**[Field Research in Foreign Countries]**

August, 2006 Kazakhstan and China (Preparatory Field Study in the Ili River Basin)

September, 2006 China (Hydrological Study in the Heihe River Basin)

March, 2007 China (Preparatory Field Study on Lake Sediment Analysis)

**—Supervision and Host (Number of DC Students and JSPS Research Fellows)—**

DC student (1)

**—Social Activities and Public Lectures—**

**[Committee Member]**

Accreditation Committee, Coordinating Committee on Accreditation and Examination, Accreditation System for Engineering Education in Japan

**—Public Lectures—**

February 24, 2007 "The humanity and Nature in the Central Eurasia" Symposium on "Water and Civilization", Tokyo

## KUME, Takashi ——— Project Senior Researcher

Born in 1973.

**—Curriculum Vitae—**

**[Academic Carrier]**

Division of Science and Technology on Regional Environment, Graduate School of Agriculture, Kyoto University, D.Ag. (2004)

Graduate School of Agriculture, Gifu University, M.Ag. (2000)

Faculty of Agriculture, Gifu University (1998)

**[Professional Carrier]**

Research Fellow, Research Institute for Humanity and Nature (2006)

Lecture, Research Institute for Humanity and Nature (2004–2005)

Research Assistant, Research Institute for Humanity and Nature (2002)

**[Higher Degrees]**

D.Ag. (Kyoto University, 2004), M.Ag. (Gifu University, 2000)

**[Specialized Fields/Background]**

Irrigation and Drainage, Soil Hydrology

**[Academic Society Memberships]**

The Japanese Society of Irrigation, Drainage and Reclamation Engineering, The Japanese Association for Arid Land Studies, International Committee of Irrigation and Drainage, Japan

**—Major Publications—**

Takashi KUME, Takanori NAGANO, Keisuke HOSHIKAWA, Tsugihiro WATANABE, Sevgi DONMA, Erhan AKÇA, Musa SERDEM and Selim KAPUR (2007) Impact of Irrigation Water Use on the Groundwater Environment in Turkey, Water, Environment & Agriculture, Volume 3—Ground Water Quality and Environment, Macmillan India Limited, New Delhi (in press).

Tsugihiro WATANABE, Keisuke HOSHIKAWA, Takashi KUME and Takanori NAGANO (2006) Assessment of Climate Change Impacts on Irrigation Management Using a Performance Assessment Model, Proceedings of 3rd Asian Regional Conference of ICID, Kuala Lumpur, Malaysia (CD-ROM).

**[Reports]**

Kume, T., T. Nagano, E. Akça, S. Donma, K. Hoshikawa, S. Berberoğlu, M. Serdem, S. Kapur and T. Watanabe, 2007, Impact of the Irrigation Water Use on the Groundwater Environment and the Soil Salinity, The Final Report of ICCAP, 209-214.

Nagano, T., Y. Fujihara, K. Tanaka, C. Umetsu, K. Hoshikawa, T. Kume, F. Kimura and T. Watanabe, 2007, Generated Social Scenario and Basin Condition for the Final Integration, The Final Report of ICCAP, 15-18.

Nagano, T., S. Donma, K. Hoshikawa, T. Kume, C. Umetsu, E. Akça, S. Önder, S. Berberoğlu, B. Özekici, T. Watanabe, S. Kapur and R. Kanber, 2007, The Integrated Assessment of the Impact of Climate Change on Lower Seyhan Irrigation Project, The Final Report of ICCAP, 197-207.

Hoshikawa, K., T. Nagano, T. Kume and T. Watanabe, Evaluation of Impact of Climate Changes on the Lower Seyhan Irrigation Project, Turkey, The Final Report of ICCAP, 221-230.

Nakagawa, H., T. Kobata, T. Yano, C. Barutçular, M. Koç, K. Tanaka, T. Nagano, Y. Fujihara, K. Hoshikawa, T. Kume and T. Watanabe, 2007, Predicting the Impact of Global Warming on Wheat Production in Adana, The Final Report of ICCAP, 163-168.

**—Oral Presentation—**

| | |
|---|---|
| April 4–8, 2006 | Hoshikawa, K., Nagano, T., Kume, T. and Watanabe, T., Development of a model for assessing the performance of irrigation management systems and evaluation of impact of climate changes on the Lower Seyhan Irrigation Project, Proceedings of International Symposium on Water and Land Management for Sustainable Irrigated Agriculture, Çukurova University, Adana, Turkey |
| April 4–8, 2006 | Nagano, T., Donma, S., Hoshikawa, K., Kume, T., Umetsu, C., Akça, E., Önder, S., Berberoğlu, S., Özekici, B., Watanabe, T., Kapur, S. and Kanber, R., Integrated approach for assessment of an irrigation system in Lower Seyhan Plain, Turkey, Proceedings of International Symposium on Water and Land Management for Sustainable Irrigated Agriculture, Çukurova University, Adana, Turkey |
| August 8, 2006 | Donma, S., Nagano, T., Hoshikawa, K., Kume, T. and Watanabe, T., Long-term Changes of Shallow Groundwater Level and Salinity in the Lower Seyhan Plain, Turkey, Annual meeting of The Japanese Society of Irrigation, Drainage and Reclamation Engineering. Utsunomiya, Japan |
| August 8, 2006 | Kume, T., Issues and Future Perspectives of Interdisciplinary Study, Annual meeting of The Japanese Society of Irrigation, Drainage and Reclamation Engineering, Utsunomiya, Japan |
| August 10, 2006 | Kume T., Nagano T., Hoshikawa K., Akça E., Donnma S., Kapur S., Berbeloğlu S., Watanabe T., Regional Salinity Assessment Based on Relationship Between Land Use and Salinity, Annual meeting of The Japanese Society of Irrigation, Drainage and Reclamation Engineering, Utsunomiya, Japan |

October 17, 2006 Hoshikawa, K., Nagano, T., Kume, T., Kanber, R. and Watanabe, T., Evaluation of climate change impacts on the Lower Seyhan Irrigation Project, Turkey. Third APHW Conference on "Wise Water Resources Management towards Sustainable Growth and Poverty Reduction", Bangkok

October 18, 2006 Nagano, T., Hoshikawa, K., Donma, S., Kume, T. and Watanabe, T., Macroscopic Handling of a large irrigation district by the Irrigation Management Performance Assessment Model, Third APHW Conference on "Wise Water Resources Management Towards Sustainable Growth and Poverty Reduction", Bangkok

February 14, 2007 Nagano, T., Hoshikawa, K., Donma, S., Kume, T., Önder, S., Özekici, B., Kanber, R., Watanabe, T., Assessing adaptive capacity of large irrigation districts towards climate change and social change with Irrigation Management Performance Assessment Model, Proceedings of the International Conference, Water Saving in Mediterranean Agriculture & Future Research Needs, Valenzano, Italy

**—Poster Session—**

November 9–12, 2006 Nagano, T., Hoshikawa, K., Donma, S., Kume, T. and Watanabe, T., Irrigation and drainage canal properties as important indices for assessing adaptive capacity of large irrigation districts towards climate change and social change, An Earth System Science Partnership Global Environmental Change Open Science Conference, Beijing, China

**—Research Activities—**

**[Field Research in Foreign Countries]**

April, 2006 Turkey (Impact of Climate Changes on Agricultural Production System in the Arid Areas)
Autust, 2006 Turkey (Impact of Climate Changes on Agricultural Production System in the Arid Areas)
September, 2006 People of Republic of China (JST CREST the Yellow River Project)
January, 2007 India (Vulnerability and Resilience of Social-Ecological Systems)
February, 2007 India (Vulnerability and Resilience of Social-Ecological Systems)
February, 2007 Turkey (Impact of Climate Changes on Agricultural Production System in the Arid Areas)

**—Public Lectures—**

Takashi KUME: Global perspective of soil salinization in the world, The first International Symposium of RIHN, Kyoto, 2006

Convener: The first International Symposium of RIHN, Satellite Symposium "Sali-graphy", Kyoto City, November 11–12, 2006

## KURATA, Takashi — Project Researcher

Born in 1970.

**—Curriculum Vitae—**

**[Academic Career]**

Department of Human and Environmental Studies, Graduate School of Human and Environmental Studies, Kyoto University, D. Course (2000)

Department of Human and Environmental Studies, Graduate School of Human and Environmental Studies, Kyoto University, M. Course (1997)

Faculty of Letters, Kyoto University (1994)

**[Professional Career]**

Project Researcher, Research Institute for Humanity and Nature (2006)

Research Fellow (PD), Japan Society for Promotion of Science (2001)

Research Fellow (DC2), Japan Society for Promotion of Science (1999)

**[Higher Degrees]**

Doctor of Human and Environmental Studies (Kyoto University, 2001), Master of Human and Environmental Studies (Kyoto University, 1997)

**[Field Specialization/Background]**

Philosophy, Environmental Thoughts, Studies of Crafts

**[Academic Society Memberships]**

The Philosophical Association of Japan, The Japanese Society for Ethics, The Phenomenological Association of Japan, The Kansai Philosophical Association

**—Major Publications—**

**[Papers]**

T. Kurata, (2006) Interrelation between Human and Things. *Human Environments Study Monographs* 5: 71-77.

T. Kurata, (2006) Overcome of Nihilismus. *Studies in Comparative Philosophy* 32(annex): 59-63.

T. Kurata, (2006) Heidegger's Ontological Analysis of Historical World. *Studies in Comparative Philosophy* 31(annex): 39-42.

**—Research Activities—**

**[Field Research in Japan]**

March, 2007 Japan Folk Crafts Museum, Tokyo (Research on architectural works of MINGEI)

March, 2007 The House of Hyoe Takabata, Shizuoka (Research on architectural works of MINGEI)

## LEKPRICHAKUL, Thamana ——— Project Senior Researcher

Born in 1959. (Thailand)

**—Curriculum Vitae—**

**[Academic Career]**

Visiting Scholar, Department of Economics, University of Hawaii at Manoā, USA (2004–2005)

Visiting Scholar, Program on Population, East-West Center, Hawaii, USA (2002)

Research Intern, Program on Environment, East-West Center, Hawaii, USA (1996)

Research Assistant, Program on Population, East-West Center, Hawaii, USA (1995)

**[Professional Career]**

Senior Researcher, Research Institute for Humanity and Nature, Kyoto, Japan (2006–present).

Post-doctoral fellow, Social Science Research Institute, University of Hawaii at Manoā, USA (2005–2006)

Research Assistant, Energy Technology Department, Asian Institute of Technology (AIT), Pathumtani, Thailand (1988–1989)

**[Higher Degrees]**

Ph.D. (Department of Economics, University of Hawaii at Manoā, Hawaii, USA, 2001)

B.A., Honors (Faculty of Economics, Thammasat University, Bangkok, Thailand, 1987)

**[Fields of Specialization/Background]**

Health, Demographic, Labor Economics, and Econometrics

Efficiency and Performance Assessment Specialist

**[Academic Societies]**

Member of American Economic Association, Member of Thai Economic Association

**—Major publications—**

Umetsu, C., Lekprichakul, T. and Chakravorty, U. (2006) "Efficiency and Technical Change in the Philippine Rice Sector during the Post Green Revolution Era," *Studies in Regional Science*, vol. 36, no. 1, pp. 161-178.

Umetsu, C., Lekprichakul, T., and Chakravorty, U. (2003) "Efficiency and Technical Change in the Philippine Rice Sector: A Malmquist Total Factor Productivity Analysis". *American Journal of Agricultural Economics*, 85(4) (November): 943-963.

Umetsu, C., Lekprichakul, T., and Chakravorty, U. (2000), "Efficiency and Technical Change in the Philippine Rice Sector: A Regional Total Factor Productivity Analysis", *Agricultural Economic Papers of Kobe University*. No.33: (March), pp. 19-27.

Lekprichakul, T. (2001) *Efficiency Measurement of 89 Public Provincial Hospitals in Thailand: Parametric and Non-Parametric Estimation Methods*, Doctoral dissertation, Department of Economics, University of Hawaii at Manoā. Bell & Howell Information and Learning.

**[Working Paper/Project Report]**

Umetsu, C., Lekprichakul, T., and Chakravorty, U., (1999) "Efficiency and Technical Change in the Philippines Rice Sector: A Malmquist Total Factor Productivity Analysis" *Working Paper* number 99-34, Department of Economics, Emory University.

Umetsu, C., Lekprichakul, T., and Chakravorty, U., (1996), *Population Pressure and Agricultural Intensification: Technology Adoption and Resource Management in the Agricultural Sector in the Philippines.* Tokyo: The Foundation for Advanced Studies on International Development (FASID), March, pp. 1-148.

Russo, G., Lekprichakul, T., and Phananiramai, M. (1994) *Household Expenditures for Health Care in Thailand: Estimates from 1988 Socioeconomic Survey (SES)*. East-West Center Program on Population.

**—Research Activities—**

| | |
|---|---|
| 2006–Present | Social and Ecological Resilience of Zambia |
| 2004–2006 | Health Care Coverage in Hawaii |
| 1997–2001 | Efficiency and Productivity of Provincial Hospitals in Thailand |
| 1996 | Efficiency and Productivity of the Philippines's Rice Sector |
| 1994 | Demand for Health Care in Southeast Asian Countries, Population Program, East-West Center, Hawaii, USA |
| 1988–1989 | Household Survey of Energy Demand and Utilization of the Rural Poor in Northeastern Provinces of Thailand, and Demand for Energy of Southeast Asian Countries |
| 1987 | Japan Monitoring Project |

## LINDSTRÖM, Kati — Researcher

Born in 1977.

**—Curriculum Vitae—**

**[Academic Career]**

Kyoto University, Research Institute for Human and Environmental Studies, PhD course (2007, Japanese government scholarship)

Kyoto University, Faculty of Letters, Research Student (2004, Japanese Government Scholarship)

Tartu University (Estonia), Faculty of Social Sciences, Department of Semiotics and Culturology, MA course (2003)

Sankt-Petersburg State University (Russia), Faculty of Eastern Studies, Department of Japanese Studies, Research Student (2002, Russian government scholarship)

Tartu University (Estonia), Faculty of Social Sciences, Department of Semiotics and Culturology, BA course (2001)

**[Professional Career]**

Project Research Assistant, Research Institute for Humanity and Nature (2006)

Technical Assistant, Research Institute for Humanity and Nature (2006)

Teaching Assistant, Kyoto University, Research Institute for Human and Environmental Studies

**[Higher Degrees]**

MA in semiotics and culturology (University of Tartu, 2003)

**[Background]**

Anthropology, semiotics, literature, human geography

**[Academic Society Memberships]**

Estonian Semiotic Society, Society for Biosophia Studies

**[Awards]**

2002 Estonian National Student Research Award, runner-up in BA category (Humanities)

2007 Estonian National Literature Award, runner-up in the category of translation (foreign language to Estonian)

**[Fields of Specialization]**

Human geography, cultural semiotics, cultural anthropology, literature

**—Major Publications—**

**[English]**

Lindström, K. (2007) From Experiential to Chronometric Seasonality—the Establishment of Seasons as a National Symbol in Modern Japan. Palang, H.; Sooväli, H.; Printsmann, A. (Eds.) Seasonal Landscapes. Springer Verlag, Landscape Series, pp. 215-229.

Lindström, K. (2007) Landscape image as a mnemonic tool in cultural change: The case of two phantomic sceneries. *Koht ja Paik = Place and Location: Studies in Environmental Aesthetics and Semiotics V. (in press)*

Lindström, K. (2004) The real as forged and the illusory as true: two contesting tendencies in the image of landscape in Estonian haiku. *Koht ja Paik = Place and Location: Studies in Environmental Aesthetics and Semiotics* IV, 69-84.

Lindström, K. (2002) Author, landscape and communication in Estonian haiku. *Sign Systems Studies* 30.2, 653-676.

**[Other Languages]**

Lindström, K. (2006). Kinsei bungaku kara mita keikanbyousha to sono shisou. In: Nakai, Seiichi (Ed.) Nihonkai engan no shizen to kankyo ninshiki—keikan no keiseishi: Nihonkai engan no shizen to kankyo ninshiki—keikan no keiseishi. Toyama: Toyama University Faculty of Letters, pp. 20-29.

Lindström, K. (2004). Kaze ni tadayou fukei—haiku ni hisomu shizen no kokoro. Ecosophia, 14, 62-67. (In Japanese)

Lindström, K. (2002) Postmodernistlikus romaanis varastavad kõik. *Vikerkaar*, 2-3, 129-135. (In Estonian)

Lindström, K. (2002). Mälu ei ole fossiil. "Check out" ja "Ahasveeruse uni" kui eesti ühiskonna erinevate suundumuste peegeldused kirjanduses", *Vikerkaar* , 11/12. (In Estonian)

**[Translations]**

Murakami, Haruki (2006) *Norra mets*. Tallinn: Varrak. ("Norwegian Wood")

Deely, John (2005) *Basics of Semiotics. Semiootika alused. Tartu Semiotics Library*, 4. Tartu: Tartu University Press.

Yoshimoto, Banana (2003) *Köök*. Tallinn: Varrak. ("Kitchen")

**—Oral Presentations—**

**[English]**

February 26, 2002 Author, landscape and communication in Estonian haiku. *Cultural semiotics: cultural mechanisms, boundaries, identities*, Tartu University History Museum, Tartu, Estonia

September 26, 2004 Landscape image as a mnemonic tool in cultural change: The case of two phantomic sceneries. *Culture, Nature, Semiotics: Locations IV*, 23–26 September 2004, Tartu University and Tallinn Art Institute, Tallinn and Tartu, Estonia

October 19, 2005 Mental and Physical Relief in Landscape: Eight Omi landscapes and the environmental perception of its present inhabitants. *RIHN Pre-Symposium 'Bridging Times and Seas: Historical landscape change on the shores of Northern inland seas'*. Pa-lu-lu Praza, Kyoto

September 6, 2006 Lindström, Kati; Uchiyama, Junzo; Zeballos Velarde, Carlos Renzo "Affluent foragers and affluent feudalism: The idealised landscapes of past as models for sustainable future." Paper presented at the Permanent European Conference for Rural Landscape Studies (PECSRL), Freie Universität Berlin, Germany

**[Other languages]**

November 2, 2002 "Mälu ei ole fossiil. "Check out" ja "Ahasveeruse uni" kui eesti ühiskonna erinevate suundumuste peegeldused kirjanduses" (The Memory is Not a Fossil: Two Social Tendencies in Modern Estonian Literature). *Kaasaegne eesti kultuur ja kultuuriteooria. Autumn School of Semiotics IV* Tartu University, Põltsamaa, Estonia (In Estonian)

February 11, 2006 "The Landscape Description and its Philosophy in Early Modern Japanese Literature". Presented at "The Nature of the Japan Sea Rim Region and Environmental Perception – The Developmental History of Landscape" Toyama University Faculty of Letters, Toyama, Japan (In Japanese)

April 7, 2006 "Temporality, Seasonality, Landscape" Presented at Landscape Seminar I, RIHN, Kyoto (In Japanese)

June 2, 2006 "Landscape as a Commodity around Lake Biwa: Living and Non-Living Beings in Landscape". Presented at "Landscape and living beings", workshop at the 4th Yearly Congress of the Society of Biosophia Studies, Abashiri, Japan (In Japanese)

September10, 2006 "Landscape as a Commodity – on the Example of the Pre-Modern and Modern Ohmi Region". Presented at ""Japan Sinks" Repeated", a symposium linked to the exhibition "Digging up the landscape of Suita", in collaboration with Suita City Museum, Osaka, Japan (In Japanese)

November 12, 2006 "Is Landscape Really Cute? *Satoyama* discourse surrounding Lake Biwa" Presented at "Landscape History Around Lake Biwa", 2nd symposium dedicated to the Tenth Anniversary Exhibition of Lake Biwa Museum, Lake Biwa Museum, Shiga, Japan (In Japanese)

**—Field Work in 2006—**

Japan: Shiga Prefecture, Okinawa Island (Naha City)

Overseas: Tartu (Estonia), Vladivostok (Russia)

## MATSUI, Kazuaki — Project Senior Researcher

Born in 1969.

**—Curriculum Vitae—**

**[Academic Career]**

Center for Ecological Research, Graduate School of Science, Kyoto University, D. Course (2002)

Department of Microbiology and Immunology, College of Medicine, University of Illinois at Chicago, Ph.D. Course (1998)

Department of Environmental Conservation, College of Agriculture, Ehime University, M. Course (1994)

Department of Environmental Conservation, College of Agriculture, Ehime University (1992)

**[Professional Career]**

Senior Researcher, Research Institute for Humanity and Nature (2006)

Research Fellow, Japan Society for Promotion of Science (2005)

Research Fellow, Center for Ecological Research, Kyoto University (2002)

Research Fellow, Japan Society for Promotion of Science (2001)

Research Fellow, Department of Microbiology and Immunology, College of Medicine, University of Illinois at Chicago (1996)

Research Assistant, Department of Biological Sciences, Oakland University (1995)

**[Higher Degrees]**

D.Sc. (Kyoto University, 2002), M.Sc. (University of Illinois, 2001), M.Sc. (Ehime University, 1994)

**[Field Specialization/Background]**

Microbial Ecology, Environmental Microbiology

**[Academic Society Memberships]**

American Society for Microbiology, Japanese Society for Microbial Ecology, The Ecological Society of Japan, Japan Society on Water Environment

**—Major Publications—**

**[Papers (reviewed)]**

Matsui, K., K. Yusa, H. Sugawara, M. Narita, G. Endo (2007) Development of bacterial biosensor for detecting organomercurials using organomercurial lyase gene and bioluminescence reporter system. *Journal of Japan Society on Water Environment* 30: 77-81 (in Japanese).

Honjo, M, K. Matsui, N. Ishii, M. Nakanishi and Z. Kawabata (2007) Viral abundance and its related factors in a stratified lake. *Archiv für Hydrobiology,* 168: 105-112.

Uchii K, K. Matsui, R. Yonekura, K. Tani, T. Kenzaka, M. Nasu and Z. Kawabata (2006) Genetic and physiological characterization of the intestinal bacterial microbiota of bluegill (*Lepomis macrochirus*) with three different feeding habits. *Microbial Ecology,* 51: 277-283.

Honjo, M., K. Matsui, M. Ueki, R. Nakamura, J. A. Fuhrman and Z. Kawabata (2006) Diversity of virus-like agents killing *Microcystis aeruginosa* in a hyper-eutrophic pond. *Journal of Plankton Research,* 28: 407-412.

Endo G., K. Matsui, M. Narita (2006) Horizontal gene transfer in environmental purification microorganisms – Consideration of the use of living modified organisms in the uncontained environments fro the evidence of mercury resistance genes as microbial common properties–. *Journal of Environmental Biotechnology,* 6: 27-32 (in Japanese).

**—Oral Presentation—**

September 21, 2006 Obata, K., K. Matsui, G. Endo. "Expression of arsenic resistance genes from *Bacillus* sp. MB24

in *Escherichia coli* and *Bacillus megaterium*" 61st Annual Meeting of Japan Society of Civil engineers (Ritsumeikan University, Kusatsu, Shiga Prefecture)

March 20, 2007 Miki, T., K. Matsui, T. Nishida. Conveners of Symposium "New Aspect from microbial world: Unevenness of microbial community is important to sustain bio-geochemical cycle and biological interactions in our planet" 54th Annual Meeting of Ecological Society of Japan (Ehime University, Matsuyama, Ehime Prefecture)

March 20, 2007 Matsui, K., M. Narita, G. Endo. "Transoceanic and transcontinental dispersal of bacteria and genes: global dissemination of mercury resistance bacteria and its resistance genes." 54th Annual Meeting of Ecological Society of Japan (Ehime University, Matsuyama, Ehime Prefecture)

March 20, 2007 Uchii, K., R. Yonekura, K. Matsui, N. Okuda, Z. Kawabata. "Does gut microbiota help animal adaptations to new environments?" 54th Annual Meeting of Ecological Society of Japan (Ehime University, Matsuyama, Ehime Prefecture)

**—Poster Presentation—**

June, 2006 Uchii, K., Okuda, N., Karube, Z., Yonekura, R., Matsui, K., Kawabata, Z. Trophic polymorphism in Lake Biwa bluegill, an introduced fish species in Japan: stable isotopic evidence. ASLO Summer Meeting 2006, Victoria, British Columbia, Canada

August 24, 2006 Matsui, K., Narita, M. Kawabata, Z., Endo, G. Evidence for worldwide dissemination of mercury resistance transposon among *Bacillus* on the basis of directly repeated (DR) sequences. 11th International Symposium on Microbial Ecology, Austria Center, Vienna, Austria

August 24, 2006 Endo, G., Matsui, K., Yusa, K., Narita, M. Substrate specificity of several organomercurylyases found from environmental bacteria. 11th International Symposium on Microbial Ecology, Austria Center, Vienna, Austria

October 29, 2006 Matsui, K., M. Narita, Z. Kawabata, G. Endo. "Dissemination of organmercurial resistance transposon among *Bacillus* on the basis of directly repeated (DR) sequences." 22nd Annual Meeting of Japan Society for Microbial Ecology (University of Tokyo, Tokyo)

**—Academic and Social Activities—**

Visiting Research Fellow at Institute for Environmental Protection Tohoku Gakuin University

Member of evaluation committee for graduation research at Department of Civil and Environmental Engineering, Kinki University

## MATSUKAWA, Taichi — Project Researcher

Born in 1974.

**—Curriculum Vitae—**

**[Academic Career]**

Graduate School of Human Sciences, Osaka University, Doctor's Course (2006)

Graduate School of Human Sciences, Osaka University, Master's Course (2001)

Faculty of Human Sciences, Osaka University (1998)

**[Professional Career]**

Project Researcher, Research Institute for Humanity and Nature (2006)

Lecturer (Part-time), Center for General Studies, Konan University (2006)

Technical Assistant, Research Institute for Humanity and Nature (2005)

Lecturer (Part-time), School of Sociology and Social Work, Kwansei Gakuin University (2005)
Lecturer (Part-time), Faculty of Humanities, Tezukayama University (2004)
**[Higher Degrees]**
Master of Human Sciences (Osaka University, 2001)
**[Field Specialization/Background]**
Sociology, Social Research Methodology
**[Academic Society Memberships]**
The Japan Sociological Society, The Japanese Society for Environmental Sociology, Society of Environmental Science, Japan

**—Major Publications—**
**[Articles]**

2007 'Pure Science or Applied Science? Impact of Today's Science Policy Change on Humanities and Social Sciences' "SIMPATIA" New Research Initiatives for Humanities and Social Sciences (Japan Society for the Promotion of Science) Young Researchers Association, 1: 17-20 (in Japanese).

**—Oral Presentation—**

September 4, 2006 Matsukawa, Taichi, Takahito Yoshioka "Survey on Interests in Watershed Environment (2): Value Structure of Environmental Concern" 2007 Annual Meeting of Society of Environmental Science, Japan (Sophia University, Chiyoda, Tokyo)

December 6, 2006 Matsukawa, Taichi, Takahito Yoshioka "Cause and Effect of Aesthetic Experience in the Natural Environment" 34th Seminar of The Japanese Society for Environmental Sociology (Rikkyo University, Toshima, Tokyo)

**—Poster Presentation—**

November 7–8, 2006 Matsukawa, Taichi, Takahito Yoshioka 'Effect of Childhood Nature Experience on Environmental Concerns about Watershed' RIHN 1st International Symposium "Water and Better Human Life in the Future," (Kyoto International Conference Hall, Kyoto)

**—Research Activities—**
**[Field Research in Japan]**

February, 2007 Kushiro River basin, Ishikari River basin, Tone River basin, Arakawa River basin, Shonai River basin, Kushida River basin, Saba River basin, Kase River basin (Survey on Forest Management for the Next Generation)

**—Public and School Lectures—**

July 23, 2006 'Pure Science or Applied Science? Impact of Today's Science Policy Change on Humanities and Social Sciences' (New Research Initiatives for Humanities and Social Sciences (Japan Society for the Promotion of Science) Young Researchers Association Meeting, Campus Plaza Kyoto, Kyoto)

## MISHINA, Natalia —Invited Research Fellow

Born in 1979. (Russian Federation)

**—Curriculum Vitae—**

**[Academic Career]**

Pacific Institute of Geography, Far Eastern Branch, Russian Academy of Sciences, Ph. D (Cand.Sc.) Degree (2005)

Department of Asia-Pacific Region's Geography, School of Geography, Institute of Environmental Sciences, Far Eastern National University (Vladivostok), Specialist (5 year) Degree (2001)

**[Professional Career]**

Invited Research Fellow, Research Institute for Humanity and Nature, Kyoto (April–October 2006, April–July 2007)

Researcher, Center of Information and Cartography, Pacific Institute of Geography FEB RAS (2004–present)

Research assistant, Center of Landscape and Ecological Studies, Pacific Institute of Geography FEB RAS (2001–2004)

**[Higher Degrees]**

Ph.D. (Cand.Sc.) Degree in Geography (2005), Specialist Degree in Geography (2001)

**[Field Specialization/Background]**

Geography of Asian-Pacific Countries, Landscape Ecology

**[Awards]**

FEB RAS Prize in the name of Academician I. P. Druzhinin for Scientific Geographical/Geoecological Publication of Young Scientists (2007) to «Land-use and Land-cover Changes in the Amur River Basin (South of the Russian Far East and North-East China)» (Ganzei S. S., Mishina N. V., 2005)

**—Major Publications—**

**[Books]**

Ganzei S. S., Mishina N. V.

2006 "Main features of population and land use dynamics on near-boundary territories of the Northeastern China" Pages 114-124 *in Geographical studies in the Far East. Results and prospects (by 35th anniversary of the Pacific Institute of Geography FEBRAS).* Dalnauka, Vladivostok. ISBN 5-8044-0135-1 (in Russian).

**[Articles]**

Ganzei S. S., Mishina N. V.

2002 "International transboundary territories in the south of the Russian Far East and their role in sustainable natural resource use in border regions" *Journal of the Korean Geographical Society* 37(5): 522-535.

2005 "Land-use and land-cover changes in the Amur River basin (South of the Russian Far East and North-East China)" *Land-use and Land-cover Changes in the Separate Regions of the World. IGU - LUCC Atlas.* Vol. 4. pp. 49-62.

Ganzei S. S., Ermoshin V. V., Mishina N. V., Shiraiwa T.

2007 "Present-day land use in the Amur River basin" *Geography and Natural Resources* (in press) (in Russian).

**[Miscellaneous]**

Mishina N. V.

2005 "Geographical analysis of the trans-boundary territory (Primorskii and Khabarovskii Krais of Russia – Heilongjiang Province of China)" *Report on Amur-Okhotsk Project, RIHN,* No. 3., pp. 125-132.

2006 "Population Dynamics and agricultural development of Manchuria in the first half of the XX century" *Proc. of Int. Conf. "Problems of Sustainable Development of Transboundary Territories"*: 108-111 (in

Russian).

2006 "Main stages and features of economic development of the Bikin-Vandashan transboundary territory" *Geographical and Geoecological Studies in the Far East, collected works of young scientists.* Vol. 2, pp. 184-192 (in Russian).

2007 "Some aspects of foreign trade relations of the Amur-Okhotsk region's countries" *Report on Amur-Okhotsk Project, RIHN,* No. 4., pp. 173-181.

2007 "Landscape structure of the Russian and Chinese near-boundary territories: particularities of anthropogenic transformation" *Geographical and Geoecological Studies in the Far East, collected works of young scientists.* Vol. 3 (in press) (in Russian).

**—Oral Presentation—**

April 12, 2005 "Geographical analysis of transboundary geo-system: methodical aspects" VIII Academic Convention in Applied Geography (Institute of Geography, Siberian Branch of the Russian Academy of Sciences, Irkutsk)

October 26, 2006 "Population Dynamics and agricultural development of Manchuria in the first half of the XX century" International Conference. "Problems of sustainable development of transboundary territories" (Pacific Institute of Geography FEB RAS, Vladivostok)

November 28, 2006 "Some aspects of foreign trade relations of the Amur-Okhotsk region's countries" V Conference-contest of Young Scientists "Geographical and Geoecological Studies in the Far East" (Pacific Institute of Geography FEB RAS, Vladivostok)

June 25, 2007 "External influence on land-use changes in the Amur River basin" Second Global Conference on Economic Geography (Beijing Convention Center, Beijing)

**—Poster Presentation—**

August 8, 2006 "Modern landscape structure and land use changes of the Russian-Chinese transboundary geo-system" International Symposium on Sustainable Development (Hokkaido University, Sapporo)

August 24, 2006 "Landscape structure of the Russian-Chinese low mountainous region in the Ussuri River basin" XI International Landscape Conference «Landscape science: theory, methods, regional studies, practice" (Faculty of Geography, Moscow State University, Moscow)

## MIYAZAKI, Chihiro ——— Project Senior Researcher

Born in 1972.

**—Curriculum Vitae—**

**[Academic Career]**

Department of Earth Science, Graduate School of Science, Tohoku University, D. Course (2001)

Department of Earth Science, Graduate School of Science, Tohoku University, M. Course (1997)

Faculty of Education, Tokyo Gakugei University (1995)

**[Professional Career]**

Technicians, Research Institute for Humanity and Nature (2005)

COE Researcher, Hydrospheric Atmospheric Research Center, Nagoya University (2003)

Post-Doc Researcher, Center for Spatial Information Science, the University of Tokyo (2002)

**[Higher Degrees]**

D.Sc. (Tohoku University, 2001), M.Sc. (Tohoku University, 1997)

**[Field Specialization/Background]**

Physical Geography, Climatology

**[Academic Society Memberships]**

Meteorological Society of Japan, The Association of Japanese Geographers, The Tohoku Geographical Association

**—Major Publications—**

**[Books]**

Okabe, A., Y. Asami, K. Itoh, C. Miyazaki, R. Shibasaki, K. Sezaki, M. Arikawa, T. Hatta, Y. Maruyama (2004) 'The study on the location of geographic name as "Hinata (Sunny Place)" and "Hikage (Shadow Place)" by GIS', "Pioneer of the Spatial Information Science" Sinfonica. 42-55 (in Japanese).

**[Papers (non-reviewed)]**

Miyazaki C, T. Yasunari, S. Kanae (2006) Dominant Interannual modes of the Asian Winter Surface Air Temperature Variability and their Relations to Vietnam. *Vietnam - Japan Joint Workshop on Asian Monsoon:* 125-130.

Miyazaki, C., T. Yasunari (2005) Interannual variation of winter surface air temperature in Asia/ the western Pacific sector and its connection with the Arctic Oscillation and ENSO. *The Asia Oceania Geosciences Society's 2nd Annual Meeting.* 58-OA-A1419.

**[Articles]**

2002 'Review of GIS software – GMT (The Generic Mapping Tools)' "Gekkan-Chiri (Monthly Geography)" Kokon-shoin, 47(8): 66-67 (in Japanese).

**—Oral Presentation—**

September 22, 2003 Miyazaki, C. 'The study on the location of geographic name as "Hinata (Sunny Place)" and "Hikage (Shadow Place)" in Nagano' Spring Meeting of the Association of Japanese Geographers (Okayama University, Okayama, Okayama Prefecture)

March 28, 2005 Miyazaki, C., T. Yasunari. 'Interannual variation of dominant modes of wintertime surface temperature in Asia' Spring Meeting of the Association of Japanese Geographers (Aoyama Gakuin University, Shibuya, Tokyo Prefecture)

November 21, 2005 Miyazaki, C., T. Yasunari. 'The relationship between dominant modes of wintertime surface temperature in Asia and solar activity' Autumn Meeting of Meteorological Society of Japan (Kobe University, Kobe, Hyogo Prefecture)

October 25, 2006 Miyazaki, C., T. Yasunari. 'The reason of cold winter in Japan from the viewpoint of dominant modes of wintertime surface temperature in Asia' Autumn Meeting of Meteorological Society of Japan (Will Aichi, Nagoya, Aichi Prefecture)

**—Poster Presentation—**

May 16, 2005 Miyazaki, C., T. Yasunari. 'Interannual variation of dominant modes of wintertime surface temperature in Asia and its cause' Spring Meeting of Meteorological Society of Japan (the University of Tokyo, Bunkyo, Tokyo Prefecture)

August 3, 2005 Miyazaki, C., T. Yasunari. 'Dominant modes of Interannual variation of winter surface air temperature over Asia and the western Pacific' The International Association of Meteorology and Atmospheric Sciences (Beijing International Convention Center, Beijing, China)

May 23, 2006 Miyazaki, C., A. Yatagai. 'Orographic effect on the climatology of winter precipitation in Iran'

Spring Meeting of Meteorological Society of Japan (Epocal Tsukuba, Tsukuba, Ibaraki Prefecture)

## MIYOSHI, Takao — Project Senior Researcher

Born in 1969.

**—Curriculum Vitae—**

**[Academic Career]**

Department of Chemistry, Graduate School of Science, The University of Tokyo, Doctor's Course (2001)
Department of Chemistry, Graduate School of Science, The University of Tokyo, Master's Course (1994)
Department of Chemistry, Faculty of Science, The University of Tokyo (1992)

**[Professional Career]**

Project Senior Researcher, Research Institute for Humanity and Nature (2006)
Researcher (Part-time), National Institute for Environmental Studies (2005)
Post Doctoral Fellow, National Institute for Environmental Studies (2002)

**[Higher Degrees]**

D.Sc. (The University of Tokyo, 2001), M.Sc. (The University of Tokyo, 1994)

**[Field Specialization/Background]**

Atmospheric Chemistry

**[Academic Society Memberships]**

The Chemical Society of Japan, Japan Society for Atmospheric Environment, The Japan Society of Atmospheric Chemistry

**—Major Publications—**

**[Papers (reviewed)]**

Q. Zhang, J. L. Jimenez, M. R. Canagaratna, J. D. Allan, H. Coe, I. Ulbrich, K. Dzepina, E. Dunlea, K. Docherty, P. F. DeCarlo, D. Salcedo, M. R. Alfarra, Y. L. Sun, T. Onasch, J. T. Jayne, A. Takami, T. Miyoshi, A. Shimono, S. Hatakeyama, N. Takegawa, Y. Kondo, J. Schneider, F. Drewnick, S. Weimer, K. Demerjian, P. Williams, K. Bower, A. M. Middlebrook, R. Bahreini, L. Cotrell, R. Griffin, J. Rautiainen, and D. R. Worsnop (2007) Ubiquity and Dominance of Oxygenated Species in Organic Aerosols in Anthropogenically-Influenced Northern Hemisphere Mid-latitudes, *Geophysical Research Letters*, in press.

A. Takami, T. Miyoshi, A. Shimono, N. Kaneyasu, S. Kato, Y. Kajii, and S. Hatakeyama (2007) Transport of Anthropogenic Aerosols from Asia and Subsequent Chemical Transformation, *Journal of Geophysical Research*, in press.

S. Hatakeyama, A. Takami, T. Miyoshi, and W. Wang (2006) Relationship among Major Ionic Species in Aerosols Transported from China via the East China Sea to Okinawa, *Journal of Aerosol Research*, 21(2): 147-152 (in Japanese).

A. Takami, A. Higurashi, T. Miyoshi, A. Shimono, and S. Hatakeyama (2005) Difference of Chemical Compositions Observed at the Northern and Southern Japanese Coastal Region in East China Sea, *Journal of Aerosol Research*, 20(4): 352-354 (in Japanese).

A. Takami, T. Miyoshi, A. Shimono, and S. Hatakeyama (2005) Chemical Composition of Fine Aerosol Measured by AMS at Fukue Island, Japan during APEX Period, *Atmospheric Environment*, 39(27): 4913-4924.

K. Nomura, M. Nakazawa, T. Miyoshi, and Y. Makide (2003) Indoor $^{222}$Rn Concentrations in Radioisotope Use, Uranium Use, and General Use Laboratories, *Japanese Journal of Radiation Safety Management*, 2(2):

68-73 (in Japanese).

T. Miyoshi and Y. Makide (2003) Estimation of the Emission of Volatile Organic Compounds (VOCs) in Central Tokyo by the Dynamic Analysis of Their Temporally Increasing Atmospheric Concentrations in Calm Weather Afternoon Conditions, *Chemistry Letters*, 32(7): 562-563.

**[Others]**

T. Miyoshi and Y. Makide (2002) Variation of Atmospheric $^{222}Rn$ Concentrations at the Central Tokyo, *Center News, Radioisotope Center, The University of Tokyo*, 33(2): 5-7 (in Japanese).

**—Oral Presentation—**

| | |
|---|---|
| September 25, 2003 | T. Miyoshi, A. Takami, A. Shimono, and S. Hatakeyama, Measurements of Ambient Aerosol Concentrations and Size in Fukue Island, Nagasaki, 44th Annual Meeting of Japan Society for Atmospheric Environment, Kyoto University, Kyoto City (in Japanese) |
| March 27, 2004 | T. Miyoshi, A. Takami, A. Shimono, and S. Hatakeyama, Measurement of Ambient Aerosol in Cape Hedo, Okinawa, 84th Spring Meeting of The Chemical Society of Japan, Kwansei Gakuin University, Nishinomiya City (in Japanese) |
| June 24, 2004 | T. Miyoshi, A. Takami, A. Shimono, and S. Hatakeyama, Measurement of Ambient Aerosol in Spring, 10th Spring Meeting of The Japan Society of Atmospheric Chemistry, Research Center for Advanced Science and Technology, The University of Tokyo, Meguro Ward, Tokyo (in Japanese) |
| October 22, 2004 | T. Miyoshi, A. Takami, A. Shimono, and S. Hatakeyama, Measurement of Ambient Aerosol by an Aerosol Mass Spectrometer in Cape Hedo, Okinawa, 45th Annual Meeting of Japan Society for Atmospheric Environment, Akita City Culture Hall, Akita City (in Japanese) |
| June 15, 2005 | T. Miyoshi, A. Takami, A. Shimono, and S. Hatakeyama, Measurement of the Ambient Aerosol at Cape Hedo, Okinawa (October, 2003–July, 2004), 11th Spring Meeting of The Japan Society of Atmospheric Chemistry, Nara Gender Equality Center (Asunara), Nara City (in Japanese) |
| September 7, 2005 | T. Miyoshi, A. Takami, A. Shimono, and S. Hatakeyama, Measurement of the Ambient Aerosol at Fukue Island, Nagasaki and Cape Hedo, Okinawa in Spring, 46th Annual Meeting of Japan Society for Atmospheric Environment, Aichi Industry and Trade Center, Nagoya City (in Japanese) |
| September 22, 2006 | T. Miyoshi, A. Takami, A. Shimono, S. Hatakeyama, and T. Hayasaka, Chemical Composition of Atmospheric Aerosols at Fukue Island, Nagasaki and Cape Hedo, Okinawa, 47th Annual Meeting of Japan Society for Atmospheric Environment, The University of Tokyo, Bunkyo Ward, Tokyo (in Japanese) |
| October 11, 2006 | T. Miyoshi, A. Takami, A. Shimono, S. Hatakeyama, and T. Hayasaka, Characteristics of Aerosol Chemical Compositions Measured with an Aerosol Mass Spectrometer at Cape Hedo, Okinawa — Seasonal Variations and Effects of Air Mass Origin, Korea-Japan-China Second Joint Conference on Meteorology, KINTEX, Goyang City, Korea |

**—Poster Presentation—**

| | |
|---|---|
| January 9, 2004 | T. Miyoshi, A. Takami, A. Shimono, and S. Hatakeyama, Measurement of Ambient Aerosol by an Aerosol Mass Spectrometer during APEX Period, 14th Winter Meeting of The Japan Society of Atmospheric Chemistry, Toyokawa Citizens' Plaza, Toyokawa |

City (in Japanese)

July 28, 2004 T. Miyoshi, A. Takami, A. Shimono, and S. Hatakeyama, Aerosol Size and Composition Measurements in Fukue Island Using an Aerosol Mass Spectrometer, 16th ICNAA (International Conference on Nucleation and Atmospheric Aerosols), Kyoto University, Kyoto City

June 15, 2006 T. Miyoshi, A. Takami, A. Shimono, S. Hatakeyama, and T. Hayasaka, Analysis of Chemical Components of Atmospheric Aerosols at Cape Hedo, Okinawa—Seasonal Variations and Effects of Air Mass Origin, 12th Spring Meeting of The Japan Society of Atmospheric Chemistry, Yamagata-Zao Spa (Hotel Komakusa), Yamagata City (in Japanese)

**—Research Activities—**

**[Field Research in Japan]**

July, 2002 Nemuro City and Sarufutsu Village, Hokkaido Prefecture (Sampling of background air)

December, 2002–March, 2007 Goto City, Nagasaki Prefecture (Measurement of atmospheric aerosols)

February, 2003–March, 2007 Kunigami Village, Okinawa Prefecture (Measurement of atmospheric aerosols)

## MOJI, Kazuhiko — Visiting Professor

Born in 1953.

**—Curriculum Vitae—**

**[Academic Career]**

Department of Human Ecology, Graduate School of Medicine, The University of Tokyo, D. Course (1983)

Department of Human Ecology, Graduate School of Medicine, The University of Tokyo, M. Course (1980)

Faculty of Medicine, The University of Tokyo (1976)

**[Professional Career]**

Visiting Professor, Research Institute for Humanity and Nature (2006)

Head, Research Center for Tropical Infectious Diseases, Nagasaki University Institute of Tropical Medicine (2006)

Professor, Research Center for Tropical Infectious Diseases, Nagasaki University Institute of Tropical Medicine (2002)

Professor, School of Health Sciences, Nagasaki University School of Medicine (2001)

Professor, School of Allied Medical Sciences, Nagasaki University (1999)

Associate Professor, Department of Public Health, Nagasaki University School of Medicine (1987)

Instructor, Department of Human Ecology, School of Health Sciences, Faculty of Medicine, University of Tokyo (1983)

**[Higher Degrees]**

D.Sc. (The University of Tokyo, 1987), M.Sc. (The University of Tokyo, 1980)

**[Field Specialization/Background]**

Human Ecology, Population Health in the Tropics

**[Academic Society Memberships]**

The Japanese Society of Tropical Medicine (Secretary General), The Japanese Society of Health and Human Ecology (Board member)

**—Major Publications—**

**[Papers (reviewed)]**

Yoda T, Minematsu K, Abe T, Basuki S, Artasutra K, Dachlan YP, Moji K, Kanbara H, Rakue Y, Mizota T (2007) Evaluation by villagers of the malaria control project on Lombok and Sumbawa Islands, west Nusa Tenggara Province, Indonesia. *Southeast Asian J Trop Med Public Health*; 38(2): 213-22.

Nakamura S, Hongo R, Moji K, Oku T. (2007) Suppressive effect of partially hydrolyzed guar gum on transitory diarrhea induced by ingestion of maltitol and lactitol in healthy humans. *Eur J Clin Nutr* 2007 Jan 24; [Epub ahead of print].

Tahara Y, Moji K, Tsunawake N, Fukuda R, Nakayama M, Nakagaichi M, Komine T, Kusano Y, Aoyagi K (2006) Physique, body composition and maximum oxygen consumption of selected soccer players of Kunimi High School, Nagasaki, Japan. *J Physiol Anthropol* 25(4): 291-7.

Karama M, Yamamoto T, Shimada M, Orago SS, Moji K (2006) Knowledge, attitude and practice towards HIV/AIDS in a rural Kenyan community. *J Biosoc Sci* 38(4): 481-90.

Nishikiori N, Abe T, Costa DG, Dharmaratne SD, Kunii O, Moji K (2006) Who died as a result of the tsunami? Risk factors of mortality among internally displaced persons in Sri Lanka: a retrospective cohort analysis. *BMC Public Health* 20; 6: 73.

Nishikiori N, Abe T, Costa DG, Dharmaratne SD, Kunii O, Moji K (2006) Timing of mortality among internally displaced persons due to the tsunami in Sri Lanka: cross sectional household survey. *BMJ* 11; 332(7537): 334-5.

**—Academic and Social Activities—**

October 11–13, 2006 Organizer of the joint meeting of The Society of Tropical Medicine and The Japan Association for International Health

**—Oral Presentation—**

2006.10 KANEDA E, TIENGKHAM PONGVONGSA, BOUNGNONG BOUPHA, MOJI K "The prospect of the Lahanam demographic surveillance system, Lao PDR" The Joint Meeting of the 47th Annual Meeting of the Japanese Society of Tropical Medicine and the 21st Annual Meeting of the Japanese Society of International Health (Nagasaki Brick Hall, Nagasaki)

2006.10 KANEKO S, SHIMADA M, MOHAMED KARAMA, MINAKAWA N, KOMAZAWA O, MUSHINZIMANA E, MOJI K, ICHINOSE Y, KANEDA E "A platform development for demographic and health information system to support research and control of infectious diseases and health-related problems" The Joint Meeting of the 47th Annual Meeting of the Japanese Society of Tropical Medicine and the 21st Annual Meeting of the Japanese Society of International Health (Nagasaki Brick Hall, Nagasaki)

2006.10 NAKAZAWA S, LE DUC DAO, NGUYEN VAN TUAN, MAENO Y, UEMURA H, HA VIET VIEN, TRUONG VAN HANH, LE KHANH THUAN, MOJI K, SUNAHARA T "An outline of the project and case reports of people with a high slide positive rate in the research site" The Joint Meeting of the 47th Annual Meeting of the Japanese Society of Tropical Medicine and the 21st Annual Meeting of the Japanese Society of International Health (Nagasaki Brick Hall, Nagasaki)

2006.10 SUNAHARA T, VU VIET HUNG, NGUYEN DINH NAM, VU DUC CHINH, HO DINH TRUNG, LE KHANH THUAN, TAKAGI M, MOJI K, NAKAZAWA N "Variability in abundance of the malaria vector, Anopheles dirus, among and within villages" The Joint Meeting of the 47th Annual Meeting of the Japanese Society of Tropical Medicine and the 21st Annual Meeting of the Japanese Society of International Health (Nagasaki Brick Hall, Nagasaki)

2006.10 ABE T, Trinh Dinh Tuong, Nguyen Quang Thieu, Le Xuan Hung, Le Khanh Thuan, Sunahara T,

Nakazawa S, Moji K "Mosquito avoidance practice and malaria infection in a minority's community in southern Vietnam" The Joint Meeting of the 47th Annual Meeting of the Japanese Society of Tropical Medicine and the 21st Annual Meeting of the Japanese Society of International Health (Nagasaki Brick Hall, Nagasaki)

**—Supervision and Host—**

10 PhD students and 2 MS students in Nagasaki University Graduate School of Biomedical Sciences

## MOMOKI, Akiko — Associate Professor

Born in 1950.

**—Curriculum Vitae—**

**[Academic Career]**

Department of Biology, Faculty of Science, Tohoku University, B. Sc. (1973)

**[Professional Career]**

Adjunct Lecturer, Faculty for the Study of Contemporary Society, Kyoto Women's University (2002)

Associate Professor, Research Institute for Humanity and Nature (2001–)

Part-time Lecturer, Osaka Bunka Fashion College (1992–2001)

Assistant Professor, Okayama University Dental School (1997–98)

Part-time Lecturer, Faculty of Science and Technology, Ryukoku University (1995–96)

Part-time Lecturer, The Center for Student Exchange, Kyoto University (1989–95)

Research Student, Department of Zoology, Faculty of Science, Kyoto University (1987–94)

Assistant, Technical Development Section/Senior Staff, Buisiness Planning Section/Senior Staff, R&D Section, Rhône-Poulenc Japan, Ltd. (1977–89)

Technical Assistant, Gynecology Laboratory, Keio University Hospital (1973–74)

**[Field Specialization/Background]**

Biology, Ethology, Human Ethology

**[Academic Society Memberships]**

Japan Ethological Society, Société Franco-Japonaise de la Pharmacie, Japanese Association of Science & Technology Journalists, Japanese Society for Science and Technology Studies

**—Major Publications—**

**[Books]**

Momoki, A. (2006) "BSE wo kankyo-mondai to shite kangaete-miruto" (BSE as an environmental issue) in Hidaka, T. + Research Institute for Humanity and Nature (ed.) *Kodomo-tachi ni kataru korekara no chikyu (Stories of the earth in the future to be told to our children)*, Kodansha Ltd.: 143-161 (in Japanese)

**[Translations]**

Momoki, A. and Kadowaki, H. (Jan. 2007) Robert Delort · François Walter, *Kankyo no rekishi – Yoroppa, Gensho kara gendai made*, Misuzu Shobo Ltd. (original version: Robert Delort · François Walter *Histoire de l'environnement européen*, P.U.F. 2001)

**[Papers]**

Uratani, K., Akabane, K., Momoki, A. & Ogata, H., 2006, Pharmaceutical Education in Japan, *Japanese Journal of Pharmaceutical Health Care and Sciences*, 32(12): 1177-1194

**—Research Activities—**

**[Field Research in Foreign Countries]**

April 2006 Edinburgh, U.K. (research on the Edinburgh Internatinal Science Festival)

**—Social Activities—**

**[Managements, committees, etc.]**

April 2005– Director of the Japanese Association of Science and Technology Journalists

**[Presentations, etc.]**

October 2, 2006 Commentator at the Café Science: Climate Change: What shall we do? (organized by the British Council)

November 25, 2006 Moderator at the discussion "Questions and objections to the science journalists" organized by the Japanese Association of Science and Technology Journalists at the Science Agora 2006 hosted by JST

## MORI, Wakaha — Project Senior Researcher

Born in 1970.

**—Curriculum Vitae—**

**[Academic Career]**

Department Linguistics, Graduate School of Letters, Kyoto University, D. Course (2002)

Department Linguistics, Graduate School, Kyoto University, M. Course (1996)

Department Linguistics, Faculty of Letters, Kyoto University (1993)

**[Professional Career]**

Senior Researcher, Research Institute for Humanity and Nature (2006–)

Researcher (part-time), Center for Eurasian Cultural Studies (2005–2006)

Research Fellow of the Japan Society for the Promotion of Science (DC 1) (1996)

**[Higher Degrees]**

D.L. (Kyoto University, 2006), M.L. (Kyoto University, 2003)

**[Field Specialization/Background]**

Sumerian, Linguistics, Cuneiform Studies

**[Academic Society Memberships]**

The Linguistic Society of Japan, The Society for Near Eastern Studies in Japan

**—Major Publications—**

**[Articles]**

2007 "Plural verbal bases meaning "to go" in Sumerian" *Acta Sumerologica* 23 (forthcoming)

2005 The Study of plural verbs in Sumerian (in Japanese)

2004 "Vowel assimilation in Sumerian verbal suffixes", Kyoto University Linguistic Research 23 2004: 63-83 (in Japanese)

2003 "Plural bases in Sumerian Verbs", Bulletin of the Society for Western and Southern Asiatic Studies 58: 1-31 (in Japanese)

**[Reports]**

2007 "Sumerian plural bases meaning 'to go'", in Annual Report 2006 under "Formation of Tribal Communities in the Bishri Mountains, Middle Euphrates" (Grant-in-Aid for Scientific Research on

Priority Area (2005-2009)) (in Japanese)

2006 "On the *s* and *š*-sound in Sumerian and Akkadian", in Annual Report 2005 under "Formation of Tribal Communities in the Bishri Mountains, Middle Euphrates" (Grant-in-Aid for Scientific Research on Priority Area (2005-2009)): 55-57(in Japanese)

2004 "Plural bases in Sumerian Verbs", The Second Report IV under The 21st Century COE Program: Towards a Center of Excellence for Study of Humanities in the Age of Globalization. Graduate school of Letters, Kyoto University (in Japanese)

**[Miscellaneous]**

2005 "Write Japanese words in the cuneiform scripts. 1" Gekkan Minpaku, October (in Japanese)

2005 "Write Japanese words in the cuneiform scripts. 2" Gekkan Minpaku, November (in Japanese)

**—Research Activities—**

**[Field Research]**

July–August, 2002 British Museum, London (Research on cuneiform tablets)

**—Oral Presentation—**

January, 2007 "The Plural bases meaning 'to go' in Sumerian". The workshop of the planned Research Team "Establishment and Development of the Civilization of Sumerian Writing System" in "Formation of Tribal Communities in the Bishri Mountains, Middle Euphrares" (Grant-in-Aid for Scientific Research on Priority Area (2005-2009)), Kyoto University, Kyoto

March, 2006 Sumerian verb *sug* 'stand (plural)'. The 49th Japanese Sumerological meeting, Kyoto University, Kyoto

December, 2005 "On the *s* and *š*-sound in Sumerian and Akkadian", The workshop of the planned Research Team "Establishment and Development of the Civilization of Sumerian Writing System" in "Formation of Tribal Communities in the Bishri Mountains, Middle Euphrares"(Grant-in-Aid for Scientific Research on Priority Area (2005-2009)), Kyoto University, Kyoto

May, 2005 Notes on Sumerian verbal bases—*ere* 'to go' in the third millennium BC. The 48th Japanese Sumerological meeting, Waseda University, Tokyo

March, 2003 Plural bases in Sumerian verbs. The 45th Japanese Sumerological meeting, Kyoto University

August, 2002 Horioka, H. and W. Mori. Notes on the Sumerian literary text "Inanna and Shu-kale-tuda". The 44th Japanese Sumerological meeting, Chuo University, Tokyo

**—Public and School Lectures—**

December 3, 2006 "Let's write our names in the cuneiform scripts", Suita City Museum, Suita, Osaka

August 28–September 1, 2006 "The Introduction to Sumerian", The summer intensive course under the 31st study group "A Philological Study of Old Eurasian Languages" in The 21st Century COE Program: Towards a Center of Excellence for Study of Humanities in the Age of Globalization. Graduate school of Letters, Kyoto University, Kyoto

## MORIYA, Kazuki — Researcher (Part-time)

Born in 1974.

**—Curriculum Vitae—**

**[Academic Career]**

Department of Oriental History, Graduate school of Letters, Kyoto University, D. Course (2002)

Department of Oriental History, Graduate school of Letters, Kyoto University, M. Course (1999)

Department of Oriental History, Faculty of Letters, Kyoto University (1997)

**[Professional Career]**

Research Fellow, Research Institute for Human and Nature (2005)

Research Assistant, Institute for Research in Humanities, Kyoto University (2003)

**[Field Specialization/Background]**

Oriental History

**[Academic Society Memberships]**

Toyoshi-Kenkyu-Kai (The Society of Oriental Researches), Shigaku Kenkyukai (The Society of Historical Research), Rakuhoku Shigaku Kai (The Rakuhoku Society of Historical Studies)

**—Major Publications—**

**[Books (edited)]**

Inoue M., Y. Kato, K. Moriya (2007) "History of the Oasis-region" Shokado (in Japanese)

**[Papers (reviewed)]**

Moriya K. (2006) 'On Neishi in "Ernian-lilu"'. Resarch on Laws of Han Dynasty excavated from tomb No.247 at Zhanjiashan, Jiangliang, Hoyu shoten, 117-136.

Moriya K. (2007) 'Distribution of sites of Han times in Juyan Oasis and Edsen-gol'. "History of the Oasis-region" Shokado, 19-39 (in Japanese).

Moriya K. (2007) 'On relics of the lower reaches of Heihe basin'. "Project Report on an Oasis-region, A special volume": 56-61 (in Japanese).

Sohma H., G. Mu, W. Qi, K. Hori, Y. Kato, K. Moriya, 'Signs of Environmental Change marked on the Ruins in Lower Heihe River Basin'. "Project Report on an Oasis-region", 6-2: 107-121 (in Japanese).

**[Articles]**

2006 'Drying up lakes on Heihe Basin' "Mainichi Shinbun", 2007 March 3

**—Research Activities—**

**[Field Research in Foreign Countries]**

September, 2006 China (Research on the documents in Neimenggu and Gansu Districts)

**—Oral Presentation—**

September 19, 2006 Moriya K. "International Symposium on Humanity and Nature in Khara Khoto Region" (Ejina Hotel, Ejina, Neimenggu Prefecture China)

## MURAKAMI, Yumiko — Project Researcher

Born in 1972.

**—Curriculum Vitae—**

**[Academic Career]**

Department of Archaeology, Graduate School of Literature, Kyoto University, D. Course (2005)
Department of Archaeology, Graduate School of Literature, Kyoto University, M. Course (1997)
Department of Archaeology, Faculty of Literature, Kyoto University (1994)

**[Higher Degrees]**

M.Litt. (Kyoto University, 1997)

**[Field Specialization/Background]**

Archaeology, Historical Botany

**[Academic Society Memberships]**

Society of Archaeological Studies, Japanese Society for Scientific Studies on Cultural Property, Japanese Association of Historical Botany

**—Major Publications—**

**[Articles]**

Y. Murakami (2006) 'Wooden Products' "Archaeobotanical Studies on the Neolithic cultures in the lower Yangzi basin" (Report of research project, grant-in-aid for general scientific research (B) in 2003-2005), 37-78 (in Japanese).

**—Research Activities—**

**[Field Research in Japan]**

| | |
|---|---|
| May, 2006 | Inagawa Town, Hyogo Prefecture (Research on charcoal producing forest) |
| July, 2006 | Shimo-kitayama Village, Nara Prefecture (Research on deer herbivory in Ohmine Mountains) |
| September, 2006 | Otsu City, Shiga Prefecture (Research on history of plants and forest utilization) |
| December, 2006 | Shiiba Village, Miyazaki Prefecture (Research on folk-lore on human-nature relations) |

**[Field Research in Foreign Countries]**

| | |
|---|---|
| February–March, 2006 | Ziezhang Province, China (Research on wooden products excavated from archaological sites) |
| February–March, 2006 | Ziezhang Province, China (Research on wooden products excavated from archaological sites) |

**—Oral Presentation—**

| | |
|---|---|
| March 11, 2006 | Y. Murakami, 'Wooden products excavated from Archaeological Sites', Kanazawa University Forum on Chinese Archaeology 2006, "Archaeobotanical Studies on the Neolithic cultures in the lower Yangzi basin" (Kanazawa University, Kanazawa, Ishikawa Prefecture) |
| November 11, 2006 | Y. Murakami, 'The influence of Axe for Wooden Use', The regular meeting of Society of Archaeological Studies (Okayama University, Okayama, Okayama Prefecture) |

## MURATA, Fumie — Project Senior Researcher

Born in 1976.

**—Curriculum Vitae—**

**[Academic Career]**

Graduate School of Science and Technology, Kobe University, D. Course (2003)
Graduate School of Science and Technology, Kobe University, M. Course (2000)
Faculty of Human Development, Kobe University (1998)

**[Professional Career]**

Senior Researcher, Research Institute for Humanity and Nature (2006)
Research Fellow, Research Institute for Humanity and Nature (2004)
Research Fellow, Disaster Prevention Research Institute, Kyoto University (2003)

**[Higher Degrees]**

D.Sc. (Kobe University, 2003), M.Sc. (Kobe University, 2000)

**[Field Specialization/Background]**

Tropical Meteorology

**[Academic Society Memberships]**

The Meteorological Society of Japan

**—Major Publications—**

**[Papers (reviewed)]**

Murata F, M. D. Yamanaka, H. Hashiguchi, S. Mori, M Kudsy, T. Sribimawati, B. Suhardi, and Emrizal (2006) Dry intrusions following eastward-propagating synoptic-scale cloud systems over Sumatera Island. *J. Meteor. Soc. Japan*, 84: 277-294.

**[Articles]**

2006 'A survey at Cherrapunjee' "Tenki" Meteorological Society of Japan, 53: 901-904 (in Japanese).

**—Research Activities—**

**[Field Research in Japan]**

June–July, 2006 Meghalaya, India (Research on weather)
December, 2006 Bangladesh (Data collection and discussion)

**—Oral Presentation—**

May 24, 2006 Murata, F, M. D. Yamanaka, H. Hashiguchi, S. Mori, M. Kudsy, T. Sribimawati, B. Suhardi, Emrizal "Study for the convective clouds in Indonesia (12th report)" Spring meeting of the Meteorological Society of Japan (Epocal Tsukuba, Tsukuba, Ibaraki Prefecture)

**—Poster Presentation—**

May 22, 2006 Murata, F., T. Terao, T. Hayashi, H. Asada, J. Matsumoto 'Study for rainfall processes at Cherrapunjee (2nd report)' Spring meeting of the Meteorological Society of Japan (Epocal Tsukuba, Tskukuba, Ibaraki Prefecture)

Oct 16, 2006 Murata, F., T. Terao, H. Asada, J. Matsumoto: Study for atmospheric condition that bring heavy rainfall at Cherrapunjee, Meghalaya district, India, The 3rd Asia Pacific Association of Hydrology and Water Resources Conference (Bangkok, Thailand)

## NAGANO, Takanori ——Research Fellow (JSPS)

Born in 1970.

**—Curriculum Vitae—**

**[Academic Carrier]**

Division of Science and Technology on Regional Environment, Graduate School of Agriculture, Kyoto University, D. Ag. (2002)

Division of Science and Technology on Regional Environment, Graduate School of Agriculture, Kyoto University, M. Ag. (1997)

Department of Agricultural Engineering, Faculty of Agriculture, Kyoto University (1995)

**[Professional Carrier]**

Research Fellow, Research Institute for Humanity and Nature (2001)

**[Higher Degrees]**

D.Ag. (Kyoto University, 2002), M.Ag. (Kyoto University, 1997)

**[Specialized Fields/Background]**

Irrigation and Drainage, Soil Hydrology

**[Academic Society Memberships]**

The Japanese Society of Irrigation, Drainage and Reclamation Engineering, The Japanese Association for Arid Land Studies, Japan Association for African Studies

**[Awards]**

Scientific Paper Encouragement Award, The Japanese Society of Irrigation, Drainage and Reclamation Engineering (2004)

**—Major Publications—**

Umetsu, C., S. Donma, T. Nagano and Z. Coşkun, 2006, The Efficiency of WUA Management in the Lower Seyhan Irrigation Project, *Journal of Rural Economics: Special Issue 2005*: 440-444.

Watanabe, T., K. Hoshikawa, T. Kume and T. Nagano, 2006, Assessment of Climate Change Impacts on Irrigation Management Using a Performance Assessment Model, *Proceedings of 3rd Asian Regional Conference of ICID, Kuala Lumpur, Malaysia* (CD-ROM).

Nagano, T., Y. Fujihara, K. Tanaka, C. Umetsu, K. Hoshikawa, T. Kume, F. Kimura and T. Watanabe, 2007, Generated Social Scenario and Basin Condition for the Final Integration, *The final report of ICCAP*, RIHN,15-18.

**[Reports]**

Nagano, T., S. Donma, K. Hoshikawa, T. Kume, C. Umetsu, E. Akça S. Önder, S. Berberoğlu, B. Özekici, T. Watanabe, S. Kapur and R. Kanber, 2007, The Integrated Assessment of the Impact of Climate Change on Lower Seyhan Irrigation Project, The Final Report of ICCAP, 197-207.

Kume, T., T. Nagano, E. Akça S. Donma, K. Hoshikawa, S. Berberoğlu, M. Serdem, S. Kapur and T. Watanabe, 2007, Impact of the Irrigation Water Use on the Groundwater Environment and the Soil Salinity, The Final Report of ICCAP, 209-214.

Nagano, T., S. Donma, T. Kume, S. Berberoğlu, K. Hoshikawa, E. Akça, S. Kapur and T. Watanabe, 2007, Long-term Changes of Level and Salinity of Shallow Water Table in the Lower Seyhan Plain, Turkey, The Final Report of ICCAP, 215-219.

Hoshikawa, K., T. Nagano, T. Kume and T.Watanabe, Evaluation of Impact of Climate Changes on the Lower Seyhan Irrigation Project, Turkey, The Final Report of ICCAP, 221-230.

Umetsu, C., K. Palanisami, Z. Coşkun, S. Donma, T. Nagano, Y. Fujihara and K. Tanaka, 2007, Climate Change and Alternative Cropping Patterns in Lower Seyhan Irrigation Project: A Regional Simulation Analysis with

MRI-GCM and CCSR-GCM, The Final Report of ICCAP, 231-242.

Nakagawa, H., T. Kobata, T. Yano, C. Barutçular, M. Koç, K. Tanaka, T. Nagano, Y. Fujihara, K. Hoshikawa, T. Kume and T. Watanabe, 2007, Predicting the Impact of Global Warming on Wheat Production in Adana, The Final Report of ICCAP, 163-168.

**—Oral Presentation—**

April 4–8, 2006 Hoshikawa, K., Nagano, T., Kume, T. and Watanabe, T., Development of a model for assessing the performance of irrigation management systems and evaluation of impact of climate changes on the Lower Seyhan Irrigation Project, *Proceedings of International Symposium on Water and Land Management for Sustainable Irrigated Agriculture*, Çukurova University, Adana, Turkey

April 4–8, 2006 Nagano, T., Donma, S., Hoshikawa, K. Kume, T., Umetsu, C., Akça, E., Önder, S, Berberoğlu, S., Özekici, B., Watanabe, T., Kapur, S. and Kanber, R., Integrated approach for assessment of an irrigation system in Lower Seyhan Plain, Turkey, *Proceedings of International Symposium on Water and Land Management for Sustainable Irrigated Agriculture*, Çukurova University, Adana, Turkey

April 4–8, 2006 Umetsu, C., Palanisami, K., Donma, S., Coskun, Z. and Nagano, T., Water Scarcity and Alternative Cropping Patterns in Lower Seyhan Irrigation Project: A Simulation Analysis, *Proceedings of International Symposium on Water and Land Management for Sustainable Irrigated Agriculture*, Çukurova University, Adana, Turkey

April 4–8, 2006 Watanabe, T., Nagano, T. and Kanber, R., Innovated cross-disciplinary approach to impact assessment of climate change on agricultural production system in arid areas, *Proceedings of International Symposium on Water and Land Management for Sustainable Irrigated Agriculture*, Çukurova University, Adana, Turkey

August 8, 2006 Donma, S. Nagano, T., Hoshikawa, K, Kume, T. and Watanabe, T., Long-term Changes of Shallow Groundwater Level and Salinity in the Lower Seyhan Plain, Turkey, *Annual meeting of The Japanese Society of Irrigation, Drainage and Reclamation Engineering*, Utsunomiya, Japan

August 9, 2006 Nagano, T., For those who are interested in Global Environment Study, Annual meeting of The Japanese Society of Irrigation, Drainage and Reclamation Engineering, Utsunomiya, Japan

October 6–7, 2006 Özekici, B., Donma, S., Önder, S. and Nagano, T., Evaluation of Lower Seyhan Irrigation Project, Communications to the International Conference on Renewable Energies and Water Technologies, Almeria, Spain, RES 1-7

October 17, 2006 Hoshikawa, K., Nagano, T., Kume, T., Kanber, R. and Watanabe, T., Evaluation of climate change impacts on the Lower Seyhan Irrigation Project, Turkey, *Third APHW Conference on "Wise Water Resources Management towards Sustainable Growth and Poverty Reduction"*, Bangkok, Manuscript ST1-05-A28-222

October 18, 2006 Nagano, T., Hoshikawa, K., Donma, S., Kume, T. and Watanabe, T., Macroscopic Handling of a large irrigation district by the Irrigation Management Performance Assessment Model, *Third APHW Conference on "Wise Water Resources Management Towards Sustainable Growth and Poverty Reduction"*, Bangkok, Manuscript ST1-04-A20-349

February 14, 2007 Nagano, T., K. Hoshikawa, S. Donma, T. Kume, S. Önder, B. Özekici, R. Kanber, T. Watanabe, Assessing adaptive capacity of large irrigation districts towards climate change and social change with Irrigation Management Performance Assessment Model, *Proceedings of the International Conference, Water Saving in Mediterranean Agriculture & Future Research Needs*, Valenzano, Italy, 293-302

**—Poster Session—**

November 9-12, 2006 Nagano, T., K. Hoshikawa, S. Donma, T. Kume and T. Watanabe, Irrigation and drainage canal properties as important indices for assessing adaptive capacity of large irrigation districts towards climate change and social change, An Earth System Science Partnership Global Environmental Change Open Science Conference, Beijing, China, p. 350

**—Research Activities—**

**[Field Research in Foreign Countries]**

April, 2006 Turkey (Impact of Climate Changes on Agricultural Production System in the Arid Areas)

Feb., 2007 Turkey (Impact of Climate Changes on Agricultural Production System in the Arid Areas)

## NAGATANI, Chiyoko — Project Researcher

Born in 1970.

**—Curriculum Vitae—**

**[Academic Career]**

Department of Sociology, Graduate School of Literature, Kyushu University, D. Course (2003)

Department of Sociology, Graduate School of Literature, Kyushu University, M. Course (1996)

Faculty of Letters, Kyushu University (1993)

**[Professional Career]**

Project Research Fellow, Research Institute for Humanity and Nature (2006)

Lecturer, Faculty of Letters, Kyushu University (2006)

Lecturer, Faculty of Foreign Language, Aichi Prefectural University (2005)

Lecturer, Faculty of Letters, Aichi Gakuin University (2003)

Research Fellow, Japan Society for Promotion of Science (2003)

Junior Research Fellow, Nanzan Institute for Religion and Culture (2002)

**[Higher Degrees]**

D. Literature. (Kyushu University, 2005), M. Literature. (Kyushu University, 1995)

**[Field Specialization/Background]**

Cultural Anthropology

**[Academic Society Memberships]**

Japanese Society of Cultural Anthropology, Japanese Association for Religious Studies, Japan Society for Southeast Asian Studies

**—Major Publications—**

**[Papers (reviewed)]**

Nagatani, C. (2006) On "Religion" and "the Religious", *Journal of Religious Studies* 80-1: 107-120 (in Japanese).

**—Research Activities—**

Feb. 2007 Hongkong and Yunnan, China (Research on Agrotourism)

## NAKAGAWA, Masato — Project Researcher

Born in 1975.

**—Curriculum Vitae—**

**[Academic Career]**

Department of Botany, Graduate School of Science, Kyoto University, D. Course (2005)

Department of Botany, Graduate School of Science, Kyoto University, M. Course (1999)

Faculty of Science, Kyoto University (1997)

**[Professional Career]**

Research Fellow, Research Institute for Humanity and Nature (2006)

**[Higher Degrees]**

D.Sc. (Kyoto University, 2005), M.Sc. (Kyoto University, 1999)

**[Field Specialization/Background]**

Plant Ecology, Plant Taxonomy

**[Academic Society Memberships]**

The Ecological Society of Japan, The Botanical Society of Japan, The Japanese Society for Plant Systematics

**—Major Publications—**

**[Papers (reviewed)]**

Nakagawa, M. (2004) Genetic diversity of fragmented populations of *Polygala renii* (Polygalaceae), a perennial herb endemic to Japan. *Journal of Plant Research* 117: 357-361.

Nakagawa, M. (2006) Ploidy, geographical distribution and morphological differentiation of *Parasenecio auriculata* (Senecioneae; Asteraseae) in Japan. *Journal of Plant Research* 119: 51-61.

**—Research Activities—**

**[Field Research in Japan]**

| | |
|---|---|
| August, 2006 | Taketomi Town, Okinawa Prefecture (Research on seagrasses) |
| October, 2006 | Taketomi Town, Okinawa Prefecture (Research on seagrasses) |
| November–December, 2006 | Taketomi Town, Okinawa Prefecture (Research on lucidophyllous forest) |

**—Oral Presentation—**

| | |
|---|---|
| September 12, 2004 | Nakagawa, M. "Allozyme variation and geographical differentiation of *Polygala reinii* (Polygalaceae)" 68th Annual Meeting of the Botanical Society of Japan (Nihon University, Fujisawa, Kanagawa Prefecture) |
| September 25, 2005 | Kimoto, Y., M. Nakagawa. "Embryology of *Triglochin maritima* (Juncaginaceae, Alismatales): Characteristics and re-evaluation of character-state evolution" 69th Annual Meeting of the Botanical Society of Japan (Toyama University, Toyama, Toyama Prefecture) |
| September 16, 2006 | Nakagawa, M., A. Naiki, T. Takaso. "Mating system, seed production and population genetic structure of *Ophiorrhiza japonica* (Rubiaceae) in Iriomote Island, Japan" 70th Annual Meeting of the Botanical Society of Japan (Kumamoto University, Kumamoto, Kumamoto Prefecture) |

**—Poster Presentation—**

| | |
|---|---|
| September 26, 2003 | Nakagawa, M. 'Ploidy, geographical distribution and morphological differentiation of |

| | |
|---|---|
| | *Parasenecio auriculata* (Senecioneae, Asteraceae) in Japan' 67th Annual Meeting of the Botanical Society of Japan (Sapporo Convention Center, Sapporo, Hokkaido Prefecture) |
| March 18, 2006 | Kimoto, Y., M. Nakagawa, A. Naiki, T. Takaso. 'Dioecy in *Mussaenda parviflora* (Rubiaceae): developmental and embryological analyses' 5th Annual Meeting of the Japanese Society for Plant Systematics (Ryukyu University, Nishihana, Okinawa Prefecture) |
| March 16, 2007 | Nakagawa, M., Y. Kimoto, T. Takaso. 'Relationship between development of male flower and lunar rhythm in *Enhalus acoroides* (Hydrocharitaceae)' 6th Annual Meeting of the Japanese Society for Plant Systematics (Niigata University, Niigata, Niigata Prefecture) |

## NAKAGAWA, Michiko ——— Research Fellow (JSPS)

Born in 1975.

**—Curriculum Vitae—**

**[Academic Career]**

Doctor Course of Center for Ecological Research, Kyoto University (2003)

Master Course of Center for Ecological Research, Kyoto University (2000)

Faculty of Agriculture, Kyoto University (1998)

**[Professional Career]**

Associate Professor at Nagoya University (2006)

JSPS Research Fellow PD (2004)

JSPS Research Fellow (2001)

**[Higher Degrees]**

Ph.D. (Kyoto University, 2003), M.Sc. (Kyoto University, 2000)

**[Field Specialization/Background]**

Forest ecology

**[Academic Society Memberships]**

Japanese Ecological Association

**—Major Publications—**

**[Published papers]**

Nakagawa, M., Miguchi, H., Nakashizuka, T. 2006. The effects of various forest uses on small mammal communities in Sarawak, Malaysia. *Forest Ecology and Management*, 231: 55-62.

Manfroi, O. J., Kuraji, K., Suzuki, M., Tanaka, N., Kume, T., Nakagawa, M., Kumagai, T., Nakashizuka, T. 2006. Comparison of conventionally observed interception evaporation in a 100-m2 subplot with that estimated in a 4-ha area of the same Bornean lowland tropical forest. *Journal of Hydrology*, 329: 329-349.

**—Research Activities—**

**[Field Research in Foreign Countries]**

April, 2006 Sarawak, Malaysia: Biodiversity and canopy ecology in a tropical forest

August, 2006 Sarawak, Malaysia: Biodiversity and canopy ecology in a tropical forest

**—Oral Presentation—**

July, 2006 Ichie, T. (Kochi Univ.), Nakagawa, M. (RIHN), Sakai S (Kyoto Univ.) Role of resource level and environmental trigger for reproduction of tropical emergent tree, *Dryobalanops aromatica*. The annual meeting of the Association for Tropical Biology and Conservation, Kunming, China

## NAKANO, Takanori ——————————————————————Professor

Born in 1950.

**—Curriculum Vitae—**

**[Academic Career]**

Department of Geology, Faculty of Science, Tokyo University of, Education, D. Course (1982)

Department of Geology, Faculty of Science, Tokyo University of, Education, M. Course (1977)

Department of Geology, Faculty of Science, Tokyo University of, Education (1974)

**[Professional Career]**

Professor, Research Institute for Humanity and Nature (2004)

Associate Professor, Institute of Geoscience, University of Tsukuba (1992)

Assistant Professor, Institute of Geoscience, University of Tsukuba (1982)

**[Higher Degrees]**

D.Sc. (Tokyo University of Education, 1982), M.Sc. (Tokyo University of Education, 1977)

**[Specialized Fields/Background]**

Resource Geology, Isotope Earth Science

**[Academic Society Memberships]**

The Society of Resource Geology, Geochemical Society of Japan, Japanese Association of Hydrological Sciences, Geological Society of Japan, The Society of Society of Economic Geologist

**—Major Publications—**

**[Books]**

Ie, Y. Ogawa, Y. Nagata, T. Nakano, T., Hiei, E., Hirano, M., Asano, Y., Ikeda, N., Ikeda, N and Suken Shuppan Shuppanbu. 2006 Chigaku I, Earth and Space (text for senior high school), 274 pp. Suken Shuppan.

Nakano, T. 2006 Effects of desertification on earth environment, Hidaka, T. and Nakawo, M eds., Chikyu-ken sousho, Where disappeared water and green in silk-road? Shouwa-dou, 131-162.

Nakano, T. 2006 Sr isotope and Pb isotope in the study of soil environment, Chemical Society of Japan ed, "Chemical Experiment Series 20-2, Environmental Chemistry", Maruzen, 416-422.

Nakano, T. 2006 Mineral circulation on Yakushima island, Field Science Education and Research Center of Kyoto University ed., "Mori-Sato-Umi Renkan-gaku" Kyoto University Press, 81-98.

**[Articles]**

Nakano, T., Morohashi, S, Yasuda, H., Sakai, M Aizawa, Shichi, K, Morisawa, T., Takahashi, M., Sanada, M., Matsuura, Y., Sakai, H., Akama, A., Okada, N. 2006 Determination of seasonal and regional variation in the provenance of dissolved cations in rain in Japan based on Sr and Pb isotopes. *Atmospheric Environment*, v.40, 7409-7420.

Shikazono, N., Iwai, S., Ishihara, Y., Nakano, T. and Igarashi, T. 2006 Paleoceanic environment deduced from geochemistry of turbidite-sequence in Anno Formation, Awa Group, Boso Peninsula, Chiba Prefecture, Japan. Journal of Geography, 115, 669-690 (in Japanese with English abstract).

**[General Reports]**

Nakano, T. 2006 Diagnostics of environment altered by human activities using natural fingerprint. *In Human and Nature, 2006 Report of the Open lecture of Doshisha University.* 17-20. (in Japanese)

Nakano, T. 2006 Study on the behavior of heavy metals in the water-plant-soil system of abandoned mining area. *2005 Report of Japan Mining Industry Association.* 33-38. (in Japanese)

**—Activities in Academic Societies—**

**[Committee members]**

2004– Member of the Committee for the Society of Resource Geology

2004– Member of the Committee for International Association of Geochemistry

**—University Lectures—**

| | |
|---|---|
| August 1–2, 2006 | Graduate School of Human Development and Environment, Kobe University |
| September 25–28, 2006 | Faculty of Science, Kumamoto University |
| October 6–7, 2006 | Faculty of Science, Okayama University |
| November 17, 2006 | Field Science Education and Research Center of Kyoto University |

**—Field Research in Japan and Oversea—**

| | |
|---|---|
| July 18–19, 2006 | Wakayama Prefecture (Water quality research of Wakayama Field Center of Kyoto University) |
| June 24–26, 2006 | Kagawa Prefecture (Water quality research of river) |
| August 6–10, 2006 | Kagawa Prefecture (Water quality research of river) |
| October 26–29, 2006 | Yatsugatake-Kawakami Field Center of the University of Tsukuba (River water quality, millipede, and soil research) |
| December 23–28, 2006 | Kyoto basin and surrounding area (Water quality research) |
| March 22–26, 2007 | Saijo-city in Ehime prefecture (Water quality research) |

**—Public lectures (all in Japanese)—**

| | |
|---|---|
| April 18, 2006 | "Global warming and climate change" Hanshin senior college |
| April 25, 2006 | "Acid-rain and desertification problems" Hanshin senior college |
| June 7, 2006 | "Environmental change in lake Biwa" Special lecture on Biogeochemistly group of Faculty of Agriculture of Kagawa University |
| July 3, 2006 | "Rock-fingerprint and environment traceability study" Special lecture on agriculture economy group of Faculty of Agriculture of Kagawa University |
| August 6, 2006 | "Lake Biwa altered by water in the eastern watershed" P3-1 workshop at Inae of Shiga prefecture |
| August 31, 2006 | "Study on water and life using mineral tracer" Special lecture at Center for Ecological Research of Kyoto University |
| September 9, 2006 | "Water-quality map of river in Akanoi watershed" Special lecture at NPO Houjo-no sato |
| September 18, 2006 | "Volcano and water" Areal lecture of RIHN in Kagoshima |
| September 23, 2006 | "Development of Environmental Indicators Linking Lakes-Rivers-Humans and Watershed Diagnosis" P3-1 International workshop |
| September 27, 2006 | "Effect of desertification in China and Asian dust on the environment of Japan and surrounding region" Special lecture at the Faculty of Science, Kumamoto University |

| | |
|---|---|
| October 6, 2006 | "Recommendation of environmental traceability study to diagnose the relationship between resource and environment" Special lecture at the Faculty of Science, Okayama University |
| October 10, 2006 | "Diagnose environment altered by human activity using natural fingerprint" Open lecture of Doshisha University (invited) |
| November 10, 2006 | "Study on the behavior of heavy metals in the water-plant-soil system of abandoned mining area" *User's Forum of Thermo Fisher Scientific* |
| February 14, 2007 | "Water in Kyoto altered by humans" Renkei-juku, Hito-to-mizu |
| February 28, 2007 | "Explanation of hexa-diagram of water by geologist" *Hydrospheric Atmospheric Research Center of Nagoya University* (invited) |
| March 20, 2007 | "Environmental traceability study using stable isotope information of rock: possibility as an index for the determination of cropping area of agricultural products" *Special lecture at Food and Agricultural Materials Inspection Center* |

## NAKAWO, Masayoshi ——————————Professor

Born in 1945.

**—Curriculum Vitae—**

**[Academic Carrier]**

Department of Geophysics, Faculty of Science, Hokkaido University, D. Sc. (1977)
Department of Geophysics, Faculty of Science, Hokkaido University, M. Sc. (1974)
Department of Physics, Faculty of Science, Kyoto University (1969)

**[Professional Carrier]**

Adjunct Professor, Nanjing University (2003)
Professor, Research Institute for Humanity and Nature (2001)
Associate Professor, Research Institute for Humanity and Nature (2001)
Adjunct Professor, Hunan Normal University (1996)
Associate Professor, Institute for Hydrospheric-Atmospheric Sciences, Nagoya University (1993)
Head of Department, Second Department, Nagaoka Institute of Snow and Ice Studies, National Institute for Disaster Prevention and Earth Sciences (1987)
Associate Professor, Department of Applied Physics, Faculty of Engineering, Hokkaido University (1987)
Assistant Professor, Department of Applied Physics, Faculty of Engineering, Hokkaido University (1981)
Research Associate, Division of Building Research, National Research Council of Canada (1977)
Research Associate, Institute of Low Temperature Science, Hokkaido University (1970)

**[Higher Degrees]**

D.Sc. (Hokkaido University, 1977), M.Sc. (Hokkaido University, 1974)

**[Background]**

Glacio-climatology, Snow Hydrology

**[Academic Society Memberships]**

Japanese Society of Snow and Ice, Japan Society of Hydrology and Water Resources, Meteorological Society of Japan, International Glaciological Society, International Association of Hydrological Sciences, American Geophysical Union, International Water History Association

**—Major Publications—**

**[Articles]**

Nakawo, Masayoshi and Akiko SAKAI 2006 Change in water availability in arid regions caused by glacier changes in the mountain regions, and its impact in Central Eurasia. Glaobal Change in Mountain Regions. SAPIENS Publishing Co. (ed. By Martin E. Price) 110-111.

Nakawo, M. 2007 Global environmental problems due to the lack of water in the Heihe River Basin, western China. RIHN 1st International Symposium Proceedings-Water and Better Life in the Future- Research Institute for Humanity and Nature 75-79.

**—Activities in Academic Societies—**

| | |
|---|---|
| 2003, May–present | Council member / Chair of Academic Committee, Japanese Society of Snow and Ice |
| September, 2006 | Nakawo, M. organized International Symposium on the Humanity and Nature in Khara Khoto Region |

**—Supervision and Host (Number of DC Students and JSPS Research Fellows)—**

JSPS Foreign Research Fellow (1)

**—Social Activities and Public Lectures—**

**[Public Lectures]**

| | |
|---|---|
| March, 2006 | Two thousand years history of the water circulation system in arid and semi-arid region central Eurasia. Special Lecture at Hunan Normal University, Changsha |

**[Social Activities]**

| | |
|---|---|
| 2003–present | Japanese Representative for Union Commission on Cryosphere Science |
| 2006–present | Japanese Representative for International Association of Hydrological Sciences |

## NISHIMOTO, Futoshi — Researcher (Part-time)

Born in 1972.

**—Curriculum Vitae—**

**[Academic Career]**

Faculty of Letters, National University of Laos (1999–2000)

Doctoral Course, Graduate School of Social Sciences, Hitotsubashi University (1998)

M.A., Graduate School of Social Sciences, Hitotsubashi University (1998)

Faculty of Social Sciences, Hitotsubashi University (1996)

**[Professional Career]**

Research Fellow, Research Institute for Humanity and Nature (2005)

Part-time Lecturer, Shoin University (2005)

Part-time Lecturer, Jikei Nursing School (2005)

Part-time Lecturer, Shibaura Institute of Technology (2004–)

**[Higher Degrees]**

M.A. (Graduate School of Social Sciences, Hitotsubashi University 1998)

**[Field Specialization/Background]**

Social Anthropology, Ethnography of mainland Southeast Asia

**[Academic Society Memberships]**
Japanese Society of Cultural Anthropology

**—Major Publications—**
**[Articles]**

2006 'A short eco-history of the Kantu village society: with special references to marriage and affinal relationship' "2005 Annual Report of the Project 4-2: A Transdisciplinary Study on the Regional Eco-History in Tropical Monsoon Asia: 1945-2005" RIHN, 413-423 (in Japanese).

2006 'Glutinous rice culture that mediates the interaction between people and their environments' "Chikyu-ken Kyoto Hatsu [Relay Essays of the RIHN Staff]" Kyoto Shimbun on Sep. 2, 2006 (in Japanese).

**—Research Activities—**
**[Field Research Abroad]**
March, 2007 Laos (on the Natural Resource Management in Southern Laos)

**—Academic and Social Activities—**
Member of the Joint Research Project, National Museum of Ethnology
Member of the Inter-institutional Joint Research, National Institutes for the Humanities

**—Public and School Lectures—**

November 18, 2006 'Geopolitical space around the Kantu village society of Southern Laos' (Architectural Institute of Japan, AIJ Architectural Museum, Tokyo)

January 27, 2007 'Ecology, vectors, and culture' (National Museum of Ethnology, Suita City, Osaka)

## NOMURA Naofumi — Project Researcher

Born in 1973.

**—Curriculum Vitae—**
**[Academic Career]**
Department of Botany, Graduate School of Science, Kyoto University, D. Course (2003)
Department of Botany, Graduate School of Science, Kyoto University, M. Course (1997)
Faculty of Agriculture, Kyoto University (1995)
**[Professional Career]**
Researcher, Research Institute for Humanity and Nature (2006)
Lecturer, Faculty of Integrated Human Studies, Kyoto University (2006)
**[Higher Degrees]**
D.Sc. (Kyoto University, 2004), M.Sc. (Kyoto University, 1997)
**[Field Specialization/Background]**
Plant Ecology
**[Academic Society Memberships]**
The Ecological Society of Japan, The Botanical Society of Japan, The Japan Society of Tropical Ecology, The Society of Evolutionary Studies Japan, Japanese Society for Plant Systematics

**—Major Publications—**

**[Papers (reviewed)]**

Nomura N., H. Setoguchi, T. Takaso, (2006) Functional consequences of stenophylly for leaf productivity: comparison of the anatomy and physiology of a rheophyte, Farfugium japonicum var. luchuence, and a related non-rheophyte, F. japonicum (Asteraceae). *Journal of Plant Research*, 119: 645-656.

Nomura, N., K. Kikuzawa, K. Kitayama (2003) Productive phenology of topical montane forests: fertilization experiments along a moisture gradient. *Ecological Research*, 18: 573-586.

Nomura N., K. Kikuzawa, K. Kitayama (2003) Leaf flushing phenology of tropical montane rain forests: relationship to soil moisture and nutrients. *Tropics*, 12: 263-276.

Nomura N., K. Kikuzawa, K. Kitayama (2002) Foliar phenology and soil moisture condition in three tropical rain forests on Mount Kinabalu in relation to the 1998 El Niño drought. *Sabah Parks Nature Journal*, 5: 111-130.

**[Papers (non-reviewed)]**

Nomura N. (2006) Leaf flushing seasonality in tropical montane cloud forest. *Phenology Study* 41: 15-22 (in Japanese).

**—Research Activities—**

**[Field Research in Japan]**

| | |
|---|---|
| May, 2006 | Iriomote and Ishigaki Islands, Okinawa Prefecture (Research on rheophytic and introduced plants) |
| September, 2006 | Iriomote and Ishigaki Islands, Okinawa Prefecture (Research on rheophytic and introduced plants) |
| December, 2006 | Iriomote and Ishigaki Islands, Okinawa Prefecture (Research on rheophytic and introduced plants) |

**—Oral Presentation—**

| | |
|---|---|
| March 28, 2005 | Nomura, N., K. Kikuzawa, K. Kitayama. "Leaf phenology and soil nutrient supply" in workshop "Tree phenology in wet tropics" 52nd Annual Meeting of the Ecological Society of Japan (Osaka International Convention Center, Osaka , Osaka Prefecture) |
| March 19, 2006 | Nomura, N., H. Setoguchi, T. Takaso. "Leaf morphology, photosynthetic efficiency, and habitat characteristics of rheophytic and non-rheophytic *Farfugium japonicum* " 5th Annual Meeting of the Japanese Society for Plant Systematics (Ryukyu University, Nishihara, Okinawa Prefecture) |
| March 25, 2006 | Nomura, N., K. Kikuzawa, K. Kitayama. "Leaf phenology and soil nutrient supply: a report from tropical montane rain forest" in workshop "Plant physiological ecology: leaf life history and photosynthesis " 53rd Annual Meeting of the Ecological Society of Japan (Niigata Convention Center, Niigata, Niigata Prefecture) |
| March 25, 2006 | Nomura, N., H. Setoguchi, T. Takaso. "Leaf morphology and photosynthetic efficiency of rheophytic *Farfugium japonicum* " 53rd Annual Meeting of the Ecological Society of Japan (Niigata Convention Center, Niigata, Niigata Prefecture) |
| September 15, 2006 | Nomura, N., H. Setoguchi, T. Takaso. "Leaf morphology and population structure of *Farfugium japonicum* on Iriomote Island" 70th Annual Meeting of the Botanical Society of Japan (Kumamoto University, Kumamoto, Kumamoto Prefecture) |
| November 25, 2006 | Nomura, N., H. Setoguchi, T. Takaso. "Leaf morphology and photosynthetic characteristics between riparian and inland population of *Farfugium japonicum*" 2006 Annual |

Meeting of the Botanical Society of Japan, Kinki Branch (Osaka University, Toyonaka, Osaka Prefecture)

December 3, 2006 Nomura, N., S. Kawashima, A. Ueda, H. Setoguchi, A. Hoya, M. Ito. "Interspecific hybridization between endemic and introduced *Rumex*" 38th Annual Meeting of the Society for the Study of Species Biology (Makino Park Hotel, Makino, Shiga Prefecture)

**—Poster Presentation—**

March 28, 2002 Nomura, N., K. Kikuzawa, K. Kitayama. 'Leaf phenology of tropical montane cloud forest 2: Fertilization experiments' 49th Annual Meeting of the Ecological Society of Japan (Tohoku University, Sendai, Miyagi Prefecture)

June 24, 2002 Nomura, N., K. Kikuzawa, K. Kitayama. 'Leaf phenology of tropical montane rainforests' The 3rd International Canopy Conference (Cains International Hotel, Cairns, Australia)

December 13, 2002 Nomura, N. 'Leaf function on anemophillous pollination' 34th Annual Meeting of the Society for the Study of Species Biology (Acty Plaza Biwa, Shin Asahi, Shiga Prefecture)

March 22, 2003 Nomura, N. 'Leaf function on anemophily of autumn flowering *Ulmus parvifolia*' 50th Annual Meeting of the Ecological Society of Japan (Tsukuba International Convention Center, Tsukuba , Ibaragi Prefecture)

September 11, 2004 Nomura, N., S. Kawashima, A. Ueda, H. Setoguchi. 'Ecological factors affecting interspecific hybridization among *Rumex* species' 68th Annual Meeting of the Botanical Society of Japan (Nippon University, Fujisawa, Kanagawa Prefecture)

March 30, 2005 Nomura, N., S. Kawashima, A. Ueda, H. Setoguchi. 'Interspecific hybridization and introgression between the endemic *Rumex nepalensis* and the introduced *Rumex obtusifolius*' 52nd Annual Meeting of the Ecological Society of Japan (Osaka International Convention Center, Osaka , Osaka Prefecture)

November 7, 2006 Nomura, N., H. Setoguchi, T. Takaso. 'Flood is need for their existence: life-history and genetic diversity of the riparian plant', The 1st International Symposium "Water and better human life in the future" (Kyoto International Conference Center, Kyoto, Kyoto Prefecture)

## NONAKA, Kenichi — Associate Professor

Born in 1964.

**—Curriculum Vitae—**

**[Academic Career]**

Department of Geography, Faculty of Literature, Nagoya University, D. Course (1991)

Department of Geography, Faculty of Literature, Nagoya University, M. Course (1989)

Department of Geography, Faculty of Literature, Nagoya University (1987)

**[Professional Career]**

Associate Professor, Research Institute for Humanity and Nature (2003)

Associate Professor, Faculty of Humanities and Social Sciences, Mie University (1996)

Lecturer, Faculty of Humanities and Social Sciences, Mie University (1994)

Research Fellow, Faculty of Literature, Nagoya University (1993)
Research Fellow, Faculty of Literature, Hokkaido University (1991)
**[Higher Degrees]**
D.Sc. (Kyoto University, 1999), M.Sc. (Nagoya University, 1989)
**[Field Specialization/Background]**
Geography, Ecological Anthropology
**[Academic Society Memberships]**
The Association of Japanese Geographers, The Human Geographical Society of Japan, The Society of Bio-Sophia Studies, The Society of Human and Animals Relations, The Society of Ecological Anthropology

**—Major Publications—**

**[Books (co-editor)]**

K. Nonaka, A. Ikeguchi, and, H. Saito (2007) *The biodiversity of vegetables in Vientiane.* National Agriculture and Forestry Research Institute (NAFRI) & Research Institute for Humanity and Nature (RIHN)

**[Books (article)]**

K. Nonaka. (2007) 'koncyu syoku' "Pictorial book of the Mekhong Basin" Kobundo. 84-85. (In Japanese)
K. Nonaka. (2007) 'Dezukuri koya' "Pictorial book of the Mekhong Basin" Kobundo. 76. (In Japanese)

**[Papers (reviewed)]**

Nonaka, K. (2007) Humanity and Nature in Vientiane Plain, Lao PDR. *Nature, Human and Environment (The Lao Agriculture and Forestry Journal, Special Issue)*: 1-2.

Nonaka, K. (2007) Resource-use Dynamics and changes in the Vientiane Plain, Lao PDR. *Nature, Human and Environment (The Lao Agriculture and Forestry Journal, Special Issue)*: 40-46.

**[Papers (non-reviewed)]**

Ikeguchi A., H. Saito, K. Nonaka, Y. Adachi, S. Sivilay, and Y. Nishimura (2007) Food plants and Animals in a marketplace in the Vientiane suburb, Lao PDR. *Nature, Human and Environment (The Lao Agriculture and Forestry Journal, Special Issue)*: 47-57.

**[Articles]**

2006 'Kawa no Naka no Michi kara' "Hito to Mizu" 2: 15 (in Japanese)
2006 'Sizen to Ningen no Mirai wo Mezasu' "Chiri" Kokon-shoin, 51(12): 62-64 (in Japanese)
2006 'Ame Fureba Kaeru' "Chiri" Kokon-shoin, 51(12): 34-36 (in Japanese)
2006 'Kanki ni Ikiru' "Kenkou" 2006 summer: 34-36 (in Japanese)

**—Research Activities—**

**[Field Research in Japan]**

August, 2006 Mie Prefecture (Research on Marine-resources use)

**[Field Research in Foreign Countries]**

May, 2006 Reykjavík, Iceland (Research on Marine-resources use)
August, 2006 Vientiane Province, Lao P.D.R. (Research on natural resource use)
September, 2006 Vientiane Province, Lao P.D.R. (Research on natural resource use)
February, 2007 Vientiane Province, Lao P.D.R. (Research on natural resource use)

**—Academic and Social Activities—**

Councilor of the Society of the Bio-Sophia (2005–)

**—Oral Presentation—**

May, 2006 Nonaka K. A Method of Representing Human-Creature Relationship in the Form of Geographical Illustration Using Comics or Cartoons or Manga in Japanese. Sensi/able Spaces, Reykjavík, Iceland

July 3–7, 2006 Nonaka K. Land-use Change and Natural resource-use Dynamics in the Vientiane Plain, LAO PDR. International Geographical Union 2006 Brisbane Conference, Queensland University of Technology, Brisbane, Australia

July 3–7, 2006 Nonaka K. Representing Human-biosphere Relationship in a Form of Geographical Illustration. International Geographical Union 2006 Brisbane Conference, Queensland University of Technology, Brisbane, Australia

November, 2006 Nonaka K. The use of wild life for food and its recent change in the Vientiane Plain, Laos PDR. Southeast Asian Geography Association, Nanyang Girls High School, Singapore

February, 2007 Nonaka K. Cultural Geography of Insect-use in the Vientiane Plain. ZUBZUB Workshop, NAFRI, Laos

## OKUMIYA, Kiyohito — Associate Professor

Born in 1961.

**—Curriculum Vitae—**

**[Academic Career]**

Kochi Medical School (Kochi) (1986)

**[Professional Career]**

Associate professor, Research Institute for Humanity and Nature (2004)

Visitting clinical and research fellow, Division of Geriatrics, Department of Medicine, University of British Columbia, Canada (2002–2003)

Assistant professor (Lecturer), Department of Medicine and Geriatirics, Kochi Medical School (1999)

Assistant professor, Department of Medicine and Geriatirics, Kochi Medical School (1992)

Research resident, Department of Anatomy, Shiga University of Medical Science (1992)

Medical Staff, Department of Neurology in Sumitomo Hospital (1990)

Resident, Department of Circulatory Medicine, Tokyo Metropolitan Geriatric Hospital (1988)

Resident in Department of Medicine and Geriatirics, Kochi Medical School Hospital (1986)

**[Higher Degrees]**

Ph.D. (Kochi Medical School, 1996), M.D. (Kochi Medical School, 1986), Japanese Medical License Registration (No. 299199)

**[Field Specialization/Background]**

Field Medicine, Geriatrics and Gerontology, Neurology, Internal Medicine

**[Academic Society Memberships]**

Japanese Society of Neurology, Japanese Society of Geriatrics, Japanese Society of Internal Medicine, Japanese Society of Hypertension

**—Major Publications—**

**[Books]**

Matsubayashi K, Okumiya K (2006) 'Progress of modern Japan with the most aged societies in the world.' Iwanami Kouza The seventh of "Knowledge of the Empire Japan." Scientific technology as a practical science

(Edited by Koji Tanaka). Iwanami-shoten (in Japanese)

Okumiya K (2006) 'Diabetes' "Atlas the world of the Mekong—History and Ecology— "(Edited by Tomoya Akimichi). Koubundo 100-101. (in Japanese)

Okumiya K (2006) 'Health promotion and evaluation of QOL' "Comprehensive approach and rehabilitation" (Edited by Iyoshi Ouchi, Hideki Itoh, Tetsuro Miki and Kenji Toba) Medical View Sha 14-19. (in Japanese)

Okumiya K (2006) '1. Definition and classification of frailty and care recipient' '2. Devision in functional ability in daily life (ADL, IADL, AADL)' "Guideline for prevention of longterm care" (Edited by Kenji Toba) Kouseikagaku Kenkyusho 24-28. (in Japanese)

Okumiya K (2006) 'Model of community-Analyze of CGA (Kahoku in Kochi)' 'Model of decline of functional ability-How does functional deterioration progress?' "Guideline for prevention of longterm care" (Edited by Kenji Toba) Kouseikagaku Kenkyusho 42-45. (in Japanese)

Okumiya K (2006) 'Risk factor for functional deteriolation' 'Risk factor for deteriolation of frailty in Kahoku in Kochi' "Guideline for prevention of longterm care" (Edited by Kenji Toba) Kouseikagaku Kenkyusho 70-74. (in Japanese)

Okumiya K (2006) 'System formation of prevention of longterm care Metod and result of Kahoku in Kochi' "Guideline for prevention of longterm care" (Edited by Kenji Toba) Kouseikagaku Kenkyusho 168-174. (in Japanese)

**[Papers]**

Okumiya K (2007) Outline of Highlands Project. Himalaya Study Monograph 8: 21-28. (in Japanese)

Okumiya K (2007) Diabetes in the elderly in Laos and its comparison between the Mekong Basin and Japan. Himalaya Study Monograph 8: 39-48. (in Japanese)

Ishine M, Okumiya K, Matsubayashi K (2007) A close association between hearing impairment and activities of daily living, depression, and quality of life in community-dwelling older people in Japan. J Am Geriatr Soc. Feb; 55(2): 316-7.

Suzuki K, Okumiya K, Ishine M, Wada T, Sakagami T, Roriz-Cruz M, Rosset I, Pongvongsa T, Boupha B, Matsubayashi K. (2006) High prevalence of diabetes mellitus in older people in a rural area in Laos. J Am Geriatr Soc. Nov; 54(11): 1791-2.

**[Report]**

Matsubayashi K, Okumiya K, Ishine M, Boungnong Boupha, Latsamy Siengsounthon, Ketmany Chanthakoummane, Daovieng Douanguichit, ThiphaphoneChittramonh, Tiengkham Pongvongsa (2006) Aging, Diseases and Ecology in Community-Dwelling people living Songkohn District III~ IV. Annual report of the RIHN Project 4-2.

**[Introduction in Article on Newspaper]**

Taro Inoue (2006) In the 4th year of field medicine in Tosa –disclose of impaired glucose tolerance and promotion of health- Hope to prevention of longterm care. Kochi Shinbun 3.20.

Tomoko Takemura (2006) Slowdown of increase of longevity in Kochi- Increase of pre-stage of lifestyle related diseases. Kochi Shinbun 9.14.

Taro Inoue (2006) Field in Tosa. Kochi Shinbun 8.9.

Taro Inoue (2006) Start of Field Medicine check-up in Tosa. Kochi Shinbun 8.6.

Taro Inoue (2006) Discose of impaired glucose tolerance- Field Medicine check-up in Tosa. Kochi Shinbun 8.3.

**[Colum on Newspaper]**

Okumiya K (2006) 'Visitation of Tibet. Creeping of disease of civilization—Changing of lifestyle in the highplateau under globalization' "From Kyoto by RIHN". Mainichi Shinbun 11.25.

**—Research Activities—**

**[Field Research in Japan]**

July, 2006 Tosa in Kochi (Longitudinal cohort study on health and comprehensive geriatric assessment in community-dwelling elderly)

August, 2006 Tosa in Kochi (Longitudinal cohort study on health and comprehensive geriatric assessment in community-dwelling elderly)

November, 2006 Tosa in Kochi (Longitudinal cohort study on health and comprehensive geriatric assessment in community-dwelling elderly)

**[Field Research in Foreign Countries]**

June, 2006 Ethiopia (Meeting for the planning of the research on the project)

July, 2006 Thiland (Research on the health and comprehensive geriatric assessment and Diabetes Mellitus in Khon Kaen)

October, 2006 China (Meeting for the planning of the research on the health in Qinghai and comprehensive geriatric assessment in Yunnan)

January, 2007 Indonesia (Research on theneuro-degenerative diseases in West papua)

March, 2007 Laos (Research on the health and comprehensive geriatric assessment and Diabetes Mellitus in Ay village in Oudomxay)

**—Academic and Social Activities—**

Certification of Japanese Board of Neurology (1991–)

Fellowship in Japanese Society of Internal Medicine (1992–)

Certification of Japanese Board of Geriatric Medicine (1996–)

Board member of the Japanese Society of Geriatric Medicine (2002–)

Committee member of the Japanese Society of High altitude Medicine (2006–)

**—Oral Presentation—**

June, 2006 Kaihatsutojoukoku oyobi senshinkoku ryoukoku ni okeru koureisha seikatsukinonu to keizaijy-outai tono kanren'nihon rounen igakukai. The 47th Nippon Ronen Igakkai (Association of geriatric functional ability and economic status in developing and developed countries. The 47th Japanese Geriatrics Society.) [in Japanese]

**—Public Lecture—**

April, 2006 Tosa–cho chojyukeikaku (2004-2005) no kekkahoukoku'tosa-cho field igakukouenkai,tosa-cho kenkoufukushi center (Report of the Tosa longitudinal aging studies 2004-2005. Tosa field medicine Lecture, Tosa town office) [in Japanese]

## ONISHI, Akio — Project Senior Researcher

Born in 1974.

**—Curriculum Vitae—**

**[Academic Career]**

Graduate School of Environmental Studies, Nagoya University, D. Course (2006)

Graduate School of Environmental Studies, Nagoya University, M. Course (2003)

School of the Environment and Natural Resources, University of Wales, Bangor, M. Course (2000)

Scholl of Agriculture, Kinki University (1997)

**[Professional Career]**

Project Senior Researcher, Research Institute for Humanity and Nature (2006)

**[Higher Degrees]**

D.Sc. (Nagoya University, 2006), M.Sc. (Nagoya University, 2003), M.Sc. (University of Wales, Bangor, 2000)

**[Field Specialization/Background]**

Environmental System Engineering

**[Academic Society Memberships]**

Japan Society of Civil Engineers, Center of Environmental Information Science, The Japan Society of Hydrology and Water Resources, The Japanese Association for Arid Land Studies, Research Institute of Environmental Management

**—Major Publications—**

**[Papers (reviewed)]**

Onishi, A., H. Imura, J. Han, S. Feng, Y. Fukushima (2007) Socio-economic activities and the balance between water resource supply and demand in the Yellow River basin, China. *IAHS Red Book* (in press)

Han, J., H. Imura, A. Onishi, H. Shirakawa (2007) Population migration, urbanization and their implication for urban housing demand in China. *Journal of Environmental Information Science*, 35-5 (in press)

Onishi, A., H. Imura, H. Shirakawa, J. Han (2006) Grasp of seasonal and regional characteristics of water resource supply and demand structures in the Yellow River basin. *Environmental Systems Research*, 34: 611-622 (in Japanese)

Onishi, A., M. Morisugi, Y. Hayashi, H. Imura (2006) Study on mitigation effect of heat island in different land uses by utilizing fine land cover information. *Journal of Research Institute of Environmental Management*, 61: 23-35 (in Japanese)

Han, J., A. Onishi, H. Shirakawa, H. Imura (2006) An analysis of population migration and its environmental implications in China: application to domestic water use. *Environmental Systems Research*, 34: 515-523

Sonoda, M., A. Onishi, H. Shirakawa, H. Imura (2006) A study on agricultural water consumption by food demand model in Yellow River basin. *Environmental Systems Research*, 34: 525-535 (in Japanese)

Morisugi, M., A. Onishi, Y. Hayashi (2006) Study on relationship of sunshine and building forms and arrangement in complex land use blocks. *Journal of Research Institute of Environmental Management*, 61: 11-21 (in Japanese)

Onishi, A., M. Matsuura, M. Morisugi, H. Imura (2005) Grasp of the heat island phenomenon by the LANDSAT ETM+ data and research on the urban heat island mitigation by rooftop plantings using the IKONOS data. *Japan Association for Human and environmental Symbiosis*, 10: 92-102 (in Japanese)

Onishi, A., H. Imura, J. Han, W. Fang (2005) A study on grain productivity changes in 5 different basins in Yellow River basin. *Environmental Systems Research*, 33: 79-88 (in Japanese)

Imura, H., A. Onishi, M. Okamura, W. Fang (2005) Water resource balance in Yellow River basin based on the county level water use data. *Environmental Systems Research*, 33: 477-485 (in Japanese)

Onishi, A., F. Hirota, T. Yoshikawa, M. Morisugi, H. Imura (2003) Analysis of urban heat environment by utilizing fine land cover information. *Environmental Systems Research*, 31: 357-365 (in Japanese)

Hirota, F., A. Onishi, M. Morisugi, H. Imura (2002) A study on analysis for vegetation in urban area with high-resolution satellite data. *Environmental Systems Research*, 30: 91-99 (in Japanese)

**[Articles]**

Onishi, A., H. Imura, Y. Fukushima (2007) Socio-economic activities and the balance between water resource supply and demand in the Yellow River basin. *proceedings of YRiS Joint Meeting*, 47-54 (in Japanese)

Feng S., A. Onishi, H. Imura (2007) Water resource management plan in Yellow River basin. *proceedings of YRiS Joint*

*Meeting*, 61-71 (in Japanese)

Han J., A. Onishi, H. Shirakawa, H. Imura (2007) An analysis of population migration and its environmental implications in China: application to domestic water use. *proceedings of YRiS Joint Meeting*, 72-78

Onishi, A., H. Imura, Y. Fukushima (2006) A study on Chinese grain production. *proceedings of YRiS Joint Meeting*, 55-60 (in Japanese)

Onishi A., J. Han, H. Imura, Y. Fukushima (2006) Study on regional income inequality and urbanization mechanism in China. Yellow River Studies News Letter, 6: 12-18

Onishi A., H. Imura, H. Shirakawa, W. Fang (2005) Understanding of water resource supply and demand balances in Yellow River basin. *proceedings of YRiS Joint Meeting*, 50-53 (in Japanese)

Onishi A., M. Sonoda, H. Shirakawa, H. Imura (2005) A study on grain production in Yellow River basin. *proceedings of YRiS Joint Meeting*, 54-58 (in Japanese)

Sonoda, M., A. Onishi, H. Shirakawa, H. Imura (2005) Changes of food demands under socio-economic development in China. *proceedings of YRiS Joint Meeting*, 59-62 (in Japanese)

Morisugi, M., Y. Muramatsu, A. Onishi (2004) Development of satellite image analysis technique for understating of heat environment mechanism in Toyota city, Aichi prefecture. *Chubu-toshi-saisei-project*, 159-190 (in Japanese)

Onishi A., H. Tanikawa, T. Okuda, H. Imura (2003) Understanding of water resource circulation and development of an analysis tool of water resource management: case study in Xian city. *proceedings of YRiS Joint Meeting*, 49-52 (in Japanese)

**—Research Activities—**

**[Field Research in abroad]**

| | |
|---|---|
| February, 2005 | Shanxi province in China (Research on water use and water management) |
| September, 2006 | Inner Mongolia autonomous region in China (Research on agricultural water use and agricultural activities) |

**—Oral Presentation—**

| | |
|---|---|
| October 24–25, 2003 | Yoshikawa, T., F. Hirota, A. Onishi, M. Morisugi, H. Imura 'A study of extracting fine land cover information for analyzing urban heat environment', Proceedings of 31st Annual Meeting of Environmental Systems Research (Kitakyushu Science and Research Park, Fukuoka prefecture) |
| August 2–3, 2004 | Onishi A., R. Ozawa, M. Morisugi, T. Okuda, H. Imura 'Future scenario analysis of water resource supply and demand balances in Xian city' Proceedings of the 12th Symposium of Global Environment (Nagoya University, Aichi prefecture) |
| November 8–10, 2004 | Okamura M., A. Onishi, H. Imura 'Water resources supply and demand forecast in Yellow River basin' 2nd International Workshop on Yellow River Studies (Niijima-kaikan, Kyoto prefecture) |
| September 8–9, 2005 | Feng S., A. Onishi, H. Imura 'Current condition and problem of Water Resource Management in Fen River Basin' Society of Environmental Science Annual Meeting (Nagoya University, Aichi prefecture) |
| March 3, 2006 | Onishi A., M. Sonoda, H. Shirakawa, H. Imura 'Water resource demand and supply structures in Yellow river basin' JSCE-Chubu Annual Meeting (Gifu University, Gifu prefecture) |
| March 3, 2006 | Koyama, K., H. Shirakawa, A. Onishi, M. Sonoda, H. Imura 'An analysis of population migration and surplus agricultural population in China' JSCE-Chubu Annual Meeting |

(Gifu University, Gifu prefecture)

March 3, 2006 — Sonoda, M., A. Onishi, H. Shirakawa, H. Imura 'study on agricultural water consumption by food demand model in Yellow River basin', JSCE-Chubu Annual Meeting (Gifu University, Gifu prefecture)

July 29, 2006 — Onishi A., J. Han, H. Shirakawa, H. Imura 'Understanding seasonal and regional characteristics of water resource supply and demand structures in the Yellow River basin' The Eighth International Summer Symposium, Japan Society of Civil Engineers (Nagoya University, Aichi prefecture)

July 29, 2006 — J. Han, Onishi A., H. Shirakawa, H. Imura "An analysis of regional disparity, population migration and their impact on domestic water use in China" The Eighth International Summer Symposium, Japan Society of Civil Engineers (Nagoya University, Aichi prefecture)

September 10–14, 2006 — Imura H., A. Onishi 'An analysis tool of water resource management in the Yellow River basin based on county level water budgets' IWA World Water Congress and Exhibition (Beijing International Convention Center, Beijing)

September 20–22, 2006 — Onishi A., J. Han, H. Shirakawa, H. Imura 'Future scenario analysis of water resource supply and demand balances in Yellow river basin' 61st JSCE Annual Meeting (Ritsumeikan University, Shiga prefecture)

September 26, 2006 — Onishi A., H. Imura, S. Feng, J. Han, Y. Fukushima 'Estimation of water demand and supply in the Yellow River basin : towards an analysis tool with socio-economic factors' Proceedings of the International Workshop on Land and Water Management in Arid Region (Inner Mongolia Agricultural University, Inner Mongolia)

November 6–8, 2006 — Fukushima Y., Y. Sato, A. Onishi 'Water resources management of the Yellow River basin—current problems and future perspective—' RIHN 1st International Symposium Proceedings—Water and Better Human Life in the Future— (Kyoto International Hall, Kyoto prefecture)

February 14–15, 2007 — Onishi A., H. Imura, H. Shirakawa, Y. Fukushima 'A study on understanding of relationship between socio-economic development and water supply and demand structure change in Yellow River basin' 3rd International Workshop on Yellow River Studies (Kyoto prefecture)

**—Poster Presentation—**

November 8–10, 2004 — Onishi A., M. Furukawa, M. Sonoda, H. Imura 'Water demand scenarios of the main grain crops under dietary habit change in the Yellow River basin' 2nd International Workshop on Yellow River Studies (Niijima-kaikan, Kyoto prefecture)

September 8–9, 2005 — Onishi A., T. Yoshikawa, M. Morisugi, H. Imura 'Simulation of thermal environment on different land use patterns by utilizing fine land cover information' Society of Environmental Science Annual Meeting (Nagoya University, Aichi prefecture)

September 8–9, 2005 — Onishi A., W. Fang, H. Shirakawa, H. Imura 'Fundamental study on modeling of monthly water resource management in Yellow River basin based on the county level water use data' Society of Environmental Science Annual Meeting (Nagoya University, Aichi prefecture)

May 26–27, 2006 — Onishi A., M. Morisugi, Y. Muramatus, H. Imura 'Grasp of fine land cover information by utilizing high-resolution satellite image and its relation to brightness temperature' (Tower Hall Funabori, Tokyo prefecture)

| | |
|---|---|
| August 3–4, 2006 | Onishi A., M. Furukawa, J. Han, M. Sonoda, H. Imura 'Study on regional characteristics of food productions in Yellow River basin' Proceedings of the 14th Symposium of Global Environment (Yamanashi Gakuin University, Yamanashi prefecture) |
| August 3–4, 2006 | Sonoda, M., A. Onishi, H. Shirakawa, H. Imura 'Study on agricultural water consumption by food demand model in Yellow River basin' Proceedings of the 14th Symposium of Global Environment (Yamanashi Gakuin University, Yamanashi prefecture) |
| August 3–4, 2006 | Han J., A. Onishi, H. Imura 'An analysis of urbanization and its influence to domestic water use in China' Proceedings of the 14th Symposium of Global Environment (Yamanashi Gakuin University, Yamanashi prefecture) |
| November 6–8, 2006 | Onishi A., F. Shi, J. Han, H. Imura, Y. Fukushima 'Impact of human activities on water resource demand and supply balance of the Yellow River basin' RIHN 1st International Symposium—Water and Better Human Life in the Future— (Kyoto International Hall, Kyoto prefecture) |

## ŌNISHI, Hideyuki — Project Researcher

Born in 1969.

**—Curriculum Vitae—**

**[Academic Carrier]**

Department of history (Archaeology), Faculty of Literature, Hokkaido University, Dr.Course (2001)

Department of history (Archaeology), Faculty of Literature, Hokkaido University, M.A. (1995)

Department of history, Faculty of Literature, Meiji University (1993)

**[Professional Carrier]**

JSPS Research Fellow DC2 (1997)

JSPS Research Fellow PD (2002)

Part-time Lecturer, Faculty of Literature, Ritsumeikan University (2004, 2006)

Part-time Lecturer, Faculty of Law, Himeji Dokkyo University (2005)

Technical Assistant, Research Institute for Humanity and Nature (2005)

Part-time Lecturer, Faculty of Contemporary Social Studies, Doshisha Women's College of Liberal Arts (2005)

**[Higher Degrees]**

Ph.D. (The Graduate University for Advanced Studies, National Museum of Ethnology, 2005)

M.A. (Faculty of Literature, Hokkaido University, 1995)

**[Specialized Fields/Background]**

Anthropology, Archaeology

**[Academic Society Memberships]**

Japanese Society of Cultural Anthropology, The Japanese Archaeological Association, The Society of Ecological Anthropology, The Japanese Society for Oceanic Studies

**—Major Publications—**

**[Books]**

Onishi, Hideyuki (2006) Traditional handicraft as cultural resource: Commercialization of weaving in Highlanders' society, Northern Luzon. In Into, Michiko (Ed) *Anthropology on Environment and Resource Uses*. Akashi-shobo, 283-306

Onishi, Hideyuki (2007) The danger of terraced rice paddies landscape in the Cordillera. In: Akimichi, Tomoya (Ed.)

*Water and the World Cultural and Natural Heritage*. Shogakkan, 175-186.

Onishi, Hideyuki (2007) Cherishes flowers – therefore human? In: Hidaka, Toshitaka; Shirahata Yosaburo (Eds.) *Why people cherish flowers?* Yasaka Shobo, 51-73.

Onishi, Hideyuki (2007) Living Hours and Activities. In Akimichi, Tomoya (Ed.) *An Illustrated Eco-History of the Mekong Basin*. Kobundo, 96-97.

**[Articles]**

Onishi, Hideyuki (2007) The Movements on the Eve of the Formation of the "Medieval Ainu" Society in the Eastern Hokkaido: the Position of Tobinitai Culture in the Archipelago's History." Sawato, Hirosato; Oguchi, Masashi (Eds.) *The Formation and Chnage of the Ainu Culture: Focussing on Trade and Communication.* Hosei Daigaku Kokusai Nihongo Kenkyujo, 211-234.

Yamauchi T, Onishi H, Phonepadith X and Monely V (2006) Resting energy expenditure and physical activity level of rice farmers in Lao PDR during the post-harvest season. *A Trans-disciplinary Study on the Regional Eco-History in Tropical Monsoon Asia: 1945-2005*, Annual Report 2004, Research Institute for Humanity and Nature: 208-218, RHIN.

**[Miscellaneous]**

2006.2.2. "Landscape Change Associated with the Construction of Asahikawa City and the Resource Use of the Ainu People." In "LS and living beings", workshop at the 4th Yearly Congress of the Society of Biosophia Studies, Abashiri, Japan

2006.5.27. *Why people cherish flowers?* 4th Symposium, Inter-Univercity Research Institute Corporatin In Kyoto, Japan

2006.9.10. "Another Roots of Ainu Culture: hybridization of Okhotsk culture and Satsumon culture in eastern Hokkaido." Centre for International Japan-Studies research Project. In Hokkaido Museum of Northern Peoples [In Japan]

2006.10.21. "Landscape history: An inquiry into the new relationship with Nature." In The Mainichi News Papers

2006.10.26. "Pottery Making as Socio-cultural Products: Practice and learning of fork technology in Highlanders' society, Northern Luzon." In 117th regular meeting of Japanese society for Southeast Asian Archaeology. Doshisha Women's College of Liberal Arts [in Japan]

2006.11.9. "The Dangers and Management of the Terraced Rice Paddies in the Cordillera, the Philippines" In RIHN Satellite Symposium "World Heritage, People and Water", RIHN. [In Japanese]

2006.11.19. "The logic of resource management in Northern Thailand." Shigematsu memorial Academic seminar. "Water and Human in Monsoon Asia." Sizuoka, Japan

**—Research Activities—**

**[Field Research in Japan]**

2006.8. Asahikawa, Hokkaido (Museum research on the exhibition of *Ainu* collection)

2006.12. Amami, Kagoshima (Archaeological and Historical research on Amami area)

2007.1. Amami, Kagoshima (Anthropological research on the traditional wild boar hunting)

2007.2. Nagasaki, Kyushu (Archaeological and Historical research on Tsushima area)

**[Foreign Countries]**

2007.3. Netherlands and Germany (Anthropological research on the museum collections of *Ainu*)

2007.3. Russia (Landscape research on Premorye)

## ONISHI, Takeo — Project Senior Researcher

Born in 1972.

**—Curriculum Vitae—**

**[Academic Career]**

Division of Environmental Science and Technology, Graduate School of Agriculture, Kyoto University, D. Course (2004)

Division of Environmental Science and Technology, Graduate School of Agriculture, Kyoto University, M. Course (1998)

Department of Agricultural Engineering, Faculty of Agriculture, Kyoto University, B. Ag. (1996)

**[Professional Career]**

Senior Research Fellow, Research Institute for Humanity and Nature (2006)

Research Fellow, Core Research for Evolutional Science and Technology (CREST) Project of Japan Science and Technology Agency (2004)

**[Higher Degrees]**

D.Ag. (Kyoto University, 2004), M.Ag. (Kyoto University, 1998)

**[Fields of Specialization/Background]**

Agricultural Engineering, Hydrology

**[Academic Society Memberships]**

The Japanese Society of Irrigation, Drainage, and Rural Engineering, Japan Society of Civil Engineers, Japanese Association of Groundwater Hydrology, GIS Association of Japan

**—Major Publications—**

**[Scientific Papers]**

Takeo Onishi, Junichi Yoshitani, Yicheng Wang, Xiaotao Cheng 2005 Lessons Learned on Land Management Policy from 1998 Changjiang River Flood, *Proceedings of the International Conference on Monitoring, Prediction and Mitigation of Water-Related Disasters*, pp.685-690

Takeo Onishi, Haruhiko Horino, Toru Mitsuno 2004 A Case Study on Storage Properties in Terraced Paddy Fields, *Transactions of the Japanese Society of Irrigation, Drainage and Reclamation Engineering*, No. 230, pp. 53-59 (In Japanese)

Takeo Onishi, Haruhiko Horino, Kimihito Nakamura, Toru Mitsuno 2003 Evaluation of Groundwater Properties in Terraced Paddy Fields Using Saturated- Unsaturated Flow Analysis, *Transactions of the Japanese Society of Irrigation, Drainage and Reclamation Engineering*, No. 227, pp. 97-104 (In Japanese)

Takeo Onishi, Haruhiko Horino, Toru Mitsuno 2000 Quantitative Evaluation of Hydrological Properties in Terraced Paddy Fields, *Proceedings of the XIV Memorial CIGR World Congress*, pp. 1030-1034

**—Oral Presentation—**

January 2005 "Lessons Learned on Land Management Policy from the 1998 Changjiang River Flood", *International Workshop on Monitoring, Prediction and Mitigation of Water-Related Disasters*, Kyoto University Clock Tower Centennial Hall, Kyoto

**—Research Activities—**

**[Field Research in Foreign Countries]**

July 2006 Sangjiang Plain, China (Field survey at Sangjiang Plain)

August 2006 Dongting Lake, China (Social survey around Dongting Lake)

| | |
|---|---|
| September 2006 | Gassi Lake, Russia (River and soil water sampling of wetlands around Gassi Lake) |
| October 2006 | Sangjiang Plain, China (River and soil water sampling of wetlands around Gassi Lake) |

## OSADA, Toshiki ——Professor

Born in 1954.

**—Curriculum Vitae—**

**[Academic Career]**

Department of Tribal and Regional Languages, Ranchi University, Ph.D. Course (1991)

Department of Linguistics, Graduate School of Arts, Hokkaido University, M. Course (1984)

Faculty of Arts, Hokkaido University (1981)

**[Professional Career]**

Professor, Research Institute for Humanity and Nature (2003)

Professor, Kyoto University of Arts and Designs (2001)

Research Associate, International Research Center for Japanese Studies (1992)

**[Higher Degrees]**

Ph.D. (Ranchi University, 1991), M.A. (Hokkaido University, 1984)

**[Field Specialization/Background]**

Linguistics, South Asian Studies

**[Academic Society Memberships]**

The Linguistic Society of Japan, the Society of South Asian Archaeology

**—Major Publications—**

**[Books (edited)]**

Osada T. (2007) *Occasional Paper 2: Linguistics, Archaeology and the Human Past.* RIHN.

Osada T. (2006) *Indus Civilization: Text and Context.* Manohar Publications.

**[Papers]**

Kharakwal, J. S., Y. S. Rawat, and T. Osada (2007) Kanmer: A Harappan site in Kachchh, Gujarat, India, *Occasional Paper 2: Linguistics, Archaeology and the Human Past.* pp. 21-46

Shinde, V., S. S. Deshpande, T. Osada, and T. Uno (2006) Basic issues in Harappan archaeology: some thoughts. *Ancient Asia* 1: 63-72.

**[Articles]**

| | |
|---|---|
| March 16, 2007 | 'The meaning of the exaction at Kanmer, Kachchh, Gujarat' "Mainichi-Shimbun" (in Japanese) |
| August 19, 2006 | 'To learn from the Indus civilization' "Mainichi-Shimbun" (in Japanese) |

**—Research Activities—**

**[Field Research in foreign countries]**

| | |
|---|---|
| January, 2007 | Kanmer, Kachchh, Gujarat in India (Archaeological Excavation) |
| November, 2006 | Gonur Depe, Turkmenistan (Preliminary Research on the Gonur Depe archaeological site in Turkmenistan) |
| October, 2006 | Lahore in Pakistan and Udaipur and Kachchh district, Gujarat in India (Preliminary research for excavations in India and Pakistan) |
| May, 2006 | Karachi and Islamabad in Pakistan (Preliminary research for excavation in Pakistan) |

**—Academic and Social Activities—**

Committee of RIHN's International Symposium (Co-Chairperson)

**—Oral Presentation—**

November, 2006 Kharakwal, J. S., T. Osada "BMAC, Ahar cultural complex and the problem of Aryans", International symposium 'Ancient Margiana is the new centre of the world civilization', Mary, Turkmenistan.

April, 2006 Osada, T. and Evans, N. "Mundari reciprocal", Typological Seminar, Max-Plank Institute for Psycholinguistics, Nijmegen, the Nederland.

**—Public and School Lectures—**

September 22, 2006 Osada T. "Why did the Indus civilization decline?" RIHN Seminar (Research Institute for Humanity and Nature)

## PARPOLA, Asko ——————————————————Invited Research Fellow

Born in 1941.

**—Curriculum Vitae—**

**[Academic Career]**

Department of Indology, University of Helsinki, D. Course (1968)

Department of Indology, University of Helsinki, M. Course (1963)

Department of Indology, University of Helsinki (1962)

**[Professional Career]**

Professor of Indology, University of Helsinki (1982, now Professor Emeritus)

Invited Research Scholar, Research Institute for Humanity and Nature, Kyoto (2006)

Visiting Research Scholar, Institute for Research in Humanities, University of Kyoto (1999)

Fellow Commoner of Churchill College, University of Cambridge (1987)

Acting Professor of Comparative Religion at the University of Helsinki (1977)

Acting Professor of Sanskrit at the University of Gothenburg in Sweden (1973)

Research Fellow at the Academy of Finland (1972)

Research Fellow at the Scandinavian (now Nordic) Institute of Asian Studies in Copenhagen (1968)

**[Higher Degrees]**

Ph.D. (Indology) (University of Helsinki, 1968), M.L. (University of Helsinki, 1963)

**[Field Specialization/Background]**

Indology

**[Academic Society Memberships]**

The Finnish Academy of Sciences and Letters; in 1981-1993; the Finnish Oriental Society; since 1970 Board Member; the European Association of South Asian Archaeologists; the Consultative Committee of the International Association of Sanskrit Studies

**—Major Publications—**

**[Books (edited)]**

Remota Relata: Essays on the History of Oriental Studies in Honour of Harry Halen (2003, ed. with Juha Janhunen, xxxix + 325 pp.)

Early Contacts between Uralic and Indo-European: Linguistic and Archaeological Considerations (2001, ed. with C. Carpelan and P. Koskikallio, 456 pp.)

**[Books]**

Changing Patterns of Family and Kinship in South Asia (1998, ed. with S. Tenhunen, ix + 314 pp.)

South Asian Archaeology 1993, vol. I-II (1994, ed. with P. Koskikallio, 887 pp.)

Corpus of Indus Seals and Inscriptions, vol. 3: New material, untraced objects and collections outside India and Pakistan (in press, with B. M. Pande and P. Koskikallio)

Corpus of Indus Seals and Inscriptions, vol. 2: Collections in Pakistan (1991, with S. G. M. Shah, xxxii + 448 pp.)

Corpus of Indus Seals and Inscriptions, vol. 1: Collections in India (1987, with J. P. Joshi, xxxii + 392 pp.)

South Asian Religion and Society (1986, ed. with B. Smidt Hansen, 262 pp.)

Corpus / Documentation and Duplicates / Concordance of Inscriptions in the Indus script (1979-1982, with K. Koskenniemi, 179 + 98 + 201 pp.)

Materials for the study of the Indus script, I (1973, with S. Koskenniemi and S. Parpola, xxviii + 528 + 55 pp.)

Intian kulttuuri [Indian culture, in Finnish] (2005, ed., 429 pp.)

Deciphering the Indus Script (1994, xxii + 374 pp.)

The Sky Garment: A study of the Harappan religion and its relation to the Mesopotamian and later Indian religions (1985, 216 pp.)

Proceedings of the Nordic South Asia Conference (1981, ed., 310 pp.)

The literature and study of the Jaiminiya Samaveda (1973, 33 pp.)

The Srautasutras of Latyayana and Drahyayana and their commentaries, vol. I: 1 (1968, Ph.D. thesis, 141 pp.) vol. I: 2 (1969, 273 pp.)

**[Papers]**

The Nasatyas, the chariot and Proto-Aryan religion (2005, in the Journal of Indological Studies 16-17: pp. 1-63)

Study of the Indus Script (2005, in the Transactions of the International Conference of Eastern Studies 50: pp. 28-66)

Pandaíe and Sita: On the historical background of the Sanskrit epics (2002, in the Journal of the American Oriental Society 122: pp. 361-373)

Pre-Proto-Iranians of Afghanistan as initiators of Sakta Tantrism (2002, in Iranica Antiqua 37: pp. 233-324)

From the dialects of Old Indo-Aryan to Proto-Indo-Aryan and Proto-Iranian (2002, in Indo-Iranian languages and peoples, ed. N. Sims-Williams = Proceedings of the British Academy 116: pp. 43-102)

Vac as a Goddess of Victory in the Veda and her relation to Durga (1999, in: Zinbun 34: 101-143)

The Coming of the Aryans to Iran and India and the cultural and ethnic identity of the Dasas (1988, in Studia Orientalia 64: pp. 195-302)

**—Field Research—**

about 20 field research trips to Pakistan and India since 1971

**—Academic and Social Activities—**

Vice-President of the Finnish Oriental Society (1981–1993); President of the Finnish Oriental Society (1994–1998); President of the European Association of South Asian Archaeologists (1991–93); Chairman of the Institute for Asian and African Studies, University of Helsinki (1994–1998); Member of the editorial committee of the following international scholarly journals: Studia Orientalia (Helsinki), Acta Orientalia (Oslo), Electronic Journal of Vedic Studies (Cambridge, Mass.)

**—Keynote Speech—**

2005 at the 50th International Conference of Eastern Studies in Tokyo and in Kyoto

1996 at the 25th Annual South Asia Conference at the University of Wisconsin, Madison

## SAEKI, Tazu — Assistant Professor

**—Curriculum Vitae—**

**[Academic Career]**

Department of Geophysics, Faculty of Science, Tohoku University, D. Course (1998)

Department of Geophysics, Faculty of Science, Tohoku University, M. Sc. (1995)

Division of Natural Science, The College of Liberal Arts, International Christian University (1993)

**[Professional Career]**

Assistant Professor, Research Institute for Humanity and Nature (2002)

Assistant Professor, Information Synergy Center, Tohoku University (2001)

Assistant Professor, Computer Center, Tohoku University (1998)

**[Professional Career] (Part time)**

Lecturer, the faculty of literature, Ritsumeikan University (2005–)

**[Higher Degrees]**

M.Sc. (Tohoku University, 1995)

**[Field Specialization/Background]**

Atmospheric Physics

**[Academic Society Memberships]**

Meteorological Society of Japan

**—Major Publications—**

**[Report]**

Takakiyo Nakazawa, Shuji Aoki, Shigeyuki Ishidoya, Prabir Patra, Satoshi Sugawara, Shinji Morimoto, Gen Hashida, Shamil Makyutov, Machida Toshinobu, Tazu Saeki (2006) Estimation of the budget of Carbon Dioxide and Methane by Top-Down Approach, Research Revolution 2006, Advanced Parameterization of Physical Processes (Atmosphere and Ocean), pp. 79-89, in *Annual Report on Research Activity 2006*, Research and Development Bureau of Ministry of Education, Culture, Sports Science and Technology. (in Japanese)

Tazu Saeki (2006) Global cycle of atmospheric methane, 52-58, in *Report for ocean carbon cycle and methane hydrate*, Special committee of research and development, JSPS. (in Japanese)

**—Oral Presentation—**

June 16, 2006 — Tazu Saeki, Hidekazu Matsueda, Takakiyo Nakazawa, Shuji Aoki, Satoshi Sugawara, Variation of methane concentrations over Japan and the west Pacific Ocean, Proceedings of the 12th Meeting of Atmospheric Chemistry, Yamagata City. (in Japanese)

Sep. 2006 — Tazu Saeki, Satoshi Sugawara, Shuji Aoki, Takakiyo Nakazawa, Shigeyuki Ishidoya, Jie Tang, Dongqi Zhang, Guang-Yu Shi, Yu-Zhi Liu, Shinji Morimoto, Tadahiro Hayasaka "Variations of the atmospheric methane concentration in China", p. 244, Proceedings of the 8th International Global Atmospheric Chemistry Conference, Capetown, South Africa.

**—Other Research Activities—**

2006–present — A member of "Investigation of variation of atmospheric methane based on analysis of carbon and hydrogen isotopes" for Grans-in-Aid for Scientific Research (Kiban-A)

2005–present — A member of "Comprehensive studies of global greenhouse gas cycles in the atmosphere, terrestrial biosphere and oceans" for Grans-in-Aid for Scientific Research (Creative Scientific Research).

## SAITO, Haruo — Research Fellow

Born in 1978.

**—Curriculum Vitae—**

**[Academic Career]**

Department of Forest Science, Graduate School of Agriculture, Kyoto University, D. Course (2006)

Department of Forest Science, Graduate School of Agriculture, Kyoto University, M. Course (2002)

Faculty of Agriculture, Kyoto University (2000)

**[Professional Career]**

Research Fellow, Research Institute for Humanity and Nature (2006)

**[Higher Degrees]**

D.Ph. (Kyoto University, 2006), M.Ph. (Kyoto University, 2002)

**[Field Specialization/Background]**

Forestry, Ethno-mycology, Commons theory

**[Academic Society Memberships]**

The Japanese Forest Society, The Japanese Forest Economic Society, The Society of Biosphere Studies, The Society of Commons

**—Major Publications—**

**[Books (co-editor)]**

Saito H., K. Nonaka, A. Ikeguchi (2007) "The biodiversity of vegetables in Vientiane" National Agriculture and Forestry Research Institute (NAFRI) & Research Institute for Humanity and Nature (RIHN).

**[Books (article)]**

Saito H. (2007) 'Kinoko shoku' "Pictorial book of the Mekhong Basin" Kobundo. 88-89. (In Japanese)

**[Papers (reviewed)]**

Saito H. (2006) Wild Mushroom use in Japan and its Ecological Background. *Biostory* 6: 106-121. (In Japanese)

Saito H. (2006) Change of carrying capacity and gathering pressure of wild edible plants and mushrooms: A case study in Sawauchi village, Iwate prefecture. *Forest Economy* 692: 2-16. (In Japanese)

Saito H. (2005) Gathering activities of wild edible plants and mushrooms conducted by city dwellers: Analysis of its background and characteristics from questionnaire surveys of mountaineering club members in Iwate and Kyoto prefecture. *Forest Economy.* 684: 1-16. (In Japanese)

Saito H. (2005) Wild Edible Plant Gathering Activities Practiced at Ecotones. Bulletin of the National Museum of Japanese History. 123: 325-353. (In Japanese)

**[Papers (non-reviewed)]**

Ikeguchi A., H. Saito, K. Nonaka, Y. Adachi, S. Sivilay, Y. Nishimura (2006) Food plants and animals in a marketplace in the Vientiane suburb, Lao PDR. *Nature, Human and Environment (The Lao Agriculture and Forestry Journal, Special Issue)*: 47-57.

**[Articles]**

2003 'Kinoko ni miserareta hitobito' "Ecosophia" Showa-do, 11: 64-65 (in Japanese)

2005 'Sansai: (Wakuwaku ikimono chirigaku)' "Chiri" Kokon-shoin, 50(7): 56-60 (in Japanese)

**—Research Activities—**

**[Field Research in Japan]**

| | |
|---|---|
| October, 2002 | Sawauchi Village, Iwate Prefecture (Research on activities of gathering edible mushrooms) |
| April, 2003 | Sasayama City, Hyogo Prefecture (Research on activities of gathering edible plants) |
| October, 2003 | Iwate Prefecture (Research on activities of gathering edible mushrooms) |
| April, 2004 | Sasayama City, Hyogo Prefecture (Research on activities of gathering edible plants) |
| May, 2004 | Sawauchi Village, Iwate Prefecture (Research on activities of gathering edible plants) |
| May, 2004 | Sasayama City, Hyogo Prefecture (Research on activities of gathering edible plants) |
| June, 2004 | Sawauchi Village, Iwate Prefecture (Research on activities of gathering edible plants) |
| October, 2004 | Ayabe City, Kyoto Prefecture (Research on local use and management of matsutake mushroom) |
| December, 2004 | Nozawa-onsen Village and Ueda City, Nagano Prefecture (Research on local use and management of hot sprig resources) |
| December, 2004 | Ayabe City, Kyoto Prefecture (Research on local use and management of matsutake mushroom) |
| May, 2005 | Sawauchi Village, Iwate Prefecture (Research on activities of gathering edible plants) |

**[Field Research in Foreign Countries]**

| | |
|---|---|
| August–September, 2004 | Vientiane Province, Lao P.D.R. (Research on natural resources use and on bio-resources in market places) |
| November, 2004 | Vientiane Province, Lao P.D.R. (Research on development of market place and vegetable farming) |
| May, 2005 | Vientiane Province, Lao P.D.R. (Research on natural resource use) |
| January, 2006 | Vientiane Province, Lao P.D.R. (Research on distribution chain of bio-resources and on mushroom culticvation) |
| June, 2006 | Vientiane Province and Oudomxay Province, Lao P.D.R. (Research on activities of gathering mushroom) |
| February–May, 2007 | Vientiane Province, Lao P.D.R. (Research on mushroom culticvation) |

**—Academic and Social Activities—**

Facilitator of the Study of Commons (2003–)

**—Oral Presentation—**

| | |
|---|---|
| November, 2003 | Saito H. "Regional feature of wild edible plants and mushrooms gathering activity: From questionnaire survey in Iwate and Kyoto Prefecture" The Japanese Forest Economic Society Autumn Conference 2003, CO-OP Inn Kyoto, Kyoto City |
| April, 2005 | Ikeguchi A., and H. Saito "Marketing of fresh foods in Vientiane plain" The 2005 meeting of Association of American Geographers (Denver, USA.) |
| September 18, 2005 | Ikeguchi A., H. Saito, Y. Adachi and K. Nonaka "Fresh commodity network in suburban area of Vientiane, Laos" Autumn Conference of The Association of Japanese Geographers (Ibaraki University, Mito City, Ibaraki Prefecture) |
| April, 2006 | Saito H. and G. Mitsumata "Collective harvesting custom and habitat improvement of Matsutake mushroom—A case study of Ayabe City, Kyoto District" 117th The Japanese Forest Society Annual Conference (Tokyo University of Agriculture, Setagaya, Tokyo Metropolitan) |

**—Public and School Lectures—**

| | |
|---|---|
| September 2, 2004 | 'Geographical aspects of wild edible plants and mushroom gathering activities' (Society for forest economic study of Northern Japan, Kaminokuni Town, Hokkaido Prefecture) |
| October 25, 2005 | 'Natural environment from a view of edible plants and mushroom gathering' (Kwansei Gakuin University, Nishinomiya City, Hyogo Prefecture) |
| March 1, 2006 | 'Edible wild plants and mushrooms and people's life in Nishiwaga' (Nishiwaga Town, Iwate Prefecture) |
| December 27, 2006 | 'Toward conservation of Satoyama of Kansai Bunka Gakujutsu Toshi (9): Wild Mushroom use in Japan and its Ecological Background' (Seminar of Satoyama study group, Research Center for Social Common Capital, Doshisha University, Kyoto City) |
| March 29, 2007 | 'Today's viewpoint of environmental studies' (Kyoto Seika University, Kyoto City, Kyoto Prefecture) |

## SAITO, Kiyoaki —Professor

Born in 1945.

**—Curriculum Vitae—**

**[Academic Career]**

Department of Education, Faculty of Education, Kyoto University (1971)

Department of Agricultural Biology, Faculty of Agriculture, Kyoto University (1969)

**[Professional Career]**

Professor, Research Institute for Humanity and Nature (2004)

Senior Staff Writer, Staff Writer, The Mainichi Newspaper (2003–1971)

**[Field Specialization/Background]**

Study of Nature, Journalism

**[Academic Society Memberships]**

The International Society of Volunteer

**—Major Publications—**

**[Books]**

Tanaka, K., M. Tokunaga, T. Nisio, R. Imai, W. Iijima, K. Matsubayashi, K. Okumiya, Y. Ono, K. Hiramastu, K. Saito, (2006) 'Dr. Kinji Imanishi and Field-science' "Teikoku Nihon no Gakuchi vol. 7" Iwanami Shoten. 303-343 (in Japanese)

**[Papers]**

Saito, K. (2007) The Study of Nature ~ Around the Academic Work of Dr.Kinji Imanishi. Himalayan Study Monographs 8: 89-97 (in Japanese)

**[Articles]**

Saito, Kiyoaki (2007) 'Interview of Director'. The Humanities Leview, 1: 10-31 (in Japanese)

Saito, Kiyoaki (2007) 'Desert and Rain Forest ~ Around the Study of Nature (3)'. Tropical Ecology Letters, 66: 7-10 (in Japanese)

Saito, Kiyoaki (2006) 'Long White Mountain and Black Water Castle in China ~ Around the Study of Nature (2)'. Tropical Ecology Letters, 65: 15-18 (in Japanese)

Saito, Kiyoaki (2006) 'Tropical highland Ethiopia ~ Around the Study of Nature (1)'. Tropical Ecology Letters, 64: 14-18 (in Japanese)

Saito, Kiyoaki (2006) 'Book Review' 'Book Guide'. Eco-sophia, 18: 110, 113 (in Japanese)
Saito, Kiyoaki (2006) 'Book Review' 'Book Guide'. Eco-sophia, 17: 121, 123 (in Japanese)

**—Activities in Academic Societies—**

Member, Editorial Board for Journal of Volunteer Studies (The International Society of Volunteer)
Member, Editorial Board for Eco-sophia (The Reseach Society of Ethno-Natural History)

**—Research Activities—**

**[Field Research in Foreign Countries]**

June 2006 Ethiopia (Research on highland Civilization)
Jan. 2007 India (Research on Indas Culture)

**—Social Activities and Public Lectures—**

**[Social Activities]**

Committee Member, Japanese National Committeer for Antarctic Research
Committee Member, National Institute of Polar Research

**[Public Lectures]**

March 25, 2007 'From First-ascet to Field-science' (National Ethonology Museum)
March 31, 2007 'Dr. Kinji Imanishi and Field-science' (RIHN) (in Japanese)

## SASAKI, Naoko — Project Researcher

Born in 1974.

**—Curriculum Vitae—**

**[Academic Career]**

Department of Forest and Biomaterials Science, Graduate School of Agriculture, Kyoto University, D. Course (2005)
Department of Bio-resources, Graduate School of Agriculture, Ehime University, M. Course (2001)
Faculty of Agriculture, Ehime University (1997)

**[Professional Career]**

Project Research Fellow, Research Institute for Humanity and Nature (2006)
Technical Assistant, Research Institute for Humanity and Nature (2005)

**[Higher Degrees]**

D.Agr. (Kyoto University, 2006), M.Agr. (Ehime University, 2001)

**[Field Specialization/Background]**

Vegetation History, Forest History, Palaeoecology

**[Academic Society Memberships]**

The Ecological Society of Japan, Japanese Association of Historical Botany, Palynological Society of Japan, American Quaternary Association

**—Major Publications—**

**[Book]**

Sasaki, N. and H. Takahara (2007) 'Vegetation history during "the age of Canoe", from the Middle to the Final Jomon Period, in Lake Biwa region', "The age of Canoe: Lake Biwa and the life of ancient people". Sunrise Shuppan. 186-200 [in Japanese].

**[Refereed Papers]**

Sasaki, N. (2003) A 700-year landscape history of dwarf bamboo (*Sasa*)-Nikko fir community in the sub-alpine zone of Mt. Kamegamori, Shikoku Island, Japan. *Japanese Journal of Ecology* 53: 219-232 [in Japanese].

Sasaki, N., T. Kawano, H. Takahara and S. Sugita (2004) Phytolith evidence for the 700-years history of a dwarf-bamboo community in the sub-alpine zone of Mt. Kamegamori, Shikoku Island, Japan. *Japanese Journal of Historical Botany* 13: 35-40.

**[Other Publication]**

2006 'A history of "Satoyama" forest in Kyoto, based on fossil pollen records' "Journal of Japan Society of Hydrology & Water Resources" 19 (2): 157 [in Japanese]

**—Oral Presentations—**

July, 2003 Sasaki, N. and H. Takahara. Fire and vegetation history since the Last Glacial Maximum in Tanba Mountains, central Japan. XVI International Quaternary Association Congress. Reno Hilton Hotel and Conference Center, Reno, Nevada, USA

November, 2003 Sasaki, N. 'Origin and history of "Satoyama" landscape reconstructed from pollen and charcoal records', Symposium "Time and spatial scale on landscape reconstruction". 18th Annual Meeting of Japanese Association of Historical Botany. International Academic Exchange Center of Okayama University of Science, Kurashiki, Okayama Prefecture [in Japanese]

July, 2004 Sasaki, N. and H. Takahara. Fire and human impacts on vegetation changes during the last 10000 years in the Tanba Mountains, Japan. XI International Palynological Congress. Conference and Exhibition Centre, Granada, Spain

December, 2005 Sasaki, N. 'Various patterns of vegetation change in Kinki region since the Jomon Period', Symposium "Environmental history from the Jomon to the Yayoi Period in the Kinki region: discussion on environmental changes in the Jomon Period—Yayoi Period transition based on archaeological and palaeoecologial evidence". 20th Annual Meeting of Japanese Association of Historical Botany. Kyoto Prefectural University, Kyoto, Kyoto Prefecture [in Japanese]

March, 2007 Sasaki, N. 'Vegetation reconstruction based on pollen records: forest history in northern part of Kyoto Basin', Symposium "Environmental changes and human activities in Kyoto Basin—from various approaches". 54th Annual Meeting of Ecological Society of Japan. Ehime University, Matsuyama, Ehime Prefecture [in Japanese]

**—Poster Presentations—**

March, 2002 Sasaki, N., H. Takahara and M. Ueshima. Vegetation change in Jaga-ike, Tamba Mountains: 2. Human impact on vegetation during the last 2500 years. 49th Annual Meeting of Ecological Society of Japan, Tohoku University, Sendai, Miyagi Prefecture [in Japanese]

August, 2002 Sasaki, N. and H. Takahara. Fire impacts on vegetation changes during the late-Holocene in the Tanba Mountains, central Japan. American Quaternary Association 17th Biennial Meeting. University of Alaska, Anchorage, Alaska, USA

March, 2003 Sasaki, N. and H. Takahara. Reconstruction of spatial pattern of vegetation: based on plant macrofossil and pollen records. 50th Annual Meeting of Ecological Society of Japan, Tsukuba International Congress Center, Tsukuba, Ibaragi Prefecture [in Japanese]

August, 2004 Sasaki, N. and H. Takahara. Vegetation change and fire impact during the Holocene in Hatchodaira, Tamba Mountains. 51st Annual Meeting of Ecological Society of Japan, Kushiro Tourism and International Relations Center, Kushiro, Hokkaido Prefecture [in Japanese]

August, 2005 Sasaki, N. and H. Takahara. Fire and human impacts on vegetation changes during the last

10000 years in Kyoto, Japan. PAGES 2nd Open Science Meeting. Beijing International Convention Center, Beijing, China

March, 2006 Sasaki, N. and H. Takahara. Fire and human impacts on vegetation changes during the last 10000 years in Kyoto, Japan. 2nd Scientific Congress of East Asian Federation of Ecological Societies. Niigata Convention Center, Niigata, Japan

March, 2006 Sasaki, N., A. Ogawa, T. Yoshioka, S. Hino, H. Takahara, H. Shibata and T. Yoshida. Vegetation changes during the last 60 years based on pollen records from Lake Shumarinai, Hokkaido. 53rd Annual Meeting of Ecological Society of Japan, Niigata Convention Center, Niigata, Niigata Prefecture [in Japanese]

**—Research Activities—**

**[Field Research in Japan]**

April, 2002 Nantan City, Kyoto Prefecture (Research on the Holocene vegetation change and human impact)

May, 2002 Horokanai Town, Hokkaido Prefecture (Research on vegetation history of Lake Shumarinai region)

April, 2003 Horokanai Town, Hokkaido Prefecture (Research on vegetation history of Lake Shumarinai region)

May, 2003 Kyoto City, Kyoto Prefecture (Research on the Holocene vegetation change and human impact)

June, 2003 Maniwa City, Okayama Prefecture (Research on the Holocene vegetation change and human impact)

September, 2004 Kyoto City, Kyoto Prefecture (Research on the Holocene vegetation change and human impact)

May, 2006 Inagawa Town, Hyogo Prefecture (Research on charcoal producing forest)

June, 2006 Miyazu City, Kyoto Prefecture (Research on the Holocene vegetation change and human impact)

June, 2006 Motegi Town, Tochigi Prefecture (Research on charcoal producing forest)

September, 2006 Otsu City, Shiga Prefecture (Research on history of plants and forest utilization)

October, 2006 Taketa City and Kokonoe Town, Oita Prefecture (Research on man-made meadow and plants utilization)

November, 2006 Soni Village, Nara Prefecture (Research on the Holocene fire and vegetation history)

March, 2007 Kyoto City, Kyoto Prefecture (Research on the Holocene vegetation change and human impact)

**[Field Research in Foreign Countries]**

September, 2002 Irkutsk Oblast, Kemerovo Oblast, Krasnojarsk Kraj and Novosibirsk Oblast, Russia (Research on vegetation history of Siberia)

September, 2003 Kamchatska Oblast, Russia (Research on vegetation history of Kamchatska)

## SATAKE, Shinsuke ——— Research Fellow (JSPS)

Born in 1976.

**—Curriculum Vitae—**

**[Academic Career]**

Department of Earth System Science and Technology, Interdisciplinary Graduate School of Engineering Sciences, Kyushu University, D. Course (2005)

Department of Earth System Science and Technology, Interdisciplinary Graduate School of Engineering Sciences, Kyushu University, M. Course (2002)

**[Professional Career]**

Postdoctoral Research Fellow, Japan Society for Promotion of Science (2005)

**[Higher Degrees]**

D.Sc. (Kyushu University, 2005), M.Sc. (Kyushu University, 2002)

**[Field Specialization/Background]**

Meteorology, Atmospheric physics

**[Academic Society Memberships]**

Meteorological Society of Japan

**—Major Publications—**

**[Books]**

Kasahara M. and Touno S. (edited), Uno I. and Satake S. (2007) 'Section 7.3. Numerical Simulation of Air Pollutants over East Asia', "Impact of Aerosols on Atmospheric Environment", Kyoto University Press. 75-90 (in Japanese).

**[Papers (reviewed)]**

Kuji, M., S. Hayashida, M. Shiobara, M. Yabuki, K. Hara, H. Kobayashi, T. Hayasaka and S. Satake, 2006, Characteristics of sulfate haze over East Asia retrieved with satellite and ground-based remote sensing data, *Proceedings of SPIE*, 6408 64080R.

Yumimoto K., I. Uno, N. Sugimoto, A. Shimizu, S. Satake, 2007, Adjoint inverse modeling of dust emission and transport over East Asia, Geophysical Research Letters, 34, L08806, doi:10.1029/2006GL028551

Hayasaka, T., S. Satake, A. Shimizu, N. Sugimoto, I. Matsui, K. Aoki, and Y. Muraji, 2007, Vertical distribution and optical properties of aerosols observed over Japan during the Atmospheric Brown Clouds-East Asia Regional Experiment 2005, J. Geophys. Res., 112, D22S35, doi:10.1029/2006JD008086.

**—Oral Presentation—**

October 11, 2006 S. Satake, T. Hayasaka, K. Aoki, A, Shimizu, N. Sugimoto, I. Matsui and Y. Muraji, "Numerical study for the vertical distributions and optical properties of Asian dust and anthropogenic aerosols over Japan in spring 2005" Second Korea-Japan-China Joint Conference on Meteorology (KINTEX Conference Center, Ilsan City, Korea)

**—Public and School Lectures—**

September 25, 2006 "Numerical simulation of Asian dust and anthropogenic air pollutants over East Asia" (Faculty of Science, Kumamoto University, Kumamoto Prefecture) (invited)

## SATO, Tadashi — Visiting Associate Professor

Born in 1949.

**—Curriculum Vitae—**

**[Academic Career]**

Department of Agriculture, Graduate School of Agriculture, Tohoku University, D. Agriculture (1979)
Department of Agriculture, Graduate School of Agriculture, Tohoku University, M. Agriculture (1975)
Faculty of Agriculture, Tohoku University (1973)

**[Professional Career]**

Associate Professor, Graduate School of Life Science, Tohoku University (2000)
Associate Professor, Institute of Genetic Ecology, Tohoku University (1991)
(Visiting Researcher of Japan Society for the Promotion of Science in France (1989))
Research Associate, Institute of Genetic Ecology, Tohoku University (1988)
(Part-time Lecturer, Faculty of Education, Fukushima University (1981-1982))
Research Associate, Research Institute for Agriculture, Tohoku University (1980)
Postdoctoral Fellowships of Japan Society for the Promotion of Science (1979)

**[Higher Degrees]**

D.Agr. (Tohoku University, 1979), M.Agr. (Tohoku Univeristy, 1975)

**[Field Specialization/Backgound]**

Genetic Ecology, Plant Genetic Physiology

**[Academic Sopciety Menberships]**

Japanese Society of Breeding, Crop Science Society of Japan, Japanese Society for Root Research, The Society for the Study of Species Biology, The Society for the Advancement of Breeding Research in Asia and Oceania

**[Awards]**

Educational Prize of Tohoku University

**—Major Publications—**

**[Books]**

Sato, T. (2003) 'Nitrogen Fixing Endophyte Living in Wild Rice' Nature History of Wild Rice, Hokkaido University Press. 91-106. (in Japanese)

Sato, T. (2003) 'Wild Rice in Lao' Climate and Wild Rice in Melong, Asia Ugaku, Bensey Publishing Inc. 40-49. (in Japanese)

Fukuta, Y., Kobayashi, S., Tsunematsu, T., Ebron, L. A., Kato, H., Umemoto, T., Morita, S., Sato, T. Yamaya, T., Nagamine, T., Fukuyama, T., Sasahara, H., Ashikawa, I., Tamura, K., Nemoto, H., Maeda, H., Hamamura, K., Ogata, T., Matsue, Y., Ichitani, K., Takagi, A. (2004) Response of QTLs for heading date in rice at different sites from tropical to temperate regions. *Advances in rice genetics*, edited by Khush G.S. et al., International Rice Research Institute, Manila, pp 233-237.

Sato, T., Fukuta, Y., Yano, M., Kumagai, T. (2004) Mapping QTLs associated with tolerance for enhanced ultraviolet-B radiation in rice. *Advances in rice genetics*, edited by Khush G.S. et al., International Rice Research Institute, Manila, pp 328-330.

Obara, M., Fukuta, Y., Yano, M., Yamaya, T., Sato, T. (2004) QTL analysis for discoloration of flag leaves during the ripening period in rice. *Advances in rice genetics*, edited by Khush G.S. et al., International Rice Research Institute, Manila, pp 338-339.

Fukuta, Y., Araki, E., Kobayashi, S., Ebran, L A., Umemoto, T., Morita, S., Nagata, K., Sato, T., Nagamine, T., Fukuyama, T., Sasahara, H., Nemoto, H., Maeda, H., Hamamura, K., Ogata, T., Matsue, Y., Ichitani, K.

Takagi, A., Tamura, K., Khush, G S. (2006) The reaction pattern of quantitative trait loci (QTL) for days to heading under different regions of temperate and tropical zone in rice (*Oryza sativa* L.). *Physio-genetic study on yield determination and ecological adaptability for sustainable rice culture*, Edited by Fukuta Y., Nozoe T., Ito O. JIRCUS, Tsukuba, pp 22-31.

Kobayashi, S., Fukuta, Y., Sato, T., Ozaki, M., Kush, G S. (2006) Molecular marker dissection of rice (*Oryza sativa* L.) plant type under temperate and tropical climates. *Physio-genetic study on yield determination and ecological adaptability for sustainable rice culture.* Edited by Fukuta Y., Nozoe T., Ito O. JIRCUS, Tsukuba, pp 41-47.

Kobayashi, S., Fukuta, Y., Morita, S., Sato, T., Ozaki, M., Khush, G S. (2006) Quantitative trait loci affecting flag leaf development in rice (*Oryza sativa* L.). *Physio-genetic study on yield determination and ecological adaptability for sustainable rice culture.* Edited by Fukuta Y., Nozoe T., Ito O. JIRCUS, Tsukuba, pp 54-61.

**[Papers (reviewed)]**

Yamaya, T., Obara, M., Nakajima, H., Sasaki, S., Hayakawa, T., Sato, T. (2002) Genetic manipulation and quantitative-trait loci mapping for nitrogen recycling in rice. *Journal of Experimental Botany* 53: 917-925.

Wang, Y., Tamura, K., Saitoh, Y., Sato, T., Hidaka, S., Tsutumi, K. (2002) Mapping major replication origins on the rice plasmid DNA. *Plant Biotechnology* 19: 27-35.

Adel, E., Nishioka, K., Sato, T., Suzuki, H., Ye, B., Hamada, T., Isawa, T., Mitsui, H., Minanisawa, K. (2002) Endophytic colonization and in planta-nitrogen fixation by Herbaspirillum sp. Isolated from wild rice. *Applied and Environmental Microbiology* 67: 5285-5293.

Ishikawa, R., Yamanaka, S., Fukuta, Y., Sato, Y-I., Sato, T. (2002) Exploitation of primitive upland rice genetic resources in Laos. *Economic Botany* 56: 192-197.

Yamanaka, Y., Fukuta, Y., Ishikawa, R., Nakamura, I., Sato, T., Sato, Y-I. (2002) Phylogenetic origin of waxy rice cultivars in Laos based on recent observations for "Glutinous rice Zone" and dCAPS marker of waxy gene. *Tropics* 11: 109-120.

Sato, T., Ueda, T., Fukuta, Y., Kumagai, T., Yano, M. (2003) Mapping of quantitative trait loci associated with ultraviolet-B resistance in rice (*Oryza sativa* L.). *Theoretical Applied Genetics* 107: 103-108.

Wang, Y., Saitoh, Y., Sato, T., Hidaka, S., Tsutsumi, K. (2003) Comparison of plastid DNA replication in different cells and tissues of the rice plant. *Plant Molecular Biology* 52: 905-913.

Kobayashi, S., Fukuta, Y., Sato, T., Osaki, M., Khush, G. S. (2003) Molecular marker dissection of basic plant development in rice (*Oryza sativa* L.) with emphases on the multi-functional and environ-responsive genomic regions. *Breeding Science* 53: 255-262.

Kobayashi, S., Fukuta, Y., Sato, T., Osaki, M., Khush, G. S. (2003) Molecular marker dissection of basic rice (*Oryza sativa* L.) plant development under temperate and tropical climates. *Theoretical Applied Genetics* 107: 1350-1356.

Ueda, T., Sato, T., Numa, H., Yano, M. (2003) Delimitation of the chromosomal region for a quantitative trait locus, *qUVR-10*, conferring resistance to ultraviolet-B radiation in rice (*Oryza sativa* L.). *Theoretical Applied Genetics* 108: 385-391.

Minamisawa, K., Nishioka, K., Miyaki, T., Ye, B., Miyamoto, T., You, M., Saito, A., Saito, M., Barraquio, W. L., Teaumroong, N., Sein, T., Sato, T. (2004) Anaerobic nitrogen-fixing consortia consisting of clostridia isolated from gramineous plants. *Applied and Environmental Microbiology* 70: 3096-3112.

Kobayashi, S., Fukuta, Y., Yagi, T., Sato, T., Osaki, M., Khush, G. S. (2004) Identification and characterization of quantitative trait loci affecting spikelet number per panicle in rice (*Oryza sativa* L.) *Field Crop Research* 89: 53-262.

Takehisa, H., Shimodate, T., Fukuta, Y., Ueda, T., Yano, M., Yamaya, T., Kameya, T., Sato, T. (2004) Identification of

quantitative trait loci for plant growth of rice in a paddy field flooded with salt water. *Field Crop Research* 89: 85-95.

Obara, M., Sato, T., Sasaki, S., Kashiba, K., Nagano, A., Nakamura, I., Ebitani, T., Yano, M., Yamaya, T. (2004) A C-22 line with a small segment from an *indica* (Kasalath) chromosome 2 on a *japonica* (Koshihikari) genetic background, had lower protein content of cytosolic glutamine synthetase in senescing leaf blade and increased the panicle number and panicle weight of rice (*Oryza sativa* L.). *Theoretical Applied Genetics* 110: 1-11.

Ishikawa, R., Toki, N., Imai, K., Sato, Y. I., Yamagishi, H., Shimamoto, Y., Ueno, K., Morishima, H., Sato, T. (2005) Origin of weedy rice grown in Bhutan and the force of genetic diversity. *Genetic Resources and Crop Evolution* 52: 395-403.

Sasaki, K., Fukuta, Y., Sato, T. (2005) Mapping of quantitative trait loci controlling seed longevity of rice (*Oryza sativa* L.). *Plant Breeding* 124: 361-366.

Hidema, J., Zhang, W., Yamamoto, M., Sato, T., Kumagai, T. (2005) Changes in grain size and grain storage protein of rice (*Oryza sativa* L.) in response to elevated UV-B radiation under outdoor conditions. *Journal of Radiation Research* 42: 295-303.

Tabuchi, M., Sugiyama, K., Ishiyama, K., Inoue, E., Sato, T., Takahashi, H., Yamaya, T. (2005) Severe reduction in growth rate and grain filling of rice mutants lacking OsGS1;1, a cytosolic glutamine synthetase1;1. *The Plant Journal* 42: 641-651.

Hidema, J., Teranishi, M., Iwamatsu, Y., Hirouchi, T., Ueda, T., Sato, T., Burr, B., Sutherland, B. M., Yamamoto, K., Kumagai, T. (2005) Spontaneously occurring mutations in the cyclobutane pyrimidine dimer photolyase gene cause different sensitivities to ultraviolet-B in rice. *The Plant Journal* 43: 57-67.

Sasaki, K., Kishitani, S., Abe, F., Sato, T. (2005) Promotion of Seedling Growth by Treatment of Seeds of Rice (*Oryza sativa* L. cv. Hitomebore) with $H_2O_2$ before Sowing. *Plant Production* 8: 509-514.

Ueda, T., Sato, T., Hidema, J., Hirouchi, T., Yamamoto, K., Kumagai, T., Yano, M. (2005) *qUVR-10*, a major quantitative trait locus for ultraviolet-B resistance in rice, encodes cyclobutane pyrimidine dimer photolyase. *Genetic* 171: 1941-1950.

Abe, T., Takehisa, H., Yasuda, M., Hayashi, Y., Saito, H., Ichida, H., Shirao, T., Onuma, R., Ryuto, H., Fukunichi, N., Miyazaki, Y., Tokairin, H., Nakashita, H., Kudo, T., Sato, T. (2006) Isolation of morphological mutants of rice induced by heavy-ion irradiation. *Riken Accelerator Progress Report* 39: 137.

Ishikawa, R., Yamanaka, S., Fukuta, Y., Chitrakon, S., Bounphanousay, C., Kanyavong, K L H., Tang, L H., Nakamura, I., Sato, T., Sato, Y-I. (2006) Genetic erosion from modern varieties into traditional upland rice cultivars (*Oryza sativa* L.) in northern Thailand. *Genetic Resources and Crop Evolution* 53: 245-252.

Takehisa, H., Ueda, T., Fukuta, Y., Obara, M., Abe, T., Yano, M., Yamaya, T., Kameya, T., Higashitani, T., Sato, T. (2006) Epistatic interaction of QTLs controlling leaf bronzing in rice (*Oryza sativa* L.) grown in a saline paddy field. *Breeding Science* 56: 287-293.

**[Article]**

Wang, Y., Saitoh, Y., Hidaka, S., Sato, T., Tsutsumi, K. (2002) Replication of plastid DNA. *Recent Research Development Plant Biology* 2: 33-48.

**[Reports]**

Sato, T., Yamaya, T., Fukuta, Y., Nakamura, I. (2002) Establishment of database for rice genetic resources in tolerance to global environmental changes'. JSPS Scientific research Basic Research B, (10556075) (1997-2001). (in Japanese)

Sato, T., Ueno, K., Akimoto, H., Ishikawa, R., Shishido, R., Ishii, T., Sato, Y-I. (2004) Accumulation of primary data for construction of database in wild-rice genetic resources collected in tropical Asia. JSPS Scientific research Basic Research B, (13460144) (2001-2003). (in Japanese)

Sato, T., Ueno, K., Minamisawa, K., Akimoto, M., Ishikawa, R., Nakamura, I., Shishido, R., Ishii, T., Sato, Y-I. (2006) Empirical research for establishment of On-farm conservation system on genetic resources of wild rice. JSPS Scientific research Basic Research B, (15405041) (2003-2005). (in Japanese)

Sato, T., Takehisa, H. (2006) Clarification of function and identification of QTL for saline tolerance to breed salt tolerant rice. The Salt Science Research Foundation Annual Research Report 2005, (in Japanese)

**—Research Activities—**

**[Field Research in Foreign Countries]**

| | |
|---|---|
| November, 2003 | Vientiane area in Lao PDR. Bangkok and Prachin Buri area in Thailand, Yangon and Sittwe area in Myanmar (Continuous Research of *On-farm* conservation in genetic recourses of wild rice and traditional cultivated rice) |
| March, 2005 | Vientiane area in Lao PDR. Phnom Penh and Siemereab area in Cambodia (Continuous Research of *On-farm* conservation in genetic recourses of wild rice and traditional cultivated rice) |
| January, 2006 | Vientiane area in Lao PDR. Phnom Penh and Siemereab area in Cambodia (Continuous Research of *On-farm* conservation in genetic recourses of wild rice and traditional cultivated rice) |
| June, 2006 | Vientiane area in Lao PDR. Bangkok area in Thailand (Continuous Research of *On-farm* conservation in genetic recourses of wild rice and traditional cultivated rice) |
| August, 2006 | Northern Territory area in Australia (Continuous Research of *On-farm* conservation in genetic recourses of wild rice and traditional cultivated rice) |
| November, 2006 | Can Tho area in Vietnam, Laos border area - Stung Treng – Kratie - Phnom Penh area in Cambodia, Vientiane and Louangphrabang area in Lao PDR., Bangkok area in Thailand (Continuous Research of *On-farm* conservation in genetic recourses of wild rice and traditional cultivated rice) |
| March, 2007 | Northern Territory area in Australia, Makassar – Parepare area in Indonesia (Continuous Research of *On-farm* conservation in genetic recourses of wild rice and traditional cultivated rice) |

**—Activities in Academic Society—**

| | |
|---|---|
| 2004 | Members of Editorial Board of International Journal of Agriculture & Biology |
| August 11–18, 2002 | Management of Symposium "New aspects for rice differentiation and ecology with an aid of genome database" in International Congress of Ecology, Seoul, Korea |
| March 30, 2004 | Management of Workshop "Current Problem on Oversea Scientific Research for Plant Genetic resources" in 105th Meeting of Japanese Breeding Society, Tokyo, Japan |
| September 21, 2004 | Management of Symposium "Breeding and Utilization on Plant Nutrition—Gnetics and Breeding of Plant Nutrition—" in 106th Meeting of Japanese Breeding Society, Tsu, Japan |
| August 31, 2005 | Management of Symposium "Current Problem on Oversea Scientific Research for Plant Genetic resources" in 107th and108th Meeting of Japanese Breeding Society, Tsukuba, Japan |
| September 23, 2006 | Management of Workshop "Current Problem on Oversea Scientific Research for Plant Genetic resources" in 105th Meeting of Japanese Breeding Society, Matsuyama, Japan |
| March 31, 2007 | Management of Workshop "Current Problem on Oversea Scientific Research for Plant Genetic resources" in 105th Meeting of Japanese Breeding Society, Mito, Japan |

**—Academic Activity—**

| | |
|---|---|
| 2003 | Foreign examiner of Doctor of Philosophy in University of Agriculture, Pakistan |
| 2005 | Judging committee of International Foundation for Science |

| | |
|---|---|
| 2006 | Foreign examiner of Doctor of Philosophy in Vidyasagar University, India |
| July 12, 2002 | "Identification of Rice Genetic Resources from Field" 4th CRC Symposium, Iwate University, Morioka, Japan |
| June 9, 2004 | "Mapping and characterization of quantitative trait loci related growth of rice in saline paddy field" Seminar in International Rice Research Institute, Manila, Philippine |
| October 27, 2006 | "Utilization of Genetic Resources for Breeding of Environmental Stress Tolerant Rice" Seminar in Toyama Agricultural Research Center. Toyama, Japan |

**—Oral Presentation for International Symposia—**

| | |
|---|---|
| August 11, 2002 | Sato T., Sasaki K., Ueno K., Tsunematsu H., Miyoshi K. Fukuta Y. "Mapping of quantitative traits loci (QTL) for seed dormancy and seed longevity in rice (*Oryza sativa* L.)" International Congress of Ecology, Seoul, Korea |
| August 31–September 5, 2003 | Tabuchi, M., Sato, T., Yamaya, T. "Nitrogen remobilization in rice plants: Analysis of GS1-knockout mutants" International Meeting on Phloem Transport 2003. Bayreuth, Germany |
| June 23–27, 2004 | Yamaya, T., Obara, M., Yano, M., Sato, T. "Chromosome-substituted lines confirmed QTL on chromosome 2 for GS1 protein content and tiller number in rice" The 7th International Symposium on Inorganic Nitrogen Assimilation in Plants: from the genome to the agro-ecosystem. Wageningen, The Netherlands |
| October 27–November 1, 2004 | Minamisawa K., You M., Abe T., Ye B., Saito A., Kawahara M., Sato T. "Diazotrophic endophytes in Grasses: *Herbaspirillum* sp. and Anaerobic Nitrogen-fixing consortium" 14th International congress on nitrogen fixation, Beijing, China |
| November 28, 2005 | Yamaya, T., Obara, M., Tabuchi, M., Sato, T. "Mechanisms of nitrogen utilization and genetic approaches for improvement of rice yield" The Symposium on Molecular and Cellular Biology of Plant Storage Function—from Gene to Food. Nagoya, Japan |

**—Poster Presentation for International Symposia—**

| | |
|---|---|
| November 4–7, 2004 | Takehisa H., Fukuta Y., Ueda T., Yano M., Yamay T., Kameya T., Sato T. "Mapping and and characterization of quantitative trait loci related shoot length, tiller number and leaf-bronzing of rice (*Oryza sativa* L.) grown in saline paddy field" World Rice Research Conference 2004. Tsukuba, Japan |
| November 4–7, 2004 | Sasaki K., Takeuchi Y., Miura K., Ando T., Yano M., Higashitani A., Fukuta Y., Sato T. "Fine mapping of a quantitative trait locus, *qLG-9*, controlling seed dormancy of rice (*Oryza sativa* L.)" World Rice Research Conference 2004. Tsukuba, Japan |
| August 22–23, 2005 | Takahashi H., Sato T., Sato Y-I., Nakamura I. "Molecular tracing of a tiny sequence within *PolA1* gene in the genus *Oryza*" 10th International Congress of the Society for the Advancement of Breeding Researches in Asia and Oceania. Tsukuba, Japan |
| August 22–23, 2005 | Fukuta Y., Ueno K., Sasaki K., Sato T. "Genetic analysis for seed longevity in rice (*Oryza sativa* L.)" 10th International Congress of the Society for the Advancement of Breeding Researches in Asia and Oceania |
| August 22–23, 2005 | Takehisa H., Fukuta Y., Ueda T., Yano M., Yamaya T., Kameya T., Sato T., "Mapping and characterization of quantitative trait loci related growth of rice grown in saline paddy field." 10th International Congress of the Society for the Advancement of Breeding Researches in Asia and Oceania |

November 19–23, 2005 Takehisa H., Ueda T., Yano M., Yamaya T., Fukuta Y., Kameya T., Sato T. "Mapping of quantitative trait loci governing leaf-bronzing of rice (*Oryza sativa* L.) grown in saline paddy field" 5th International Rice Genetics Symposium. Manila, Philippines

November 19–23, 2005 Sasaki K, Takeuchi Y, Miura K, Ando T, Yano M, Higashitani A, Fukuta Y, Sato T: "Fine mapping of a quantitative trait locus, *qLG-9*, controlling seed longevity of rice (*Oryza sativa* L.)" 5th International Rice Genetics Symposium. Manila, Philippines

November 19–23, 2005 Fukuta Y., Ueno K., Sasaki K., Sato T. "Identification of QTLs for seed dormancy and longevity using population derived from indica x japonica cross of rice" 5th International Rice Genetics Symposium. Manila, Philippines

November 19–23, 2005 Obara M., Sato T., Ebitani T., Yano M., Yamaya T. "Identification of quantitative trait loci for nitrogen utilization under various concentrations of NH4+ in rice" 5th International Rice Genetics Symposium. Manila, Philippines

November 19–23, 2005 Ueda T., Sato T., Hidema J., Hirouchi T., Yamamoto K., Kumagai T., Yano M: "*qUVR-10*, a major quantitative trait loci for ultraviolet-B resistance in rice, encodes cyclobutane pyrimidine dimer-photolyase" 5th International Rice Genetics Symposium. Manila, Philippines

November 6–7, 2006 Sasaki K., Fukuta Y., Sato T. "Characterization of quantitative trait loci controlling seed longevity of rice (*Oryza sativa* L.) using chromosome segment substitution lines" The 100th Anniversary of Tohoku University International Symposium: Frontiers in Rice Science — from Gene to Field —. Sendai, Japan

November 6–7, 2006 Takehisa H., Ueda T., Fukuta Y., Obara M., Abe T., Yano M., Yamaya T., Higashitani A., Sato T. "Epistatic interaction of QTLs controlling leaf bronzing in rice (*Oryza sativa* L.) grown in a saline paddy field" The 100th Anniversary of Tohoku University International Symposium: Frontiers in Rice Science—from Gene to Field—. Sendai, Japan

November 6–7, 2006 Obara, M., Tamura, W., Ono, H., Ebitani, T., Yano, M., Sato, T. and Yamaya, T. "Identification and characterization of quantitative trait loci in nitrogen utilization of rice" The 100th Anniversary of Tohoku University International Symposium: Frontiers in Rice Science—from Gene to Field—. Sendai, Japan

**—Research Activities as a Leader—**

Establishment of database for rice genetic resources in tolerance to global environmental changes'. JSPS Scientific research Basic Research B (10556075) (1997–2001)

Accumulation of primary data for construction of database in wild-rice genetic resources collected in tropical Asia. JSPS Scientific research Basic Research B (13460144) (2001–2003)

Empirical research for establishment of On-farm conservation system on genetic resources of wild rice. JSPS Scientific research Basic Research B (15405041) (2003–2005)

Clarification of function and identification of QTL for saline tolerance to breed salt tolerant rice. The Salt Science Research Foundation (2005)

Isolation of a gene controlling seed longevity in rice. Undertake projects sponsored by Ministry of Agriculture, Forestry and Fisheries of Japan (2004–2007)

Work on inducement mechanism of mutation induced by heavy ion beam. Collaborative research with RIKEN (2005–)

**—Social Activities and Public Lectures—**

June 9, 2003 "Rice Genetic Resources and Bacteria Entophytes" Meeting in Mayekawa MFG, Tokyo, Japan

July 19, 2003 "Plants living in water—Rice—" Public Lecture in Botanical Garden of Tohoku University, Sendai, Japan

**—Education and Host—**

2 Graduate Students of Master Course and 1 Graduate Student of Doctor Course of Tohoku University (2002), 1 Graduate Students of Master Course and 2 Graduate Student of Doctor Course of Tohoku University (2003), 2 Graduate Students of Master Course and 3 Graduate Student of Doctor Course of Tohoku University (2004), 3 Graduate Students of Master Course and 2 Graduate Student of Doctor Course of Tohoku University (2005), 2 Graduate Students of Master Course and 2 Graduate Student of Doctor Course of Tohoku University (2006)

1 Researcher funded b JSPS Doctoral Fellowship DC2 (2004–2006), 1 Researcher funded b JSPS Doctoral Fellowship DC2 (2005–2007), 1 Foreign student funded by Ministry of Education, Culture, Sports, Science and Technology (2006)

## SATO, Yo-Ichiro ——————————————————————————Professor

Born in 1952.

**—Curriculum Vitae—**

**[Academic Career]**

Faculty of Agriculture, Kyoto University (1977)

Department of Agronomy, Kyoto University, M. Course (1979)

**[Professional Career]**

Assistant at Faculty of Agriculture, Kochi University (1981)

Research Associate at National Institute of Genetics (1983)

Associate Professor at Shizuoka University (1994)

**[Higher Degrees]**

D.Agr. (Kyoto University, 1986)

**[Fields of Specialization]**

Plant genetics

**[Academic Society Memberships]**

Japan Society of Breeding, The Genetics Society of Japan, Society of Evolutionary Studies, Japan, Japan Society for Scientific Studies on Cultural Properties, Society of Tropical Ecology, The Society of Biosophia Studies, Japanese Society for DNA Polymorphism Research, The Society for the Study of Phytogeography and Taxonomy, The Japanese Forest Society

**[Awards]**

Ninth Matsushita Konosuke "Hana to midori no hakuran-kai kinen shorei-sho" (2001), Seventh NHK Shizuoka broadcasting station "Akebono-sho" (2001), Seventeenth Hamada Seiryo-sho (2004)

**—Major Publications—**

**[Co-authorship (edited)]**

Hirose K. (ed.) (2007) '*DNA Bunseki kara mita Yayoi jidai no inasaku*'. Rekihaku forum, *Yayoi Jidai wa dou kawaruka*, Gakuseisha: 56-68.

Akimichi T. (ed.) (2007) '*Mochi shoku*'. *Zuroku Mekon no sekai- Rekishi to seitai* (An illustrated eco-history of the Mekong Basin), Koubundou: 80-81.

Akimichi T. (ed.) (2007) '*Column: Toumorokoshi*'. *Zuroku Mekon no sekai—Rekishi to seitai* (An illustrated eco-history of the Mekong Basin), Koubundou: 132.

Hidaka T., Y. Shirahata (ed.) (2007) '*Hito ga hana ni deatta toki*'. *Hito wa naze hana wo mederunoka* (Why do we 'love' the flower?), Yasaka shobo: 109-128.

Nihonkai gaku suishin kikou (ed.) (2007) Panel discussion, '*Tsunagaru nihonkai kankyou – umi, sato, yama*'. *Nihonkai gaku no shinseiki 7*, Kadokawa gakugei shuppan 30-81.

Hidaka T., RIHN (ed.) (2006) '*Nougyou wa kankyou ni yasashiika?*' *Kodomotachi ni Kataru korekarano chikyuu.* Kodansha: 57-74.

**[Book]**

Sato Yo-Ichiro (2006) *Yomigaeru midori no shirukuroodo.* Iwanami-shoten.

**[Papers (English)]**

Kawakami S., K. Ebana K., T. Nishikawa, Y. Sato, D. A. Vaughan, K. Kadowaki (2007) Genetic variation in the chloroplast genome suggests multiple domestication of cultivated Asian rice (*Oryza sativa L.*), Genome 50: 180-187.

Kuroda Y., Y. Sato, C. Bounphanousay, Y. Kono, K. Tanaka (2007) Genetic structure of three *Oryza AA* genome species (*O. rufipogon, O. nivara* and *O. sativa*) as assessed by SSR analysis on the Vientiane Plain of Laos, Conserv Genet. 8: 149-158.

Ishikawa R., S. Yamanaka, Y. Fukuta, S. Chitrakon, C. Bounphanousay, K. Kanyavong, L.-H. Tang, I. Nakamura, T. Sato, Y. Sato (2006) Genetic erosion from modern varieties into traditional upland rice cultivas (*Oriza sativa L.*) in northern Thailand, Genetic Resources and Crop Evolution 53: 245-252.

**[Research reports]**

Matsubara M., H. Nakamaki (eds.) '*Watashi ni totte no seibutsu tayousei*'. *2010-nendai sekai no fuan nihon no kadai.* NIRA research report 0604-1.

**[Newspaper and magazine articles, etc.]**

<Magazine articles>

2006 '*Men toiu tabemono*'. *Nomikui hanashi no tamatebako 1. Sake, men, sakana.* Nihon menrui gyou dantai rengoukai, May issue: 2-3.

2006 '*Tayousei no mori kara (2) – Biseibutsu tono kakawari iroiro*'. *Subaru,* Shueisha, June issue: 274-282.

2006 '*Sake no 'kokon touzai*''. *Nomikui hanashi no tamatebako 2. Sake, men, sakana.* Nihon menrui gyou dantai rengoukai, June issue: 2-3.

2006 '*Indoshina no suupu men*'. *Nomikui hanashi no tamatebako 3. Sake, men, sakana.* Nihon menrui gyou dantai rengoukai, July issue: 2-3.

2006 '*Hokuou no aji, nishin no suzuke*'. *Nomikui hanashi no tamatebako 4. Sake, men, sakana.* Nihon menrui gyou dantai rengoukai, August issue: 2-3.

2006 '*Joushiki to hijoushiki*'. *Hyogo kyouiku.* Hyogo prefectural institute for educational research and in-service training (ed.), 58(6): 50-53.

2006 '*Uiguru no raguman*'. *Nomikui hanashi no tamatebako 5. Sake, men, sakana.* Nihon menrui gyou dantai rengoukai, September issue: 2-3.

2006 '*Joumon jidai no shoku*'. *Shikou.* Meiji-ya, Bessatsu men book: 53-59.

2006 '*Kakaran dango*'. *Nomikui hanashi no tamatebako 6. Sake, men, sakana.* Nihon menrui gyou dantai rengoukai, October issue: 2-3.

2006 '*Nettai no tabi no mizu jijou*'. *Mahora,* Institute for the Culture of Travel, No. 49: 40-41.

2006 '*Udon no shoutai*'. *Nomikui hanashi no tamatebako 7. Sake, men, sakana.* Nihon menrui gyou dantai rengoukai, November issue: 2-3.

2006 '*Shu, hinshu iji no kadai to taisaku*'. *Nougyou to keizai,* Special issue 72(14): 52-60, Showa-do.

2006 '*Ajia no biiru'. Nomikui hanashi no tamatebako 8. Sake, men, sakana.* Nihon menrui gyou dantai rengoukai, December issue: 2-3.

2007 '*Shinsen no ninniku'. Nomikui hanashi no tamatebako 9. Sake, men, sakana.* Nihon menrui gyou dantai rengoukai, January issue: 4-5.

2007 '*Tai no okome'. Nomikui hanashi no tamatebako 10. Sake, men, sakana.* Nihon menrui gyou dantai rengoukai, February issue: 2-3.

2007 '*Daizu'. Nomikui hanashi no tamatebako 11. Sake, men, sakana.* Nihon menrui gyou dantai rengoukai, March issue: 2-3.

<Newspaper articles>

April 12, 2006 '*Kennai no kusunoki'. Jihyou,* Shizuoka shinbun (morning edition)

May 8, 2006 '*Fu'. Gendai no kotoba,* Kyoto shinbun (evening edition)

June 20, 2006 '*Shokubutsu wa imaya 'shigen". Jihyou,* Shizuoka shinbun (morning edition)

June 29, 2006 '*Suishitsu osen eno seitaigakuteki hannou'. Gendai no kotoba,* Kyoto shinbun (evening edition)

August 8, 2006 '*Gakusei wo nerau 'shingata karuto." Jihyou,* Shizuoka shinbun (morning edition)

August 16, 2006 '*Okuribi'. Gendai no kotoba,* Kyoto shinbun (evening edition)

September 11, 2006 '*Rekishi kara kankyou mondai manabe',* Hokkaido shinbun (evening edition)

October 12, 2006 '*Kagaku bangumi 'ji endo". Jihyou,* Shizuoka shinbun (morning edition)

October 25, 2006 '*Shokuryou yunyuu wa chikyuu kankyou mondai'. Gendai no kotoba,* Kyoto shinbun (evening edition)

December 12, 2006 '*Sekaishi mirishuu mondai'. Jihyou,* Shizuoka shinbun (morning edition)

December 25, 2006 '*Nettai ajia wa mizu busoku'. Gendai no kotoba,* Kyoto shinbun (evening edition)

January 13, 2007 '*Heiankyo nimo seiyoujin no shuudan?' Chikyuuken kyoto hatsu.* Mainichi shinbun (morning edition)

February 8, 2007 '*Kenkou ni kouka no aru shokuhin'. Jihyou,* Shizuoka shinbun (morning edition)

February 28, 2007 '*Dantou'. Gendai no kotoba,* Kyoto shinbun (evening edition)

March 3, 2007 '*Nippon no chie-kome (jou)'. Bunka,* Asahi shinbun (evening edition)

March 10, 2007 '*Nippon no chie-kome (ge)'. Bunka,* Asahi shinbun (evening edition)

**—Conferences (administration, chairmanship, lectures, posters etc.)—**

**[Chairmanship]**

June 6, 2006 Historical perspectives on the gain and loss of plant genetic resources in monsoon Asia, SEB Annual Meeting, Mae Ping Hotel, Changmai, Thailand

November 11–12, 2006 Salli-graphy, Satellite Symposium of RIHN First International Symposium, RIHN, Kyoto city

March 17, 2007 DNA Archaeology Society, RIHN, Kyoto city

**[Poster presentation]**

June 17–18, 2006 *Shutsudo ine shushi no saizu no baratsuki kara mita identeki tayousei.* Japan Society for Scientific Studies on Cultural Properties, 23rd Meeting, Tokyo Art University, Koganei-city, Tokyo

**—Research Activities—**

**[Field Research in Japan]**

2006 Ikeshima Fukuman-ji site, Osaka-fu (six times per year)

**[Field Research Abroad]**

| | |
|---|---|
| May 2006 | Cambodia (Wild rice protection zone at the border between Laos and Vietnam) |
| August 2006 | Darwin, Australia (Research on wild rice in the Northern Territory) |
| September 2006 | Kashgar, China (research on ingredients of udon noodle) |
| November 2006 | Cambodia (Research on wild rice around Siem Reap) |

**—Other research activities (Grant-in-aid Scientific Research, etc.)—**

| | |
|---|---|
| 2005–2006 | Grant-in-aid Scientific Research<br>*Sekai yuuyou shokubutsu no kiso deeta dearu 'hotta fairu' deetabeesu* |

**—Social Activities—**

**[Committee membership]**

| | |
|---|---|
| 2006 | Member of Statistical Committee of Food, Agriculture, Rural Village Policymaking Advisory Board, Ministry of Agriculture, Forestry and Fisheries of Japan |
| 2006 | Member of Expert Committee of the Overseas Scientific Research Coordination Team, Research Institute for Languages and Cultures of Asia and Africa, Tokyo University of Foreign Studies |
| 2006 | Member of Committee of Shared Research, Research Institute for Languages and Cultures of Asia and Africa, Tokyo University of Foreign Studies |
| 2006 | Member of Display Committee of Japan section, National Museum of Nature and Science |

**[Lectures]**

| | |
|---|---|
| April 14, 2006 | '*Monsuun Ajia kara shiruku roodo e – yuurashia kankyoushi kotohajime*', 12th RIHN Seminar, RIHN, Kyoto city |
| April 18, 2006 | '*Seikatsu no naka no tayousei*', 5th NIRA Study meeting on '*2010-nendai sekai no fuan nihon no kadai*', RIHN, Kyoto city |
| May 27, 2006 | '*Hito wa naze hana wo mederu noka?*' (Why do we 'love' the flower?) 4th Open lecture of National Institutes for the Humanities, Kyoto International Conference Center, Kyoto city |
| June 14, 2006 | '*DNA koukogaku de wakaru koto*', *Baiotekunorojii kenkyuukai* (Biotechnology workshop), Tokaiken, Shizuoka city |
| June 28, 2006 | ESF-JSPS Frontier Science Conference Series for Young Researchers, '*Kikou hendou* (Climate change)' Utsikten Meetings, Nynashamn (Sweden) |
| July 6, 2006 | '*Horobiyuku sato wo dou saisei saseruka*', Fukui nourin suisan shien sentaa kenshuukai, Fukui nourin suisan shien sentaa, Fukui city |
| July 16, 2006 | '*Nihon bunka to noukou no kigen*' (Japanese culture and the origine of agriculture), Hirosaki University, Hirosaki city |
| July 17, 2006 | '*Joumon noukou wo kangaeru*', Aomori joumon juku, Aomori city |
| August 3, 2006 | '*Dounaru nihon no shoku?, dounaru nihon no shokuryou?*', 25th special workshop on food culture, 'Shoku seikatsu bunka', Research Foundation on Food and Culture, Gakushi kaikan, Tokyo prefecture |
| August 13, 2006 | '*Kodai bunmei wo kowashita shio*', Special exhibition, 'Suita no keikan wo horiokosu ten', Suita City Museum, Suita city |
| August 25, 2006 | 'What is wild rice?', Wild Rice Club, Darwin, Australia |
| September 18, 2006 | '*Kazan to mizu to shoku: Kagoshima wo kataru!*', Second Regional Seminar of RIHN, Reimeikan, Kagoshima city |
| September 27, 2006 | Session meeting '*Kankyou to kenkou*', 5th International Russo- Japanese Forum, Campus Plaza Kyoto, Kyoto city |

October 4, 2006 '*Shiruku roodo wa men roodo*', Kouboudaishi to udon no ruutsu houkokukai, Kagawa Prefecture Hall, Takamatsu city

October 19, 2006 "*Hito to shizen no sougo sayou' toshite no chikyuu kankyou mondai*', Kokuritsu daigaku fuchi kenkyuujo sentaa shinpojiumu, 'Chikyuu kankyou- takakuteki shiten kara kangaeru', Nagoya Garden palace, Nagoya city

October 21, 2006 '*Tsunagaru nihonkai kankyou – umi, sato, yama*', Panel discussion of 2006 Symposium on the studies of the Japan Sea, 2006, Tower 111, Toyama city

October 28, 2006 '*Yomigaeru midori no shiruku roodo*', Autumn open seminar of Tokyo Geographical Society, *Shiruku roodo no shizen, seikatsu to kankyoushi*, Tokyo Yaesu Hall, Tokyo Prefecture

November 15, 2006 '*DNA koukogaku, bunseki ni kanshite*', Osaka High Public Prosecutor's Office, Osaka city

November 18, 2006 '*Mizu to kyo no dentou shoujin shokuzai*', 'Hito to Mizu' renkei juku, Niijima Kaikan, Kyoto city

December 2, 2006 2006 Public symposium of Ajinomoto Foundation for Dietary Culture, '*Shoku wo hagukumu mizu*', Hida Sekai seikatsu bunka sentaa, Takayama city

December 19, 2006 *'Mirai no gakkou' jugyou,* Kasugaoka Primary School, Ibaraki city, Osaka

January 30, 2007 '*DNA koukogaku no genjou*', NAIST seminar, NAIST, Ikoma city, Nara

February 5, 2007 '*Shoku no mirai wo kangaeru*', B-nest, Shizuoka city

February 24, 2007 Common research, '*Hito to mizu*', Symposium "Water and civilization", Hitotsubashi kinen koudou, Tokyo

**—Education at Post graduate school, accepting of researchers—**

Foreign researchers visiting Japan through bilateral project of the Japan Society for the Promotion of Science. 1) foreign researchers, 2) outsourcing of research guidance.

## SATO, Yoshinobu — Project Senior Researcher

Born in 1973.

**—Curriculum Vitae—**

**[Academic Career]**

Graduate School of Bioresourse and Bioenvironmental Sciences, Kyushu University, D. Course (2003)

Graduate School of Bioresourse and Bioenvironmental Sciences, Kyushu University, M. Course (2000)

Faculty of Agriculture, Kyushu University (1998)

**[Professional Career]**

Research fellow, Research Institute for Humanity and Nature (2004)

Research fellow, Institute of Tropical Agriculture, Kyushu University (2003)

Research Fellow, Japan Society for Promotion of Science (2000)

**[Higher Degrees]**

D.Agr. (Kyushu University, 2003), M.Agr. (Kyushu University, 2000)

**[Field Specialization/Background]**

Forest Hydrology

**[Academic Society Memberships]**

The Japan Society of Forestry, The Japan Society of Hydrology and Water Resources

**—Major Publications—**

**[Books]**

Otuski K, A. Kume, Y. Sato, K. Kosugi, Y. Onda, S. Hiramatsu, T. Kumagai, H. Komatsu, K. Tanaka, M. Chiwa, N. Ohte, S. Oishi, M. Ushiyama, K. Kuraji (2007) 'Rainfall Interception—How to estimate the amount of water reaching to the forest soil—', "Forest Hydrology—Exploring the fate of water in forest ecosystems—" Morikita Publishing Co., Ltd. 14-39

**[Articles]**

2006 'Analysis of long-term water balance of the Yellow River basin using the hydrological and water resources comes—Impact of the human activities—' "YRiS (Yellow River Studies) News Letter" 6: 8-11

2006 'Hydrological impacts of the land-use change in the middle reaches of the Yellow River basin', "Proceedings of 3rd international workshop on Yellow River studies" 97-102

**—Research Activities—**

**[Field Research in Foreign Countries]**

July, 2006 China (Hydrological research of in the source area of the Yellow River basin)

**—Poster Presentation—**

Oct 29, 2006 Sato, Y., X. Ma, M. Matsuoka, T. Watanabe, Y. Fukushima. "Impact of the human activities on long-term water balance of the Yellow River basin" 2006Annual Conference of Japan Society of Hydrology and Water Resources, Japan (Okayama University, Okayama, Okayama Prefecture)

Nov 7–8, 2006 Sato, Y., X. Ma, Y. Fukushima. "Application of reservoir operation model to the upper reach of the Yellow River basin" 1st international symposium of Research Institute for Humanity and Nature (Kyoto Kokusai Kaikan, Kyoto, Kyoto Prefecture)

## SEKINO, Tatsuki — Associate Professor

Born in 1969.

**—Curriculum Vitae—**

**[Academic Carrier]**

Department of Zoology, Faculty of Science, Kyoto University, D. Course (1998)

Department of Biology, Faculty of Science, Shinshu University, M. Sc. (1993)

Department of Biology, Faculty of Science, Shinshu University (1991)

**[Professional Carrier]**

Associate Professor, Research Promotion Center, Research Institute for Humanity and Nature (2002)

Researcher, Research Division, International Lake Environment Committee Foundation (2001)

COE Scientist, Center for Ecological Research, Kyoto University (1999)

**[Higher Degrees]**

D.Sc. (University of Kyoto, 1998), M.Sc. (University of Shishu, 1993)

**[Field Specialized/Background]**

Limnology, Ecology, Information Science

**[Academic Society Memberships]**

Japanese Society of Limnology, Ecological Society of Japan, Information Processing Society of Japan

**—Major Publications—**

**[Papers (reviewed)]**

Sekino T and M. Nakamura, 2006, Application of knowledge management to environmental management projects: A case study for lake management. *Lakes Reserv.* 11: 97-102.

**—Academic and Social Activities—**

Member of Committee on Future Plan, The Japanese Society of Limnology (2006–)

Member of Committee on Field Safety, Ecological Society of Japan (2006–)

**—Oral Presentation—**

September 13, 2006 Sekino, T. "T²Map" 2nd Workshop of Resource Sharing System for Humanity Researches (National Institute of Japanese Literature, Tokyo)

January 17, 2007 Sekino, T. "Geo-Temporal System" Public Workshop of Resource Sharing System for Humanity Researches (National Institutes for Humanities, Tokyo)

**—Public and School Lectures—**

February 19, 2007 'Planning for Lake Monitoring, Group Training Course in Integrated Basin Management for Lake Environment' Osaka International Centre, Japan International Corporation Agency (OSIC JICA) and International Lake Environment Committee Foundation (ILEC) (Otsu City, Shiga Prefecture)

## SEO, Akihiro — Project Researcher

Born in 1972.

**—Curriculum Vitae—**

**[Academic Career]**

Department of Botany, Graduate School of Science, Kyoto University, D. Course (2002)

Department of Biology, Graduate School of Science, Kagoshima University, M. Course (1998)

Faculty of Science, Kagoshima University (1996)

**[Professional Career]**

Research Fellow, Research Institute for Humanity and Nature (2006)

Postdoctoral Scientist, Kyoto University (2002)

**[Higher Degrees]**

D.Sc. (Kyoto University, 2002), M.Sc. (Kagoshima University, 1998)

**[Field Specialization/Background]**

Plant Taxonomy, Biogeography

**[Academic Society Memberships]**

The Botanical Society of Japan, The Japanese Society for Plant Systematics, The Society for the Study of Species Biology

**—Major Publications—**

**[Papers (reviewed)]**

Seo, A., M. Watanabe, M. Hotta and N. Murakami (2004) Geographical patterns of allozyme variation in *Angelica japonica* (Umbelliferae) and *Farfugium japonicum* (Compositae) on the Ryukyu Islands, Japan. *Acta*

*Phytotaxonomica et Geobotanica* 55: 29-44.

Seo, A., F. Nobushima, and N. Murakami (2005) Genetic status of *Angelica japonica* var. *boninensis* distributed in the Bonin and the Daito Islands. *Acta Phytotaxonomica et Geobotanica* 56: 165-175.

Iwasaki, T., K. Aoki, A. Seo and N. Murakami (2006) Intraspecific sequence variation of chloroplast DNA among the component species of deciduous broad-leaved forests in Japan. *Journal of Plant Research* 119: 539-552.

Seo, A. (2006) Comparative phylogeography of the Ryukyu Islands. Bunrui 6: 115-120 (in Japanese).

**[Articles]**

Seo, A. (2006) Gene flow, refugia, and evolution of geographic variation in plant species of the Ryukyu Islands. Planta no. 105: 39-44. (in Japanese)

Murakami, N., M. Toda, and A. Seo (2007) Comparative phylogeography of the Central Ryukyus. the Biodiversity Research of the 21st Century COE Newsletter No. 7 33-35. (in Japanese)

**—Research Activities—**

**[Field Research in Japan]**

| | |
|---|---|
| April, 2002 | Kasasa Town, Kagoshima Prefecture (Research on plants) |
| May, 2002 | Minami Daito Village, Kita Daito Village, Okinawa Prefecture (Research on plants) |
| June, 2002 | Uchinoura Town, Kagoshima Prefecture (Research on plants) |
| November, 2002 | Taketomi Town, Okinawa Prefecture (Research on plants) |
| March, 2003 | Ogasawara Village, Tokyo Metropolitan (Research on plants) |
| June, 2004 | Tsuno Town, Kochi Prefecture (Research on plants) |
| July, 2004 | Yaku Town, Kagoshima Prefecture (Research on plants) |
| September, 2004 | Hakuba Village, Nagano Prefecture (Research on plants) |
| October, 2004 | Nase City, Kagoshima Prefecture (Research on plants) |
| November, 2004 | Nishinoomote City, Kagoshima Prefecture (Research on plants) |
| April, 2005 | Ishigaki City, Okinawa Prefecture (Research on plants) |
| May, 2005 | Nago City, Okinawa Prefecture (Research on plants) |
| May, 2005 | Shingu City, Wakayama Prefecture (Research on plants) |
| August, 2005 | Yaku Town, Kagoshima Prefecture (Research on plants) |
| November, 2005 | Aya Town, Miyazaki Prefecture (Research on plants) |
| October, 2005 | Tokunoshima Town, Kagoshima Prefecture (Research on plants) |
| July, 2006 | Kokonoe Town, Oita Prefecture (Research on plants) |
| August–September, 2006 | Amami City, Kagoshima Prefecture (Research on history of plants and forest utilization) |
| September, 2006 | Aso City, Kumamoto Prefecture (Research on plants) |

**[Field Research in Forgin Countries]**

| | |
|---|---|
| Febrary, 2003 | Madagascar (Research on plants) |
| December, 2003 | Madagascar (Research on plants) |
| October, 2004 | Taiwan (Research on plants) |

**—Oral Presentation—**

| | |
|---|---|
| September 21, 2002 | Seo A., F. Nobushima, N. Murakami "Genetic status of *Angelica japonica* var. *boninensis* distributed in the Bonin and the Daito Islands" The 66th Annual meeting of the Botanical Society of Japan (Kyoto University, Kyoto, Kyoto Prefecture) |
| September 28, 2003 | Seo A., N. Murakami "Comparative phylogeography of warm temperate zone in Japan II" The 67th Annual meeting of the Botanical Society of Japan (Sapporo convention |

| | |
|---|---|
| | center, Sapporo, Hokkaido) |
| September 28, 2003 | Murakami, N., K. Aoki, A. Seo "Comparative phylogeography of warm temperate zone in Japan I" The 67th Annual meeting of the Botanical Society of Japan (Sapporo convention center, Sapporo, Hokkaido) |
| March 13, 2005 | Seo, A., T.-W. Hsu, N. Murakami "Genetic variation of two plants on Taiwan and Yaeyama Islands" The 4th Annual meeting of the Japanese Society for Plant Systematics (Makino Botanical Garden, Kochi, Kochi Prefecture) |
| March 18, 2006 | Iwasaki T., A. Seo, K. Aoki, N. Murakami "Comparative phylogeography of three temperate plants" The 5th Annual meeting of the Japanese Society for Plant Systematics (University of the Ryukyu, Nishihara Town, Okinawa Prefecture) |
| March 20, 2006 | Seo, A. "Comparative phylogeography of four plants on the Ryukyu Islands" The 5th Annual meeting of the Japanese Society for Plant Systematics (University of the Ryukyu, Nishihara Town, Okinawa Prefecture) |
| September, 2006 | Iwasaki, T., K. Aoki, A. Seo, N. Murakami "Phylogeography of temperate decidous forests in Japan: comparison among seven component tree species" The 70th Annual meeting of the Botanical Society of Japan (Kumamoto University, Kumamoto, Kumamoto Prefecture) |
| March 15, 2007 | Seo, A., N. Murakami, T. Yumoto "History of plant community on Japan using the geological information system" The 6th Annual meeting of the Japanese Society for Plant Systematics (Niigata University, Niigata, Niigata Prefecture) |
| March 16, 2007 | Iwasaki, T., A. Seo, N. Murakami "Genetic variation of plants in Tadehara and Bogatsuru wet land" The 6th Annual meeting of the Japanese Society for Plant Systematics (Niigata University, Niigata, Niigata Prefecture) |

**—Poster Presentation—**

| | |
|---|---|
| October 7, 2002 | Seo A., M. Watanabe, M. Hotta, N. Murakami "Genetic variation of three plants on the Ryukyu Ianlands and southern Kyushu" The 3rd Annual meeting of the Society of Evolutionary Studies, Japan (Kyoto University, Kyoto, Kyoto Prefecture) |
| July 29–August 1, 2004 | Seo, A., N. Murakami "Geographical pattern of genetic variation of *Angelica japonica*, *Farfugium japonicum* and *Peucedanum japonicum* from Japan and Taiwan" International Symposium 2004. Asian Plant Diversity and Systematics. National Museum of Japanese History, Sakura, Japan |
| March 12, 2005 | Iwasaki, T., K. Aoki, A. Seo, N. Murakami "Intraspecific sequence variation of chloroplast DNA among the component species of deciduous broad-leaved forests in Japan" The 4th Annual meeting of the Japanese Society for Plant Systematics (Makino Botanical Garden, Kochi, Kochi Prefecture) |
| July 20, 2005 | Seo, A., N. Murakami. "Japanese *Oenanthe javanica* contains two biological species: evidence from chloroplast DNA" XVII International Botanical Congress. Vienna, Austria |
| March 18, 2006 | Seo A., N. Murakami "Genatic variation of monoecious and dioecious plants" The 5th Annual meeting of the Japanese Society for Plant Systematics (University of the Ryukyu, Nishihara Town, Okinawa Prefecture) |
| March 25, 2006 | Iwasaki, T., K. Aoki, A. Seo, N. Murakami "Genetic variation of temperate plants in Japan" 53rd Annual Meeting of Ecological Society of Japan (Toki Niigata, Niigata Prefecture) |

March 16, 2007 Iwasaki T., A. Seo, K. Aoki, N. Murakami "Comparative phylogeography of temperate forest in Japan" The 6th Annual meeting of the Japanese Society for Plant Systematics (Niigata University, Niigata, Niigata Prefecture)

## SHINDE, Vasant ——Invited Research Fellow

Born in 1956.

**—Curriculum Vitae—**

**[Academic Career]**

Department of Archaeology, Deccan College, University of Poona. Ph D

Department of Archaeology, Deccan College, University of Poona. M.A.

Department of Archaeology, Deccan College, University of Poona. B.A.

**[Professional Career]**

Professor, Department of Archaeology, Deccan College, University of Poona (2004)

Visiting Professor, International Research Center for Japanese Studies, Kyoto, Japan, (2000)

Reader, Department of Archaeology, Deccan College, University of Poona (1995)

Superintendent of Excavation (Research/Teaching post), Department of Archaeology, Deccan College, University of Poona (1985)

Research Assistant, Department of Archaeology, Deccan College, University of Poona (1982)

**[Higher Degrees]**

Ph.D. (University of Poona), M.A. (first class first) (University of Poona)

**[Field Specialization/Background]**

Indian Protohistory, Field Archaeology

**[Academic Society Memberships]**

Life member of Indian Society for Prehistoric and Quaternary Studies, Life member of Indian Archaeological Society, Member of Indian Science Congress, Member of Indo-Pacific Prehistory Association, Member of International Secretariat for Research on the History of Agricultural Implements, Denmark, Member of the Association of South Asian Archaeologists in Western Europe, Member of the World Archaeological Congress, Southampton, England, Member, Asian Lake Drilling Program, Kyoto, Japan, Member, International Congress of Prehistoric and Protohistoric Sciences, Founder and Life Member, Society of South Asian Archaeology

**—Major Publications—**

**[Books]**

Shinde, V. (et al.) (2006) Excavations at Siddhapur 2003-04 with special reference to a Shrine, *Archaeology of Early Historic Period and Buddhism*, B. R. Mani and S. C. Saran eds., Delhi: Sharada Publishing House: 124-28.

**[Papers]**

Shinde, V., Golamreza, Ansari (2006) Contemporary Indian and Ancient Iranian Bracelet (*kada*): A Comparison. *Puratattva* 36: 264-67.

Shinde, V. (2006) Contribution of the Deccan College to the Harappan Studies, *Bulletin of Deccan College, Research Institute*, Nos. 64-65: 43-50.

Shinde, V., (et al.) (2006) Basic Issues in Harappan Archaeology: Some Thoughts, *Ancient Asia*, 1: 63-72.

Shinde, V., S. S. Deshpande (2006) Development of Urbanization in the Mewar Region of Rajasthan, India in the Middle of Third Millennium BC, *Ancient Asia*, 1: 103-122.

**—Research Activities—**

**[Field Research in Foreign Countries]**

December, 2006 Excavations at Junnar, India

March, 2007 Excavations at Harappan culture sites of Girawad, Farmana (Rohtak District) and Mitathal (Bhiwani District), Haryana, India.

## SHIRAISHI, Noriyuki — Visiting Professor

Born in 1963.

**—Curriculum Vitae—**

**[Academic Career]**

Department of Cultural Anthropology, Graduate School of History and Anthropology, University of Tsukuba, D. Course (1994)

Faculty of Humanities, University of Tsukuba (1986)

**[Professional Career]**

Visiting Professor, Research Institute for Humanity and Nature (2006)

Professor, Center for Transdisciplinary Research, Niigata University (2006–)

Associate Professor, Faculty of Humanities, Niigata University (1999)

Visiting Researcher, Institute of History, Mongolian Academy of Sciences (1997)

Assistant Professor, Faculty of Humanities, Niigata University (1994)

**[Higher Degrees]**

D.Ph. (Niigata University, 2000), M.A. (Tsukuba University, 1986)

**[Field Specialization/Background]**

Archaeology

**[Academic Society Memberships]**

Japanese Archaeological Association, Japanese Association for Mongolian Studies, Japan Association for Quaternary Research

**[Awards]**

Honorary Award of the President of Mongolia in 2003

**—Major Publications—**

**[Books] (ed.)**

Kato S, N. Shiraishi (2005) *Avraga 1 –New directions in Mongolian Archaeology.* vol. 1, Doseisha

**[Books]**

Shiraishi N. (2006) "Chinggis Khan" Chuokoron shinsha (in Japanese)

Komaroff, L., D. DeWeese, D. P. Little, M. Kramarovsky, R. Kauz, B. G. Fragner, N. Shiraishi, D. Huff, J. M. Smith, Jr., C. Melville, S. S. Blair, R. Hillenbrand, M. S. Simpson, E. Wright, E. Sims, J. M. Bloom, D. Kouymjinan, O. Watson, B. O'Kane, G. Saliba, J. Pfeiffer, T. Fitzherbert, A. Soudavar, D. Morgan (2006) Avraga Site: The 'Great Ordu' of Genghis Khan. *Beyond the Legacy of Genghis Khan.* Brill, 83-93, 2006

**[Papers]**

Shiraishi, N. (2004) Seasonal Migrations of the Mongol Emperors and the Peri-Urban Area of Kharakhorum. *International Journal of Asian Studies.*, 1-1: 105-119

Шираиши, Н. (2004) Монголын Их Хаадын Улирлын Нүүдэл ба Хархорум Орчмын Хотожсон Газар Нутаг. *Археологийн судлал* 22: 252-266 (in Mongolian)

**[Reports]**

Shiraishi, N, ed. (2006) *Preliminary Report on Japan-Mongolia Joint Archaeological Expedition "New Century Project" 2005*. Niigata University and Mongolian Academy of Sciences.

Shiraishi, N, ed. (2005) *The Avraga Site Preliminary Report of the Excavations of the Palace of Genghis Khan in Mongolia 2001-2004*. Kokugakuin University.

Shiraishi, N, ed. (2004) *Preliminary Report on Japan-Mongolia Joint Archaeological Expedition "New Century Project" 2003*. Niigata University, Kokugakuin University and Mongolian Academy of Sciences.

Shiraishi, N, ed. (2003) *Preliminary Report on Japan-Mongolia Joint Archaeological Expedition "New Century Project" 2002*. Niigata University, Kokugakuin University and Mongolian Academy of Sciences.

Shiraishi, N, ed. (2002) *Preliminary Report on Japan-Mongolia Joint Archaeological Expedition "New Century Project" 2001*., Niigata University, Kokugakuin University and Mongolian Academy of Sciences.

## SHIRAIWA, Takayuki — Associate Professor

Born in 1964.

**—Curriculum Vitae—**

**[Academic Career]**

Division of Environmental Structure, Graduate School of Environmental Sciences, Hokkaido University, D. Course (1990)

Division of Environmental Structure, Graduate School of Environmental Sciences, Hokkaido University, M. Course (1989)

Department of Geography, Faculty of Education, Waseda University (1987)

**[Professional Career]**

Associate Professor, Research Institute for Humanity and Nature (2005)

Associate Professor, Institute of Low Temperature Science, Hokkaido University (2005)

Assistant Professor, Institute of Low Temperature Science, Hokkaido University (1990)

**[Higher Degrees]**

D. in Environmental Sci. (Hokkaido University, 1993), M. in Environmental Sci. (Hokkaido University, 1989)

**[Field Specialization/Background]**

Glaciology, Physical Geography, Sougou-Chikyu-Kankyogaku

**[Academic Society Memberships]**

The Japanese Society of Snow and Ice, The Association of Japanese Geographers, Japan Association for Quaternary Research, Japanese Geomorphological Union, International Glaciological Society

**—Major Publications—**

**[Papers]**

Shiraiwa, T. (2006) Giant Fish Breeding Forest—An Interaction between Water, Materials and Human Culture—, RIHN 1st International Symposium Proceedings "Water and Better Human Life in the Future", 127-130

Shiraiwa, T. (2006) Past climate reconstruction by means of ice core analyses recovered from high-mountains in the northern North Pacific. *Teionkagaku*, 65: 57-65 (in Japanese)

Zwinger, T., Greve, R., Gagliardini, O., Shiraiwa, T. and Lyly, M. (2007) A full stokes-flow thermo-mechanical model for firn and ice applied to the Gorshkov crater glacier, Kamchatka. *Annals of Glaciology*, 45: 29-37 (reviewed)

Solomina, O., Wiles, G., Shiraiwa, T. and D'Arrigo, R. (2007) Multiproxy Records of Climate Variability for Kamchatka

for the past 400 years. *Climate of the Past*, 3: 119-128 (reviewed)

Matoba, S., Ushakov, S., Shimbori, K., Sasaki, H., Yamasaki, T., Ovsyannikov, A., Manevich, A.G., Zhideleeva, T.M., Kutuzov, S., Muravyev, Y.D. and Shiraiwa, T. (2007) The glaciological expedition to Mount Ichinsky, Kamchatka, Russia. *Bulletin of Glaciological Research*, 24: 79-85 (reviewed)

**[Articles]**

2006 'The Amur-Okhotsk Project: trilateral cooperation to protect a shared environment' "Japanese Perspectives on Foreign Affairs", Fall: 36-42

**—Research Activities—**

**[Field Research in Foreign Countries]**

May, 2006 Scientific meeting at Khabarovsk, Russia

May, 2006 Ice core drilling at Kamchatka Peninsula, Russia

Sept., 2006 Study on airborne dust in Brazil and Chile

Mar., 2006 Scientific meetings at Vadivostok and Khabarovsk, Russia, and Changchun, Shenyang, Tianjin in China

**—Academic and Social Activities—**

Member of editorial committee "Seppyo" published by the Japanese Society of Snow and Ice (2001–)

Member of editorial Committee "Bulletin of Glaciological Research" published by the Japanese Society of Snow and Ice (2001–)

Member of editorial Committee "Geography and Natural Resources" published by Russian Academy of Sciences, Siberian Branch (2006–)

**—Oral Presentation—**

Oct., 25, 2006 Shiraiwa, T. "Deep Ice Coring Project at Dome Fuji, Antarctica" at official seminar of Instituto Nacional de Pesquisas da Amazonia, Manaus, Brazil

Nov., 8, 2006 Shiraiwa, T. "Giant Fish Breeding Forest—An Interaction between Water, Materials and Human Culture—" RHIN 1st International Symposium, Kyoto, Japan

**—Supervision and Host—**

3 graduate students at Graduate School of Earth Environmental Sciences, Hokkaido University

## SIRINGAN, Fernando P. ——————————————Invited Research Fellow

Born in 1962.

**—Curriculum Vitae—**

**[Academic Career]**

University of the Philippines, B.S. (Geology) (1983)

University of the Philippines, M.S. (Geology) (1988)

Rice University Ph.D. (Geology) (1993)

**[Professional Career]**

Professor (2000–present); Associate Professor (1997–2000); Assistant Professor (1994–1996); University of the Philippines, Diliman, Quezon City, Philippines

Ph.D. Researcher, Rice University (1993), visiting scholar, Tokyo Institute of Technology (2001)

**[Higher Degrees]**

B.S. Geology (University of the Philippines, 1983), M.S. Geology (University of the Philippines, 1988), Ph.D. Marine Geology (Rice University, 1993)

**[Field Specialization/Background]**

Marine Geology

**—Major Publications—**

**[Papers (reviewed)]**

Fuji-ie, W., Yanagi, T., Siringan, F. P., 2002, Tide, tidal current and sediment transport in Manila Bay, *Mer* 40 (3), pp. 137-145

Berdin, R. D., Siringan, F. P., Maeda, Y., Siringan, F. P., and Rodolfo, K. S., 2003, Relative sea-level changes and worsening floods in the western Pampanga delta: Causes and some possible mitigation measures. *Science Diliman* , vol. 15, no. 2, pp. 1-12.

Berdin, R. D., Siringan, F. P., and Maeda, Y. 2003. Holocene relative sea-level changes and mangrove response in southwest Bohol, Philippines, 2003, *Journal of Coastal Research* 19(2), pp. 304-313

Berdin, R. D., Siringan, F. P., Maeda, Y., Holocene sea-level highstand and its implications for the vertical stability of Panglao Island, southwest Bohol, Philippines, 2003, *Quaternary International* 115-116, pp. 27-37

Maeda, Y., Siringan, F., Omura, A., Berdin, R., Hosono, Y., Atsumi, S., Nakamura, T. Higher-than-present Holocene mean sea levels in Ilocos, Palawan and Samar, Philippines, 2003, *Quaternary International* 115-116, pp. 15-26

Omura, A., Maeda, Y., Kawana, T., Siringan, Fernando P., Berdin, R. D., 2003, U-series dates of Pleistocene corals and their implications to the paleo-sea levels and the vertical displacement in the Central Philippines, *Quaternary International* 115-116, pp. 3-13

Maeda, Y. and Siringan, F. P. 2004. Atlas of Holocene notches and the coral reef terraces of the Philippine Islands. *Nature and Human Activities*, vol. 8, pp. 97-175

Rodriguez, A. B., Anderson, J. B., Taviani, M, and Siringan, F. P. 2004. Lack of a middle-Holocene highstand on the east Texas coast supports geophysical models. *Journal of Sedimentary Research*, Vol. 74, No.3, pp. 405-421

AZANZA Rhodora V.; SIRINGAN Fernando P. 2004, SAN DIEGO-MCGLONE Maria Lourdes; YNIGUEZ Aletta T.; MACALALAD Neil H.; ZAMORA Peter B.; AGUSTIN Melissa B.; MATSUOKA Kazumi, Horizontal dinoflagellate cyst distribution, sediment characteristics and benthic flux in Manila Bay, Philippines, Phycological research 52(4), 376-386, *Japanese Society of Phycology/Japanese Society of Phycology*

Rodriguez, A. B., Anderson, J. B., Siringan, F. P., Taviani, M., 2004, Holocene evolution of the east Texas coast and inner continental shelf: Along-strike variability in coastal retreat rates, *Journal of Sedimentary Research* 74 (3), pp. 405-421

Azanza, R. V., Siringan, F. P., San Diego-Mcglone, M. L., Yñiguez, A. T., Macalalad, N. H., Zamora, P. B., Agustin, M. B., Matsuoka, K., 2004, Horizontal dinoflagellate cyst distribution, sediment characteristics and benthic flux in Manila Bay, Philippines, *Phycological Research* 52 (4), pp. 376-386

Cabato, Ma. E. J. A., Rodolfo, K. S., Siringan, F. P., 2005, History of sedimentary infilling and faulting in Subic Bay, Philippines revealed in high-resolution seismic reflection profiles , *Journal of Asian Earth Sciences* 25(6), pp. 849-858

Rodolfo, K. S., Siringan, F. P., 2006, Global sea-level rise is recognised, but flooding from anthropogenic land subsidence is ignored around northern Manila Bay, Philippines, *Disasters* 30(1), pp. 118-139

Mateo, Z. R. P., Siringan, F. P., 2007, Tectonic control of high-frequency Holocene delta switching and fluvial migration in Lingayen Gulf bayhead, northwestern Philippines, *Journal of Coastal Research* 23(1), pp. 182-194

## SUGIMOTO, Takashige — Visiting Professor

Born in 1942.

**—Curriculum Vitae—**

**[Academic Career]**

Department of Geophysics, Faculty of Science, Kyoto University, D. Course (1971)
Department of Geophysics, Faculty of Science, Kyoto University, M. Course (1968)
Department of Geophysics, Faculty of Science, Kyoto University (1966)

**[Professional Career]**

Professor, Institute of Ocean Research and Development, Tokai University (2004–)
Emeritus Professor, University of Tokyo (2004)
Professor, Ocean Research Institute, University of Tokyo (1988)
Associate Professor, Ocean Research Institute, University of Tokyo (1980)
Associate Professor, Faculty of Science, Tohoku University (1976)
Lecturer, Faculty of Science, Tohoku University (1972)
Research Associate, Faculty of Science, Tohoku University (1971)

**[Higher Degrees]**

D.Sc. (Kyoto University, 1974), M.Sc. (Kyoto University, 1968)

**[Field Specialization/Background]**

Physical Oceanography, Fisheries Oceanography

**[Academic Society Memberships]**

Physical Oceanography, Fisheries Oceanography

**[Awards]**

The Okada prize of the Oceanographic Society of Japan (1976)

**—Major Publications—**

**[Papers]**

Nagai Naoki, Kazuaki Tadokoro, Kazunori Kuroda and Takashige Sugimoto, 2006, Occurrence Characteristics of Chaetognath species along the PM transect in the Japan Sea during 1972-2002. *Journal of Oceanography* 62(5): 597-606.

Kuwae Michinobu, Yamashita Azumi, Hayami Yuichi, Kaneda Atsushi, Sugimoto Takashige, Inouchi Yoshio, Amano Atsuko, Takeoka Hidetaka, 2006, Sedimentary records of multidecadal-scale variability of diatom productivity in the Bungo Chanel, Japan, associated with the Pacific Decadal Oscillation. *Journal of Oceanography* 62(5): 657-666.

## TAKAHASHI, Atsuhiro — Project Senior Researcher

Born in 1971.

**—Curriculum Vitae—**

**[Academic Career]**

Department of Earth and Planetary Science, Graduate School of Science, Nagoya University, D. Course (2003)
Department of Earth and Planetary Science, Graduate School of Science, Nagoya University, M. Course (1999)
Faculty of Science, Tohoku University (1997)

**[Professional Career]**

Project Senior Researcher, Research Institute for Humanity and Nature (2006)

Research Fellow, Research Institute for Humanity and Nature (2003)

**[Higher Degrees]**

D.Sc. (Nagoya University, 2004), M.Sc. (Nagoya University, 1999)

**[Field Specialization/Background]**

Boundary Layer Meteorology

**[Academic Society Memberships]**

Meteorological Society of Japan, The Japan Society of Hydrology and Water Resources

**—Major Publications—**

**[Articles]**

Takahashi, Atsuhiro, Tetsuya Hiyama, Atsushi Higuchi, Masanori Nishikawa, Wei Li, and Yoshihiro Fukushima 2006 'Koudo-kougen-nanbu ni-okeru taiki-kyoukai-sou~jiyu-taiki kan-no suijouki koukan-ryou no nichi-nichi-henka – Taiki-kyoukai-sou · tairyu-un · soukan-kishou-ba no sougo-sayou ni-chakumoku-shite—' Proceedings of YRiS Joint Meeting, 113-116 (in Japanese).

Takahashi, Atsuhiro, Tetsuya Hiyama, Masanori Nishikawa, Atsushi Higuchi, Wei Li, Wenzhao Liu, and Yoshihiro Fukushima 2007 'Vertical mixing of water vapor between the atmospheric boundary layer and free atmosphere over Changwu, the Loess Plateau of China' Proceedings of 3rd International Workshop on Yellow River Studies, 73-76.

Takahashi, Atsuhiro and Yoshihiro Fukushima 2007 'Chu-goku kahoku-heigen ni-okeru kaki-kousui-ryou no chouki-hendou ni-kansuru youin ni-tsuite' RR2002 Kenkyu-Seika-Houkokusho, 51-52 (in Japanese).

**—Research Activities—**

**[Field Research in Foreign Countries]**

| | |
|---|---|
| May, 2006 | Changwu County, China (Research on the atmospheric boundary layer in the Loess Plateau) |
| June, 2006 | Changwu County, China (Research on the atmospheric boundary layer in the Loess Plateau) |
| August, 2006 | Changwu County, China (Research on the atmospheric boundary layer in the Loess Plateau) |
| October, 2006 | Changwu County, China (Research on the atmospheric boundary layer in the Loess Plateau) |
| January, 2007 | Changwu County, China (Research on the atmospheric boundary layer in the Loess Plateau) |
| March, 2007 | Changwu County, China (Research on the atmospheric boundary layer in the Loess Plateau) |

**—Poster Presentation—**

November 7, 2006 Takahashi, A., T. Hiyama, M. Nishikawa, A. Higuchi, W. Liu, Y. Fukushima. 'A characteristic daily variation in water vapor in the atmospheric boundary layer in the Loess Plateau, China, during spring and summer in 2005' RIHN 1st International Symposium (Kyoto International Conference Center, Kyoto, Kyoto Prefecture)

## TAKASO, Tokushiro —Professor

Born in 1954.

**—Curriculum Vitae—**

**[Academic Career]**

Department of Biology, Graduate School of Science, Tokyo Metropolitan University, D. Course (1981)

Department of Biology, Graduate School of Science, Chiba University, M. Course (1978)
Faculty of Agriculture, Shizuoka University (1976)

**[Professional Career]**

Professor, Research Institute for Humanity and Nature (2003)
Professor, Tropical Biosphere Research Center, University of the Ryukyus (1997)
Postdoctoral Fellow, Department of Biology, University of Victoria (1990)
Postdoctoral Fellow, Harvard Forest, Harvard University (1988)
Postdoctoral Fellow, Harvard Forest, Harvard University (1986)
Research Fellow, Japan Society for Promotion of Science (1985)
Research Fellow, Japan Society for Promotion of Science (1981)

**[Higher Degrees]**

Ph.D. (Tokyo Metropolitan University, 1982), M.Sc. (Chiba University, 1978)

**[Field Specialization/Background]**

Plant Morphology

**[Academic Society Memberships]**

The Botanical Society of Japan, The Botanical Society of America

**—Major Publications—**

**[Papers (reviewed)]**

Nomura, N., H. Setoguchi, T. Takaso, 2006, Functional consequences of stenophylly for leaf productivity: comparison of the anatomy and physiology of a rheophyte, *Farfugium japonicum* var. *luchuence*, and a related non-rheophyte, *F. japonicum* (Asteraceae). *Journal of Plant Research* 119: 645-656

**[Articles]**

2006 'Difficulty in succession of nature and culture in Yaeyama' "Mainichi Shimbun" (in Japanese)
2007 'Increase areas of water places' "Mainichi Shimbun" (in Japanese)

**—Academic and Social Activities—**

Committee member of Curriculum for Environmental Education in Iriomote Island (Forestry Agency) (2006)

**—Oral Presentation—**

September 16, 2006 Nakagawa, M., A. Naiki, T. Takaso. 'Mating system, seed production and population genetic structure of *Ophiorrhiza japonica* (Rubiaceae) in Iriomote Island, Japan' 70th Annual Meeting of the Botanical Society of Japan (Kumamoto University, Kumamoto, Kumamoto Prefecture)

**—Poster Presentation—**

September 13, 2006 Takashima, A., H. Kurisaki, T. Miyazaki, K. Yoshimura, Y. Inokura, T. Takaso, T. Nakano. 'Effect of acid deposition to natural environment in Iriomote Island' Annual Meeting of the Geochemical Society of Japan in 2006 (Nihon University, Tokyo)

March 16, 2007 Nakagawa, M., Y. Kimoto, T. Takaso. 'Relationship between development of male flower and lunar rhythm in *Enhalus acoroides* (Hydrocharitaceae)' 6th Annual Meeting of the Japanese Society for Plant Systematics (Niigata University, Niigata, Niigata Prefecture)

**—Supervision and Host—**

1 fellow from a UNESCO program

## TAKEUCHI, Yayoi — Project Researcher

Born in 1979.

**—Curriculum Vitae—**

**[Academic Career]**

Department of Botany, Graduate School of Science, Kyoto University, D. Course (2006)
Department of Botany, Graduate School of Science, Kyoto University, M. Course (2003)
Faculty of Agriculture, Nagoya University (2001)

**[Professional Career]**

Research Fellow (PD), Japan Society for Promotion of Science (2007)
Project Researcher, Research Institute for Humanity and Nature (2006)
Research Fellow (DC2), Japan Society for Promotion of Science (2004)

**[Higher Degrees]**

D.Sc. (Kyoto University, 2006), M.Sc. (Kyoto University, 2003)

**[Field Specialization/Background]**

Plant Molecular Ecology, Tropical Forest Ecology

**[Academic Society Memberships]**

The Ecological Society of Japan

**—Major Publications—**

**[Papers (reviewed)]**

Yayoi Takeuchi, Sanei Ichikawa, Akihiro Konuma, Nobuhiro Tomaru, Kaoru Niyama, Soon Leong Lee, Norwati Muhammad, Yoshihiko Tsumura (2004) Comparison of fine-scale genetic structure of three dipterocarp species. *Heredity* 92: 323-328.

Yayoi Takeuchi, Tanaka Kenta, Tohru Nakashizuka (2005) Comparison of sapling demography of four dipterocarp species with different seed-dispersal strategies. *Forest ecology and management* 208: 237-248.

Michiko Nakagawa, Yayoi Takeuchi, Tanaka Kenta, Tohru Nakashizuka (2005) Pre-dispersal seed predation by insects vs. vertebrates in six dipterocarp species in Sarawak, Malaysia. *Biotropica* 37(3): 389-396.

**[Papers (not reviewed)]**

Y. Takeuchi, T. Nakashizuka (2006) Comparison of gene dispersal of four dipterocarp species in a primary tropical rain forest. *Proceedings of International Symposium on Forest Ecology, Hydrology and Forest Ecosystem Rehabilitation in Sarawak.*, 163-168.

**[Articles]**

Yayoi Takeuchi (2006) Introduction of field station: The Biological Dynamics of Forest Fragments Project "Journal of The Ecological Society of Japan" 56(3) 263-265 (in Japanese).

**—Research Activities—**

**[Field Research in Japan]**

August, 2006 — Tohoku religion (Research and sampling of *Kalopanax pictus*)

**—Oral Presentation—**

Mar 22, 2007 — Yayoi Takeuchi, Michiko Nakagawa, Tohru Nakashizuka "Effect of forest fragmentation on reproductive and recruitment success of *Shorea laxa*." The 54th Annual Meeting of Ecological Society of Japan (Ehime University, Matsuyama, Ehime Prefecture)

**—Poster Presentation—**

Mar 15, 2007 Yayoi Takeuchi, Chihiro Tanaka, Takakazu Yumoto. "Diversity and geographic variation of phyllosphere fungi in leaves of *Kalopanax pictus*". The 5th Okazaki Biology Conference (OBC5) *"Speciation and Adaptation—Ecological Genomics of Model Organisms and Beyond—"*, (Tsumagoi Yamaha resort, Tsumagoi, Shizuoka Prefecture)

## TANAKA, Katsunori — Project Researcher

Born in 1976.

**—Curriculum Vitae—**

**[Academic Career]**

Department of Graduate School of Nature Science and Technology, Okayama University, D. Course, leaving school with the expiration of course (2006)

Department of Graduate School of Nature Science and Technology, Okayama University, M. Course (2002)

Faculty of Agriculture, Okayama University (1999)

**[Higher Degrees]**

D.Ag. (Okayama University, 2006), M.Agc. (Okayama University, 2002)

**[Field Specialization/Background]**

Plant Genetics, Plant Breeding

**[Academic Society Memberships]**

Japanese Society of Breeding, Japan Society for Scientific Studies on Cultural Properties

**—Major Publications—**

**[Papers]**

Kato K., Y. Akashi, K. Tanaka, T. Wako, S. Masuda 2002, Genetic characterization of East and South Asian melons, *Cucumis melo* L., by the analysis of molecular polymorphisms and morphological characters. *Acta Horticulturae*, 588: 217-222.

Akashi Y., K. Tanaka, S. S. Yi, T. T. Chou, H. Nishida, K. Kato 2006, Genetic diversity and phylogenetic relationship among melon germplasm from Africa and Asia revealed by RAPD analysis. *Cucurbit. Proc.*, 2006: 317-325.

Tanaka K., Y. Akashi, K. Fukunaga, H. Nishida, K. Kato 2006, Polyphyletic origin of cultivated melon inferred by the analysis of chloroplast genome. *Cucurbit. Proc.*, 2006: 372-379.

Tanaka K., A. Nishitani, Y. Akashi, Y. Sakata, H. Nishida, T. Yoshino, K. Kato 2007, Molecular characterization of South and East Asian melon, *Cucumis melo* L., and the origin of Group Conomon var. *makuwa* and var. *conomon* revealed by RAPD analysis. *Euphytica*, 153 (1-2): 233-24).

**[Research Reports]**

Kato K, T. Yoshino, S. Matsuura, Y. Akashi, K. Tanaka (2006) *Cucurbitaceae* crop. In "Genetic assay and study of crop germplasm in and around China (3rd), A Report of Grant-in-Aid for Scientific Research (A) (2) (2003-2005).

**—Research Activities—**

**[Field Research in Foreign Country]**

Sep. 2004 Mizoram, India (Reserch of plant resources in Cucurbitaceae crops)

Aug. 2005 Yunnan, China (Reserch of plant resources in Cucurbitaceae crops)

Sep. 2005 Yunnan to Guizhou, China (Reserch of plant resources in Cucurbitaceae crops)

**—Academic and Social Activities—**

Sasakawa Scientific Research Grant, 2005

**—Oral Presentation—**

<Foreign country>

Dec 8–12, 2002 Kato K., A. Nishitani, K. Tanaka, S. Masuda, Y. Akashi, T. Wako "Genetic diversity in East and South Asian melons, *Cucumis melo* L., as revealed by the analysis of molecular polymorphisms and morphological characters", Cucurbitaceae 2002, Naples, Florida, USA

Sep 17–21, 2006 Akashi Y., K. Tanaka, H. Nishida, S. S. Yi, T. T. Chou, K. Kato "Genetic diversity and phylogenetic relationship among melon germplasm from Africa and Asia revealed by RAPD analysis", Cucurbitaceae 2006, Asheville, North Carolina, USA

Sep 17–21, 2006 Tanaka K., Y. Akashi, K. Fukunaga, H. Nishida, K. Kato "Polyphyletic origin of cultivated melon inferred by the analysis of chloroplast genome", Cucurbitaceae 2006, Asheville, North Carolina, USA

<Japan>

Aug 27, 2002 Tanaka K., Y. Akashi, K. Kato "Germinability of melon seeds in excess amountof water and its varietal variation", 102nd meeting of Soc. Japanese Soc. of Plant Breeding. (Obihiro University of Agriculture and Veterinary Medicine, Obihiro City, Hokkaido)

Sep 22, 2004 Tanaka. K., Y. Akashi, K. Fukunaga, H. Yoshino, H. Nishida, K. Kato "Polyphyletic origin of cultivated melon inferred by the analysis of PS-ID sequence of chloroplast genome", 106th meeting of Soc. Japanese Soc. of Plant Breeding. (Mie University, Tsu City, Mie Prefecture)

Apr 3–4, 2005 Kato K., K. Tanaka, Y. Akashi, H. Yoshino, H. Nishida "Genetic diversity of nuclear and chloroplast genome in melon and the origin of cultivated melon", H17 meeting of the Japan. Soc. Hort. Sci. (Tsukuba University, Tsukuba City, Ibaraki Prefecture)

Aug 20–21, 2005 Tanaka K., Y. Akashi, H. Yoshino, H. Nishida, K. Kato "Phylogenetic relationship among *Cucumis* species based on the sequence polymorphism of chloroplast genome", 107th and 108th meeting of Soc. Japanese Soc. of Plant Breeding. (Tsukuba University, Tsukuba City, Ibaraki Prefecture)

Aug 1, 2006 Kato K., K. Tanaka, Y. Akashi, S. Matsuura "Morphological variation among local landraces of melon cultivated in the north-eastern part of India", 109th meeting of Soc. Japanese Soc. of Plant Breeding. (Tokyo University of Agriculture and Technology, Futyu City, Tokyo)

Sep 23, 2006 Tanaka K., Y. Akashi, May Thinn Khaing, H. Nishida, K. Kato "Development and characterization of mitochondrial genome marker inherited paternally in *Cucumis melo* L", 110th meeting of Soc. Japanese Soc. of Plant Breeding. (Ehime University, Matsuyama City, Ehime Prefecture)

Sep 24, 2006 Akashi Y., K. Tanaka, San San Yi, Tin Tin Cou, May Thin Khaing, H. Nishida, K. Kato "Phylogenetic relationship and genetic diversity among African melon and Asian melon based on RAPD", H18 meeting of the Japan. Soc. Hort. Sci. (Nagasaki University, Nagasaki City, Nagasaki Prefecture)

**—Poster Presentation—**

Aug 22–23, 2005 Tanaka K., Y. Akashi, K. Fukunaga, H. Yoshino, H. Nishida, K. Kato "Polyphyletic origin of cultivated melon inferred by diversity analysis of nuclear and chloroplast genomes", 10th International congress of SABRAO (Tsukuba International Congress Center, Tsukuba, Ibaraki Prefecture)

**—Public and School Lectures—**

March 17, 2006 'Transmission in cultivated melon and ancestral melon in Japan', meeting of DNA Archaeology Society (Research Institute for Humanity and Nature, Kyoto City, Kyoto Prefecture)

## TANAKA, Takuya — Project Researcher

Born in 1966.

**—Curriculum Vitae—**

**[Academic Carrier]**

Division of Environmental Science & Technology, Faculty of Agriculture, Kyoto University, D. Course (1999)

Department of Forestry, Faculty of Agriculture, Kyoto University, M. Ag (1995)

Department of Forestry, Faculty of Agriculture, Kyoto University (1992)

**[Professional Carrier]**

Researcher, Research Institute for Humanity and Nature (2006)

Technician, Research Institute for Humanity and Nature (2004)

Research Fellow, Research Institute for Humanity and Nature (2001)

School-affairs assistance member, Center for Ecological Research, Kyoto University (1999)

**[Higher Degrees]**

M.Ag. (Kyoto University, 1995)

**[Specialized Fields/Background]**

Environmental Science

**[Academic Society Memberships]**

Society of Environmental Science, Center for Environmental Information Science, Association of Rural Planning

**—Major Publications—**

**[Report]**

Tanaka, Takuya, Sakagami Masaji and Ohno Tomohiko 2006 Report on survey for local water environment and its conservation. *Project 3-1 Working Paper No.17*, Project 3-1 office. (in Japanese)

Project 3-1 2007 Multi-Disciplinary Research for Understanding Interactions between Humans and Nature in the Lake Biwa-Yodo River Watershed, *Lake Biwa-YodoRiver Project Final Report*, Project 3-1 office. (in Japanese)

**[Miscellaneous]**

Feb. 17, 2007 "Arena for communication on the environment of river" *Mainichi Newspaper*, Mainichi Newspaper Co. (in Japanese)

**—Social Activities—**

2006.8.5–6. "Salon for Studies of Water Environment in Inae District", Planning and Presentation, Hikone city

**—Research Activities—**

**[Field Research in Japan]**

2006.4–2006.12. Shiga prefecture, Kyoto and Osaka (additional survey)

## TANIGUCHI, Makoto — Associate Professor

Born in 1959.

**—Curriculum Vitae—**

**[Academic Career]**

Institute of Geosciences, The University of Tsukuba, D. Course (1987)

Institute of Geosciences, The University of Tsukuba, M. Course (1984)

Faculty of Natural Sciences, The University of Tsukuba (1982)

**[Professional Career]**

Associate Professor, Research Institute for Humanity and Nature (2003)

Professor, Department of Earth Science, Nara University of Education (2000)

Associate Professor, Department of Earth Science, Nara University of Education (1993)

Assistant Professor, Department of Earth Science, Nara University of Education (1990)

Researcher, Environmental Research Center, The University of Tsukuba (1988)

Researcher, Division of Water Resources, CSIRO, Australia (1987)

**[Higher Degrees]**

D.Sc. (University of Tsukuba, 1987), M.Sc. (University of Tsukuba, 1984)

**[Field Specialization/Background]**

Hydrology, Geophysics, Geography

**[Academic Society Memberships]**

American Geophysical Union, International Association of Hydrological Sciences, International Association of Hydrogeology, National Ground Water Association, Japanese Association of Groundwater Hydrology, Japan Society of Hydrology and Water Resources, Japanese Association of Hydrological Sciences, The Japanese Society of Limnology, The Association of Japanese Geographers

**—Major Publications—**

**[Papers (reviewed)]**

Taniguchi, M., T. Ishitobi, W.C. Burnett, and G. Wattayakorn (2007) Evaluating ground water—sea water interactions via resistivity and seepage meter, Ground Water, DOI: 10.1111/j.12745-6584.2007.00343.

Burnett, W. C., G. Wattayakorn, M. Taniguchi, H. Dulaiova, P. Sojisuporn, S. Rungsupa, and T. Ishitobi (2007) Groundwater-derived nutrient inputs to the Upper Gulf of Thailand, *Continental Shelf Research*, 27: 176-190.

Chen JY, Taniguchi M, Liu GQ, Miyaoka K, Onodera S, Tokunaga T, Fukushi Y (2007) Nitrate pollution of groundwater in the Yellow River delta, China. *Hydrogeology Journal*: DOI 10.1007/s10040-007-0196-7.

Chen J., D. Ke, X. Zhao, Y. Fukushima, and M. Taniguchi (2006) Characteristics of sediment and nutrient flows in the lower reach of the Yellow River, *IAHS Publ.*, 308: 1-5.

Taniguchi, M., W. C. Burnett, H. Dulaiova, W. S. Moore, and E. Kontor (2006) Submarine groundwater discharge measured by seepage meters in sicilian coastal waters, *Continental Shelf Research*, 26, 835-842.

Burnett, W. C., P. K. Aggarwal, A. Aureli, H. Bokuniewicz, J. E. Cable, M. A. Charette, E. Kontar, S. Krupa, K. M. Kulkarni, A. Loveless, W. S. Moore, J. A. Oberdorfer, J. Oliveira, N. Ozyurt, P. Povinec, A. M. G. Privitera, R. Rajar, R. T. Ramessur, J. Scholten, T. Stieglitz, M. Taniguchi, J. V. Turner (2006) Quantifying submarine groundwater discharge in the coastal zone via multiple methods, *STOTEN*, 367: 498-543.

Povinec, P. P., P. K. Aggarwal, A. Aureli, W. C. Burnett, E. A. Kontor, K. M. Kulkarni, W. S. Moore, R. Rajar. M. Taniguch, J.-F Comanducci, G. Cusimano, H. Dulaiova, L. Gatto, M. Groening, S. Hauser, I. Levy-Palomo, B. Oregioni, Y. R. Ozorovich, A. M. G. Privitera, M. A. Schiavo (2006) Characterisation of submarine

groundwater discharge offshore south-eastern Sicily, *J. Environ. Radioactivity*, 89: 1-21.

Taniguchi, M., T. Ishitobi, J. Shimada, and N. Takamoto (2006) Evaluation of spatial distribution of submarine groundwater discharge, *Geophys. Res. Lett*, 33, doi:10.1029/2005GL025288.

Taniguchi, M., T. Ishitobi, and J. Shimada (2006) Dynamics of submarine groundwater discharge and freshwater-seawater interface, *J. Geophys. Res.*, 111, C01008, doi:10.1029/2005JC002924.

**—Research Activities—**

**[Field Research]**

| | |
|---|---|
| May 2006 | Jakarta, Indonesia (Research on groundwater in the coastal zone and urban area) |
| May 2006 | Manila, Phillipine (Research on groundwater in the coastal zone and urban area) |
| June 2006 | Bangkok, Thailand (Research on groundwater in the coastal zone and urban area) |
| August 2006 | Omaehama, Kobe Prefecture (Research on groundwater in the coastal zone and urban area) |
| September 2006 | Jakarta, Indonesia (Research on groundwater in the coastal zone and urban area) |

**—Academic and Social Activities—**

Council member, Japanese Association of Groundwater Hydrology (2001–)

Assistant Editor, Ground Water, National Ground Water Association (2002–)

Committee member of LOICZ/IGBP (Land-Ocean Interaction in the Coastal Zone of International Geosphere-Biospher Program) (2002–)

Japanese Scientific Steering Committee Member, IODP (2003–)

Vice Secretary, IASPEI/IUGG International Heat Flow (2003–)

Chair, UNESCO-GRAPHIC (Groundwater Resources Assessment under the Pressures of Humanity and Climate Changes) (2004–)

Coordinator, GWSP (Global Water System Project)-Asia Network (2005–)

Committee member of Promotion of Cool City (Ministry of Environment) (2006–)

**—Oral Presentation—**

| | |
|---|---|
| April 4, 2006 | Taniguchi, M. 'Introduction of UNESCO-GRAPHIC project', International Symposium on GRAPHIC (RIHN, Kyoto Prefecture) |
| April 15, 2006 | Taniguchi, M. 'Water balance and hydrological impact zone in the lower reach of the Yellow River' Annual meeting of Research Revolution, (RIHN, Kyoto Prefecture) |
| May 15, 2006 | Taniguchi, M. 'Climate reconstruction from borehole temperature' Japan Geoscience Union meeting 2006 (Chiba Prefecture) |
| June 5, 2006 | Taniguchi, M. 'Anthropogenic and fluid flow effects on subsurface temperature in Asian cities", International Heat Flow conference, (Czech Republic) |
| June 10, 2006 | Taniguchi, M. 'GWSP-Asia Database—Dam, Coastal zone, and Land use/cover changes' in 2nd GWS-Asia meting, (Guangzhou, China) |
| July 10, 2007 | Saito, M., Onodera, S., Shimada, J., Ikawa, R., Nakano, T., Hosono, T., Miyakoshi, A., Taniguchi, M. and Lee, K. 'Effects of urbanization and land-use change on the groundwater chemistry at the Seoul city area', 3rd AOGS annual meeting, Suntec, Singapore |
| July 10, 2007 | Ishitobi, T., Taniguchi, M. and Hayashi, M. 'Effect of tidal change and climate factor on submarine groundwater discharge', 3rd AOGS annual meeting, Suntec, Singapore |
| August 22, 2006 | Taniguchi, M. "Managing Groundwater Resources for Human Security in Changing Climate and Human Intervention" in UNU—GRAPHIC joint symposium, (RIHN, Kyoto Prefecture) |
| October 26, 2006 | Taniguchi, M. 'Global evaluation of submarine groundwater discharge' Annual meeting of |

Japanese Association of Groundwater Hydrology (Kurashiki, Okayama Prefecture)

December 15, 2006 Taniguchi, M. "Global Assessments of submarine groundwater discharge and groundwater resources assessment under the pressures of humanity and climate change", American Geophysical Union 2006 fall meeting, (San Francisco, USA)

December 22, 2006 Taniguchi, M, Burnett WC, Aureli, A. 'Submarine groundwater discharge in Japanese coastal area', International Symposium on Submarine Groundwater Discharge, (Kumamoto Univ., Kumamoto Prefecture)

**—Poster Presentation—**

November 7, 2006 Ishitobi, T., Taniguchi, M. and Umezawa, Y. 'Submarine groundwater discharge in the coastal zone of the Asian cities', RIHN international symposium, Kyoto International Conference Center, Kyoto

November 7, 2006 Saito, M., Onodera, S. Shimada, J. Ikawa R. Nakano, T. Hosono, T. Miyakoshi, A. Taniguchi M. and Lee K. K., 'Spatial variation in groundwater chemistry controlled by urbanization stage in granitic hilly basin', Seoul metropolitan city", RIHN 1st international symposium, Kyoto

November 7, 2006 Onodera, S., Taniguchi, M., Saito, M., Shimada, J., Buapeng, S., "Effect of intensive urbanization on deep groundwater chemical environment; example in Bangkok of Thailand", RIHN 1st international symposium, Kyoto

**—Public and School Lectures—**

July 20, 2006 'Urban development and subsurface environment' Lecture for the members of a chamber of commerce in Kyoto City (RIHN, Kyoto Prefecture)

October 20, 2006 "Global environmental problems under the ground surface' 15th seminar for the citizen (RIHN, Kyoto Prefecture)

December 16, 2006 'Sake and water in Kyoto' 4th lecture of "Water and People" (Niijima Kaikan, Kyoto Prefecture)

**—Supervision and Host—**

1 PD fellow of JSPS

## TANNO, Ken-ichi——Senior Researcher

Born in 1971.

**—Curriculum Vitae—**

**[Academic Career]**

Faculty of Agriculture and Forestory, University of Tsukuba, D. Course (1995–1999)

Faculty of Bioresources, University of Tsukuba (1991–1994)

**[Professional Career]**

Senior Researcher, Research Institute for Humanity and Nature (2006–)

Researcher (part-time), Research Institute for Humanity and Nature (2005)

Post-Doctoral Fellow (for Research Abroad), Japan Society for Promotion of Science & Visiting Researcher, Centre National de la Recherche Scientifique, France (2003–2004)

Post-Doctoral Fellow (PD), Japan Society for Promotion of Science (2000–2002)

**[Higher Degrees]**

D.Sc. (University of Tsukuba, 2000), M.Sc. (University of Tsukuba, 1997)

**[Fields of Specialization/Background]**

Plant Genetics, Archaeobotany

**[Academic Society Memberships]**

Japan Society of Breeding

**—Major Publications—**

**[Papers (reviewed)]**

Tanno, K., and Willcox, G. (2006) The origins of cultivation of *Cicer arietinum* L. and *Vicia faba* L.: Early finds from northwest Syria (Tell el-Kerkh, late 10th millennium BP), *Vegetation History and Archaeobotany*, 15, 197-204.

Willcox, G. and Tanno, K. (2006) How and when was wild wheat domesticated? Response, *Science*, 313 (5785), 296-297.

Tsuneki, A., Arimura, M., Maeda, O., Tanno, K., and Anezaki, T. (2006) The early PPNB in the north Levant: A new perspective from Tell Ain el-Kerkh, northwest Syria. *Paleorient*, 32(1), 47-71.

**[Articles]**

Tanno, K. (2007) 'Noukou-no kaishi (Beginning of agriculture)' "Shizen-tono tatakai: Jinrui-ha ikirutameni nanio shitekitanoka (Struggle in Nature: what did humankind do for their survival)" p.19 Gunma Museum of Natural History (in Japanese).

**—Research Activities—**

**[Field Research in Foreign Countries]**

2006.6 Syria and Jordan (Vegetation study)

2006.7–9 Syria and Turkey (Archaeological excavations in 4 sites)

2006.9–10 Jordan (Archaeological excavation)

## TERASHIMA, Motoki ——— Research Fellow

Born in 1975.

**—Curriculum Vitae—**

**[Academic Career]**

Graduate School of Environmental Earth Science, Hokkaido University, D. Course (2004)

Graduate School of Environmental Earth Science, Hokkaido University, M. Course (2000)

Faculty of Science, Toyama University (1998)

**[Professional Career]**

Research Fellow, Research Institute for Humanity and Nature (2005)

Research Fellow, Japan Society for the Promotion of Science (2003)

**[Higher Degrees]**

D. Environ. Earth Sci. (Hokkaido University, 2004), M. Environ. Earth Sci. (Hokkaido University, 2000)

**[Fields of Specialization/Background]**

Environmental Chemistry, Analytical Chemistry

**[Academic Society Memberships]**

The Chemical Society of Japan, Division of Colloid and Surface Chemistry, The Japan Society for Analytical Chemistry,

Japan Society on Water Environment, Japanese Humic Substances Society, International Humic Substances Society

**—Major Publications—**

Yustiawati, M.S. Syawal, M. Terashima and S. Tanaka. 2006 Speciation analysis of mercury in river water in West Java, Indonesia. *TROPICS*, 15: 411-414

M. Terashima and S. Nagao. 2007 Solubilization of [60]fullerene in water by aquatic humic substances, *Chem. Lett.*, 36: 302-303

M. Terashima, S. Tanaka and M. Fukushima. 2007 Coagulation characteristics of humic acid modified with glucosamine or taurine, *Chemosphere*, in press

S. Nagao, M.Terashima, H. Kodama, V. I. Kim, P. V. Shesterkin, and A. N. Makhiov. 2007 Migration behavior of Fe in the Amur River basin, *Report on Amur-Okhotsk Project* No.4, February: 37-48

M. Terashima and S. Nagao. 2007 Removal and fractionation characteristics of dissolved iron in estuarine mixing zone, *Report on Amur-Okhotsk Project* No.4, February: 69-74

**—Presentation in International Conference—**

June, 2006 M. Terashima, T. Shiraiwa and S. Nagao, "Coagulation and fractionation of dissolved iron in estuarine mixing zone: the role of aquatic humic substances", Interface against pollution, Granada, Spain

June, 2006 M. Terashima and S. Nagao, "Water solubility enhancement of [60]fullerene in the presence of humic substances", Interface against pollution, Granada, Spain

## TEZCAN, Levent ——————————————————— Invited Research Fellow

Born in 1965.

**—Curriculum Vitae—**

**[Academic Career]**

Faculty of Engineering, Department of Hydrogeological Engineering, Hacettepe University, Ph.D. (1993)

Faculty of Engineering, Department of Hydrogeological Engineering, Hacettepe University, MSc. (1989)

Faculty of Engineering, Department of Hydrogeological Engineering, Hacettepe University (1986)

**[Professional Career]**

Associate Professor, Department of Hydrogeological Engineering, Hacettepe University (1994)

Research Assistant, Department of Hydrogeological Engineering, Hacettepe University (1987)

**[Higher Degrees]**

D.Sc. (Hacettepe University, 1993), M.Sc. (Hacettepe University, 1989)

**[Field Specialization/Background]**

Hydrology, Hydrogeology, Modeling, Isotope Techniques

**[Academic Society Memberships]**

Geological Engineering of Turkey, International Association of Hydrogeologists, International Association of Hydrologic Sciences

**—Major Publications—**

**[Papers (reviewed)]**

Levent Tezcan, Mehmet Ekmekci (2004) Surface Cover Infiltration Index: A suggested method to assess infiltration capacity for intrinsic vulnerability in karstic areas in absence of quantitative data, International Journal of Speleology, 33 (1/4): 35-48

**[Articles]**

Levent Tezcan, Mehmet Ekmekci, Ozlem Atilla, M. Evren Soylu, Dilek Gurkan, Orcun Yalcinkaya, Otgonbayar Namkhai, Sevgi Donma, Dilek Yilmazer, Adil Akyatan, Nurettin Pelen, Fatih Topaloglu, and Ahmet Irvem (2006) Water Availability in Subcutaneous Zone as a Bounrary Layer Controlling the Climate-Soil-Vegetation and Groundwater Dynamics: Preliminary Results from Modeling Water Resources in the Seyhan River Basin, Turkey, The Advance Report of ICCAP—The Research Project on the Impact of Climate Changes on Agricultural Production System in Arid Areas, 29-42

Levent Tezcan, Mehmet Ekmekci, Ozlem Atilla, Dilek Gurkan, Orcun Yalcinkaya, Otgonbayar Namkhai, M. Evren Soylu, Sevgi Donma, Dilek Yilmazer, Adil Akyatan, Nurettin Pelen, Fatih Topaloglu, and Ahmet Irvem (2007) Assessment of Climate Change Impacts on Water Resources of Seyhan River Basin, The Final Report of ICCAP—The Research Project on the Impact of Climate Changes on Agricultural Production System in Arid Areas, 59-72

**—Research Activities—**

Hacettepe University - IAEA Project: Modeling the Dynamics of the Long-Term Isotopic and Hydrochemical Changes in Central Anatolia, Turkey, 2003–2005

Hacettepe University - EU Project: Mediterranean Development of Innovative Technologies for Integrated Water Management (MEDITATE), 2005–2007

**—Supervision and Host—**

3 Ph.D. Students, 7 MSc. Students

## TSUJINO, Riyou ——— Research Fellow (JSPS)

Born in 1976.

**—Curriculum Vitae—**

**[Academic Career]**

Graduate School of Science, Kyoto University, D. Course (2006)

Graduate School of Science, Kyoto University, M. Course (2003)

Faculty of Science, Kyoto University (2001)

**[Professional Career]**

Project Researcher, Research Institute for Humanity and Nature (Apr 2007–)

Research Fellow, Japan Society for Promotion of Science (Apr 2004–Mar 2007)

**[Higher Degrees]**

D.Sc. (Kyoto University, 2006), M.Sc. (Kyoto University, 2003)

**[Field Specialization/Background]**

Plant Ecology, Mammal Ecology

**[Academic Society Memberships]**

The Ecological Society of Japan, The Mycological Society of Japan, The Mammalogical Society of Japan.

**—Major Publications—**

**[Papers (reviewed)]**

Tsujino R, Yanagihara-Agetsuma Y (2006) Alian mammals, raccoon dog, feral dog, feral cat, and feral goat in western and north-western part of lowland forest on Yakushima Island in Kagoshima prefecture. Japanese Journal

of Conservation Ecology 11: 167-171 (in Japanese).
Tsujino R, Takafumi H, Agetsuma N, Yumoto T (2006) Variation in tree growth, mortality and recruitment among topographic positions in a warm–temperate forest. Journal of Vegetation Science 17: 281-290.

**—Research Activities—**

**[Field Research in Japan]**

| | |
|---|---|
| Jul, 2006 | Kami-Yaku town, Kagoshima pref. (Research on the effects of sika deer on forest dynamics) |
| Aug, 2006 | Sakae village in Nagano pref. (Preliminary research on the relationship between human impacts and biodiversity in the forest) |
| Sep, 2006 | Kami-Yaku and Yaku town in Kagoshima pref. (Research on fungal flora in the lowland forest in Yakushima Island) |
| Jan, 2007–Feb, 2007 | Oshima-gun in Kagoshima pref, Kunigami village in Okinawa pref., and Kami-Yaku town in Kagoshima pref. (Researches on the migratory birds and fruits fecundities) |

**—Poster Presentation—**

| | |
|---|---|
| Jun, 2006 | Tsujino R, Sato H, Imamura A, Yumoto T. 'Relationship between fungi and topography in lowland forest in Yakushima Island' The 50th Annual Meeting of the Mycological Society of Japan (Chiba pref.) |
| Sep, 2006 | Tsujino R. The Annual Meeting of the Mammalogical Society of Japan in 2006 (Kyoto univ. in Kyoto pref.) |
| May, 2007 | Tsujino R, Sato H, Imamura A, Yumoto T. `Relationship between fungi and topography' 54th Annual Meeting of Ecological Society of Japan (Ehime University, Matsuyama, Ehime Pref.). |

**—Public and School Lectures—**

| | |
|---|---|
| August 22, 2006 | 'Plant diversity in the forest' (Tonenbo, Sakae village, Nagano pref.) |

## UCHIYAMA, Junzo — Associate Professor

Born in 1967.

**—Curriculum Vitae—**

**[Academic Career]**

Graduate School of Human and Environmental Studies, University of Kyoto, D. Course (1997)
Department of Archaeology, University of Durham, M.A. Course (1996)
Graduate School of Human and Environmental Studies, University of Kyoto, M. Course (1993)
Department of Archaeology, Faculty of Literature, University of Tokyo, B.A. Course (1991)

**[Professional Career]**

Associate Professor, Research Institute for Human and Nature (2003)
Associate Professor, Faculty of Humanities, Toyama University (2001)
Lecturer, Faculty of Humanities, Toyama University (1998)

**[Higher Degrees]**

Ph.D. (The Graduate University for Advanced Studies, 2002), M.A. (University of Durham, 1996), M.A. (University of Kyoto, 1993)

**[Field Specialization/Background]**

Zooarchaeology, Prehistoric Anthropology

**[Academic Society Memberships]**

The Society of Bio-Sophia Studies (executive director), International Council for Archaeozoology

**—Major Publications—**

**[Books]**

Uchiyama, Junzo (2007a) *Shirakawagou Gokayama no gashou zukuri shuraku keikan no seiritsu to kurashi* (The becoming and life of the gasho-style villages of Shirakawa and Gokayama), in *Water and the World Cultural and Natural Heritage*. eds. by Akimichi, Tomoya. Kyoto: Shogakkan. (in Japanese)

Uchiyama, Junzo (2007b) *Joumon no doubutsu koukogaku* (Jomon Zooarcheology). Kyoto: Showado. (in Japanese)

Uchiyama, Junzo (2006) *The environmental Troublemaker's Burden? —Jomon Perspectives on Foraging Land Use Change—*, in *Beyond Affluent Foragers: Rethinking Hunter-Gatherer Complexity*. eds. by C. Grier, J. Kim and Junzo Uchiyama. Oxford: Oxbow Books, 136-167.

Uchiyama, Junzo (2005a) *Joumonjin no idou seikatsu – joumon jidai no seikatsu pataan no hensen to douin* (The migratory lifestyle of the Jomon people – change in and motives for the lifestyle patterns during the Jomon era), in *Nihon no shuryou saishuu bunka – yasei seibutsu to tomo ni ikiru* (Hunting and gathering culture in Japan – living side by side with wild animals). eds. by K. Ikeya and M. Hasegawa. Kyoto: Sekaishisousha, 73-99. (in Japanese)

Uchiyama, Junzo (2005b) *Bunka no tayousei ha hitsuyou ka?* (Is cultural diversity necessary?), in *Seibutsu tayousei ha naze taisetsu ka* (Why is "biodiversity" important?). eds. by Hidaka, Toshitaka. Kyoto: Showado, 97-138. (in Japanese)

Uchiyama, Junzo (2004) *Hitsuji no Chichukai, inoshishi no Nihonkai – Nihonkai engan no ningen doubutsu kankei to kankyou riyou* (sheep of the Mediterranean, wild boar of the Japan Sea), in *Nihonkai: Higashi Ajia no Chichukai* (Japan Sea: The Mediterranean of East Asia). eds. by H. Kanaseki, Junzo Uchiyama, S. Nakai and K. Takahashi. Toyama: Katsura Shobou, 141-180. (in Japanese)

**[Articles]**

Uchiyama, Junzo (2004) Nishinihon no kisou bunka to koi ka shigen (The fundamental culture of West-Japan and Cyprinidae as natural resource), in *Arctic Circle*, 49: 4-9. (in Japanese)

Uchiyama, Junzo (2003) Syakaikukan riyoukouzou no kaimei to chirijouhousisutemu no kanousei: senshijinruigaku no shitenkara (Investigation of land use structure of prehistoric societies and possibilities of geographic information system: archaeological perspectives), in The Society of the study of GIS, Faculty of Humanities, Toyama University (ed.), *Jinbunkagaku to GIS (Humanities and GIS)*: 2-9. (in Japanese)

Uchiyama, Junzo (2002) Torihama kaizuka ni okeru Jomon jidai zenki syuryousaisyusyakai no seigyoukouzou ni kansuru tenbou: nihonjika to inoshishi izontai no kisetsuseisatei wo chushin toshite (Prospects on subsistence activities of the foraging group in Torihama shellmound in the Early Jomon: based on the assessment of hunting seasons of deer and wild boar), in Sasaki, Shiro (ed.) *Kokuritsu minzokugaku hakubutukan chousahoukoku 33: Senshi syuryousaishubunka kenkyu no atarashi'I shiya (Senri Ethnological Reports 33: New Perspectives on the Study of Prehistoric Hunter-Gatherer Cultures)*: 185-238. (in Japanese)

Uchiyama, Junzo (2001) Dai 6 shou: funa to koi no Jomon bunka (Chapter6 Jomon culture based on carp family fish), in *Gekkan Chikyu (Chikyu Monthly)*, 23-6, Kaiyou shuppan: 405-412. (in Japanese)

Uchiyama, Junzo (2000) Torihama kaizuka ni okeru shika/inoshishi mondai: 1984nen shutsudo nihonjika to inoshishi izontai ni miru isekikinou (Prospects on the so-called 'deer-wild boar mystery' in Torihama shellmound: the site function analysis based on the deer and wild boar remains in the 1984 excavation), in *Torihama kaizuka kenkyu (Torihama Shellmound Studies)*, 2: 1-22. (in Japanese)

Uchiyama, Junzo (1999) Seasonality and Age Structure in an Archaeological Assemblage of Sika Deer (Cervus Nippon), in *International Journal of Osteoarchaeology*, 9-4, John Wiley & Sons, Ltd.: 209-218.

Uchiyama, Junzo (1998) Nakajima T, Tainaka Y, Uchiyama J, Kido Y, Pharyngeal Tooth Remains of the Genus *Cyprinus*, Including an Extinct Species, from the Akanoi Bay Ruins, in *Copeia* 4: 1050-1053.

**—Activities in Academic Societies—**

| | |
|---|---|
| March, 2001 | Koi to funa no Jomon bunka: koika gyorui ken no sensisyuryousaisyu syakai ni miru seigyou kouzou (Jomon culture based on carp family fish: prehistoric subsistence structures in the area of carp family fish distribution). International Symposium: New perspectives on the study of foraging cultures in East Asia and North Pacific Rim. (National Museum of Ethnology, Osaka) (in Japanese) |
| October, 2001 | Jomon iseki kara mita Am-sa-dong iseki no keizai katsudou (Economic activities at Am-sa-dong site: Jomon perspectives), (International Symposium on the Am-sa-dong Korean neolithc site, Am-sa-dong Prehistoric Culture Museum, Seoul, Korean Republic) (in Japanese) |
| August, 2002 | Residential base as a hunting camp: subsistence complex at Torihama Jomon shellmidden (International Council of Archaeozoology 9th Conference, Durham University, UK) |
| August, 2002 | Organiser of the session "Beyond Affluent Foragers": In International Council of Archaeozoology 9th Conference, Durham University, UK |
| November, 2003 | Nishinihon no kisoubunka to koika gyoruisou: funa to koi no Jomon bunka. Dai 1 kai ikimono-bunkashi gakkai gakujutsu taikai. (Substratum culture of the western part of Japan and carp family fish: Jomon culture based on carp family fish, The Society for biosophia studies 2nd Conference, Toba City Hall, Mie Prefecture) (in Japanese) |
| January, 2004 | Toyamaken no shizen kankyou to shokuryou shigen shi (Natural environment and history of food resources), (The Society for Biosophia Studies 2nd regular meeting, Toyama University, department of Humanities, Toyama city) (in Japanese) |
| May, 2004 | Hitsuji no chichukai, inoshishi no nihonkai. Dai 2 kai ikimonobunkashi gakkai gakujutsu taikai. (Sheep of the Mediterranean, Wild boar of the Japan Sea. The Society for Biosophia Studies 2nd conference, Lake Biwa Museum, Shiga Prefecture) (in Japanese) |
| May, 2004 | Executive committee, The Society for Biosophia Studies 2nd Conference (Lake Biwa Museum, Shiga Prefecture) |
| May, 2005 | Jomon jidai inoshishi no kachikuka ni kansuru aratana chiken. (New perspectives on wild boar domestication in the Jomon period, the Society for Biosophia Studies 3rd conference, Aso no tsukasa villa park hotel, Kumamoto Prefecture) (in Japanese) |
| October, 2005 | RIHN Pre-Symposium Stage 2 "Bridging times and seas:"Historical landscape change on the shores of Northern inland seas" |
| June, 2006 | Utsurikawaru fuukei – kaizuka wo meguru hito to doubutsu (Changing landscapes – people and animals around shell middens, the Society for Biosophia Studies 4th conference, Tokyo University of Agriculture, faculty of bioindustry) (in Japanese) |
| June, 2006 | Organiser, The Society for Biosophia Studies 4th Conference (Tokyo University of Agriculture, faculty of bioindustry) |
| June, 2006 | Why did shell-middens disappear? —Culture roles in the landscape shift in prehistoric foraging societies in the northern inland seas (Cambridge University Faculty of Archaeology Conference: "Culture and Nature in Japanese archaeology: recent approaches and future directions": organ-ised by Simon Kaner and Patrick Skinner, The McDonald Institute for Archaeological Research, University of Cambridge, UK) |

November, 2006 Kuidaore no sebone (The backbone of excessive eating). (The Society for Biosophia Studies 19th regular meeting, Osaka furitsu shoku to midori no sougou gijutsu sentaa, Habikino city) (in Japanese)

November, 2006 Executive committee, 2nd Symposium for the 10th anniversary of Lake Biwa Museum: The Landscape history of lake Biwa (Lake Biwa Museum, Shiga Prefecture)

February, 2007 Yutakana shuryou saishuu min ha jizoku kanouna mirai no keikan ka? (the abundant hunter-gatherer society: a sustainable future landscape?), (International symposium hosted by Chonnam National University "Local Cultures and Their Interactions in Asia", Gwangju, Korea) (in Japanese)

**—Research Activities—**

**[Field Research in Japan]**

March, 2004 and July–August, 2005 Toyama and Nagano prefectures (Research on the trading activities in the Jomon era)

October, 2006 Hokuto City in Yamanashi Prefecture (Research on landscape changes during the Jomon era)

**[Field Research in Foreign Countries]**

April, 2001–January, 2002 Korean Republic (Zooarchaeological research on the Korean Neolithic culture)

September, 2005 Estonia, United Kingdom, the Netherlands (Research on the landscape)

October, 2006 Tianluoshan site and Ningbo City, Zhejiang Province, China (Research on the Neolithisation and Modernisation periods)

March, 2007 Vladivostok, Russia (collecting data about the landscape history)

**—Social Activities and Public Lectures—**

**[Public Lectures]**

September, 2000 Ningen to kankyou no bunmeishi – Jomon jidai no shiten kara (Cultural history of man and environment – seen from the Jomon era), (public lecture, Toyama University)

October, 2000 Ningen to kankyou no bunmeishi (Cultural history of man and environment), (Toyamaken Lifelong Learning College Natural Science Course: an approach to environment)

October, 2002 Syakai sinkaron wo koete: senshijinruigaku to kankyou no shiten (Beyond Social Evolutionism: Perspectives of Environmental Archaeology). Toyamaken koutou gakkou kyouikukenkyukai rekishibukai (Toyama Prefecture Highschool Teachers' Association for Educational Studies: History Section). (in Japanese)

September, 2006 Nando mo okita "Nihon no chinbotsu" ("Japan Sinks" Repeated"), (a symposium linked to the exhibition "Digging up the landscape of Suita", in collaboration with Suita City Museum, Osaka, Japan)

October, 2006 Biwako no keikan to ha (Lake Biwa's landscape), (First Symposium for the 10th anniversary of Lake Biwa Museum: Lake shore – water, fish, people, Lake Biwa Museum, Otsu City)

## UEKI, Masaya — Project Researcher

Born in 1975.

**—Curriculum Vitae—**

**[Academic Career]**

Center for Ecological Research, Graduate School of Science, Kyoto University, D. Course (2005)

**[Professional Career]**

Researcher, Research Institute for Humanity and Nature (2006)

**[Higher Degrees]**

D.Sc. (Kyoto University, 2005)

**[Field Specialization/Background]**

Aquatic Microbial Ecology, Limnology

**[Academic Society Memberships]**

The Japanese Society of Microbial Ecology, The Japanese Society of Limnology

**—Major Publications—**

**[Papers]**

Honjo, M., K. Matsui, M. Ueki, R. Nakamura, J. A. Fuhrman and Z. Kawabata (2006) Diversity of virus-like agents killing *Microcystis aeruginosa* in a hyper-eutrophic pond. *Journal of Plankton Research,* 28: 407-412.

**—Oral Presentation—**

September 17–20, 2004 — Honjo, M., T. Kakihara, T. Fukushima, M. Fujihara, K. Choi, M. Ueki, Z. Kawabata "Diversity and potential algicidal activity of viruses infectious to *Microcystis aeruginosa* in a hyper-eutrophic pond" 69th Annual Meeting of The Japanese Society of Limnology (Niigata University, Niigata Prefecture)

September 17–20, 2004 — Nakamura, R., M. Ueki, M. Honjo, Z. Kawabata "Effects of attached bacteria to *Microcystis* spp. on the decrease of *Microcystis aeruginosa* by an algicidal bacterium" 69th Annual Meeting of The Japanese Society of Limnology (Niigata University, Niigata-shi, Niigata Prefecture)

**—Poster Presentation—**

May 25, 2002 — Honjo, M., K. Matsui, M. Ueki, R. Nakamura and Z. Kawabata Diversity of cyanophages infectious to *Microcystis aeruginosa* in a hyper-eutrophic pond. THE 3rd ALGAL VIRUS WORKSHOP, Hiroshima, Japan

December 18–19, 2003 — Honjo, M., K. Matsui, M. Ueki, R. Nakamura, J. A. Fuhrman and Z. Kawabata Diversity of viruses infectious to bloom-forming cyanobacteria, *Microcystis aeruginosa* in a hyper-eutrophic pond. Symposium "Perspectives of the Biodiversity Research in the Western Pacific and Asiain the 21st Century", Kyoto, Japan

November 6–8, 2006 — Matsui, K., M. Honjo, M. Ueki, Y. Koumatsu and Z. Kawabata Detection of Koi Herpesvirus (KHV) in freshwater environment. RIHN First International Symposium~Water and Better Human Life in the Future~, Kyoto, Japan

## UMETSU, Chieko — Associate Professor

**—Curriculum Vitae—**

**[Academic Career]**

Department of Agricultural and Resource Economics, University of Hawaii at Manoa, Honolulu, U.S.A, Ph.D. (1995)

School of International Relations, International University of Japan, Niigata, Japan, M.A. (1989)

**[Professional Career]**

Associate Professor, Research Institute for Humanity and Nature, Japan (2002)

Visiting Scholar, Environmental Studies, Research Program, East-West Center, Honolulu, Hawaii, U.S.A. (2001)

Assistant Professor, The Graduate School of Science and Technology, Kobe University, Japan (1997)

Visiting Fellow, Program on Environment, East-West Center, Honolulu, Hawaii, U.S.A. (1995)

Training Co-ordinator, Tohoku Branch Office, Japan International Cooperation Agency (JICA), Sendai, Japan (1982)

Science & Math Teacher (O level), Kiriani High School, Meru, Kenya, Japan Overseas Cooperation Volunteers, JICA (1979)

**[Higher Degrees]**

Ph.D. (University of Hawaii, 1995), M.A. (International University of Japan, 1989)

**[Field Specialization/Background]**

Resource and Environmental Economics, Development Economics/International Relations, Biology

**[Academic Society Memberships]**

International Association of Agricultural Economists (IAAE), American Agricultural Economics Association (AAEA), International Society for Ecological Economics (ISEE), East Asian Economic Association (EAEA), Agricultural Economics Society of Japan (AESJ), Society for Environmental Economics and Policy Studies (SEEPS), Japan Society for International Development (JASID), Japanese Society of Irrigation, Drainage and Rural Engineering (JSIDRE)

**[Awards]**

IAAE-JB Research Award from the Japan Branch of the International Association of Agricultural Economists (2001)

Best Article Award from the Agricultural Economics Society of Japan (2003)

**—Major Publications—**

**[Articles]**

Umetsu, Chieko, Thamana Lekprichakul and Ujjayant Chakravorty. "Efficiency and Technical Change in the Philippine Rice Sector during the Post Green Revolution Era," *Studies in Regional Science* vol. 36, no. 1, pp. 161-178, 2006.

**[Project reports]**

Umetsu, Chieko, K. Palanisami, Ziya Coşkun, Sevgi Donma, Takanori Nagano. 2006 "Water Scarcity and Alternative Cropping Patterns in Lower Seyhan Irrigation Project: A Simulation Analysis." Proceedings of the International Workshop for the Research Project on the Impact of Climate Change on Agricultural Production System in Arid Areas (ICCAP), March 9-10, 2006. pp. 135-143. Research Institute for Humanity and Nature (RIHN), Kyoto Japan, 2006.

Umetsu, Chieko, K. Palanisami, Ziya Coşkun, Sevgi Donma, Takanori Nagano, Yoichi Fujihara, Kenji Tanaka. 2006 "Climate Change and Alternative Cropping Patterns in Lower Seyhan Irrigation Project: A Simulation Analysis with MRI-GCM and CCSR-GCM" The Final Report of the Research Project on the Impact of Climate Change on Agricultural Production System in Arid Areas (ICCAP), March 2007. pp. 227-239. Research Institute for Humanity and Nature (RIHN), Kyoto Japan, 2006.

**—Activities in Academic Societies—**

April 4–8, 2006 "Water Scarcity and Alternative Cropping Patterns in Lower Seyhan Irrigation Project: A Simulation Analysis" presented at the International Symposium on WATER AND LAND MANAGEMENT FOR SUSTAINABLE IRRIGATED AGRICULTURE, Çukurova University, Adana-Turkey

July 3–7, 2006 "Alternative Institutions for Water Distribution", presented at the 3rd World Congress of Environmental and Resource Economists, Kyoto International Conference Hall, Kyoto, Japan

July 3–7, 2006 "Groundwater Over-Draft and Returns to Management in Hard-Rock Regions of South India", presented at the 3rd World Congress of Environmental and Resource Economists, Kyoto International Conference Hall, Kyoto, Japan

July 3–7, 2006 "Industrialization of Agriculture and the Environment: The Livestock Revolution," presented at the 2006 Meeting of the Society of Environmental Economics and Policy Studies, Kyoto International Conference Hall, Kyoto, Japan

August 8–10, 2006 "Water Scarcity and Alternative Cropping Patterns in Lower Seyhan Irrigation Project: A Simulation Analysis" presented at the Japanese Society of Irrigation, Drainage and Reclamation Engineering (JSIDRE) Annual Meeting, Utsunomiya University

February 7–10, 2007 "Climate Change and Alternative Cropping Patterns in Lower Seyhan Irrigation Project: A Simulation Analysis" presented at the 3rd International Groundwater Confrence (IGC2007), Water, Environment and Agriculture: Present Problems and Future Challenges, Tamilnadu Agricultural University, Coimbatore, India

March 28, 2007 "Climate Change and Alternative Cropping Patterns in Lower Seyhan Irrigation Project: A Simulation Analysis with MRI-GCM and CCSR-GCM" presented at the TEA (Theoretical Economics and Agriculture) Spring Meeting, Okinawa International University

March 29–30, 2007 "Climate Change and Alternative Cropping Patterns in Lower Seyhan Irrigation Project: A Simulation Analysis" presented at the Agricultural Economics Society of Japan Annual Meeting, Okinawa International University. (Poster presentation)

**—Research Activities—**

**[Field Research in Foreign Countries]**

April 2006, February 2007 Turkey (Project 1-1: Impact of Climate Change on Cropping Pattern of Lower Seyhan Irrigation Project)

June, November–December 2006, March 2007 Zambia (Incubation Research for Social-Ecological Resilience)

January 2007 India (Research on Water Users' Association of Tank Irrigation Systems in the State of Tamil Nadu, Tsunami affected agricultural households in the coastal area of the State of Tamil Nadu)

**—Other Research Activities—**

April, 2007–March, 2009 "Analysis of Hydrological Environment Formation in Agricultural Region Using Environment Traceability Method". Grant-in-Aid for Scientific Research (A) of the Ministry of Education, Culture, Sports, Science and Technology, Japanese Government. Project Leader: Tsugihiro Watanabe. Program No. 19208022

**—Social Activities and Public Lectures—**

July 3–7, 2006 Member of Organizing Committee, The Third World Congress of Environmental and Resource Economists, Kyoto International Conference Hall, Kyoto

## UMEZAWA, Yu — Project Senior Researcher

Born in 1974.

**—Curriculum Vitae—**

**[Academic Career]**

Department of Earth and Planetary Science, Graduate School of Science, the University of Tokyo, D. Course (2004)

Department of Geography, Graduate School of Science, the University of Tokyo, M. Course (2000)

Department of Geography, Faculty of Science, the University of Tokyo (1998)

**[Professional Career]**

Senior Researcher, Research Institute for Humanity and Nature (2006)

Research Fellow (Japan Society for Promotion of Science), Botany Department, University of Hawaii (2005)

Research Fellow (Japan Society for Promotion of Science), Marine Biogeochemistry Laboratory, Ocean Research Institute, the University of Tokyo (2004)

**[Higher Degrees]**

D.Sc. (The Tokyo University, 2004), M.Sc. (The Tokyo University, 2000)

**[Field Specialization/Background]**

Marine Biogeochemistry, Marine Biology

**[Academic Society Memberships]**

American Society of Limnology and Oceanography, International Society for Reef Studies, Japan Coral Reef Society, Oceanographic Society of Japan

**—Major Publications—**

**[Papers (reviewed latest 5 years)]**

Umezawa Y., T. Ishitobi, S. Rungsupa, S. Onodera, T. Yamanaka, C. Yoshimizu, I. Tayasu, T. Nagata and M. Taniguchi (2007) Fresh groundwater contributions to the nutrient dynamics at shallow subtidal areas adjacent to a mega city, Bangkok. *IAHS Publication* 312: 169-179.

Miyajima T, Hata T, Umezawa Y., Kayanne H, I. Koike (2007) Distribution and patitioning of nitrogen and phosphorus in a fringing reef lagoon of Ishigaki Island, northwestern Pcific. *Mar Ecol Prog Ser.* 341: 45-57.

Umezawa Y., T. Miyajima, Y. Tanaka, T. Hayashibara, I. Koike (2007) Variation of internal $\delta^{15}N$ and $\delta^{13}C$ distribution and their bulk values in a brown macroalgae. *Journal of Phycology*, 43: 437-448.

Ishitobi T., Taniguchi M., Umezawa Y., Kasahara S., Onodera S., Hayashi M., Miyaoka K., Hayashi M., Miyake K., 2007, Investigation of submarine groundwater discharge using several methods in the inter-tidal zone. *IAHS Publication* 312: 60-67.

Tanaka Y., T. Miyajima, Umezawa Y. H. Fukuda, I. Koike, H. Ogawa, T. Hayashibara (2006) Effects of nitrate enrichment on release of dissolved organic carbon and nitrogen from zooxanthellate coral, *Acropora pulchra* and *Porites cylindrica*. *10th ICRS proceedings*, 1: 925-931.

Sato T, Miyajima T, Ogawa H, Umezawa Y., Koike I (2006) Seasonal variation in stable carbon and nitrogen isotopic composition of size-fractionated particulate organic matter in the hypertrophic Sumida River Estuary of Tokyo Bay, Japan. *Est Coast Shelf Sci.*, 68: 245-258.

Yamamuro M., Umezawa Y., I. Koike (2004) Internal variation of nutrients and C stable isotope ratios in the leaves of the seagrass *Enhalus acoroides* (L.f) Royle. *Aquatic Botany*, 79: 95-102.

Komatsu T., Umezawa Y. M. Nakaoka, C. Supanwanid, Z. Kanamoto (2004) Water flow and sediment in *Enhalus acoroides* and other seagrass beds in the Andaman Sea, off Khao Bae Na, Thailand. *Coastal Marine Science*, 29: 63-68.

Umezawa Y., T. Miyajima, M. Yamamuro, H. Kayanne, I. Koike (2002) Fine scale mapping of land-derived nitrogen

in coral reefs, by $\delta^{15}N$ values in macroalgae. *Limnology and Oceanography,* 47: 1405-1416.

Umezawa Y., T. Miyajima, I. Koike and H. Kayanne (2002) Significance of groundwater nitrogen discharge into coral reefs at Ishigaki Island, southwest of Japan. *Coral Reefs,* 21: 346-356.

Suzumura M., T. Miyajima, H. Hata, Umezawa Y., H. Kayanne, I. Koike (2002) Cycling of phosphorus maintains the production of microphytobenthic communities in carbonate sediments of a coral reef. *Limnology and Oceanography*, 47: 771-781.

**[Articles (latest 5 years)]**

Koike I. and Y. Umezawa (2005) "Nutrients dynamics at seagrass beds in tropical and subtropical ecosystems." Monthly Kaiyo vol. 37(2) 139-147 (in Japanese).

Umezawa Y., T. Komatsu, I. Koike (2003) Variable physical causing diverse quality and quantity of suspended organic matters at adjacent seagrass beds in a Thailand shallow estuary. (*In*) Conservation of Tropical Seagrass Beds with Special Reference to Their Role of Function of Coastal Ecosystem. (eds. I. Koike), 1-24.

Umezawa Y., M. Yamamuro, I. Koike, K. Lewmanomont (2003) The variable nitrogen sources for macrophyte at intertidal seagrass beds during dry season, evaluated from algal species and stable isotopes. (*In*) Conservation of Tropical Seagrass Beds with Special Reference to Their Role of Function of Coastal Ecosystem. (eds. I. Koike), 97-111.

Yamamuro M., Umezawa Y., I. Koike (2003) Internal Variation of Nutrients and CN Stable Isotope Ratios in the Leaves of the Seagrass *Enhalus Acoroides* (L. f.) Royle. (*In*) Conservation of Tropical Seagrass Beds with Special Reference to Their Role of Function of Coastal Ecosystem. (eds. I. Koike), 70-81.

Umezawa Y., T. Miyajima, M. Yamamuro, H. Kayanne, I. Koike (2001) "Analysis of influential area of land-derived nitrogen in tropic and subtropic area—usefulness of $\delta^{15}N$ values in macroalgae—." Monthly Kaiyo Vol. 33, No. 7, 472-476 (in Japanese).

**—Research Activities—**

**[Field Research]**

| | |
|---|---|
| February, May, August, November, 2002 | Ishigaki Island, southwest of Japan (Seasonal and spatial variations of land-derived nitrogen impacts on the reefs and the regulation mechanisms) |
| December, 2002 | Western coast of Thailand (Conservation of tropical seagrass beds with special reference to their role on function of coastal ecosystem) |
| April, September, 2003 | Ishigaki Island, southwest of Japan. (Eco-physiological study of nitrogen uptake by a brown macroalgae, *Padina* spp) |
| September 2004 | Ishigaki Island, southwest of Japan (Nutrient dynamics at damselfish territories and their ecological strategy) |
| September 2004 | PagoPago American Samoa (Research on macroalgae as food sources for Damselfish) |
| May, 2005 | Kihei, Maui Is., USA (Research on invasive algae) |
| June, 2005 | Waikiki, Oahu Is., USA (Research on invasive algae) |
| January, 2006 | Kihei, Maui Is., USA (Research on invasive algae) |
| March, 2006 | Waikiki, Oahu Is., USA (Research on invasive algae) |
| May, 2006 | Waikiki, Oahu Is., USA (Research on invasive algae) |
| May, 2006 | Manila, Philippine (Human Impacts on the Urban Subsurface Environments) |
| June, 2006 | Bangkok, Thailand (Human Impacts on the Urban Subsurface Environments) |
| August, 2006 | Ishigaki Island, southwest of Japan (Experiments for) |
| August, 2006 | Omaehama-beach, Hyogo (Human Impacts on the Urban Subsurface Environments) |
| September, 2006 | Jakarta, Thailand (Human Impacts on the Urban Subsurface Environments) |
| October, 2006 | Taipei, China (Human Impacts on the Urban Subsurface Environments) |

December, 2006 Fukae Bay, Hyogo (Human Impacts on the Urban Subsurface Environments)

**—Academic and Social Activities—**

Publicity Committee at Japan Coral Reef Society (1997–)

Organizing Committee, 10th International Coral Reef Symposium (2003–2004)

**—Oral Presentation—**

November 16, 2003 Umezawa Y. "Seasonal and spatial distribution of $\delta^{15}N$ in *Padina* spp. and its controlling factors" Japan Coral Reef Society, Ryukyu Univ. Naha

February 17, 2004 Umezawa Y. "Various physical forcing controlling chemical compositions of suspended matters in water column of seagrass beds in a Thailand estuary" ASLO meeting, Hawaii, USA

July 4, 2004 Umezawa Y. "Seasonal and spatial variations of nitrogen sources for macroalgae and its controlling factors assessed by $\delta^{15}N$ and other chemical components in algal thalli at fringing coral reefs" 10th ICRS, Okinawa, Japan

May 23, 2007 Umezawa Y. "The history and fate of nitrate contamination in groundwater at developing Asian-Mega cities, estimated by nitrate $\delta^{15}N$ and $\delta^{18}O$ values" Japan Geological Union, Makuhari

May 23, 2007 Umezawa Y. "Evaluation of fresh groundwater contributions to the nutrient dynamics at shallow subtidal areas adjacent to metro-Bangkok" Japan Geological Union, Makuhari

**—Convener—**

November 16, 2003 Umezawa Y. "Nutrient Dynamics at Coral Reefs" Japan Coral Reef Society, Ryukyu Univ. Naha

May 23, 2007 Umezawa Y. "Material transports associated with water circulation" Japan Geological Union, Makuhari

## VELLINGGIRI, Geethalakshmi ——— Invited Research Fellow

Born in 1965.

**—Curriculum Vitae—**

**[Academic Career]**

Tamil Nadu Agricultural University, Coimbatore, Tamil Nadu, India, B.Sc. (Agri.) (1986)

Tamil Nadu Agricultural University, Coimbatore, Tamil Nadu, India, M.Sc. (Agri.) (1988)

Tamil Nadu Agricultural University, Coimbatore, Tamil Nadu, India, Ph.D in Agronomy (1996)

**[Professional Career]**

Professor, Tamil Nadu Agricultural University (2006)

Associate Professor, Tamil Nadu Agricultural University (2002)

Assistant Professor, Tamil Nadu Agricultural University (1989)

**[Field Specialization/Background]**

Agricultural Meteorology

**[Academic Society Memberships]**

Life member – Madras Agricultural Students Union, Annual Member in Tamil Nadu Society of Agronomy, Life Member in Indian Society of Agronomy, Annual Member in Indian society of Agricultural Meteorology, Life Member

in Indian Meteorological Society (Elected council member from 20.06.2003), Life member in Indian Society of Agricultural Resource Management (Nominated Council Member for 2005–2007)

**[Awards]**

Best Women Scientist AWARD, TNAU (2002), Tamil Nadu Best Young Women Scientist for the year 2003, Tamil Nadu Government, Science City Award (2003), Young scientist award (2005) in Monex and its Legacy, International Conference, held at New Delhi (2005)

**—Major Publications—**

**[Books (ISBN)]**

Geethalakshmi, V., R. Jagannathan and G. G. A. Godaliyadda. 2004. Climatic Approach to Water Management. – Book publication sponsored by Irrigation Department, Sri Lanka. P. 248.

Geethalakshmi, V., Jagannathan, R., Chinnamuthu, C. R. and T. N. Balasubramanian. 2003. Climate and Irrigation. Sponsored by Irrigation Dept, Sri Lanka. P. 384.

Balasubramanian, T. N., A. K. S. Huda, R. Selvaraju and V. Geethalakshmi. 2002. Seasonal climate forecasts in agricultural management. TNAU Publication. P. 147. (ISBN No. 81-902081-3-6)

**[Books Chapter (ISBN)]**

Geethalakshmi. V., John Mc Bride, T. N. Balasubramanian, R. Selvaraju, A. K. S. Huda, C. Vasanthi, David George and Jeff Clewett. 2002. Effects of ENSO on Tamil Nadu rainfall and almanac studies. In: Seasonal climate forecasts in agricultural management. TNAU Publication. P: 47-63. (ISBN No. 81-902081-3-6)

Huda A. K. S., N. Truelove, G. Wallace, R. G. Packham, T. N. Balasubramanian, R. Selvaraju, V. Geethalakshmi., D. A. George and J. F. Clewett. 2002. Decision making in agriculture using climate information – Australian experience. In: Seasonal climate forecasts in agricultural management. TNAU Publication. P: 64-76. (ISBN No. 81-902081-3-6)

Selvaraju. R. D. A. George, S. Paruna Bhaskaran, T. N. Balasubramanian, V. Geethalakshmi and A. K. S. Huda. 2002. Decision making in agriculture using climate information – Indian experience. In: Seasonal climate forecasts in agricultural management. TNAU Publication. P:77-95. (ISBN No.81-902081-3-6)

Balasubramanian, T. N. and V. Geethalakshmi. 2003. Evapotranspiration In: Text book of Agricultural Meteorology. ICAR Publication. P: 130-144.

**[Research articles]**

V. Geethalakshmi, John Mc. Bride and A. K. S. Huda. 2005. Impact of ENSO on Tamil Nadu rainfall. Vatavaran (ISSN 0970 3543): 29 (2): 9-16.

Geethalakshmi, V., Thavaprakaash, N., Radhamani S. and Balasubramanian, T. N. 2005. Effect of non-conventional Green Leaf Manures on soil dynamics under rice eco-systems. *J. Agrl. Resource Mgmt.*, 4 (Suppl.): 137-139.

Geethalakshmi, V., Thavaprakaash, N., Radhamani S. and Balasubramanian, T. N. 2005. Nitrogen contribution through non-conventional Green Leaf Manures in rice based cropping systems. *J. Agrl. Resource Mgmt.*, 4 (Suppl.): 140-141.

Thavaprakaash, N., V. Geethalakshmi and K. Velayudham. 2005. Effect of foliar nutrition for increasing productivity in baby corn. *J. Agrl. Resource Mgmt.*, 4 (Suppl.): 132-133.

Thavaprakaash, N., V. Geethalakshmi, and Velayudham, K. 2005. Nutrient uptake in relation to cob yield as influenced by agronomic practices under baby corn based intercropping systems. *J. Agrl. Resource Mgmt.*, 4 (Suppl.): 134-136.

V. Geethalakshmi, R. Selvaraju, T. N. Balasubramanian and C. Vasanthi. 2004. Influence of weather on population dynamics of spodoptera—A polyphagous pest. Journal of Ecobiology (ISSN: 0970-9037): 16(4): 267-274.

Radhamani, S. Balasubramanian, A., Ramamoorthy, K and V. Geethalakshmi. 2003. Sustainable Integrated Farming Systems for Drylands – A Review. Agricultural reviews. 24 (3): 204-210.

V. Geethalakshmi, T. N. Balasubramanian, R. Selvaraju, John Mc. Bride, Samsul Huda C. Vasanthi, David George, Jeff Clewett and T. M. Thiyagarajan. 2003. Length of growing Period as influenced by El-Nino and La-Nina over Coimbatore, Tamil Nadu, India. Journal of Agricultural Resource Management (ISSN 0972-5962): 2 (3&4): 31-38.

V. Geethalakshmi, T. N. Balasubramanian, R. Karthikeyan, Samsul Huda, and C. Vasanthi. 2003. Probing the Association of Lunar Phases (*Thithies*) with Rainfall at Coimbatore. Journal of Agrometeorology (ISSN 0972-1665): 5 (2): 27-36.

Karthikeyan, R., T. N. Balasubramanian, R. Selvaraju and V. Geethalakshmi. 2002. Effect of water regimes, Phosphorous sources and green manures on yield attributes and economics of thaladi season rice. Madras Agric. J. 89 (1-3): 115-117.

Vasanthi, C., V. Geethalakshmi, R. Selvaraju and T. N. Balasubramanian. 2002. Study on the simple decision rule for forecasting seasonal rainfall. Breeze 5: 3-4.

Vasanthi, C., V. Geethalakshmi, R. Selvaraju and T. N. Balasubramanian. 2002. Behaviour of rainy days during normal, El-Nino and La-Nina years. Breeze 5: 4-5.

**[Seminar papers]**

V. Geethalakshmi. 2005. Impact of ENSO on rainfall variability and rice yields of Tamil Nadu: Mesoscale process in atmosphere, ocean and environmental systems—International conference held at IIT, New Delhi, India between 14-17, February, 2006. (PO II-11): 205-206.

Thavaprakaash, N., V. Geethalakshmi, C. Babu and R. Jagannathan. 2006. Impact of recent drought on cotton and groundnut production in Tamil Nadu: In: Mesoscale process in atmosphere, ocean and environmental systems—International conference held at IIT, New Delhi, India between 14-17, February, 2006. (PO II-11): 216-217.

Geethalakshmi, V., Thavaprakaash, N., R. Jagannathan, and Babu, C. 2006. Impact of excessive rainfall during NEM, 2005 on important crops of Tamil nadu and their possible management options. National Workshop on Extreme weather events, Bangalore.

Thavaprakaash, N., Geethalakshmi, V., Jagannathan, R and Babu, C. 2006. Impact of excessive rainfall during NEM, 2005 on important crops of Tamil nadu and their possible management options. National Workshop on Extreme weather events, Bangalore.

Geethalaskshmi, V., Thavaprakaash, N, R. Jagannathan and P. Maheswari. 2004. Climate change and Indian Agriculture. National Seminar on Conservation of Agro—Biodiversity in India—The role of Stakeholders. Organised by Dr. G. R. Damodaran College of Science, Coimbatore.

Geethalakshmi, V., Shanmugasundaram, V. S., Balasubramanian, T. N. and Maragatham, N. 2003. Transformation of rice doil $NH_4^+$ - N under non-conventional green leaf manures plus inorganic nitrogen levels. National Seminar on Advances in Agricultuiral Resource management. Conducted at AC&RI, Killikulam on September, 22nd, 2003. pp.10.

**—Symposium—**

| | |
|---|---|
| September 5–6, 2003 | Maragathan, N., C. A. Mahalingam, V. Geethalakshmi, N. and V. Manonmani. Utilisation of different agro waste and their biological efficiencies in mushroom production. 2003 UGC sponsored symposium on "Bioresources and their management" held at Kongunadu Arts and Science College, Coimbatore |
| February 3–7, 2005 | V. Geethalakshmi. Can ENSO be a prospective predictor of Tamil Nadu seasonal rainfall?: Monex and its Legacy—International conference held at New Delhi, India (CT-24): |

145-152. (Received Best Paper Presentation Award)

2005 Geethalakshmi, V., Thavaprakaash, N and Jagannathan, R and Maheshwari, P. Categorization of Coimbatore Rainfall based on EL-NINO episode. International Conference on MONEX and its legacy, New Delhi

**—Academic and Social Activities—**

Council member in Indian Meteorological Society, Chennai (2003–2006)

Editorial committee member in Valarum Velanmai – TNAU Farmers Magazine (2004–2006)

Council Member in Indian Scociety of Agricultural Resource Management (2006–2008)

**—Supervision—**

Guided three M.Sc (Agricultural Meteorology) students and presently guiding two students of M.Sc (Agricultural Meteorology)

## WATANABE, Mitsuko — Project Researcher

Born in 1977.

**—Curriculum Vitae—**

**[Academic Career]**

School of Integrated Sciences, Graduate School of Humanities and Sciences, Nara Women's University, D. Course (2005)

Department of International Studies for History, Sociology and Geography, Graduate School of Humanities and Sciences, Nara Women's University, M. Course (2002)

Faculty of Letter, Nara Women's University (2000)

**[Professional Career]**

Project Researcher, Research Institute for Humanity and Nature (2006)

Technical Assistant, Research Institute for Humanity and Nature (2005)

Postdoctoral Research Fellow, Graduate School of Humanities and Sciences, Nara Women's University (2005)

Research Assistant, Nara Women's University, 21st century COE Program (2004)

Research Assistant, Graduate School of Humanities and Sciences, Nara Women's University (2002)

**[Higher Degrees]**

D.Sc. (Nara Women's University, 2005), M.Litt. (Nara Women's University, 2002)

**[Field Specialization/Background]**

Physical geography, geomorphology, Quaternary science

**[Academic Society Memberships]**

Association of Japanese Geographers, Japan Association for Quaternary Research, Japanese Association for Arid Land Studies, Japanese Geomorphological Union, Seismological Society of Japan

**—Major Publications—**

**[Papers (reviewed)]**

M. Watanabe, M. Takada and H. Sohma (2006) Geomorphological Study Based on Satellite Photographs and Satellite Images: In the Cases of Investigation on Active Faults in Tarim Basin and Turpan Basin, Xinjiang Uighur Autonomous Region, China. *Transactions, Japanese Geomorphological Union*, 27(2): 171-185. (in Japanese)

M. Watanabe (2003) Distribution of Active Faults on the Northwestern corner of Tarim Basin, Xinjiang Uyghr autonomous region, China. *Active Fault Research* 23: 109-115. (in Japanese)

M. Watanabe (2002) Digitization of the CORONA Satellite Photograph Positive Films and its Availability: In case of the active faults and the historical ruins of the Turpan Basin, Northwest China. *Journal of Gepgraphy Journal of GeographyI*, 111(5): 759-773. (in Japanese)

**[Papers (non reviewed)]**

M. Watanabe (2007) The Terrestrial conditions of Oasis and Active Structure in Silk Road Region. *Project Report on an Oasis-region*. 6(1): 5-9. (in Japanese)

M. Watanabe (2007) The Dam, Irrigation Channel and Active faults of Yingluoxia. *Project Report on an Oasis-region, a special volume*. 53 (in Japanese)

M. Watanabe, M. Inoue and M. Nakawo (2006) Now and Past of the Underground Irrigation System Similar to the Karez Systems in Gansu Province, China. *Desert Monograph*, 4: 22-24. (in Japanese)

H. Sohma, M. Watanabe, R. Tian, and J. Yasuda (2003) Controlling Factors of the cave temple locations in the Tarim basin and the Turpan Basin. *Silk Roadology*, 17: 77-92. (in Japanese)

H. Sohma and M. Watanabe (2003) Environmental and regional changes in the lower reaches of the Mekong based on the analysis of the satellite imageries. *Annual Report of Ancient Environments Study from Space 2003 - in cases of the Mekong river and large drainage valleys in the East Asia*: 119-138. (in Japanese)

**—Research Activities—**

**[Field Research in Foreign Countries]**

| | |
|---|---|
| August, 2002 | Xinjiang Uighur Autonomous Region, China (Research on Active Faults and Tectonic Landform in Tianshan Mountains and Tarim Basin) |
| September, 2004 | Xinjiang Uighur Autonomous Region, China (Research on Active Faults and Tectonic Landform in Tianshan Mountains and Tarim Basin) |
| July, 2006 | Gansu Province, China (Research on the Underground Irrigation System) |
| July, 2006 | Xinjiang Uighur Autonomous Region, China (Research on Active Faults and Tectonic Landform in Tianshan Mountains and Tarim Basin) |
| September, 2006 | Gansu Province, China (Research on the Land Cover in Zhangye) |

**—Oral Presentation—**

| | |
|---|---|
| May 10, 2003 | H. Sohma, M. Watanabe and J. Murayama. "Qanat in the Yazd Region, Iran, from the Corona Satellite Photograph" 18th Workgroup Meeting of Study Group on Arid/Semiarid land (AJG) (Seikei University, Musashino city, Tokyo) |
| February 28, 2004 | M. Watanabe and R. Tian. 'The Active Faults in the Tarim Basin, Xinjiang Uighur Autonomous Region, China' International Mini-symposium on Nature, Archaeology and Archives of the Tarim Basin and Neighboring Area, China. (Nara Women's University, Nara city, Nara Prefecture) |
| April 24, 2004 | M. Watanabe, M. Takada and H. Sohma "Geomorphological Study Based on Satellite Photographs and Satellite Images: In the Cases of Investigation on Active Faults in Tarim Basin and Turpan Basin, Xinjiang Uighur Autonomous Region, China" 2004 Symposium on Utilization of RS/GIS for Geomorphological Studies in Foreign Region (Waseda Universisy, Tokyo) |
| September 25, 2004 | M. Watanabe "Deformations of Fluvial Terraces and Active Structures Developed Along the Southern Flank of the Tian Shan Mountains" 2004 Fall Meeting of the Association of Japanese Geographers (Hiroshima University, Higasihiroshima city, Hiroshima Prefecture) |
| May 18, 2005 | M. Watanabe, H. Sohma, M. Takada and M. Watanabe "Active structures and average slip rate |

of active faults along the Southern Flank of the Tian Shan Mountains" 2005 Spring meeting of the Association of Japanese Geographers (Aoyama Gakuin University, Tokyo)

May 18, 2005 R. Tian and M. Watanabe "The Prospects of Asian Regional Studies by using CORONA Satellite Photography" 18th workgroup meeting of Study Group on Asian Region, The Human Geographical Society of Japan (Hannan University Satellite Campus, Osaka City, Osaka Prefecture)

January 14, 2006 H. Sohma, R. Tian and M. Watanabe "Exploration of the possibility for reconstruction of the paleo-agriculture, focusing on the Irrigation channel casts at Tarim basin and Inner Mongolia" Arid/semiarid Region Study Group meeting (AJG) (Rissho University, Tokyo)

February 17, 2007 M. Watanabe "Land Cover Change in the Middle Reaches of Heihe River Basin Based on an analysis of Satellite images" 12th Workgroup Meeting of Study Group on a Natural Features, Culture and History of a Desert Region. (Konan University, Kobe city, Hyogo Prefecture)

February 18, 2007 M. Watanabe "The Ruins and Active Faults in Silk Road Region Based on the on Observation from the CORONA Satellite Photographs" 2005 Winter Meeting of the Nara Geographical Association (Nara Prefectural Library, Nara City, Nara Prefecture)

February 24, 2007 M. Watanabe "The Active Faults in the Tarim Basin and Neighboring Area Based on the on Observation from the CORONA Satellite Photographs" 5th Symposium on Xinjiang Uygur, China' (Chiba University, Ciba city, Chiba Prefecture)

**—Poster Presentation—**

March 28–29, 2005 M. Takada, H. Sohma, A. Shimada, M. Watanabe and S. Okubo "Characteristics of TL/OSL/ESR dating system of Nara Women's University and evaluation of its dating results" 2005 Spring meeting of Association of Japanese Geographers (Aoyama Gakuin University, Tokyo)

November 8, 2006 M. Watanabe, M. Inoue, M. Nakawo and H. Sohma "Underground irrigation systems in the Gansu province, China—The Terrestrial conditions interpreted with satellite photographs and images—" RIHN 1st international Symposium—Water and Batter Human Life in the Future— (Kyoto International Conference Center, Kyoto City, Kyoto Prefecture)

November 8, 2006 M. Inoue, M. Watanabe and M. Nakawo "Underground irrigation systems in the Gansu province, China (part 2)" RIHN 1st international Symposium—Water and Batter Human Life in the Future (Kyoto International Conference Center, Kyoto City, Kyoto Prefecture)

## WATANABE, Tsugihiro ——————————————————————Professor

Born in 1953.

**—Curriculum Vitae—**

**[Academic Career]**

Department of Agricultural Engineering, Graduate School of Agriculture, Kyoto University, D. Course (1983)
Department of Agricultural Engineering, Graduate School of Agriculture, Kyoto University, M. Course (1979)
Department of Agricultural Engineering, Faculty of Agriculture, Kyoto University (1977)

**[Professional Career]**

Professor, Research Institute for Humanity and Nature (2003)
Associate Professor, Research Institute for Humanity and Nature (2001)
Associate Professor, Arid Land Research Center, Tottori University (2001)
Associate Professor, College of Agriculture and Bioscience, Osaka Prefecture University (1995)

Associate Professor, Faculty of Agriculture, Kyoto University (1989)
Research Assistant, Faculty of Agriculture, Kyoto University (1984)
Research Fellow, Japan Society for Promotion of Science (1983)

**[Higher Degrees]**

D.Agr. (Kyoto University, 1989), M.Sc. (Kyoto University, 1979)

**[Field Specialization/Background]**

Irrigation and Drainage Engineering

**[Academic Society Members]**

Japanese Society of Irrigation, Drainage and Reclamation Engineering, Japan Society of Hydrology and Water Resources, Japanese Association for Water Resources and Environment, Japan Society of Civil Engineers, The Japanese Society for Arid Land Studies, International Commission on Irrigation and Drainage, International Water Resources Association, and the Association of Rural Planning

**—Major Publications—**

**[Books]**

Hidaka T., T. Watanabe, J. Kubota, Y. Sato, T. Yumoto, T. Akimichi, M. Nakawo, T. Nakashizuka, A. Momoki, M. Sugiyama, Y. Konagaya (2006) 'The real problem caused by global warming', in "The Future Earth to be talked on to children", Kodan-sha. 22-40.

**[Papers (reviewed)]**

Watanabe T. and K. Hoshikawa, Agriculutural water use in larger irrigation schemes in the Yellow River Basin, 2006, *Arid Land Studies* 16(2): 97-101.

Watanabe T., Water Management of Paddy Fields as the Habitats of Migratory Birds, 2006, *Proceedings of the 3rd International Conference on Hydrology and Water Resources in Asia Pacific Region.*

Watanabe T., K. Hoshikawa, T. Kume, T. Naganao and R. Kanber, Assessment of Climate Change Impacts on Irrigation Management Using a Performance Assessment Model, 2006, *Proceedings of 3rd Asian Regional Conference of ICID.*

Hoshikawa K., T. Nagano, T. Kume and T. Watanabe, Evaluation of Impact of Climate Changes on the Lower Seyhan Irrigation Project, Turkey, 2006, *Proceedings of the 3rd International Conference on Hydrology and Water Resources in Asia Pacific Region.*

Naganao T., K. Hoshikawa, S. Donma, T. Kume and T. Watanabe, Macroscopic handling of a large irrigation district by the Irrigation Management Performance Assessment Model, 2006, *Proceedings of the 3rd International Conference on Hydrology and Water Resources in Asia Pacific Region.*

Tanaka K., Y. Fujihara, T. Watanabe, T. Kojiri and S. Ikebuchi, The Impact of Climate Change on the Surface Water Balance in Semi-arid Region, 2006, *Proceedings of the 3rd International Conference on Hydrology and Water Resources in Asia Pacific Region.*

**[Articles]**

Hoshikawa K., T. Nagano, T. Kume, and T. Watanabe, Development of a Model for Assessing the Performance of Irrigation Management Systems and Evaluation of Impact of Climate Changes on the Lower Seyhan Irrigation Project, 2006, *Proceedings of International Symposium on Water and Land Management for Sustainable Irrigated Agriculture.*

Kume, T. E. Akça, T. Naganao, S. Donma, S. Kapur, and T. Watanabe, The Problem of Soil Salinity in the Fourth Stage Area in LSIP–An Analysis of Spatial Variability of Soil Salinity–, 2006, *Proceedings of International Symposium on Water and Land Management for Sustainable Irrigated Agriculture.*

Nagano T., S. Donma, K. Hoshikawa, T. Kume, C. Umetsu, E. Akça, S. Önder, S. Berberoğl, B. Özekici, T. Watanabe, S. Kapur and R. Kanber, Integrated Approach for Assessment of an Irrigation System in Lower Seyhan Plain,

Turkey, 2006, *Proceedings of International Symposium on Water and Land Management for Sustainable Irrigated Agriculture.*

Watanabe T., T. Nagano and R. Kanber, Innovated Cross-Disciplinary Approach to Impact Assessment of Climate Change on Agricultural Production System in Arid Areas, 2006, *Proceedings of International Symposium on Water and Land Management for Sustainable Irrigated Agriculture.*

Fujihara Y., K. Tanaka, T. Watanabe and T. Kojiri, Potential Impacts of Climate Change on the Hydrology and Water Resources of the Seyhan River Basin, 2006, *Proceedings of International Symposium on Water and Land Management for Sustainable Irrigated Agriculture.*

Yatagai A., F. Kimura, A. Kitoh and T. Watanabe, Analyses of Precipitation for Assessing Global Warming Impacts on Hydrological Regime in Adana, Turkey, 2006, *Proceedings of International Symposium on Water and Land Management for Sustainable Irrigated Agriculture.*

Watanabe T., Water Management of Paddy Fields for Conserving Wildlife Habitats, 2006, *Proceedings of 5th International Conference on Management of Paddy and Water Environment for Sustainable Rice Production (II).*

Watanabe T., K. Hoshikawa and T. Kume, Water Use and Water Balance of Large Irrigation Schemes in the Yellow River Basin, 2006, *Proceedings of CREST-SWIM The International Symposium on Land and Water Management in Arid Region.*

Kume T., T. Nagano, K. Hoshikawa, T. Watanabe and Chaolunbagen, Effect of Leaching Irrigation on the Spatial Distribution of Soil Salinity in the Hetao Irrigation District in China, 2006, *Proceedings of CREST-SWIM The International Symposium on Land and Water Management in Arid Region.*

Hoshikawa K., T. Kume, T. Nagano and T. Watanabe, Estimation of Water Balance of Hetao Irrigation District by Model Application, 2006, *Proceedings of CREST-SWIM The International Symposium on Land and Water Management in Arid Region.*

Nagano T., K. Hoshikawa, S. Donma, T. Kume and T. Watanabe, Irrigation and Drainage Canal Properties as Important Indices for Assessing Adaptive Capacity of Large Irrigation Districts towards Climate Change and Social Change, 2006, *An Earth System Science Partnership Global Environmental Change Open Science Conference.*

Nagano, T., Y. Fujihara, K. Tanaka, C. Umetsu, K. Hoshikawa, T. Kume, F. Kimura and T. Watanabe, Generated Social Scenario and Basin Condition for the Final Integration, 2007, *The final report of ICCAP*, 15-18.

Nagano, T., S. Donma, K. Hoshikawa, T. Kume, C. Umetsu, E. Akça S. Önder, S. Berberoğlu, B. Özekici, T. Watanabe, S. Kapur and R. Kanber, The Integrated Assessment of the Impact of Climate Change on Lower Seyhan Irrigation Project, 2007, *The Final Report of ICCAP*, 197-207.

Kume, T., T. Nagano, E. Akça S. Donma, K. Hoshikawa, S. Berberoğlu, M. Serdem, S. Kapur and T. Watanabe, Impact of the Irrigation Water Use on the Groundwater Environment and the Soil Salinity, 2007, *The Final Report of ICCAP*, 209-214.

Nagano, T., S. Donma, T. Kume, S. Berberoğlu, K. Hoshikawa, E. Akça, S. Kapur and T. Watanabe, Long-term Changes of Level and Salinity of Shallow Water Table in the Lower Seyhan Plain, Turkey, 2007, *The Final Report of ICCAP*, 215-219.

Hoshikawa, K., T. Nagano, T. Kume and T. Watanabe, Evaluation of Impact of Climate Changes on the Lower Seyhan Irrigation Project, Turkey, 2007, *The Final Report of ICCAP*, 221-230.

**—Research Activities—**

**[Field Research in Japan]**

July, 2006 Tone River Basin, Saitama Prefecture (Research on water resources development and irrigation in the Tone River Basin)

**[Field Research in Foreign Countries]**

| | |
|---|---|
| April, 2006 | Adana, Turkey (Research on impact of climate change on agricultural production) |
| June, 2006 | Konya, Ankara and Adana, Turkey (Research on rural development and irrigation management in Anatolia highland and lowland in Turkey) |
| September, 2006 | Kuala Lumpur, Malaysia (Research on irrigated agriculture in arid land and climate change impacts on irrigated agriculture) |
| September, 2006 | Hohhot, Inner Mongolia, China (Research on soil, water and irrigation management in arid region) |
| October, 2006 | Adana, Turkey (Research on impact of climate change on agricultural production) |
| January, 2007 | Adana and Ankara, Turkey (Research on impact of climate change on agricultural production) |
| February, 2007 | Adana and Ankara, Turkey (Research on impact of climate change on agricultural production) |

**—Academic and Social Activities—**

Vice-President and Board Member of JSHWR (Japan Society of Hydrology and Water Resources) (2006–)

Chairperson of Sub-Committee of Strategic Research Initiatives, Research and Development Committee. Member of Committee for Renaming. Member of Engineering Education Committee. JSIDRE (Japanese Society of Irrigation, Drainage and Reclamation Engineering) (2005–)

Member of Working Group on Irrigated Agriculture under Droughts and Water Shortage. Vice-Chair of Working Group on Global Climate Change and Irrigation. ICID (International Committee on Irrigation and Drainage) (2003–)

Member of Editing Board of *Paddy and Water Environment.* International Society of Paddy and Water Environmental Engineering (2003–)

Board Member, JAWRE (Japanese Association for Water Resources and Environment) (1998–)

Member of Scientific Committee, Chief in Editor of the Official Journal *Lakes and Reservoirs* of ILEC (international Lake Environment Committee) (2007–)

Chair of the Organizing Committee of 7th Water Resources Symposium (2007–)

Associate member, Science Council of Japan (2006–)

Program Officer of Agricultural Sciences Group, Research Center for the Science Systems, JSPS (Japan Society for Promotion of Science) (2006–)

Adviser for Japan National Committee for UNESCO (2006–)

Engineering Program Reviewer, JABEE (Japan Accreditation Board for Engineering Education) (2006–)

Member of the Committee on Evaluation of Independent Administrative Institutions, Ministry of Agriculture, Forestry and Fisheries (2005–)

Member of the Working Group for Environment of Lake Biwa and Rivers in the Lake Biwa Basin, Ministry of Land Infrastructure and Transportation (2004–)

Member of the Committee on Evaluation of Independent Administrative Institutions, Ministry of Foreign Affairs (2003–)

Member of the Committee on Technical Research, Advice Center for Rural Environment Support (2003–)

Member of the Committee for Promotion of Groundwork in Shiga Prefecture, Federation of Land Improvement Organizations of Shiga Prefecture (2002–)

Member of the National Committee for ICID, Japan Institute of Irrigation and Drainage (1999–)

Research Collaborator, JSPS-CAS Core-University Program Researches on Combating Desertification and Developmental Utilization in Inland China, Arid Land Research Center of Tottori University (2001–)

Joint Researcher, Arid Land Research Center of Tottori University (2001–)

Head of Agriculture and Irrigation Sub-Group of the Research Project on "Improving the Sustainability in Utilizing

and Controlling Water in the Yellow River Basin", the Core Research for Evolutional Science and Technology Japan Science and Technology (2001–2007)

**—Keynote Speech—**

April 4, 2006 Watanabe T. "Innovated Cross-Disciplinary Approach to Impact Assessment of Climate Change on Agricultural Production System in Arid Areas". International Symposium on Water and Land Management for Sustainable Irrigated Agriculture (Çukurova University, Adana, Turkey)

**—Oral Presentation—**

August 8, 2006 Watanabe, T. "Research Development of University and Research Institute in Collaboration with Public-service Cooperation", Annual Meeting of JSIDRE (Utsunomiya University, Utsunomiya, Tochigi Prefecture, Japan)

August 10, 2006 Watanabe, T. "Water Management of Paddy Fields for Conserving Wildlife Habitats", 5th International Conference on Management of Paddy and Water Environment for Sustainable Rice Production (II), (Utsunomiya University, Utsunomiya, Tochigi Prefecture, Japan)

September 14, 2006 Watanabe, T. "Assessment of Climate Change Impacts on Irrigation Management Using a Performance Assessment Model", 3rd Asian Regional Conference of ICID, (Kuala Lumpur, Malaysia)

December 5, 2006 Watanabe T. and others "Assessment of Climate Change Impacts on Irrigated Agriculture Using IMPAM", Annual Meeting of Joint Research of Arid Land Research Center of Tottori University (Arid Land Research Center of Tottori University, Tottori Prefecture, Japan)

**—Public and School Lectures—**

September 23, 2006 Watanabe T. "Reconsidering the Dirty Farm Drainage". Workshop on Hierarchical Watershed Management for Creation of a Watershed as a Public Space—The research integration challenge in the Lake Biwa agricultural drainage problem— (Research Institute for Humanity and Nature, Kyoto City, Kyoto Prefecture)

December 3, 2006 Watanabe T. "Projection of Future Climate and Impact of Climate Changes on Agriculture" CASA (Citizens' Alliance for Saving the Atmosphere and the Earth) Symposium on "Global Warming and Issues on Agriculture and Food" (Business Innovation Center Osaka, Osaka City, Osaka Prefecture)

December 19, 2006 Watanabe T. "Irrigation Management and Basin Environment in the Yellow River Basin". Special Lecture of the Department of Regional Environment, College of Agriculture, Kyoto University (Kyoto University, Kyoto City, Kyoto Prefecture)

January 26, 2007 Watanabe T. "Water Use of Agriculture and Environmental Problem in the World". Hanshin Senior College of Hyogo Prefecture (Center for Medium-sized and Small Companies of Amagasaki (Amagasaki City, Hyogo Prefecture)

February 3, 2007 Watanabe T. "Impacts of Global Warming on Turkish Agriculture—Introduction to RIHN Research Project". 84th Topcapi Saloon of The Japan-Turkey Culture Society (Kyodai Kaikan, Kyoto City, Kyoto Prefecture)

February 8, 2007 Watanabe T. "Perspectives of Knowledge on Water and Land for Global Environment", 4th Research Meeting of Research Group of Land and Water Culture, JSIDRE (Toranomon Pastoral, Minato-ku, Tokyo)

**—Supervision and Host—**
Two PD Fellows of JSPS

## WU, Yong ——— Invited Research Fellow

Born in 1967.

**—Curriculum Vitae—**
**[Academic Career]**
Department of History, Archaeology Course, Northwest University, Shanxi Sheng province, China, BA. (1989)
**[Professional Career]**
Researcher, Xinjiang Institute of Archaeology, China (1989)
**[Field Specialization/Background]**
Neolithic Archaeology in Xinjiang province

**—Major Publications—**
**[Books]**
WU, Yong (2005) 'New Result of Archaeology Excavation for Xiabandi Grave' "The Western Regions Studies" 2005-No.1: pp109-113 (in Chinese).
WU, Yong (2005) 'Short Report of Archaeology Excavation in 2004 for Xiabandi Grave' "Xingjiang Cultural Properties" 2005-No.1: pp3-12 (in Chinese).
WU, Yong (2004) 'Report of Archaeology Excavation for Xiabandi Grave, Tashiurukan prefecture' "Xingjiang Cultural Properties" 2004-No.3: pp1-59 (in Chinese).
WU, Yong (2002) 'Short Report of Archaeology Excavation in 1999 for Yingpan Grave, Weili prefecture, Xingjiang' "Xingjiang Cultural Properties" 2002-No.6: pp58-74 (in Chinese).
WU, Yong (2001) 'Excavation in 1999 for Yingpan Grave, Weili prefecture, Xingjiang' "Xingjiang Cultural Properties" 2001-No.3 & No.4: pp23-46 (in Chinese).

**—Research Activities—**
**[Field Research in Foreign Countries]**
September, 2006 Fuyun Prefecture, Altai Province, China (Excavation for Taledesai Grave)

**—Oral Presentation—**
July 12, 2006 'Archaeology and Research of Gaochang Castle' (in Chinese), Seminar of Sato Project (Research Institute of Humanity and Nature, Kyoto City, Kyoto prefecture)

## YACHI, Shigeo ——— Associate Professor

Born in 1962.

**—Curriculum Vitae—**
**[Academic Career]**
Department of Biophysics, Faculty of Science, Kyoto University, D.Sc (1995)
Department of Biophysics, Faculty of Science, University, M.Sc. (1988)
Faculty of Science, Kyoto University, B.Sc. (1985)

**[Professional Career]**

Associate Professor, Research Institute for Humanity and Nature (2001–)

Associate Professor, Center for Ecological Research, Kyoto University (2001)

Research Associate, Kyoto University (1999–2001)

Postdoctoral Fellow, Laboratoire d'Ecologie, Ecole Normale Superieure and Universite Pierre et Marie Curie, CNRS-URA 258, Paris, France (1997–1999)

Lecturer (part time), Doshisha University, Kyoto, Japan (1993–1997)

Lecturer (part time), Osaka Institute of Technology, Osaka, Japan (1992–1997)

**[Higher Degrees]**

D.Sc. (Kyoto University, 1995), M.Sc. (Kyoto University, 1988)

**[Field Specialization/Background]**

Mathematical Ecology

**[Academic Society Memberships]**

The Ecological Society of Japan, the Japanese Society for Mathematical Biology, Society of Evolutionary Studies, Japan

**—Major Publications—**

**[Papers]**

Y. Yamada, A. Igeta, S. Nakashima, Y. Mito, T. Ogasahara, A. Wada, T. Ohno, A. Ueda, F. Hyodo, M. Imada, S. Yachi, I. Tayasu, S. Fukuhara, T. Tanaka, E. Wada, 2006, The runoff of suspended substance, nitrogen and phosphorus by the enforced draining in the padding season —The experiment in the paddy field—. *Japanese Journal of Limnology* 67 (2): p 105-112 (in Japanese).

Yachi, S., 2007, A hierarchy-based approach to the problem of agricultural water turbidity in the lake Biwa watershed. In Onishi et al. eds. *RIHN 1st International symposium proceedings —water and better life in the future—*, 81-87.

Yachi, S. & Loreau, M., 2007, Does complementary resource use enhance ecosystem functioning? a model of light competition in plant communities. *Ecology Letters*, 10: 54-62.

**[Reports and others]**

Yachi, S., 2006, "Why paying attention to hierarchy is important for watershed management?" *Humanity & Nature Newsletter* 3, 4-5 (in Japanese).

Yachi, S., 2006, "Multi-disciplinary research for understanding interactions between humans and nature in the Lake Biwa – Yodo River watershed" *CER News* 94, 11-12 (in Japanese).

Yachi, S., 2007, "A first step towards a new synthesis of watershed management studies" *Humanity & Nature Newsletter* 7, 6-7 (in Japanese).

Ishii, R., Yachi, S., Nagata, T., Miki, T. & Yamamura, N. eds., 2007, "Human Impact Seminar Lake Biwa Series Report: Is Lake Biwa sustainable?" Project 3-1 (in Japanese).

**[Newspaper Articles]**

Aug. 5, 2006 "On watershed management methodology—An example of Lake Biwa agricultural turbid water problem" *Mainichi Shinbun* (in Japanese)

**—Research Activities managed by Project 3-1—**

Sep. 5, 2006 "RIHN's approach on the Lake Biwa-Yodo River watershed management Studies" Yachi, S., Tanaka, T., Nakano, T., Tayasu, I., Wakita, K., Hara, Y. & Wada, E. (in Japanese), Annual meeting of the Society of Environmental Science, Sophia University, Tokyo, Japan

Nov. 8, 2006 "A hierarchy-based approach to the problem of agricultural water turbidity in the lake Biwa

watershed" Yachi, S., RIHN 1st International Sympoium—Water and Better Life in the Future, Kyoto, Japan

**—Activities in Academic Societies—**

Mar. 22, 2007 "Does complementarity resource use enhance ecosystem functioning? A model of light competition in plant communities" Yachi, S. and Loreau, M., 54th Annual meeting oh the Ecological Society of Japan, Ehime University, Ehime Pref., Japan

Mar. 22, 2007 "The past and future of Mathematical Biology (Free Meeting)" Yamauchi, A., Iwasa, Y., Kato, M., Tusji, N. and Yachi, S., 54th Annual meeting oh the Ecological Society of Japan, Ehime University, Ehime Pref., Japan

**—Workshops and Seminars managed by 3-1 Project or cooperatively planned with others—**

May 17, 2006 Comment Workshop, RIHN

Jun. 24, 2006 GIS Scenario Workshop, RIHN

Jul. 14, 2006 Human Impact Seminar editorial meeting on Lake Biwa Series, Kyoto

Sep. 23–24, 2006 Project 3-1 international workshop "Hierarchical watershed management for creation of a watershed as a public space—a research integration challenge on the Lake Biwa agricultural drainage problem—", RIHN

**—Social Activities and Public Lectures—**

2006– Watershed research meeting, Otsu, Shiga Pref., Japan

Aug. 5–6, 2006 Inae Water Environment Salon, Mizuho Culture Center, Hikone city, Shiga Pref., Japan

Sep. 9, 2006 Lecture on Akanoi-Bay area water quality mapping, Biwako-Houjyo-no-sato (NPO), Moriyama city, Shiga Pref., Japan

**—Committee Work for Other Organizations—**

Editorial board of *Ecological Research*, the Ecological Society of Japan

Member of the "Yodo-gawa suikei ryuiki iinkai (committee on the Yodo River watershed management)"

Collaborative researcher at Center for Ecological Research, Kyoto University

## YAMAGUCHI, Kensuke — Project Researcher

Born in 1981.

**—Curriculum Vitae—**

**[Academic Career]**

Institute of Environmental Studies, Graduate School of Frontier Sciences, the University of Tokyo, M. Course (2005)

Faculty of Letters, the University of Tokyo (2003)

**[Professional Career]**

Researcher, Research Institute for Humanity and Nature (2006)

**[Higher Degrees]**

M. International Studies (The University of Tokyo, 2005)

**[Field Specialization/Background]**

Conservation Policy, Political Ecology

**[Academic Society Memberships]**

Japanese Society for International Development, the International Association for the Study of the Commons

**—Major Publications—**

**[Papers (reviewed)]**

K. Yamaguchi (2006) Scarcity and conflict of resources; Chomthong water conflict, In Proceedings of The Fourth Asian Public Intellectuals Workshop on the theme "Reflections on the Human Conditions: Change, Conflict and Modernity," Bangkok: Chulalongkorn University Press.

K. Yamaguchi (2006) Minami tai shisatsu ryokou-Koubutsu shigen (Trip in Southern Thailand-Past and future of mineral resources). *Newsletter: Japanese Chamber of Commerce. Bangkok: JCC.* 526: 62-73 (in Japanese)

**[Articles]**

2006 'Vicious Cycle in Resources Scarcity: Water Conflict in Northern Thailand' "Proceedings of the 11th Biennial Conference of the International Association for the Study of common Property (IASCP)"

**—Research Activities—**

**[Field Research]**

| | |
|---|---|
| May, 2006 | Canberra, Australia (Research on political ecology theory) |
| August, 2006 | Chiang Mai, Thailand (Research on water scarcity) |
| December, 2006 | Colombo, Sri Lanka (Research on water policy) |

**—Academic and Social Activities—**

Visiting Researcher at Australian National University (2006)

**—Oral Presentation—**

June 20, 2006 Yamaguchi K. "Vicious Cycle in Resources Scarcity: Water Conflict in Northern Thailand", The 11th Biennial Conference of the International Association for the Study of common Property (IASCP), Bali, Indonesia

## YAMAMURA, Norio ——————————————————— Professor

Born in 1947.

**—Curriculum Vitae—**

**[Academic Career]**

Department of Physics, Graduate School of Science, Kyoto University, D. Course (1975)

Department of Physics, Graduate School of Science, Kyoto University, M. Course (1971)

Faculty of Science, Kyoto University (1969)

**[Professional Career]**

Professor, Research Institute for Humanity and Nature (2007)

Professor, Center for Ecological Research, Kyoto University (1996)

Professor, Saga Medical School (1995)

Associate Professor, Saga Medical School (1978)

**[Higher Degrees]**

D.Sc. (Kyoto University, 1977), M.Sc. (Kyoto University, 1971)

**[Field Specialization/Background]**

Mathematical Ecology, Evolutionary Biology

**[Academic Society Memberships]**

The Ecological Society of Japan, The Society of Population Ecology, Society of Evolutionary Studies, Japan, Japanese Society of Mathematical Biology, International Union for the Study of Social Insects

**—Major Publications—**

**[Papers]**

Harrison, R. D. and Yamamura, N. (2003) A few More Hypotheses for the Evolution of Dioecy in Figs (Ficus, Moraceae). *Oikos* 100: 628-635.

Kobayashi, Y. and Yamamura, N. (2003) Evolution of Signal Emission by Non-infested Plants Growing near Infested Plants to Avoid Future Risk. *Journal of Theoretical Biology*. 223: 489-503.

Yamauchi, A. and Yamamura, N. (2004) Herbivory promotes plant production and reproduction in nutrient-poor conditions: Effects of plant adaptive phenology. *American Naturalist* 163: 138-153.

Yamamura, N., Higashi, M., Behera, N. and Wakano, J. Y. (2004) Evolution of Mutualism through Spatial Effects. *Journal of Theoretical Biology* 226: 421-428.

Miki, T. and Yamamura, N. (2005) Effects of Asynchronous Fluctuations in DOC Supply and Bacterial Growth on Biodegradation Efficiency. *Ecological Modelling*. 183(2-3): 281-299.

Miki, T. and Yamamura, N. (2005) Theoretical Model for Interactions between Particle-associated and Free-living Bacteria to Predict the Functional Composition and Succession of the Bacterial Community. *Aquatic Microbial Ecology*. 39: 35-46.

Telschow, A., Yamamura, N. and Werren, J. H. (2005) Bidirectional Cytoplasmic Incompatibility and the Stable Coexistence of Two Wolbachia Strains in Parapatric Host Populations. *Journal of Theoretical Bilogy*. 235: 265-274.

Yamauchi, A. and Yamamura, N. (2005) Effects of Defense Evolution and Optimal Diet Choice on Population Dynamics in a One Predator-Two Prey System. *Ecology*. 86: 2513-2524.

Miki, T. and Yamamura, N. (2005) Intraguild Predation Reduces Bacterial Species Richness and Loosens the Viral Loop in Aquatic Systems: "Kill the Killer of the Winner Hypothesis". *Aquatic Microbial Ecology*. 40: 1-12.

Yamauchi, A. and Yamamura, N. (2006) Persistence conditions of symmetric social hybridogenesis in haplo-diploid Hymenoptera. *Journal of Theoretical Biology*. 240: 24-31.

Telschow, A., Engelstter, A., Yamamura, N., Hammerstein, P. and Hurst, P. D. (2006) Asymmetric gene flow and constraints on adaptation caused by sex ratio. *J. Evolutionary Biology*. 19: 869-878.

Nakazawa, T. and N.Yamamura. (2006) Community structure and stability analysis for intraguild interactions among host, parasitoid, and predator. *Population Ecology*. 48: 139-149.

Kobayashi,Y., N. Yamamura, and M. W. Sabelis. (2006) Evolution of talking plants in a tritrophic context: Conditions for uninfested plants to attract predators prior to herbivoreattack. *Journal of Theoretical Biology*. 243: 361-374.

Nakazawa, T, N. Yamamura. (2007) Breeding migration and population stability. *Population Ecology* 49: 101-113.

Kobayashi Y, N.Yamamura. (2007) How to compute the effective size of spatiotemporally structured populations using separation of time scales. *Theoretical Population Biology* 71: 174-181.

**—Supervision and Host—**

3 graduate students from Graduate School of Science, Kyoto University; 1 PD fellow of JSPS

## YAMASHITA, Satoshi ——— Project Senior Researcher

Born in 1977.

**—Curriculum Vitae—**

**[Academic Career]**

Graduate School of Bioagriculture, Nagoya Univaersity, D. course (2004)

Graduate School of Bioagriculture, Nagoya Univaersity, M. course (2001)

Faculty of Agriculture, Nagoya University (1999)

**[Professional Career]**

Research Fellow, RIHN (2005)

JSPS Research Fellow PD (2004)

JSPS Research Fellow DC2 (2003)

**[Higher Degrees]**

D.Agr. (Nagoya University, 2004), M.Agr. (Nagoya University, 2001)

**[Field Specialization/Background]**

Forest protection, Community Ecology

**[Academic Society Memberships]**

Japanese Forest Society, Ecological Society of Japan, Mycological Society of Japan, Entomological Society of Japan

**—Major Publications—**

**[Papers (reviewed)]**

Yamashita S. and N. Hijii (2007) Resource utilization pattern of a mycophagous beetle, *Neopallodes inermis* (Coleoptera, Nitidulidae), on soft fungi, *Collybia* spp. (Agaricales). *Annals of the Entomological Society of America* 100: 222-227.

Yamashita S. and N. Hijii (2006) Spatial distribution of the fruiting bodies of Agaricales in a Japanese red pine (*Pinus densiflora*) forest. *Journal of Forest Research* 11: 181-189.

**[Articles]**

2006 Spatiotemporal dynamics of mushroom assemblages and mycophagous insect communities in a forest. *Nagoya University Forest Science* 25: 17-73.

**—Research Activities—**

June 2006 Community structure of Aphyllophorales in Sarawak, Malaysia

December 2006 Community structure of Aphyllophorales in Sarawak, Malaysia

**—Oral Presentation—**

April 2006 Yamashita, S., K. Momose, M. Nakagawa, T. Matsumoto, T. Nakashizuka. 'Effects of forest use on the fungal flora—case study of Sarawak, Malaysia—' 117th Annual Meeting of the Japanese Forest Society (Tokyo University of Agriculture, Setagaya-ku, Tokyo)

**—Poster Presentation—**

July 2006 Yamashita S., K. Momose, M. Nakagawa, T. Matsumoto, M. Aiba, T. Nakashizuka 'Effects of forest types on polypore composition in Sarawak, Malaysia'. Annual meeting of the Association for Tropical Biology and Conservation. Kunming, China

May 2007 Yamashita S., N. Hijii. 'The role of fungal taxa and developmental stage of mushrooms in determining the composition of the mycophagous insect community' 54th Annual Meeting of Ecological Society of Japan (Ehime University, Matsuyama, Ehime Prefecture)

## YATAGAI, Akiyo — Assistant Professor

Born in 1968.

**—Curriculum Vitae—**

**[Academic Career]**

Department of Geoscience, University of Tsukuba, D. course (1996)

Department of Geoscience, University of Tsukuba, M.S. (1992)

Department of Natural Sciences, 1st cluster of colleges, University of Tsukuba, B.S. (1990)

**[Professional Career]**

Assistant Professor, Research Institute for Humanity and Nature (RIHN) (2002)

Lecturer (temporary), Meiji University (2003–2004)

COE Research Fellow, Disaster Prevention Research Institute, Kyoto University (2001)

Research Fellow, National Space Development Agency of Japan/Earth Observation Research Center (NASDA/EORC) (1995)

**[Higher Degrees]**

Ph.D. (Science) (University of Tsukuba, 1996), M.S. (University of Tsukuba, 1992)

**[Field Specialization/Background]**

Climatology, Atmospheric science

**[Academic Society Memberships]**

Meteorological Society of Japan, The American Meteorological Society, American Geophysical Union, The Japan Society of Hydrology and Water Resources, The Association of Geographers

**—Major Publications—**

**[Books]**

Yatagai A. (2007) "Changes in climate and precipitation over the Black River basin" Nakawo et al. (ed) *A 50-year history of a remote region of China*, 41-51.

**[Papers (reviewed)]**

Yatagai A. (2007) Interannual Variation of Summertime Precipitation over the Qilian Mountains in Northwest China, *Bulletin of Glaciological Research*, 24: 1-11.

Xie, P., A. Yatagai, M. Chen, T. Hayasaka, Y. Fukushima, C. Liu and S. Yang (2007) A Gauge-Based Analysis of Daily Precipitation over East Asia, *J. Hydrometeor.*, 8: 607-627.

Yatagai A., N. Yamazaki and T. Kurino (2007) The products and validation of GAME reanalysis and JRA-25 Part 1: Surface Fluxes, *Hydrological Processes*, 21: 2061-2071.

Geethalakshmi, V., A. Yatagai, K. Palanisamy and C. Umetsu (2007) Impact of ENSO and the Indian Ocean Dipole on the Northeast Monsoon Rainfall of Tamil Nadu state in India. *Hydrological Processes (Submitted).*

Yatagai, A., P. Xie and P. Alpert (2007) Development of a daily grid precipitation data set: Toward evaluation of global warming effects on water resources in the East Mediterranean, *Advance in Geophysics (submitted).*

Yatagai A., and P. Xie, (2006) Utilization of a rain-gauge-based daily precipitation dataset over Asia for validation of precipitation derived from TRMM/PR and JRA-25. *SPIE 0604-53, doi:10.1117/12.723829.*

**[Papers (not reviewed)]**

Yatagai A. (2007) Development of a daily grid precipitation data in the East Mediterranean and its application for the ICCAP studies, *The Final report of the ICCAP*, RIHN, 33-38.

Yatagai A., F. Kimura, A. Kitoh and T. Watanabe (2006) Analyses of precipitation for assessing global warming impacts on hydrological regime in Adana, Turky, *Proceeding of the International Symposium on Water and Land Management for Sustainable Irrigated Agriculture*, Cukurova University, April 4-8, 2006, Adana-Turky.

(CDROM).

Yatagai A., P. Xie, and A. Kitoh (2006) Validation by a new gauge-based daily grid precipitation dataset of daily precipitation climatology over monsoon Asia simulated by MRI/JMA 20-km-mesh AGCM, *Proceedings for the 12th conference of mountain meteorology*, American Meteorological Society, 28 August-1 September, 2006, Santa Fe, P1.2 (CDROM).

Yatagai A. (2006) An analysis of observed precipitation over the Fertile Crescent, *The Advance report of ICCAP, RIHN*, 17-20.

**—Oral Presentation—**

| | |
|---|---|
| April 4–8, 2006 | Yatagai, A. Global warming impacts on hydrological regime in Adana, Turky, The International Symposium on Water and Land Management for Sustainable Irrigated Agriculture, at Cukurova University, Adana, Turky |
| August 28–September 1, 2006 | Yatagai, A., P. Xie and A. Kitoh, 2006: Validation by a New Gauge-based Daily Grid Precipitation Dataset of Daily Precipitation Climatology over Monsoon Asia Simulated by MRI/JMA 20-km-mesh AGCM, 12th Conference on Mountain Meteorology, AMS (American Meteorological Society), Santa Fe, NM |
| August, 2006 | Yatagai, A., P. Xie and P. Alpert, 2007: Development of the dail grid precipitation dataset: Towards evaluation of the global warming effects on water resources over the East Mediterranean, EGU (European Geophysical Union) 8th Plinius conference, Dead Sea, Israel |
| November 7–8, 2006 | Yatagai, A., I. C. Handoh, T. Watanabe, J. Kubota, S. Kanae, A. Kitoh, K. Kamiguchi and O. Arakawa, 2007: APHRODITE's Water Resources, RIHN Symposium, Kyoto |
| November 14, 2006 | Yatagai, A., P. Xie, 2007: Utilization of a rain-gauge-based daily precipitation dataset over Asia for validation of precipitation derived from TRMM/PR and JRA-25, SPIE (Society of Photo-Optical Instrumentation Engineering), Goa, India |
| February 12–14, 2007 | Yatagai, A., Development of a daily grid precipitation data in the East Mediterranean and its application for the ICCAP studies, ICCAP Final Workshop, Adana, Turkey |

**—Field experiment in Foreign Countries—**

| | |
|---|---|
| July, 2006 | Iran (Preparatory study in the orographic precipitation over Iran) |
| August, 2006 | United States of America (Investigation on the development of grid precipitation) |
| February, 2007 | Turkey (Experiment on the impact of global warming on the agriculture in Turkey) |

**—Social Activities and Public Lectures—**

**[Public Lectures]**

| | |
|---|---|
| 25 November, 2006 | "On the APHRODITE project", Climate Colloquium, Japan University |
| 30 March, 2007 | "Evaluation of climate variation on water resources of the arid areas—development of a daily grid precipitation dataset", Japan Meteorological Agency |

## YILMAZ, Kemal Tuluhan ——————————————Invited Research Fellow

Born in 1963.

**—Curriculum Vitae—**

**[Academic Career]**

Department of Landscape Architecture, Institute of Natural and Applied Sciences, Çukurova University, Ph.D. Degree (1993)

Department of Landscape Architecture, Institute of Natural and Applied Sciences, Ege University, M.Sc. Degree (1986)

Department of Landscape Architecture, Faculty of Agriculture, Ege University, B.Sc. Degree (1984)

**[Professional Career]**

Professor, Department of Landscape Architecture, Çukurova University (2003)

Associate Professor, Department of Landscape Architecture, Çukurova University (1997)

Assistant Professor, Department of Landscape Architecture, Çukurova University (1994)

Research Assistant, Department of Landscape Architecture, Çukurova University (1986)

**[Higher Degrees]**

Ph.D. (Çukurova University, 1993), M.Sc. (Ege University, 1986)

**[Field Specialization/Background]**

Landscape Planning, Nature Conservation

**[Academic Society Memberships]**

Turkish National Committee for Coastal Zone Management (Council of Managers Member), Underwater Research Society (Scientific Board Member)

**—Major Publications—**

**[Books (edited)]**

Çakan, H., K. T. Yılmaz, 2006, Çukurova Delta Important Plant Area, Important Plant Areas Along BTC Pipeline in Turkey. N. Özhatay (Ed.), İstanbul University, BTC. 265-282.

**[Papers (reviewed)]**

Kosztolanyi, A., T. Szekely, I. C. Cuthill, K. T. Yılmaz, S. Berberoglu, 2006, Ecological constraints on breeding system evolution: the influence of habitat on brood desertion in Kentish plover. *Journal of Animal Ecology,* 75/1: 257-265.

Alphan, H., K. T. Yılmaz, 2005, Monitoring environmental changes in the Mediterranean coastal landscape: The case of Cukurova, Turkey. *Environmental Management*, 35/5: 609-719.

Çakan, H., K. T. Yılmaz, A. Duzenli, 2005, First comprehensive assessment of the conservation status of the flora of the Cukurova Deltas, Southern Turkey. *Oryx*, Cambridge University Press. 39/1: 17-21.

**[Reports]**

Yılmaz, K. T., S. Berberoğlu, H. Çakan, H. Alphan, Y. İzcankurtaran, 2006, Land Use Planning for Nature Conservation in the Coastal Dunes of Kazanlı Project Nr: / YDABAG - 101Y0138. TÜBITAK (Final report)

**—Oral Presentation—**

2006 İzcankurtaran, Y., K. T. Yılmaz, Conflicts on the Sustainable Management of Coastal and Marine Areas Around İskenderun Bay VI. National Congress on Coastal and Marin Areas of Turkey, Proceedings, E. Özhan (Ed.) 1: 63-72, (Muğla University, Muğla)

2006 Yalçın, K., K. T. Yılmaz, Evaluation of the Draft of Biodiversity and Nature Conservation Law VI. National Congress on Coastal and Marin Areas of Turkey, Proceedings, E. Özhan (Ed.) 1: 123-131,

(Muğla University, Muğla)

2007 Yılmaz, K. T., S. Berberoğlu, H. Çakan, H. Alphan, Y. İzcankurtaran, Data inventory and monitoring in the coastal dunes of Kazanlı/Türkiye, A case study for conservation planning, International Conference on Environment: Survival and Sustainability, (Near East University, Nicosia, Northern Cyprus). H. Gökçekuş (Ed.) (invited speaker)

**—Field Research in Turkey—**

March, 2006 Igneada Town, Kırklareli Province (Field survey on the coastal swamp forest ecosystem)

May, 2006 Igneada Town, Kırklareli Province (Field survey on the impact of cattle grazing on coastal dune vegetation)

November, 2006 Igneada Town, Kırklareli Province (Research on habitat classification of İgneada Protected Area in accordance with CORINE system)

May, 2007 Silifke District, İçel Province (Research on land cover classification by means of vegetation community indicator)

**—Academic and Social Activities—**

Advisory Board Member of the International Conference on Environment: Survival and Sustainability, Near East University, Nicosia, Northern Cyprus (19–24 February 2007)

Member of the Committee for Evaluating Academic Activities, Çukurova University Faculty of Agriculture (2007–)

Invited Professor at RIHN (Research Institute for Humanity and Nature/ Kyoto, Japan) (2006)

Editorial Board of the Journal of Science and Engineering, Çukurova University Institute of Natural and Applied Sciences (2006–)

Vise Director of the Center for Environmental Research, Çukurova University (2003–)

SGP National Steering Committee Member - UNDP (2003–)

**—Public and School Lectures—**

April 24, 2007 "The Draft of Biodiversity and Nature Conservation Law, and Opportunities for Landscape Architecture" (Chamber of Landscape Architectures, Adana) (invited speaker)

**—Undergraduate Courses—**

P-201: Resource Analysis.

P-216: Natural Vegetation of Turkey.

PM-320: Urban Landscape Planning.

PM-471: Coastal Zone Management.

PM-468: Plant Sociology.

PM-476: Landscape Planning Project II.

PM-479: Landscape Planning Project I

**—Graduate Courses—**

PM-520: Vegetation Analysis for Landscape Planning.

PM-522: Biotope Mapping Applications.

PM-523: Mediterranean Vegetation.

PM-549: Mediterranean Coastal Areas and Management Conflicts

**—Supervision and Host—**

4 M.Sc. Students and 2 Ph.D. fellow from Institute of Natural and Applied Sciences, Çukurova University

## YOSHIDA, Takehito ——— Research Fellow (JSPS)

Born in 1972.

**—Curriculum Vitae—**

**[Academic Career]**

Graduate School of Science, Kyoto University, D. Course (2001)

Graduate School of Fisheries Sciences, Hokkaido University, M. Course (1997)

Faculty of Fisheries, Hokkaido University (1995)

**[Professional Career]**

Lecturer, Department of General Systems Studies, University of Tokyo (2006)

Research Fellow, Japan Society for Promotion of Science (2006)

Research Associate, Department of Ecology and Evolutionary Biology, Cornell University (2005)

Postdoctoral Fellow for Research Abroad, Japan Society for Promotion of Science (2003)

Postdoctoral Associate, Department of Ecology and Evolutionary Biology, Cornell University (2001)

**[Higher Degrees]**

D.Sc. (Kyoto University, 2001), M.Fish. (Hokkaido University, 1997)

**[Field Specialization/Background]**

Limnoecology, Population ecology, Evolutionary Ecology

**[Academic Society Memberships]**

Ecological Society of Japan, Ecological Society of America, Society of Evolutionary Studies, Japan, Japanese Society of Limnology, American Society of Limnology and Oceanography, Plankton Society of Japan, Society of Population Ecology, International Association of Theoretical and Applied Limnology

**—Major Publications—**

**[Papers (reviewed)]**

Yoshida T., 2006, Ecological stoichiometry and the shape of resource-based tradeoffs. *OIKOS* 112: 406-411.

Yoshida T., L. E. Jones, S. P. Ellner and N. G. Jr. Hairston, 2006, Alternative mechanisms for consumer diversity. *Nature* 439: E1-2.

Meyer J. R., S. P. Ellner, N. G. Jr. Hairston, L. E. Jones and T. Yoshida, 2006, Prey evolution on the time scale of predator-prey dynamics revealed by allele-specific quantitative PCR. *Proceedings of the National Academy of Sciences, USA* 103:10690-10695.

Kagami M., T. B. Gurung, T. Yoshida and J. Urabe, 2006, To sink or to be lysed? : Contrasting fate of two large phytoplankton species in Lake Biwa. *Limnology and Oceanography* 51: 2775-2786.

Frost P., J. Benstead, W. Cross, H. Hillebrand, J. Larson, M. Xenopoulos, T. Yoshida, 2006, Threshold elemental ratios of carbon and phosphorus in aquatic consumers. *Ecology Letters* 9: 774-779.

**—Research Activities—**

**[Field Research Abroad]**

May to September, 2006 — Cornell University in New York State, USA (conducting experiments to study population dynamics)

**—Oral Presentation—**

February 6, 2006 — Yoshida T. "Cryptic Population Dynamics: Rapid Evolutionary Change Masks Trophic Interaction", American Society of Limnology & Oceanography meeting (Santa Fe, USA)

March 22, 2006 — Yoshida T. "Cryptic Population Dynamics: Rapid Evolutionary Change Masks Trophic Interaction", Ecological Society of Japan meeting (Ehime University, Matsuyama)

## YOSHIMURA, Mitsunori — Associate Professor

Born in 1962.

**—Curriculum Vitae—**

**[Academic Career]**

Department of Construction, Faculty of Engineering, Hosei University, M.Eng. (1987)

Department of Civil Engineering, Faculty of engineering, Hosei University (1985)

**[Professional Career]**

Associate Professor, Research Institute for Humanity and Nature (2001)

Assistant Professor, Center for Southeast Asian Studies, Kyoto University (1996)

Senior Research Scientist, Remote Sensing Technology Center of Japan (1996)

Research Scientist, Remote Sensing Technology Center of Japan (1987)

**[Higher Degrees]**

M.Eng. (Hosei University, 1987)

**[Field Specialization/Background]**

Geoinfomatics, Remote Sensing, GIS

**[Academic Society Memberships]**

The Japan Society of Civil Engineering, The Japan Society of Photogrammetry and Remote Sensing, The Japan Society of Remote Sensing, The Japan Society of GIS, The American Society of Photogrammetry and Remote Sensing, American Society of Photogrammetry and Remote Sensing

**—Major Publications—**

**[Papers]**

Yoshimura M., Yamashita M., Ichie T, 2006, Light environmental monitoring in tropical rainforest, Proceedings of the 27th Asian Conference on Remote Sensing, CDROM

Yamashita M., Yoshimura M., 2006, PAR Estimation based on sky condition modeling using whole sky imageries, Proceedings of the 27th Asian Conference on Remote Sensing , CDROM

**—Research Activities—**

**[Field Research in Japan]**

August 2006 Kochi Prefecture (Research Plot Set Up in Kochi University Experiment Forest)

**[Field Research in Abroad]**

August 2006 Sarawak Malaysia (Plant physiological Research at Tropical Rainforest)

August 2006 Southern Province, Zambia (land Use Research in Southern Province)

March 2007 Eastern and Southern Province, Zambia (land Use Research in Eastern Province and Village Interview in Southern Province)

**—Academic and Social Activities—**

Secretariat of Commission VI, International Society of Photogrammetry and Remote Sensing (2004–)

Inspector of Japan Society of Photogrammetry and Remote Sensing (2005–)

Chair of Conference Organization Committee of Japan Society of Photogrammetry and Remote Sensing (2005–)

Vice-Chair of Japan Society of Photogrammetry and Remote Sensing Kansai Branch (2003–)

Lecture of Ritsumeikan University (1998–)

Lecture of Doshisha University (2001–)

**—Poster Presentation—**

October 16, 2006 M. Yoshimura, M. Yamashita, 'Light environmental monitoring in tropical rainforest' Asian Conference on Remote Sensing, Ulaanbaatar, Mongolia

## YOSHIOKA, Takahito — Associate Professor

Born in 1955.

**—Curriculum Vitae—**

**[Academic Carrier]**

Department of Hydrospheric-Atmospheric Sciences, Graduate School of Science, Nagoya University, D. Course (1983)

Department of Hydrospheric-Atmospheric Sciences, Graduate School of Science, Nagoya University, M. Course (1980)

Department of Biology, Faculty of Science, Osaka University (1978)

**[Professional Carrier]**

Associate Professor, Research Institute for Humanity and Nature (2001)

Assistant Professor, Research Institute for Humanity and Nature (2001)

Assistant Professor, Institute for Hydrospheric-Atmospheric Sciences, Nagoya University (1993)

Assistant Professor, Faculty of Science, Shinshu University (1988)

**[Higher Degrees]**

D.Sc. (Nagoya University, 1985), M.Sc. (Nagoya University, 1980)

**[Field Specialization/Background]**

Biogeochemistry

**[Academic Society Memberships]**

The Japanese Society of Limnology, The Ecological Society of Japan, The American Society of Limnology and Oceanography

**[Awards]**

The 9th BIWAKO Prize for Ecology in 1999 (Shiga prefecture), The 5th YOSHIMURA Prize for Limnology in 2003 (Award for a paper "Lee, Yoshioka and Hanazato, Limnology, 3: 151-158, 2002" by the Japanese Society of Limnology)

**—Major Publications—**

**[Books (edited)]**

5-2 IDEA project Response-Prediction model studying team: Katsuyama, M. and Yoshioka, T. (eds.) (2006) *"Research Report No.1. Simulation models of Watershed Biogeochemistry"* (ISBN: 4-902325-07-1), Research Institute for Humanity and Nature, pp.73.

**[Books]**

T. Kohyama, J. Urabe, K. Hikosaka, H. Shibata, T. Yoshioka, E. Konohira, J. Murase and E. Wada. (2007) Terrestrial ecosystems in Monsoon Asia: Scaling up from shoot module to watershed. In J. G. Canadell, D. E. Pataki and L. F. Pitelka (eds.), *"Terrestrial Ecosystems in a Changing World"*, Springer-Verlag, Berlin Heidelberg, p.285-296.

T. Yoshioka. (2007) "Forest and Water, Humans and Nature" *Mori-Sato-Umi Renkann-gaku*, Field Science Education and Research Center (ed.), Kyoto University Press, p.211-222, in Japanese.

**[Papers]**

E. Konohira, J. Shindo, T. Yoshioka and H. Toda. (2006) "Stream water chemistry in Japan". *Journal of Japanese Association of Hydrological Sciences*, 36: 145-149 (in Japanese with English abstract).

T. Wakamatsu, E. Konohira, J. Shindo, T. Yoshioka, K. Okamoto, A. Itaya, M.-S. Kim. (2006) "Dissolved inorganic phosphate concentration in stream water in Japan and factors controlling the concentration". *Journal of Japan Society on Water Environment*, 29: 679-686 (in Japanese with English abstract).

T. Yoshioka, R. Tateno and M. Yoh. (2006) "Prospects of simulation models in watershed studies". *Japanese Journal of Limnology*, 67: 231-234 (in Japanese with English abstract).

H. Shibata, N. Ohte, F. Satoh and T. Yoshioka. (2006) "Biogeochemical model in forest ecosystem: Application and problem of PnET model". *Japanese Journal of Limnology*, 67: 235-244 (in Japanese with English abstract).

**[Miscellaneous]**

R. Tateno and T. Yoshioka. (2006) "Approach to elucidate the relationship between environmental qualities and people's environmental consciousness". *Shinrin-Kagaku*, 47: 70-72 (in Japanese).

**—Oral Presentation—**

September, 2006 H. Shibata, X. Xiu, A. Ogawa and T. Yoshioka. Spatial and seasonal pattern of stream chemistry in snow-dominated forest basin in northern Japan. LTER all scientists meeting, Colorado, USA

September, 2006 M. Nagata and T. Yoshioka. Structure of evaluation on watershed environment. The 47th Annual meeting of the Japanese Society of Social Psychology, Sendai, Japan

September, 2006 K. Takano, Y. Ishikawa, H. Mikami, M. Igarashi, S. Hino and T. Yoshioka. Features of cyanobacterial bloom in the eutrophic area in Lake Shumarinai, Hokkaido. The 71st Annual meeting of the Japanese Society of Limnology, Matsuyama, Japan

September, 2006 T. Yoshioka, M. Katsuyama, A. Ogawa, N. Sasaki, S. Hino and H. Shibata. Carbon and nitrogen isotope compositions in Lake Shumarinai sediments. The 71st Annual meeting of the Japanese Society of Limnology, Matsuyama, Japan

September, 2006 Y. Ishikawa, H. Mikami, M. Igarashi, K. Takano, S. Hino and T. Yoshioka. Variation in water level and limnological aspects of Lake Shumarinai as manmade lake. The 71st Annual meeting of the Japanese Society of Limnology, Matsuyama, Japan

September, 2006 N. Hayashi, T. Yoshioka and S. Saito. Sample survey on Interests in Watershed Environment (3) Relationship between interests in environments and intention to environmental conservation activities. Annual meeting of Society of Environmental Science, Japan, Tokyo

September, 2006 T. Matsukawa and T. Yoshioka. Sample Survey on interests in Watershed Environment (2) Structure of environmental consciousness from the viewpoint of value. Annual meeting of Society of Environmental Science, Tokyo, Japan

September, 2006 T. Yoshioka. Sample Survey on Interests in watershed Environment (1) Background and outline of the survey. Annual meeting of Society of Environmental Science, Japan, Tokyo

November, 2006 H. Shibata, X. Xiu, A. Ogawa and T. Yoshioka. Hydrologic and geographical controls on spatial and seasonal variations of stream hydrochemistry in a forested watershed. Biogeochemistry Workshop 2006 "Water Resource Preservation in Pluvial Regions", Kochi, Japan

December, 2006 T. Matsukawa and T. Yoshioka. Controlling factors of esthetic experiences on environments and their implications. The 34th seminar of the Japanese Society for Environmental Sociology, Tokyo, Japan

March, 2007 H. Shibata, X. Xiu, A. Ogawa and T. Yoshioka. Spatial distribution of the stream hydrochemistry caused by topographic differences in the forested watershed. The 54th Annual Meeting of

Ecological Society of Japan, Matsuyama, Japan

**—Poster Presentation—**

November, 2006 Matsukawa, T. and T. Yoshioka. Effect of childhood nature experience on environmental concerns about watershed. RIHN 1st International Symposium "Water and Better Human Life In The Future", Kyoto, Japan

## YUMOTO, Takakazu ——————————————————Professor

Born in 1959.

**—Curriculum Vitae—**

**[Academic Career]**

Department of Botany, Graduate School of Science, Kyoto University, D. Course (1987)

Department of Botany, Graduate School of Science, Kyoto University, M. Course (1984)

Faculty of Science, Kyoto University (1982)

**[Professional Career]**

Professor, Research Institute for Humanity and Nature (2003)

Associate Professor, Center for Ecological Research, Kyoto University (1994)

Lecturer, Faculty of Science, Kobe University (1992)

Lecturer, College of Liberal Arts, Kobe University (1992)

Research Assistant, College of Liberal Arts, Kobe University (1989)

Research Fellow, Japan Society for Promotion of Science (1987)

**[Higher Degrees]**

D.Sc. (Kyoto University, 1987), M.Sc. (Kyoto University, 1984)

**[Field Specialization/Background]**

Plant Ecology, Tropical Ecology

**[Academic Society Memberships]**

The Ecological Society of Japan, The Botanical Society of Japan, The Japan Society of Tropical Ecology, Japan Association for African Studies, The Society for the Study of Species Biology, Japanese Association of Historical Botany

**—Major Publications—**

**[Books (edited)]**

Yumoto T., H. Matsuda (2006) "World Heritage Eaten by Deer" Bun'ich Sogo Shupann (in Japanese).

**[Books]**

Hidaka T., T. Watanabe, J. Kubota, Y. Sato, T. Yumoto, T., Akimichi, M. Nakawo, T. Nakashizuka, A. Momoki, M. Sugiyama, Y. Konagaya (2006) 'What is meant by "Nature Conservation"?' Kodan-sha. 75-90.

Hidaka, T., T. Akimichi, T. Yumoto, M. Ichikawa, K., Abe, M. Inoue, I. Yamada (2006) 'From a view of 10,000 years' history', "Who Owns the Forests? The Future of Asian Forests and People" Showa-do. 26-60.

**[Papers (reviewed)]**

Imamura, A, T. Yumoto, J. Yanai (2006) Urease activity in soil as a factor affecting the succession of ammonia fungi. *Journal of Forest Research* 11: 131-135.

Tsujino, R., T. Hino, N. Agetsuma, T. Yumoto (2006) Variation in tree growth, mortality and recruitment among topographic positions in a warm temperate forest. *Journal of Vegetation Science* 17: 281-290.

Kawase D., T. Yumoto (2006) Clonal structure and genetic differentiation in the serpentine plant *Japonolirion osense* (Petrosaviaceae) using AFLP markers. *Acta Phytotax. Geobot.* 57: 183-190.

**[Articles]**

2006 'Hidden invaders in an environmental reforestation' "Eco-sophia" Showa-do, 17: 71-77 (in Japanese).

2006 'Forest-dwelling animals endangered by a civil war' "Shinrin-kankyo (Forest and Environment) 2006" Shinrin-bunka-kyokai, 94-104 (in Japanese).

2006 'Ideas of the history to build up natural forests' "Electric Civil Engineering" 325: 3-8 (in Japanese).

**—Research Activities—**

**[Field Research in Japan]**

| | |
|---|---|
| May, 2006 | Tenkawa Village, Nara Prefecture (Research on deer herbivory in Ohmine Mountains) |
| May, 2006 | Inagawa Town, Hyogo Prefecture (Research on charcoal producing forest) |
| May, 2006 | Ohshika Village, Nagano Prefecture (Research on bumblebees) |
| July, 2006 | Shimo-kitayama Village, Nara Prefecture (Research on deer herbivory in Ohmine Mountains) |
| August, 2006 | Yoichi City, Hokkaido Prefecture (Research on effects of fishery on forests) |
| August, 2006 | Sakae Village, Nagano Prefecture (Research on history of plants and forest utilization) |
| September, 2006 | Amami City, Kagoshima Prefecture (Research on history of plants and forest utilization) |
| September, 2006 | Otsu City, Shiga Prefecture (Research on history of plants and forest utilization) |
| November, 2006 | Tahara Town, Aich Prefecture (Research on Yoshigo and Inari shell mounds) |
| November, 2006 | Kuju Town, Oita Prefecture (Research on man-made meadow) |
| November, 2006 | Niihama City, Ehime Prefecture (Research on an alpine plant, *Phyllodoce nipponica*) |
| October, 2006 | Shiiba Village, Miyazaki Prefecture (Research on slash-burnt fields) |
| December, 2006 | Shiiba Village, Miyazaki Prefecture (Research on folk-lore on human-nature relations) |

**—Academic and Social Activities—**

Committee member of Long-term Vision in Japanese Environmental Policy (Ministry of Environment) (2006–)
Committee member of Carrying Capacity of Okinawan Tourism (Cabinet Office, Government Japan) (2006–)
Editor-in-chief of Japanese Journal of Conservation Ecology (2006–)
Steering committee member of the Wildlife Conservation Society (2004–)
Editorial board of Japanese Journal of Historical Botany (2003–)
Steering committee member of the Japan Society of Tropical Ecology (1998–)
Editorial board of Japanese Journal of Conservation Ecology (1996–)

**—Oral Presentation—**

May 22, 2006 Takahara, H., T. Yumoto, N. Oi. Conveners of Symposium "Environmental Changes and Human Activitires in Kyoto Basin—from Various Approaches" 54th Annual Meeting of Ecological Society of Japan (Ehime University, Matsuyama, Ehime Prefecture)

**—Poster Presentation—**

May 21, 2006 Tsujino, R., H. Sato, A. Imamura, T. Yumoto. 'Topographic characteristics of fungi sporocarp appearance' 54th Annual Meeting of Ecological Society of Japan (Ehime University, Matsuyama, Ehime Prefecture)

May 22, 2006 Kawase, D., I. Hayashi, T. Yumoto. 'Phylogeny of serpentine plants, *Lilium japonicum* var. *abeanum*' 54th Annual Meeting of Ecological Society of Japan (Ehime University, Matsuyama, Ehime Prefecture)

May 22, 2006 Tsujimura, N., T. Yumoto. 'Inter-species interaction among plants mediated by bumblebees in a cool temperate meadow' 54th Annual Meeting of Ecological Society of Japan (Ehime University, Matsuyama, Ehime Prefecture)

**—Public and School Lectures—**

March 14, 2006 'World Heritage eaten by deer' (Sanson Kaihatsu Center, Tenkawa Village, Nara Prefecture)

March 15, 2006 'Global environmental studies for tour-guiding' (Sanson Kaihatsu Center, Tenkawa Village, Nara Prefecture)

May 28, 2006 'Interaction between plants and animals in a tropical rainforest' (National Science Museum, Taito-ku, Tokyo Metropolitan)

June 18, 2006 'Tropical rainforests: wonderland of lives' (Konan City Kosei Library, Konan City, Shiga Prefecture)

July 8, 2006 'From a view of 10,000 years' history' (5th RHIN Forum, Kyoto International Hall, Kyoto City, Kyoto Prefecture)

October 23–24, 2006 Intensive series of lectures on 'Plant-animal interactions in tropical rainforests' in Ryukyu University (Ryukyu University, Ginowan-shi, Okinawa Prefecture)

October 28, 2006 Symposium 'Forgotten giants: endangered endemic pine, *Pinus armandii*' (Kagoshima Kenmin Koryu Center, Kagoshima-shi, Kagoshima Prefecture)

November 9, 2006 'Yakushima Island: Treasury of plants' in Symposium "World Heritages, Water, and People" (Research Institute for Humanity and Nature, Kyoto City, Kyoto Prefecture)

November 14–17, 2006 Field Course in Yakushima Island for Super Science High School Program (Oita Maiduru High School, Kamiyaku Town, Kagoshima Prefecture)

December 4, 2006 'Insects in tropical rainforest' Murasakino High School Super Compass (Murasakino High School, Kyoto City, Kyoto Prefecture)

**—Supervision and Host—**

1 graduate student from Graduate School of Science, Kyoto University; 1 PD fellow of JSPS

## ZHENG, Yuejun — Associate Professor

Born in 1962.

**—Curriculum Vitae—**

**[Academic Career]**

Graduate School of Agricultural and Life Science, The University of Tokyo, D. Course (1995)

Graduate School of Forest Resources, Beijing Forestry University, M. Course (1987)

Department of Forest Science, Inner Mongolia Agricultural University (1984)

**[Professional Career]**

Associate Professor, Research Institute for Humanity and Nature (2003)

Assistant Professor, The Graduate University for Advanced Studies (2001)

Visiting Scholar, Department of Natural Resources, University of New Hampshire (1998)

Assistant Professor, The Institute of Statistical Mathematics (1995)

Lecturer, College of Forest Resources, Beijing Forestry University (1988)

Assistant Professor, College of Forest Resources, Beijing Forestry University (1987)

**[Higher Degrees]**

D.Sc. (The University of Tokyo, 1995), M.Sc. (Beijing Forestry University, 1987)

**[Field Specialization/Background]**

Environmental Sociology, Environmental Economics, Social Survey Research

**[Academic Society Memberships]**

The Behaviormetric Society of Japan, The Japan Statistical Society, Society for Environmental Economics and Policy Studies, Japan Society of Forest Planning, International Institute of Sociology, International Sociological Association

**[Awards]**

Hayashi Chikio Award (Excellent Award) of the Behaviormetric Society of Japan for Promotion for Cross-national Comparative Studies (Sept. 2006)

**—Major Publications—**

**[Papers]**

Zheng Y., Yoshino R. (2006) "Area Sampling for Social Survey without Frames—A Case Study of Consciousness Survey Conducted in Tokyo—", Proc. of 34th Conference of the Behaviormetric Society of Japan: 224-227. (in Japanese)

Hiroshima T., Matsumoto M., Zheng Y. (2006) "Calculation on Carbon Stock in Forest Sector and House Sector at A National Level", FORMATH 5, 177-186. (in Japanese)

Zheng Y. (2006) "Cross-national Comparison of Transitions of Traditional Values in Eastern Asian Countries" Proc. of International Conference on Comparative Social Sciences, 1-2.

Aoyagi-Usui M., Kuribayashi M, Zheng Y. (2006) China-Japan Environmental Survey: Is Social Capital Effective for Promoting Pro-Environmental Actions?" Abstract of 42nd Conference of International Sociology Association: 1105.

Zheng Y. (2007) "Changes on Family, Marriage and Life Satisfaction" In Cross-national Comparison on Family, Work and Housekeeping: A Panel Survey in Beijing, China (The 2nd survey result), Ochanomizu University Tokyo: 114-123. (in Japanese)

Zheng Y. (2007) "Relationship between Atmospheric Environmental Change and People's Environmental Consciousness" in the Last Report on Emissions of Greenhouse Gases and Aerosol and Human Activities in the Eastern Asia, Research Institute for Humanity and Nature: 29-33. (in Japanese)

**[Reports]**

Zheng Y. et al (2007) "Comparative Survey on Environmental Consciousness in the East Asia—A Sampling Survey in Tokyo and Beijing, 2005" Research Institute for Humanity and Nature. 329 pp. (in Japanese)

Zheng Y. et al (2007) "Comparative Survey on Environmental Consciousness in the East Asia—A Sampling Survey in Taipei and Seoul, 2006", Research Institute for Humanity and Nature. 292 pp. (in Japanese)

Yoshino R., Hayashi F., Yamaoka K., Zheng Y., and Matsumoto W. (2007) "The Asia & Pacific Values Survey—China 2005 Survey (Beijing, Shanghai & Hong Kong), Institute of Statistical Mathematics. 521 pp. (in Japanese)

Yoshino R., Hayashi F., Yamaoka K., Zheng Y., and Matsumoto W. (2007) "The Asia & Pacific Values Survey—USA 2006 Survey", Institute of Statistical Mathematics. 238 pp. (in Japanese)

Yoshino R., Hayashi F., Yamaoka K., Zheng Y., and Matsumoto W. (2007) "The Asia & Pacific Values Survey—Taiwan 2006 Survey", Institute of Statistical Mathematics. 192 pp. (in Japanese)

**[Articles]**

November 11, 2006 Zheng Y., "Understanding the Diversities of Environmental Consciousness", Local News, The Mainichi Newspaper

**—Research Activities—**

**[Field Research in Foreign Countries]**

| | |
|---|---|
| July–Sept. 2006 | Taipei, China (Environmental Consciousness Survey in East Asia—Sample Survey in Taipei) |
| Sept.–Oct. 2006 | Seoul, South Korea (Environmental Consciousness Survey in East Asia—Sample Survey in Seoul) |
| Nov. 2006–Jan. 2007 | U.S.A. (The Asia and Pacific Values Survey – USA 2006 Survey) |
| Dec. 2006–Feb. 2007 | Hong Kong, China (Social Survey on Environment, Life and Culture in Hong Kong) |

**—Academic and Social Activities—**

Part-time lecturer with Bukkyo University (April 2006–)
COE Adjunct Scholar with Ochanomizu University (April 2004–)
Part-time lecturer with Doshisha University(April 2004–)
Editorial Board Member of Journal of Forest Planning (2002–)

**—Oral Presentation—**

| | |
|---|---|
| July 6, 2006 | "Relationship between the Character of Media Utility and Environmental Consciousness and Behavior", 2006 Conference of Society of Environmental Economics and Policy Studies in 2006 (Kyoto International Conference Hall, Kyoto) |
| July 15, 2006 | "Cross-national Comparison of Transitions of Traditional Values in Eastern Asian Countries", International Conference on Comparative Social Sciences (Sophia University, Tokyo) |
| July 25, 2006 | "China-Japan Environmental Survey: Is Social Capital Effective for Promoting Pro-Environmental Actions?", XVI ISA World Congress of Sociology (International Conference Centre, Durban, South Africa) |
| September 12, 2006 | "Area Sampling for Social Survey without Frames—A Case Study of Consciousness Survey Conducted in Tokyo—", The 34th Conference of the Behaviormetric Society of Japan (Seigakuin University, Ageo, Saitama) |
| November 25, 2006 | "China-Japan environmental survey: Is social capital effective for promoting pro-environmental actions?", SCORE Launch Conference on Sustainable Consumption Production: Opportunities and Challenges (CSCP, Wuppertal, Germany) |
| December 11, 2006 | "Does Social Capital Promote People's Pro-environmental Behavior?—From Comparative Survey on Environmental Issues in Japan and China, The 34th Seminar of Japanese Society of Environmental Sociology (Rikkyo University, Tokyo) |

**—Public Lectures—**

| | |
|---|---|
| October 4, 2006 | "Experience on Cross-cultures in China, Japan and USA", Public Lecture (Bukkyo University, Kyoto) |
| Novemebr 16, 2006 | "Confucian and Culture in East Asia", Symposium on Globalization and Traditional Cultures in East Asia (Bukkyo University, Kyoto) |

# Name Index

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**Appendix 1** **Number of Project Members (Analysis Sheet by organizations)**

| Project Number | Title of the project | Sub total | RIHN | University / College | | | Inter-University Research Institute | Public Institution | Private Institution | Post doctoral/ Graduate student | Others | Overseas institution |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | National | Public | Private | | | | | | |
| 1-1FR | Impacts of Climate Changes on Agricultural Production System in Arid Areas | 98 | 9 | 21 | 3 | 2 | 0 | 0 | 0 | 6 | 2 | 55 |
| 1-2FR | Recent Rapid Change of Water Circulation in the Yellow River and Its Effects on the Environment | 60 | 11 | 22 | 0 | 0 | 0 | 2 | 0 | 11 | 0 | 14 |
| 1-3PR | Vulnerability and Resilience of Social-Ecological Systems | 28 | 6 | 8 | 0 | 1 | 0 | 2 | 1 | 3 | 0 | 7 |
| 2-1FR | Emissions of Greenhouse Gases and Aerosols, and Human Activities in Eastern Asia | 58 | 7 | 22 | 2 | 6 | 0 | 12 | 1 | 0 | 3 | 5 |
| 2-2FR | Sustainability and Biodiversity Assessment on Forest Utilization Options | 146 | 8 | 34 | 1 | 11 | 0 | 29 | 1 | 51 | 4 | 7 |
| 2-3FR | Human Activities in Northeastern Asia and Their Impact to the Biological Productivity in North Pacific Ocean | 95 | 7 | 40 | 2 | 3 | 0 | 0 | 0 | 13 | 4 | 26 |
| 2-4FR | Human Impacts on Urban Subsurface Environments | 77 | 7 | 25 | 2 | 5 | 0 | 8 | 0 | 17 | 2 | 11 |
| 2-5FR | Agriculture and Environment Interactions in Eurasia: Past, Present and Future—The Ten-Thousand-Year History | 81 | 12 | 24 | 3 | 7 | 4 | 6 | 5 | 2 | 10 | 8 |
| 2-6FS | Clarification of Materials Circulatory Systems Changes in East Asia as a Result of the Use of Geo-Spherical Resources | 48 | 4 | 31 | 1 | 5 | 0 | 6 | 1 | 0 | 0 | 0 |
| 2-7FS | Relationships between Human Activities and Atmospheric Changes, Possibilities of Harmonious Society for Environmental Issues in the East Asia | 12 | 3 | 3 | 0 | 3 | 0 | 1 | 0 | 0 | 2 | 0 |
| 2-8FS | Environmental Changes and Vector-Borne Diseases in Tropical Asia and Oceania | 17 | 1 | 9 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 4 |
| 2-9FS | Evaluation for *on-farm* Conservation of Traditional Faming Systems and Lifestyle | 16 | 1 | 10 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 2 |
| 2-10FS | Better Understanding of Plant Distribution and Carbon Circulation Change by Human Activities in Asia | 9 | 1 | 4 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 2 |
| 3-1FR | Multi-Disciplinary Research for Understanding Interactions between Humans and Nature in the Lake Biwa-Yodo River Watershed | 48 | 8 | 17 | 3 | 9 | 0 | 2 | 2 | 2 | 4 | 1 |
| 3-2FR | Interactions between Natural Environment and Human Social Systems in Subtropical Islands | 49 | 7 | 20 | 3 | 4 | 1 | 2 | 1 | 6 | 3 | 2 |
| 3-3PR | Environmental Change and the Indus Civilization | 33 | 8 | 15 | 1 | 1 | 1 | 0 | 0 | 0 | 4 | 3 |

| Project Number | Title of the project | Sub total | RIHN | University / College | | | Inter-University Research Institute | Public Institution | Private Institution | Post doctoral/ Graduate student | Others | Overseas institution |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | National | Public | Private | | | | | | |
| 3-4FS | High-Altitude Environments—Association of Ageing, Diseases and Livelihood with Culture and Nature | 14 | 3 | 6 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 1 |
| 3-5FS | Collapse and Restoration of Ecosystem Networks with Human Activity | 16 | 1 | 8 | 0 | 2 | 1 | 2 | 0 | 2 | 0 | 0 |
| 4-1FR | Historical Evolution of the Adaptability in an Oasis Region to Water Resource Changes | 111 | 12 | 34 | 1 | 14 | 2 | 2 | 0 | 10 | 4 | 32 |
| 4-2FR | A Trans-Disciplinary Study on the Regional Eco-History in Tropical Monsoon Asia: 1945–2005 | 122 | 11 | 38 | 4 | 21 | 5 | 4 | 0 | 23 | 9 | 7 |
| 4-4PR | Neolithisation and Modernisation: Landscape History on East Asian Inland Seas | 41 | 9 | 8 | 4 | 4 | 4 | 0 | 1 | 2 | 8 | 1 |
| 4-5PR | Historical Interactions between Hybrid Society of Ethnic Groups and the Natural Environment in a Semi-Arid Region, Central Eurasia | 62 | 10 | 23 | 3 | 12 | 2 | 0 | 0 | 10 | 2 | 0 |
| 4-6FS | Historical Interaction between Nomadic States' Activities and Environmental Transformation in the High-Latitude Asian Steppe Region | 22 | 2 | 11 | 1 | 4 | 1 | 1 | 1 | 0 | 1 | 0 |
| 5-1FR | Global Water Cycle Variation and the Current World Water Resources Issues and Their Perspectives | 86 | 5 | 34 | 0 | 4 | 0 | 7 | 0 | 12 | 1 | 23 |
| 5-2FR | Interactions between the Environmental Quality of a Watershed and the Environmental Consciousness: With Reference to Environmental Changes Caused by the Use of Land and Water Resources | 39 | 8 | 16 | 1 | 2 | 0 | 0 | 5 | 0 | 6 | 1 |
| 5-3FR | A New Cultural and Historical Exploration into Human-Nature Relationships in the Japanese Archipelago | 123 | 8 | 29 | 12 | 21 | 3 | 4 | 2 | 16 | 28 | 0 |
| 5-4PR | Effects of Environmental Change on Interactions between Pathogens and Humans | 27 | 7 | 9 | 0 | 1 | 0 | 1 | 1 | 4 | 1 | 3 |
| | Total | 1,538 | 176 | 521 | 49 | 144 | 25 | 95 | 22 | 191 | 100 | 215 |

As of March 31, 2007

## Appendix 2 Research Fields of Project Members

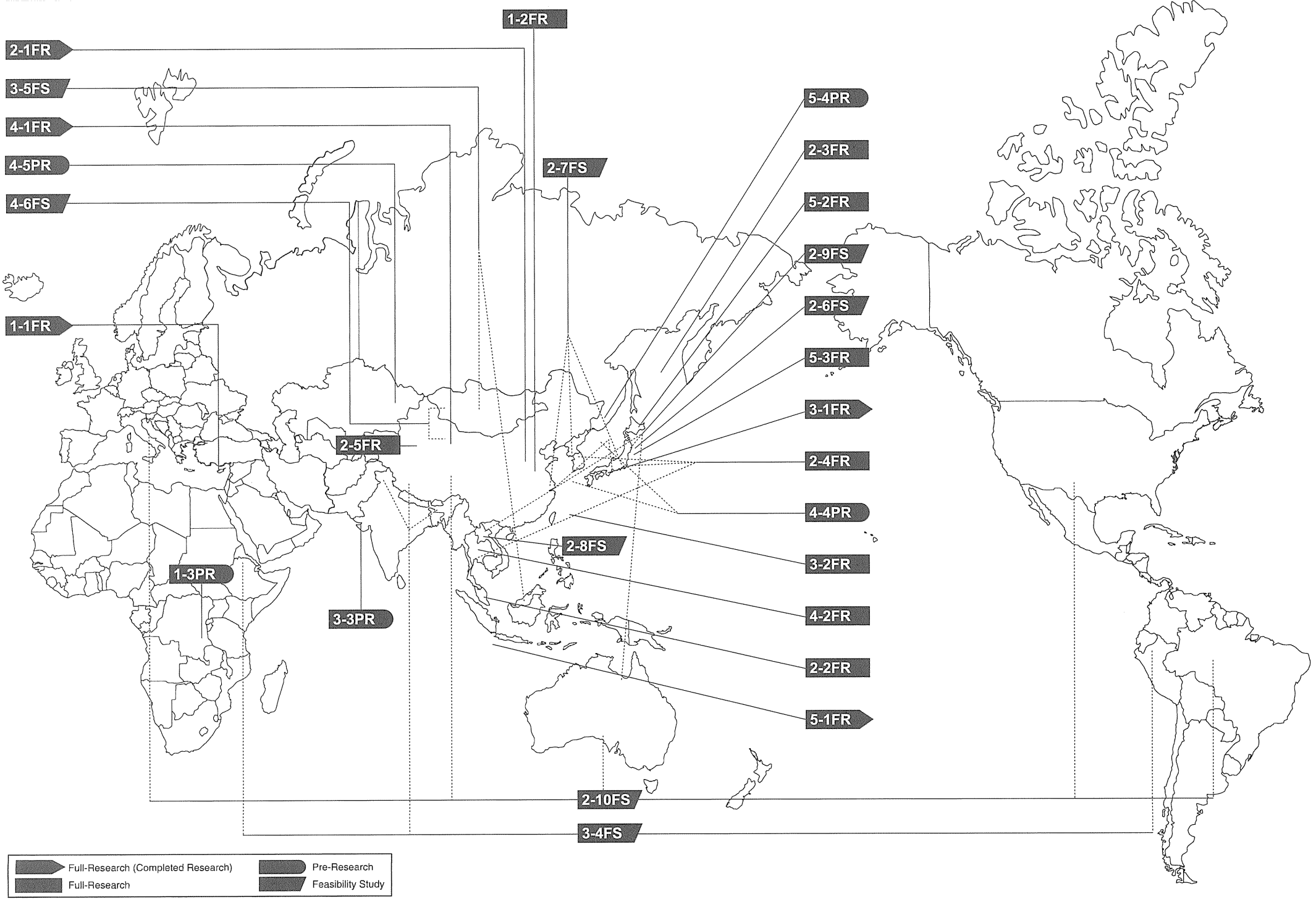
| Project Number | Title of the Project | The number of project members | | | | Research background of project members |
|---|---|---|---|---|---|---|
| | | Natural Science | Humanities and Social Science | Multidisciplinary | Sub total | |
| 1-1FR | Impacts of Climate Changes on Agricultural Production System in Arid Areas | 75 | 19 | 4 | 98 | (Natural Sciences) Meteorology, Hydrology, Agronomy, Soil hydrology, Soil physics, Climatology, Forest ecology, Microclimatology, Hydraulics, Irrigation engineering, Hydrogeology, Regional planning, Plant production environmental studies, Irrigation and drainage, Agricultural meteorology, Marine environmental studies, Animal husbandry<br>(Humanities and Social Sciences) Development economics, Agricultural economics, Rural sociology, Social anthropology, Livestock economics<br>(Multidisciplinary) Data management, Irrigation and drainage, Meteorology, Grassland ecology |
| 1-2FR | Recent Rapid Change of Water Circulation in the Yellow River and Its Effects on the Environment | 30 | 5 | 25 | 60 | (Natural Sciences) Oceanology, Hydrology, Meteorology, Analysis on satellite information, Geography, Geology, Biogeochemistry<br>(Humanities and Social Sciences) Water Resources, Global economy, Agro-ecomomy, Phylosophy of China<br>(Multidisciplinary) Eco-hydrology, Local planning, Environmental conservation, Management of water resouces |
| 1-3PR | Vulnerability and Resilience of Social-Ecological Systems | 13 | 10 | 5 | 28 | (Natural Sciences) Agronomy, Remote sensing, Agricultural meteorology, Atmospheric physics, Forest ecology, Botany, Soil science, Climatology meteorology, Mathematical ecology, Soil science, Agronomy<br>(Humanities and Social Sciences) Resource & environmental economics, Development economics, Agricultural economics, Development studies, African sociology, Agricultural economics, Economics, Human geography<br>(Multidisciplinary) Environmental geography, Geographic information, Mathematics, Human ecology, Environmental & health economics |
| 2-1FR | Emissions of Greenhouse Gases and Aerosols, and Human Activities in Eastern Asia | 45 | 4 | 9 | 58 | (Natural Sciences) Satellite meteorology, Atmospheric physics, Atmospheric chemistry, Meteorology, Atmospheric environment, Atmospheric science, Atmospheric environment engineering, Aerosol science, Atmospheric radiation<br>(Humanities and Social Sciences) Economics, Demography, History<br>(Multidisciplinary) Spacial information science, Social engineering, Social statistics, Electric engineering, Remote sensing engineering |
| 2-2FR | Sustainability and Biodiversity Assessment on Forest Utilization Options | 115 | 25 | 6 | 146 | (Natural Sciences) Forest ecology, Fungal ecology, Plant ecology, Animalecology, Insect ecology, Forest entomology, Plant physiology, Forestmanagement, Insect pathology mathmatical ecology, Plant taxonomy, Forestbiology, Plant systematics, Insect taxonomy, Forest hydrology<br>(Humanities and Social Sciences) Areal studies (area study), Silvicultural economics, Environmental sociology, Anthropology, Forest management, Agriculturaleconomics<br>(Multidisciplinary) Environmental information science, Landscape, Forestpolitics, Silvicultural economics |
| 2-3FR | Human Activities in Northeastern Asia and Their Impact to the Biological Productivity in North Pacific Ocean | 66 | 14 | 15 | 95 | (Natural Sciences) Environmental chemistry, Paleoclimate reconstruction by ice cores, Ice core technology, Marine meteorology, Physical oceanology, Chemical oceanology, Biochemical oceanology, Climate change science, Geochemistry, Soil conservation science, Glacial chemistry, Glacial hydrology, Marine technology, Hydrology, Glacial biology, Oceanology, Water resource engineering, Marine biology, Paleo oceanology, Organic geochemistry, Marine biogeochemistry, Forest ecology, Glacial climatology, Ice physics, Paleo ecology, Plant ecology, Condensed matter physics, Hydrometeorology, Data management, Pollution of Amur River, Hydrology of Amur River, Atmospheric chemistry, Forest hydrology, Trace metal geology, Conservation of Amur River basin, Soil geochemistry<br>(Humanities and Social Sciences) Economic of Russian Far East, Agroeconomy, Politics, Archeology, Human geography, Forest environment conservation, Economic geography, Land use changes in the Amur River basin, Forest ecology<br>(Multidisciplinary) Geography, Marine mammal resources, Remote sensing, Ecological management, Forest hydrology, Forestry, Forest hydrology and GIS modelling, Forest fire in the Amur River basin, Atmospheric chemistry, Forest ecology |
| 2-4FR | Human Impacts on Urban Subsurface Environments | 38 | 20 | 19 | 77 | (Natural Sciences) Isotope hydrology, Hydorology, Volcanology, Global dynamics, Groundwater analysis, Geochemistry, Gravity satellite analysis, Seismology, Earth system science, Meteorology, Geothermics, Engineering geodesy, Environmental analysis, Geology, Oceanography, Physical hydrology<br>(Humanities and Social Sciences) Social development study, Environmental economics, Environmental engineering, Development economics, Urban geography analysis, Cultural eography urban study, Material flow analysis, Historical geography, City planning, Analysis of urban environment, Environment policy, Socio-economic analysis, Geography-GIS, Demography, Analysis of subsurface environment, Analysis of water resources<br>(Multidisciplinary) Geography, Analysis of urban climate, Analysis of subsurface environment, Regional environment study, Environment conservation study, Analysis of subsurface temperature, Analysis of trace metals, Hydrogeomorphology, Dwelling space study, Analysis of earth environment, Groundwater analysis, Biogeochemistry |
| 2-5FR | Agriculture and Environment Interactions in Eurasia: Past, Present and Future<br>—The Ten-Thousand-Year History | 44 | 30 | 7 | 81 | (Natural Sciences) Plant cytogenetics, Plant breeding, Anthropology, Plant molecular genetics, Archaeobotany, Plant genetics, Geochemistry, Breeding, Molecular genetics, Agronomy, Plant genetic resources, Genetics, Genetic evolution, Genetic ecology, Glacial biology, Weed ecology, Isotonic biological earth science, Botany, Environmental archaeology, Plant ecology, Genetic resources, Ethnobotany, Cell biology, Tame plant origins, Applied zoological genetics, Crop science<br>(Humanities and Social Sciences) Cultural anthropology, Folklore, Archaeology, Archaeo-anthropology, Linguistics, Cultural anthropology, Business management for the middle mountains area, Geography, Archaeobotany, Oriental history, Human geography, Modern agricultural history<br>(Multidisciplinary) Anthropology, Ethnology, Botany, Environmental archaeology, Archaeobotany, Archaeology |
| 2-6FS | Clarification of Materials Circulatory Systems Changes in East Asia as a Result of the Use of Geo-Spherical Resources | 48 | 0 | 0 | 48 | (Natural Sciences) Resource geology, Isotope earth environmental study, Soil biology, Petrology, Soil chemistry, Environmental education study, Marine geochemistry, Resource geochemistry, Geochemistry, Isotope ecology, Water environment study, Atmospheric environment study, Acid rain geochemistry, Cosmochemistry, Petrology, Solid earth planet physics, Heavy metal resource environment study, Sedimentary geology, Resource archaeology, Forest hydrology, Organic geochemistry, Medical science, Aquatic chemistry, Atmospheric physics, Isotope geochemistry, Trace-element mineralogy, Biology, Environmental mineralogy, Biogeochemistry, Hydrology, Acid rain assessment, Isotope environmental study, Asian dust chemistry, Agricultural chemistry, Acid rain study, Ultra-trace element geochemistry, Marine biology, Atmospheric chemistry, Resource geology<br>(Humanities and Social Sciences)<br>(Multidisciplinary) |
| 2-7FS | Relationships between Human Activities and Atmospheric Changes, Possibilities of Harmonious Society for Environmental Issues in the East Asia | 1 | 2 | 9 | 12 | (Natural Sciences) Atmospheric physics<br>(Humanities and Social Sciences) Demography, Applied ethics<br>(Multidisciplinary) Environmental statisitcs, Forest environment, Quantitative philology, Medical statistics, Mathematical statistics, Environmental policy, Environmental economics, Ecological anthropology |
| 2-8FS | Environmental Changes and Vector-Borne Diseases in Tropical Asia and Oceania | 14 | 1 | 2 | 17 | (Natural Sciences) International school health, Infectious disease epidemiology, Medical entomology, Vector ecology, Ecology, Malariology, Tropical medicine, Infectious disease pathology, Theoretical epidemiology of infectious diseases, Nursing science, Parasitology, Public health, International health, Community health, Biological anthropology<br>(Humanities and Social Sciences) Medical sociology<br>(Multidisciplinary) Human ecology, Tropical public health, History of science, History of biology |
| 2-9FS | Evaluation for *on-farm* Conservation of Traditional Faming Systems and Lifestyle | 14 | 2 | 0 | 16 | (Natural Sciences) Genetic ecology, Plant genetics, Plant nutrition, Tropical ecology, Ecological genetics, Microbial ecology, Natural metrology, Plant physiology<br>(Humanities and Social Sciences) Religious sociology, Economics<br>(Multidisciplinary) |
| 2-10FS | Better Understanding of Plant Distribution and Carbon Circulation Change by Human Activities in Asia | 3 | 2 | 4 | 9 | (Natural Sciences) Department of environmental sciences, Plant ecology, Aeronomy<br>(Humanities and Social Sciences) Comparison culture theory, Bibliology, Theology, Comparison civilization theory, Community or regional development theory<br>(Multidisciplinary) Global environment engineering evaluation, Vegetation satellite study, Vegetation produce model, Atmosphere environmental engineering, Earth observation satellite |

| Project Number | Title of the Project | The number of project members | | | | Research background of project members |
|---|---|---|---|---|---|---|
| | | Natural Science | Humanities and Social Science | Multidisciplinary | Sub total | |
| 3-1FR | Multi-Disciplinary Research for Understanding Interactions between Humans and Nature in the Lake Biwa-Yodo River Watershed | 30 | 13 | 5 | 48 | (Natural Sciences) Isotope biogeochemistry, Isotope ecology, Inland water ecology, Mathematical ecology, Watershed ecology, Biology, Plant ecology, Organic biogeochemistry, Aquatic ecology, Ecology, Animal ecology, Environmental physiology, Coast oceanic physics, Aquatic microbial ecology, Environmental engineering, Watershed conservation ecology, Fish ecology, Applied ecology<br>(Humanities and Social Sciences) Cultural anthropology, Environmental sociology, Sociology, Agricultural economics, Social psychology, Environmental economics, Social psychology, Environmental psychology, Tourism research<br>(Multidisciplinary) Mathematical ecology, Watershed diagnosis study, Multimedia processing, Environmental system engineering, Geographic information system |
| 3-2FR | Interactions between Natural Environment and Human Social Systems in Subtropical Islands | 29 | 10 | 10 | 49 | (Natural Sciences) Hydrology, Ecology, Chemistry, Botany, Ethology, Taxonomy, Morphology, Entomology, Oceanography, Physiology<br>(Humanities and Social Sciences) Economics, History, Ethnology, Sociology<br>(Multidisciplinary) Environmental study, Agriculture, Forestry, Tourism, Ceramics, Textile |
| 3-3PR | Environmental Change and the Indus Civilization | 9 | 22 | 2 | 33 | (Natural Sciences) Physical geography, Agriculture, Earth science, Civil engineering, Glacier biology, Resource geography, Ecology<br>(Humanities and Social Sciences) Archaeology, Linguistic, Indology, Cultural anthropology, Economics, History of west Asia<br>(Multidisciplinary) Archaeology |
| 3-4FS | High-Altitude Environments—Association of Ageing, Diseases and Livelihood with Culture and Nature | 4 | 4 | 6 | 14 | (Natural Sciences) Environmental ecology, Forest ecology, Agroecology, Climatology, Meteorology, Ecology of water resource, Tropical ecology<br>(Humanities and Social Sciences) Ethnology, Human geography, Area study, Study of nature, Anthropology<br>(Multidisciplinary) Field medicine, Geriatrics, Neurology, Agricultural economics, Rural development study, Cardiology |
| 3-5FS | Collapse and Restoration of Ecosystem Networks with Human Activity | 8 | 6 | 2 | 16 | (Natural Sciences) Forest ecology, Interaction ecology, Grassland ecology, Insect ecology<br>(Humanities and Social Sciences) Area study, Agricultural economy, Economy, Insect ecology, Sociology, Theoretical sociology<br>(Multidisciplinary) Area environmental science |
| 4-1FR | Historical Evolution of the Adaptability in an Oasis Region to Water Resource Changes | 52 | 41 | 18 | 111 | (Natutal Sciences) Aerosols, Remote sensing, Satellite meteorology, Meteorology, Climatology, Forest ecology, Water circulation, Hydrological modeling, Hydrology, Ecology, Glaciochemistry, Glaciology, Glacioclimatology, Glacial-biology, Hydrospheric-atmospheric science, Geochemistry, Geochemistry, Soil Hydrology, Isotope chemistry, Dendrochronology, Irrigation drainage, Organic chemistry, etc.<br>(Humanities and Social Sciences) History of Mongolian empire, Archaeology, Philosophical history, Sociology, Social history, Political science, Xixia history, Chinese history, Chinese philosophy, East Asian History, Chinese legal history, Cultural anthropology, Manchurian history, Ethnology<br>(Multidisciplinary) Environmental archaeology, Environmental resourcesm Social environment, Forest biology, History of global environmenta |
| 4-2FR | A Trans-Disciplinary Study on the Regional Eco-History in Tropical Monsoon Asia: 1945–2005 | 38 | 33 | 51 | 122 | (Natural Sciences) Genetics, Marine plants ecology, Ecological science, Physical anthropology, Plant nutrition, Forest ecology, Human ecology, Ecology, Phycology, Biological diversity and resources, Geography, Tropical medicine, Tropical hydrology, Tropical soil science, Tropical agriculture, Tropical health, Agricultural material cycle system, Ethno-soil science, Geriatrics<br>(Humanities and Social Sciences) Medical anthropology, Sociology, Cultural anthropology, Anthropology, Archaeology, Geography, Folklore, The study of material culture, Ethnology, History, Historical anthropology, Historical geology<br>(Multidisciplinary) Nutritional epidemiology, Developmental economics, School health, Environmental sociology, Fish ecology, Conservative ecology, Architectural anthropology, International school health, Natural resources, Information culture, Plant genetics, Forest policy, Forest sociology, Forest ecology, Forest ecology use, Human ecology, Fisheries economics, Population, Geology, Tropical medicine, Tropical public health, Tropical resources, Agriculture, Natural resources management |
| 4-4PR | Neolithisation and Modernisation: Landscape History on East Asian Inland Seas | 9 | 26 | 6 | 41 | (Natural Sciences) Ichthyology, Eco-mining geology, Agricultural engineering, Sedimentology, Palaeo-ethnobotany, Landscape engineering, Palaeo-microbiology, Geography, Conservation ecology<br>(Humanities and Social Sciences) Prehistoric anthropology, Ethnology, Chinese history, Landscape archaeology, Socio-linguistics, Japanese history, Landscape history, Trade history, Japanese archaeology, Cultural anthropology, Chinese archaeology, Historical geography, Chinese folklore, Korean archaeology, Euro-Japan archaeology, Medieval history, Archaeology<br>(Multidisciplinary) Ecological anthropology, Zooarchaeology, Information culture, Archaeobotany, Linguistic information, Prehistoric anthropology |
| 4-5PR | Historical Interactions between Hybrid Society of Ethnic Groups and the Natural Environment in a Semi-Arid Region, Central Eurasia | 29 | 28 | 5 | 62 | (Natural Sciences) Hydrology, Sedimentology, Remote sensing, Glacier biology, Glaciology, Climate change, Groundwater hydrology, Pedology, Dendrochronology, Forest ecology, Grassland ecology, Soil science, Architectural planning, Irrigation agriculture, Irrigation system, Synthesis of natural proxies and historical documents, Isotope hydrology, Water circulation, Ice core analysis<br>(Humanities and Social Sciences) Politics, Ethnology, Pastoral Nomadism, Chinese history, Archaeology, International relations on water resources, Oriental studies, Central Eurasian history, Social anthropology, Persian documents, Manchurian documents<br>(Multidisciplinary) Cultural anthropology, Environmental archaeology, Geography, Area studies |
| 4-6FS | Historical Interaction between Nomadic States' Activities and Environmental Transformation in the High-Latitude Asian Steppe Region | 6 | 10 | 6 | 22 | (Natural Sciences) Meteorology, Analysis of environmental dynamics, Reconstruction of paleoenvironment, Hydrology, Ecology<br>(Humanities and Social Sciences) Archaeology, Chinese legal history, Chinese environmental history, Mongolian history, Agricultural economics, Anthropology<br>(Multidisciplinary) Natural geography, Global environmental science, Paleoclimatology, Zootechnical economics, Environmental archaeology, Nutrition |
| 5-1FR | Global Water Cycle Variation and the Current World Water Resources Issues and Their Perspectives | 50 | 9 | 27 | 86 | (Natural Sciences) Geography, Forest hydrology, Communication engineering, Eco-hydrological meteorology, Meteorology, Earth hydrology, Engineering of environment remote sensing, Agricultural engineering, Hydrology, Isotope hydrology, Geochemistry, Climatology, Geophysics, Remote sensing, Hydrological meteorology, Ecology, Water resource engineering, Science of environmental conservation<br>(Humanities and Social Sciences) Political science, International pedagogy, Jurisprudence, Science of environmental policy, Cultural anthropology, Human geography, Social anthropology<br>(Multidisciplinary) Science of social infrastructure, Science of global water resources, International economics of agriculture, Forest hydrology, Space informatics, Environmental science of river, Geography, Earth environmental science, Science of urban life, International informatics, Science of water resources, International agricultural science, International studies of environment, Life cycle assessment, Science of forest management, Science of river management, Hydrology |
| 5-2FR | Interactions between the Environmental Quality of a Watershed and the Environmental Consciousness: With Reference to Environmental Changes Caused by the Use of Land and Water Resources | 25 | 9 | 5 | 39 | (Natural Sciences) Ecology, Forest ecology, Plant ecology, Hydrology, Forest hydrology, Biogeochemistry, Geochemistry, Forest sciences, Forest soil science, Environmental sciences, Limnology, Environmental engineering, River engineering<br>(Humanities and Social Sciences) Sociology, Social psychology, Economics, Environmental sociology, Environmental economics, Rural planning<br>(Multidisciplinary) Environmentology, Social statistics, Informatics |
| 5-3FR | A New Cultural and Historical Exploration into Human-Nature Relationships in the Japanese Archipelago | 65 | 52 | 6 | 123 | (Natural Sciences) Plant taxonomy, Ecology, Forest ecology, Physical anthropology, Molecular ecology, Stable isotope ecology, Theoretical ecology, Plant phylogeny, Paleo-environmental sciences, Primatology, archaeology, reproductive ecology, Environmental design, Botany, Paleo-ecology, Plant ecology, Animal ecology, Population genetics, Animal phylogeny, Natural geography, Molecular phylogeny, Vegetation history, Anthropology, Tephro-chronology, Ecological anthropology, Paleo-biology, Genetics, Plant genetic resources<br>(Humanities and Social Sciences) Philosophy, Cultural anthropology, Environmental history, Ethnology, History, Historical economics, Linguistic ethnology, Geography, Cultural geography, Environmental economic, Japanese medieval history, Japanese modern history, Historical monument sciences<br>(Multidisciplinary) Crop sciences, Paleo-environmental sciences, Conservation biology |
| 5-4PR | Effects of Environmental Change on Interactions between Pathogens and Humans | 17 | 3 | 7 | 27 | (Natural Sciences) Ecology, Mathematical ecology, Ecosystem ecology, Microbial ecology, Toxicology, Fish ecology, Environmental conservation, Molecular biology, Animal ecology, Bioinformatics, Nanotechnology, Plant breeding<br>(Humanities and Social Sciences) Economics, Food Culture, Environmental Economics<br>(Multidisciplinary) Ecology, Health Sciences, Sanitary Sciences, Bacteriology, Medical Sciences |
| | Total | 877 | 400 | 261 | 1,538 | |

As of March 31, 2007

# Field of the Research Project (Country which is called in commonly)

Appendix 3




## Full-Research (Completed Research)

**1-1FR** **Impacts of Climate Changes on Agricultural Production System in Arid Areas**
○Eastern coast of the Mediterranean Sea (The Seyhan river basin of Turkey, etc)

**2-1FR** **Emissions of Greenhouse Gases and Aerosols, and Human Activities in Eastern Asia**
○Area of the Asia, especially China

**3-1FR** **Multi-Disciplinary Research for Understanding Interactions between Humans and Nature in the Lake Biwa-Yodo River Watershed**
○The Lake Biwa-Yodo River watershed

**4-1FR** **Historical Evolution of the Adaptability in an Oasis Region to Water Resource Changes**
○Central Eurasia

**5-1FR** **Global Water Cycle Variation and the Current World Water Resources Issues and Their Perspectives**
○Total scale of the earth (the statistical data of Japan and Southeast Asia)

## Pre-Research

**1-3PR** **Vulnerability and Resilience of Social-Ecological Systems**
○Sub-Sharan Africa (Zambia, Burkina Faso)

**3-3PR** **Environmental Change and the Indus Civilization**
○The northwestern part of the Indian Subcontinent

**4-4PR** **Neolithisation and Modernisation: Landscape History on East Asian Inland Seas**
○The Japan Sea rim, the coast of the East China Sea

**4-5PR** **Historical Interactions between Hybrid Society of Ethnic Groups and the Natural Environment in a Semi-Arid Region, Central Eurasia**
○The semi-arid region in Central Eurasian (the Ili River and its surroundings)

**5-4PR** **Effects of Environmental Change on Interactions between Pathogens and Humans**
○Japan (The Lake Biwa), China (Shanghai)

## Full-Research

**1-2FR** **Recent Rapid Change of Water Circulation in the Yellow River and Its Effects on the Environment**
○The Yellow River Drainage basin

**2-2FR** **Sustainability and Biodiversity Assessment on Forest Utilization Options**
○Malaysia (Sarawak, Sabah), Japan (Yaku-Island, a Mountainous of Abukuma region)

**2-3FR** **Human Activities in Northeastern Asia and Their Impact to the Biological Productivity in North Pacific Ocean**
○The Amur river basin (Russia, China), the Sea of Okhotsk, northern North Pacific

**2-4FR** **Human Impacts on Urban Subsurface Environments**
○Basins with cities in the eastern and southeastern Asia (Tokyo, Osaka, Seoul, Bangkok, etc)

**2-5FR** **Agriculture and Environment Interactions in Eurasia: Past, Present and Future —The Ten-Thousand-Year History**
○Eurasian Continent and around the area (Northern Africa and Pacific-rim, etc.)

**3-2FR** **Interactions between Natural Environment and Human Social Systems in Subtropical Islands**
○Japan (Iriomote Island, Okinawa)

**4-2FR** **A Trans-Disciplinary Study on the Regional Eco-History in Tropical Monsoon Asia: 1945–2005**
○Southeast Asia

**5-2FR** **Interactions between the Environmental Quality of a Watershed and the Environmental Consciousness: With Reference to Environmental Changes Caused by the Use of Land and Water Resources**
○Japan (Shumarinai Drainage Basin, Hokkaido, and Wakayama)

**5-3FR** **A New Cultural and Historical Exploration into Human-Nature Relationships in the Japanese Archipelago**
○Japanese Archipelago

## Feasibility Study

**2-6FS** **Clarification of Materials Circulatory Systems Changes in East Asia as a Result of the Use of Geo-Spherical Resources**
○Japan (Iwate pref., Shiga pref., Kyoto pref., Kagawa pref., Kumamoto pref.)

**2-7FS** **Relationships between Human Activities and Atmospheric Changes, Possibilities of Harmonious Society for Environmental Issues in the East Asia**
○Japan (the area of the Tokyo), Korea (the area of the Seoul), China (the Yangtz River delta, the Bohai Sea Gulf)

**2-8FS** **Environmental Changes and Vector-Borne Diseases in Tropical Asia and Oceania**
○Tropical Asia (Laos, Bangladesh, etc.)

**2-9FS** **Evaluation for *on-farm* Conservation of Traditional Faming Systems and Lifestyle**
○Japan (Tsuruoka City), the area of Indochina, Indonesia, Australia, Northern Territory

**2-10FS** **Better Understanding of Plant Distribution and Carbon Circulation Change by Human Activities in Asia**
○Total scale of the earth (the statistical data of, China, USA, Brazil, EU, Australia)

**3-4FS** **High-Altitude Environments–Association of Ageing, Diseases and Livelihood with Culture and Nature**
○The Andes, Himalaya, Tibet, Ethiopian highland

**3-5FS** **Collapse and Restoration of Ecosystem Networks with Human Activity**
○Tropical forests of the eastern part of the Asia, Central Asia highlands (Mongolia)

**4-6FS** **Historical Interaction between Nomadic States' Activities and Environmental Transformation in the High-Latitude Asian Steppe Region**
○Mongolia, China (the Inner Mongolia Autonomous Region)

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