



CIC NEWSLETTER

*Center for International Collaboration
Atmosphere and Ocean Research Institute
The University of Tokyo*

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Activities of JSPS-Asian CORE Project: Establishment of Research and Education Network on Coastal Marine Science in Southeast Asia

Shuheï Nishida

Professor, Center for International Collaboration

1. Project outline

“Establishment of Research and Education Network on Coastal Marine Science in Southeast Asia” (ACORE-COMSEA) is a 5-year project launched in the year 2011 as a part of the Asian CORE Program supported by the Japan Society for the Promotion of Science (JSPS).

In view of the accomplishments and challenges of the previous Multi-lateral Core University Program called the Coastal Marine Science (2001–2010), the ACORE-COMSEA (2011–2015) aims to establish and enhance the research and education network in the field of coastal marine sciences in Southeast Asia through collaboration with scientists/researchers from six different countries: Indonesia, Japan, Malaysia, Philippines, Thailand, and Vietnam. The whole project is being managed from the project office located at the Atmosphere and Ocean Research Institute (AORI), the University of Tokyo, with Prof. Shuheï Nishida of the Center of International Collaboration as the Project Coordinator. All activities of individual collaborating countries are managed by the national coordinators of the core institutions and other project members.

This project aims at enhancing scientific research in two different ways: (1) conducting research centered on the specific research groups covering wide areas of Southeast Asia, and (2) conducting integrative, multi-disciplinary research on ecosystems in specific sites across Southeast Asia. The project also aims at establishing and expanding an integrative database specific to the coastal environment and biodiversity in Southeast Asia, by compiling all relevant information obtained from this project, literature sources, and data mining from unpublished sources. Here we report all the major activities related to this project undertaken during the period December 2011–October 2012. See the project website for other activities: http://mits10.aori.u-tokyo.ac.jp/asiacore/index_e.html

2. ACORE-COMSEA Planning Workshop “Coastal Ecosystems in Southeast Asia: Towards an Integrative Research”

With the aim of reviewing the current status of the coastal ecosystems in Southeast Asia and establishing the implementation plan for FY2012–2015, a workshop—“Coastal Ecosystems in Southeast Asia: Towards an Integrative Research” —was held at AORI on December 5–7, 2011.

Fifty-nine researchers (38 in total from Indonesia, Malaysia, Philippines, Thailand, and Vietnam; and 21 from Japan) participated in this workshop. The welcome note was delivered by Prof. Kazuhiro Kogure, Vice President of AORI; the welcome note was followed by parallel sessions by 6 countries and 7

research groups (physical oceanography; biodiversity—harmful microalgae, macrophytes, plankton, fishes, and benthos; and marine pollution) to plan out the future research activities in respective fields. On the following day, the group leaders and national coordinators reported the proposals discussed in the parallel sessions.

Prof. Shuhei Nishida of AORI, the Project Coordinator, proposed implementation plan based on issues discussed in sessions in the last two days. This meeting reached an agreement to put into practice the plans for integrative ecosystem research and joint seminars along with exchange of researchers and to establish an integrative database on coastal marine sciences. Meanwhile, the participants visited The National Museum of Nature and Science in Tsukuba City to join a special session on “Biodiversity Research and Collection Management.” Active discussions were held on the latest research facility and the specimen preservation procedure followed in this museum.

The weather was mostly fine throughout this period, although it had been very cold in the days prior to the workshop. Participants from Southeast Asia seemed comfortable with staying during the winter in Japan. The workshop was successful in terms of developing the implementation plans as well as for having the opportunity to exchange vigorous opinions with researchers from various fields. This has helped us to take a significant step forward toward a successful future international collaboration.



Discussion in the plenary session



Workshop participants

3. Integrative Research on Seagrass Ecosystems in Malaysia



Briefing at Universiti Putra Malaysia

located in front of a large mangrove area seriously affected by human activities, while the latter are located in an open, fore-reef area isolated from human activities. These areas also represent two major types of seagrass ecosystems in Southeast Asia. This research will provide detailed and precise knowledge on the current status of the seagrass beds and their associated communities, the food-web structure, and the pathways of pollutants in the two areas. The results from the two distinct areas will be compared to identify the major factors that may be responsible for the differences between these contrasting ecosystems.

The first phase of this project was conducted in the period June 28–July 16, 2012, with the collaboration of the ACORE-COMSEA members from Malaysia, Thailand, and Japan, including Prof. S.

Nishida, Dr. T. Komatsu, and Dr. J. Nishikawa of AORI. A preliminary research was first done in the period June

28–July 2 aimed to compile the distributional maps. Investigation on the biodiversity and food-web/pollution research was conducted during early July in collaboration with different research groups. For the food-web research, stable-isotope ratios of carbon and nitrogen have been applied as indices of trophic levels and food resources. The field observation/sampling was followed by laboratory work that also included identification/sorting and pre-processing of samples (e.g., sub-sampling, dissection, and drying) for stable-isotope and pollutant analyses. Further analyses are now in progress at laboratories involved with this project.



Field sampling in the seagrass areas of Merambong, Johor



Sample processing in a laboratory

4. The Seminar “Risk Assessment of Mercury and Other Heavy Metals to Coastal Communities in West Kalimantan: 2010–2012” (West Kalimantan Government Building, Indonesia; May 30, 2012)

This seminar was held under a three-year (2010–2012) project “Risk Assessment of Mercury and Other Heavy Metals for Coastal Communities in the West Kalimantan Waters” undertaken by LIPI (Indonesian Institute of Sciences) and West Kalimantan Government. The purpose of this project was to assess the status of the environmental pollution in coastal area caused by metals, in particular mercury. Such pollution may be attributed to the traditional form of gold mining, which involves the use of mercury for gold extraction, still practiced in this area. Two members of ACORE-COMSEA, Dr. Koji Inoue of AORI and Prof. Ahmad Ismail of Universiti Putra Malaysia participated in this seminar as invited speakers. About 50 participants, including researchers and administrators, participated in this seminar.

In the first session, Dr. Zainal Arifin of LIPI, who is also the Indonesian National Coordinator in ACORE-COMSEA and Dr. Mutiara R. Putri of Institut Teknologi Bandung presented the outline of the activities undertaken in the first two years of this project. In the second session, ‘An Overview of the Present Research for Monitoring and Assessment of Marine Pollution in Coastal Waters in Japan and Malaysia’, Drs. Ahmad Ismail and Koji Inoue discussed their research activities under ACORE-COMSEA.

Prior to the seminar (on May 29th), Dr. Ahmad Ismail and Dr. Koji Inoue visited Mempawah, northwest of Pontianak, where water and sediment sampling was carried out by the Indonesian team. They also observed the unique geographical features of the site, where huge amount of red-colored river water enters the sea, spreading its components to far offshore. Such a hydrological system in Mempawah makes it even more important for the pollution survey.



5. Malaysia International Biological Symposium (i-SIMBIOMAS) 2012 (Selangor, Malaysia, July 11–12, 2012)

This symposium was jointly organized by the Department of Biology, Faculty of Science, Universiti Putra Malaysia (UPM) and the Ministry of Natural Resources and Environment, Malaysia. Prof. Ahmad Ismail of UPM, also a member of ACORE-COMSEA, organized this symposium as the deputy chairman. Dr. Koji Inoue of AORI, who is also a member of ACORE-COMSEA, was invited as a keynote lecturer. He presented the concept of the studies on genes responsible for species-specific habitats. Some Malaysian members of ACORE-COMSEA also served as staff for the symposium and presented their research findings. As participants hailed from many countries, including Korea, Thailand, Iran, India, Indonesia, Nigeria, Algeria, Iraq, UAE, and Taiwan, in addition to Malaysia, this symposium offered a good opportunity to present the activities of ACORE-COMSEA to both Asian and African countries.

Recent activity of the International Geosphere–Biosphere Programme

Mitsuo Uematsu

Professor and Director, Center for International Collaboration

ICSU (International Council for Science) has managed the scientific community of GEC (Global Environmental Change) and the actively organized the international programs WCRP, IGBP, DIVERSITAS, and IHDP have been active for years. In 2012, with the aim to begin a new framework of international collaborative research, ICSU launched the program “Future Earth.”

Future Earth aims to establish a top-down “mega theme” involving natural sciences and humanities and social sciences together as an integration of IGBP, DIVERSITAS, and IHDP. In the Future Earth research framework, one of the proposed integrated research themes, “Living with the Sea: Oceans, Coasts and Blue societies” has been incorporated. “Blue societies” refer to societies that live in greater harmony with oceans and include new protection programs for marine ecosystems within international treaties.

On the other hand, several ongoing international projects (e.g., the Belmont Forum/ Coastal Zones Vulnerability Collaborative Research Action, LOICZ, UNESCO/IOC, CLIVAR, IMBER, and SOLAS) focus on oceans and coasts, including the interactions between marine biogeochemistry and ecosystems; land, ocean and atmospheric interactions; social and economic vulnerability; megacities in coastal regions; marine hazards, fisheries, coral reefs and ocean carbon; and major efforts in ocean monitoring and information sharing. It is important to process the transition of these project activities to Future Earth.

Such a big turning point took place on May 21–23, 2012, in the 27th IGBP SC Meeting held in Bergen, Norway. Conference agenda was switched to a closed session of only Core Project members and IGBP SC in the afternoon of the first day. After the discussion, IGBP SC recommended that the Future Earth should allow IGBP to complete the on-going syntheses and integration activities, and the Belmont Forum be responsible to provide the funding support to the Future Earth International Project Offices (IPOs). It was also proposed that the timeline for transition to Future Earth be consistent with a Science Plan and Implementation Plan and that the funding for Future Earth should be in place at all levels.

In the oceanographic community of Japan, we are requested to exchange information for the transfer of the core projects related to marine sciences—AIMES, IMBER, LOICZ, PAGES, and SOLAS—to Future Earth.

A set of regional workshops were planned in Africa, Asia, and Latin America, between October and December 2012. Future Earth regional workshop for Asia-Pacific was held at Kuala Lumpur, Malaysia on November 21–23, 2012. There are plans for organizing workshops in Europe and North America in 2013.

CIC hosted Japanese-German Workshop for Co-Designing Resilient Cities

Mitsuo Uematsu

Professor and Director, Center for International Collaboration

AORI/DWIH-Workshop “Co-Designing Resilient Cities-Cross-Sectoral Knowledge Production for Disaster Mitigation” was held at AORI on October 1 and 2, 2012. Juergen Weichselgartner (University of Kiel), Gabriele Hufschmidt (University of Bonn), and Mitsuo Uematsu (AORI) organized this Japanese–German collaborative workshop.

The thematic focus of the workshop targeted one of the most relevant current topics, not only for the Japanese

people, but also for the international society. Topics revolved around issues related to reducing vulnerability and increasing resilience to natural risks. The Tohoku earthquake, the devastating tsunami, and the Fukushima nuclear incident of 2011 were considered as an example to illustrate the highly complex patterns of risks affecting various societal sectors, making us realize the need for multidisciplinary and cross-sectoral approaches to mitigate future catastrophes. The workshop aimed to discuss recent scientific developments on open knowledge systems, in which multiple societal actors jointly framed problems to generate socially robust knowledge, and apply context-sensitive solutions to such problems.

Both the Japanese and German participants agreed on the suitability of two broader issues for cross-disciplinary, integrative, and innovative collaboration: (i) identifying the societal demands, scientific needs, and the cross-cultural lessons learned and (ii) improving cross-sectoral communication and knowledge production. Financial support was provided by the CIC/AORI, and the German Research and Innovation Forum Tokyo (DWIH Tokyo).

Participation in the 9th Session of IOC WESTPAC

Yutaka Michida

Professor, Center for International Collaboration

From May 9 through 12, 2012, the 9th Session of the IOC sub-commission for WESTPAC (IOC-WESTPAC-9) was held in Busan, Republic of Korea. Prof. Yutaka Michida and Prof. Shuhei Nishida of the Center for International Collaboration of AORI (CIC) participated as members of the Japanese delegation, headed by Prof. Yasuwo Fukuyo of the University of Tokyo. The IOC-WESTPAC has taken a leading role in promoting international cooperation and coordination of oceanographic activities since its establishment in 1979, with special focus on the Western Pacific region, as one of the primary subsidiary bodies of the IOC. The session adopted five recommendations to be considered and approved by its governing body, IOC Assembly, and/or Executive Council of IOC. The recommendations include the 9th International Scientific Symposium in 2014, 25th Anniversary of WESTPAC, a UNESCO/IOC regional network of training and research centers on marine science, WESTPAC program and budget of the next inter-sessional period,



and the next intergovernmental session. There was a serious discussion on the current financial situation of the IOC that has impacted the programmes of the Sub-Commission of WESTPAC. The Sub-commission took note of the financial challenges with concern and encouraged Member States to consider exploring other ways to support IOC programs either in-cash or in-kind. Most of the participants joined a study tour to Expo-2012 Yeosu on May 12, the opening day of the Expo, arranged by the local organizer.



The 45th Session of the Executive Council of IOC and related activities

Yutaka Michida

Professor, Center for International Collaboration

From June 26 through 28, 2012, the 45th Session of the Executive Council of IOC (IOC-EC-XLV) was held at the UNESCO headquarters in Paris. Prof. Mitsuo Uematsu, the Director of the Center for International Collaboration of AORI (CIC), participated as the head of Japanese delegation. Prof. Yutaka Michida also participated in the meeting as a member of the delegation.



Mainly because of the present financial situation of the IOC, the session was conducted for only three days, much shorter than the previously held EC meetings. The 45th session was conducted in a somewhat different manner from those of other sessions of EC. A number of decisions were approved by the Council after intensive discussion for three days. The decisions include those related to the medium-term strategy of the IOC, required actions for tsunami and coastal hazards warning systems, regional subsidiary bodies such as WESTPAC, and other important policy issues.

The Japanese delegation actively contributed to discussions during the whole session; in particular, Prof. Uematsu, as the head of Japanese delegation, made a general comment on the overall activities and provided constructive suggestions on the future direction of the Commission, responding to the reports of the Chair and the Executive Secretary. Prof. Michida, a member of the Japanese delegation and one of the vice-chairs of the IOC, discussed on the activities related to the tsunami and other marine hazards early warning and mitigation systems and on the international oceanographic data management.

As part of the CIC's contribution to the IOC activity, Prof. Michida convened the 5th meeting of the Working



Group on Tsunamis and Other Hazards related to Sea Level Warning and Mitigation Systems (TOWS-WG-V) on February 15, 2012 as the chair of the group; this meeting was held in conjunction with “Japan-UNESCO/UNU Symposium on The Great East Japan Tsunami on 11 March 2011 and Tsunami Warning Systems: Policy Perspectives 16–17 February 2012,” at the United Nations University in Tokyo.

University of Hawaii and University of Tokyo Joint Symposium on Ocean, Coastal, and Atmospheric Sciences

Koji Inoue

Associate Professor,

Department of Marine Bioscience and Center for International Collaboration



The East-West Center of UH at Manoa, the venue of the symposium

Scientific Education Cooperation was signed between Ocean Research Institute (ORI, the predecessor of AORI) and SOEST. This inter-institutional agreement was upgraded to the Academic Exchange Agreements between the two universities in 2004. For further strengthening the partnership, the first *symposium* was held in Tokyo in 2008, and the present symposium is the second one. From AORI, 25 scientists, including faculty members, postdocs and graduate students participated in this symposium.

Although most sessions in the first symposium in Tokyo were on biology-based sciences, the scope of science expanded in this symposium; it covered climate system, ocean-earth system and life sciences. Twenty-four papers were presented in four oral sessions, “Ocean-Atmosphere Interactions and Climate Change,” “Marine Biology and Ecosystem-based Management,” “Environmental Physiology and Microbiology,” and “Ocean Dynamics and Biogeochemistry,” in addition to 17 poster presentations. Since all the oral sessions were held in the same

conference room, it provided a great opportunity for not only international but also interdisciplinary communication.

On the last day, most participants visited Hanauma Bay, where an impressive educational program is conducted by the Sea Grant College Program; visitors can learn basic marine ecology and important points to prevent damage to coral ecosystems by learning from the example of the beautiful bay, which was once damaged by the impact of excessive tourism.

We would like to express sincere thanks to the local organizing committee and the staff of the symposium for their efforts and warm hospitality, and to Sea Grant College Program and IPRC for supporting the symposium.



Hanauma Bay, where an educational program is conducted by the UH Sea Grant College Program

Visit to the School of Biology, University of St Andrews

Yoshio Takei

*Professor, Department of Marine Bioscience,
Division of Marine Life Science*

Our research group has a long history of collaboration with Gatty Marine Laboratory (GML), University of St Andrews, since the early 1990s and has been supported by JSPS programs such as Bilateral Program for Joint Research Project and Invitation Fellowship Program for Research in Japan. We invited Dr. Neil Hazon of GML for 3 months as a visiting professor at the old ORI through the CIC in 1997. In addition, after the move of Sea Mammal Research Unit (SMRU) from Cambridge University to University of St Andrews, GML and SMRU were merged to form the new Scottish Oceans Institute. As there also has been a long-standing collaboration between SMRU and Biologging group of AORI, now led by Dr. Katsufumi Sato, we decided to renew the Agreement of Academic Exchange (2007) between AORI and School of Biology, to which the Scottish Ocean Institute belongs, in this fiscal year. I had a chance to visit St Andrews for collaboration with the researchers in the Institute this May, and I had the opportunity to meet the Head of the School of Biology, Dr. Gary Taylor, to convey the message from the Director of AORI, Dr. Hiroshi Niino and the Director of CIC, Dr. Mitsuo Uematsu (shown in the picture). I also met Mr. Ivar Moeller who is a Senior International Officer responsible for International Postgraduate Admission of University of St Andrews, and discussed the possibility for more intimate interaction between the two Universities from the perspective of exchange programs for postgraduate students. Thanks to the Agreement, we will invite Dr. Ailsa Hall, the Acting Head of SMRU, as a visiting professor next February to discuss the possibility for further collaboration.



With Dr. Gary Taylor, the Head of School, who looks happy with the souvenir presented on behalf of AORI

Agreement on Scientific Cooperation between AORI and INS/Ural Federal University

Ryoichi Imasu

*Associate Professor,
Division of Climate System Research*

The Institute of Natural Science (INS) is one research institute of Ural Federal University. The university, which was established in 2008 through the reorganization of two state universities with long and distinguished histories, is now one of the nine largest universities in Russia. Substantially, our cooperation related to studies of atmospheric remote sensing began in the 1990s. A splendid achievement accomplished through our cooperation was the world's first





analysis of atmospheric water vapor isotopes (HDO) from satellite measurement data. Our activity has been leading the field of research in analyses of isotopic compositions from thermal infrared spectra measured from space. The agreement between our two institutes, which was signed on 5 June 2012, is expected to strengthen our mutual research activities and cooperation, particularly in terms of the exchange of atmospheric observation data which are necessary for studies of the atmospheric environment in western Siberia.

International symposium to explore the impacts of Fukushima nuclear plants on the ocean was held

Mitsuo Uematsu

Professor and Director, Center for International Collaboration

Following the Great East Japan Earthquake on March 11, 2011, a series of waves as high as 15 meters inundated the Fukushima Dai-ichi nuclear power plants (FNPPs) causing loss of power, overheating, and subsequent atmospheric releases of radionuclide contaminants. These atmospheric releases peaked around March 15, but the release of highly contaminated waters directly into the sea continued, peaking on April 6.

On November 12 and 13, 2012, the Fukushima Ocean Impact Symposium was held at Sanjo Conference Hall, the University of Tokyo; it was organized by AORI and Woods Hole Oceanographic Institution (WHOI), USA. During the symposium, the invited group of 90, including 35 international participants, engaged in discussions and scientific reviews of what we know and do not know about the contaminants released at Fukushima, what would happen to it in the ocean, and its potential impact on marine ecosystems and human health. Participants included scientists, policy makers, and media/communications experts. Wide-ranging discussions were also held on topics such as risk assessment, economic impact, policy implications, and most importantly, on how this information should ideally be communicated to the public.

Videos of the symposium, which includes 13 talks by invited speakers, 2 panel discussions, and a poster presentation session (in English), are available at <http://www.who.edu/website/fukushima-symposium/>.

Following the symposium, the public colloquium “Fukushima and the Ocean” was held with over 200 people on November 14, 2012, at Ito Hall, the University of Tokyo. This included a moderated question-and-answer period with the media and audience members. Another colloquium will be held at WHOI on May 9, 2013.

We will publish a post-symposium special issue of *Oceanus*, a Woods Hole Oceanographic Institution publication, including a series of articles both in English and in Japanese written by science writers for broad audiences on the major themes of the meeting. We acknowledge the Japan Foundation, Center for Global Partnership, as a major financial supporter of this activity.



Panel discussion during the public colloquium "Fukushima and the Ocean" at Ito Hall

List of Visiting Professors

Name	Country	Length of stay	Subject for study
Frédéric Yann MOULIN	France	2011/07/01-2011/08/31	A theoretical and experimental study on the dynamics of vortices in geophysical fluids
Katsumi MATSUMOTO	U.S.A.	2011/08/01- 2012/03/31	Pleistocene global climate and carbon cycle changes
Soon-Chang YOON	Korea	2011/09/01- 2012/02/28	A study of aerosol indirect effect to the cloud system and modeling the emission and optical properties of dust aerosols
Patrick MILLER	U.S.A.	2011/09/11- 2011/10/14	Foraging behavior of marine mammals using bio-logging method
Xiquan DONG	U.S.A.	2011/10/16- 2011/03/15	A study of aerosol-cloud-radiation-precipitation interaction
Jian YANG	China	2011/11/01- 2011/11/30	Usage of otolith microchemistry to trace the life history and migration of diadromous fish for resource mangement
Niklas SCHNEIDER	Germany	2011/11/05-2011/12/10	Dynamics of Kuroshio-Oyashio Extension and northwestern Pacific air-sea interaction

* Visiting professors' reports of Division of Climate System Research are included in the CCSR NEWS.



Visiting Professors' Reports

Frédéric MOULIN

Associate Professor,

Waves, Turbulence and Environment Group (OTE)

Institute of Fluid Mechanics of Toulouse (IMFT)

Toulouse, France.



It was really a great honor for me to be selected as a visiting associate professor for a visit of two months during July and August 2011 in the Dynamic Marine Meteorology group, part of the Department of Physical Oceanography at the AORI. First of all, I would like to thank very gratefully Professor Hiroshi Niino for this invitation, which was a great opportunity to refresh and give new views on a collaboration that began almost ten years ago when I first visited the ORI as a JSPS post-doctoral fellow.

After my Ph-D defense in late 2002 on wave-vortex interactions in rotating stratified flows, I spent almost two years working in the Dynamic Marine Meteorology group located then in Nakano-ku. There, I mainly focused my research activity on an experimental investigation of the dynamics of rotating flow over a rough surface, the primary objective of this first stay in the research group of Professor Niino. At that time, I was also involved in another experimental study investigating the dynamics of a bathtub vortex, a model for tornado-like flows. In both studies, strong interactions were observed between the near bottom

flow (in the so-called boundary layer) and the core rotating flow. In the first set of experiments, we were able to build a simple model to predict the drag exerted by the bottom roughness and to explain the formation of band-like then nearly circular patterns in the core flow. In the second experiment, we could distinguish two different flow regimes intrinsically linked to the ability of the boundary layer to sustain or not the volume discharge in the experiment. This experience as a young researcher was decisive in my recruitment at the Institute of Fluid Mechanics of Toulouse (IMFT), France, where I was immediately involved in research activities on turbulent boundary layers in environmental flows (including complex natural beds like river biofilm covered cobbles). Since my hiring at the IMFT in Toulouse, I tried to keep in contact with professor Niino, who was able to come and visit us at the IMFT in late 2008, taking opportunity of a short stay in Europe for a conference, and whom I met also two times in Japan during a private journey in spring 2008 and for a conference in Nagoya in 2008. We also had regular contacts concerning the experiments on the bathtub vortex. However, I was feeling that a longer stay in Japan would be a good opportunity to identify new research topics to develop in a collaborative way between the IMFT and the AORI. That was why I was so pleased to have this opportunity of a two month stay in the new campus in Kashiwa during summer 2011.

When I arrived in Kashiwa, and during all my stay, I was extremely surprised by all the support I received from the staff of the AORI, both in the Dynamic Marine Meteorology group, the main office and the center of international collaboration. Thanks to this support, both I and my family which arrived a few weeks after me, were able to enjoy a wonderful stay in a very well located apartment at the Kashiwanoha lodge, just a few minutes away from the laboratory by bicycle and from the train station for Tokyo, and close to a wonderful park where my two little boys (1 year ½

and 5 years old) enjoyed memorable moments (including trying to catch “tombos” and escaping mosquitoes around 5 PM). I should add that my wife and I were extremely happy to be able to enjoy one more time all the Japanese-life style that we were mourning since our departure from Nakano-ku in late 2004 (sento, ramen-ya, and so on).

With all this support, I had my mind free to spend a very fruitful stay at the AORI. During the two months, I had the opportunity to give two seminars, one concerning the structure of the turbulent boundary layer in very confined river-like flows, and another one, of more a general nature, to present shortly the research activities we are conducting at IMFT in my research group. I also enjoyed talking with the Japanese graduate students of the research group and to attend the weekly seminars that they gave (being disappointed though by my Japanese ability that allowed me only to grasp the main ideas while missing the details). I was also able to discuss with Professors Keita Iga and Hiroshi Niino the experiments that they were carrying out in the new experimental lab. Eventually, I was able to write down and finish an article with Professor Niino on the experiments I had performed during my stay as JSPS fellow. At the end of my stay, as I was hoping, our discussions allowed us to write down a proposal for a collaborative work between AORI and IMFT, in which we were proposing to improve numerically and analytically our investigation of the bathtub vortex and to work together on the instability of a detached shear layer in a rotating flow (which models the early cyclogenesis and is a pattern present in many geophysical fluid processes). These two topics seemed to be at the intersection of the interests of our two research groups, and we were planning to make this proposal part of the Sakura program (directed jointly by the JSPS and the French ministry of foreign affairs). Our proposal has been submitted to the JSPS-CNRS joint collaboration program just in last September (2012).

For the success of this two-month stay, I would like to thank deeply the University of Tokyo, more especially AORI, and especially my host, Professor

Niino who proposed this opportunity to me. I extend these thanks to the many persons I met during my stay at AORI and who helped to make this visit a success. I should also point here that this visit occurred just a few months after the terrible tsunami that hit Japan in march 2011, and that while my colleagues, and more specifically professor Niino, were busy with many important things related to this event, they still decided to go to the trouble of maintaining the invitation and make this stay as fruitful as possible. For this and their calm after such a terrible event, I am also extremely grateful and in admiration. I look forward for very fruitful future collaborations with Professors Niino and Iga, and of course, for my next visit to Japan and Kashiwa campus.



Katsumi MATSUMOTO

Associate Professor

*Department of Earth Sciences, University of Minnesota
Minneapolis, Minnesota, USA*



It was a great pleasure and honor to have spent a good part of my sabbatical from my American home institution during the 2011-2012 academic year as a visiting professor at AORI. I am deeply grateful to the office of CIC, my host Professor Yusuke Yokoyama, and affiliate AORI faculty, staff, and students for the exceptional kindness and hospitality they showed me from the day of my arrival until my departure. I would like to note my special thanks to Ms. Megumi Ikeda

and Dr. Mayuri Inoue, who facilitated various administrative arrangements, which have made my family's transition to Kashiwa smooth and comfortable.

My main research interests are ocean biogeochemistry and carbon-climate feedbacks, and my main research tool is numerical modeling. These meshed well with Professor Yokoyama's expertise in wide areas of analytical geochemistry. During my time at AORI, we have been able to collaborate on a subject of mutual interest: the evolution of atmospheric radiocarbon during times of abrupt paleoclimate change. We are advancing a new hypothesis that atmospheric radiocarbon should have become more depleted during the Younger Dryas cold event; this is in contrast to the traditional view that espoused the opposite. We feel we are pushing the envelope of science on this subject, because we are having some difficulty publishing our results! Nevertheless, the collaboration has been fun and exciting, and we expect to be able to publish our work before long. On a personal level, the extraordinary scientific productivity and generosity of Yokoyama-san, who is of the same generation as I, served as a motivation to reflect on and assess my own work and future goals.

I enjoyed attending seminars on climate, atmosphere, and oceans at the Division of Climate System Research and engaging in fruitful conversations with modelers A. Abe-Ouchi, M. Yoshimori, and A. Oka over lunch. Their high level of expertise and creativity served as both a great learning experience and stimulus for me. Their efforts especially as they relate to contributing to past and future IPCC reports are remarkable, given how very time consuming the work can be.

From my graduate student days at Lamont-Doherty Earth Observatory, I had the greatest respect for chemical oceanography at ORI and now AORI, because the publications by the late Professor Y. Nozaki excited and inspired me. So I was pleased to have had the opportunity to interact with chemical oceanographers T. Gamo, J. Obata, N. Nakayama, and Y. Sano. In addition to participating in some of their

seminars, I was able to have conversations and learn about their high precision measurements of iron and oxygen isotopes in seawater. Also and serendipitously, I had the opportunity to help with one of their publications.

Finally, I conclude by thanking graduate students and postdocs at AORI for their friendship and providing interesting topics of conversation over lunch. Student presentations too have been quite interesting if not too formal. As someone who's travelled between the United States and Japan, I've always felt that on an individual basis, Japanese students are very bright. It seems to me that with improved training in formulating and articulating scientific arguments, they would shine and be recognized more readily for their talents and achievements. So it was heartening to see promise in many of the younger generations. I wish them the best of luck!

Jian YANG

Professor,

Key Laboratory of Ecological Environment and Resources of Inland Fisheries (KLERIF),

Chinese Academy of Fishery Sciences (CAFS);

Wuxi Fishery College, Nanjing Agricultural University, China



It was my great pleasure working as Visiting Professor at Atmospheric and Ocean Research Institute (AORI), University of Tokyo during November 1-30, 2011. First of all, I would like to express my sincere

gratitude to my host Professor Tsuguo Otake of International Coastal Research Center, who providing me with such a wonderful opportunity.

My subject as Visiting Professor was “Research on usage of otolith microchemistry to trace the life history and migration of diadromous fish for resource management”. There are ca. 60 diadromous fish species in China. Many of them, which were important commercial fishery species whilom, have fallen victim to becoming endangered now because of overfishing and water pollution. Such statue occurred at least in *Coilia nasus*, *C. mystus*, *C. grayi*, *Acipenser sinensis*, *Anguilla japonica*, *A. marmorata*, *Macrura reevesi*, *Plecoglossus altivelis*, *Oncorhynchus keta*, *Hemisalanx prognathus*, *Fugu obscurus*, *Lateolabrax japonicus*, *Cynoglossus gracilis*, and *Trachidermus fasciatus*. For effective recovery, management and sustainable usage of these fishery resources and conservation their habitats, investigation of bioindicator and biomarker (e.g., otolith elemental fingerprints) has grown out of my laboratory focusing on identification of the life-history dependent habitat preferences and monitoring the ecological consequences of environment impacts. Otolith elemental microchemistry in *Coilia* fish of the Yangtze River and its adjacent sea areas is one of my most important ongoing studies. Actually, this visiting professorship afforded me an excellent opportunity to enrich the research methodologies and knowledgies, to exchange with AORI scientists and other Japanese colleagues, to awake my treasured past life memories of Ph.D. student and visiting scholar in Otsuchi Center and former Nakano campus, and to get a totally new feeling of the modern and beautiful Kashiwa campus. I was really impressed.

Early in my visiting, I went with Otake-sensei to the Otsuchi Town for a field investigation on ayu and salmon. I was astonished at the devastated town and AORI Otsuchi center, which destroyed by the huge tsunami triggered by the Great East Japan Earthquake. My family and I once lived in the beautiful coastal town for a long time and had many good friends there. I truly wish to express my heartfelt hopes for the

earliest possible recovery of Otsuchi Town, AORI Otsuchi Center, and all the disaster-struck regions of Japan.

Along with his enthusiastic staff and students, Otake-sensei took very good care of me throughout my stay at AORI. He frequently offered me informative discussions about fish otolith microchemistry and participations in corresponding elemental analytical process of his students. Consequently, I was able to gain a better understanding of the advances and breakthroughs in otolith elemental fingerprints and stable isotopic signatures of his laboratory and AORI. The knowledge and information are valuable for me not only to enhance our recent studies in *Coilia* fish, but also to extend the frontiers of our research field of other diadromous fish species in China.

Coilia fish can also be found in Japan. Interestingly, *C. nasus* distributes, however, in only Ariake Sea and its tributaries and is an endemic species in the waters. I especially enjoyed my trip with Otake-sensei to Faculty of Fisheries, Nagasaki University to meet Professor Atsuko Yamaguchi, an active biologist on fisheries of Ariake Sea. She detailedly introduced the research history of *Coilia* fish in Japan and kindly arranged a survey on habitat of *Coilia* in the Rokkaku River estuary in Ariake Sea. I was surprised at the similarities of estuarine environment (e.g., high turbid water, muddy substrate) between the Yangtze River and the Rokkaku River. Furthermore, in my followed research travel to Faculty of Agriculture, Kyushu University, I was very fortunate to taste delicious Etsu (*Coilia*) cuisine. The local host Professor Yuji Oshima specially shared with me the nice experience of the locally famous seasonal food in a restaurant near Hakata Station, Fukuoka.

Besides of the aforementioned experiences, there were many other impressive memories during my productive visiting Professorship period. I had the honor to give a short greeting talk in the meeting of AORI Council of Professors and to deliver a special lecture of Graduate School on migration ecology and otolith research of *Coilia* fish in China. Of course, it was unforgettable for me to take the cable car and

enjoy great “Momiji” viewing at Mt. Tsukuba with the hospitable staff from International Center Kashiwa Office, University of Tokyo. I learned a lot about the ancient Japanese culture of “Unagi-no-kabayaki” when Otake-sensei invited me to dinner at a well-known eel restaurant. I was really excited to see my former Ph.D. advisor Professor Nobuyuki Miyazaki again, who specially invited me to lunch in the more than 100-year-old Restaurant "Hibiya Matsumoto Rou". The restaurant is believed as a symbol of Sino-Japanese friendship which has been elaborately delivered from one generation to another.

Although my one month visit was very short, it was really productive, inspiring and rewarding. It is very valuable for me to promote the study of fish otolith microchemistry in my laboratory and extend the future collaboration with Otake-sensei. Since October 1 of this year, one of my doctoral students, Mr. Tao Jiang, has been in Otake-sensei's laboratory as a research student, supported financially by the China Scholarship Council of Ministry of Education. I am very happy to deliver the collaboration with AORI to the next generation of Chinese young scientists and trust that the collaboration will be fruitful.

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