

Asian CORE-COMSEA Seminar on Coastal Ecosystems in Southeast Asia



Date : 24–26 Feb., 2016

Venue : Auditorium, Atmosphere and Ocean Research Institute (AORI)

Shuhei NISHIDA
Professor Emeritus

The project “Establishment of Research and Education Network on Coastal Marine Science in Southeast Asia (ACORE-COMSEA)” started in April, 2011, under the Asian CORE Program of the Japan Society for the Promotion of Science (JSPS), was completed in March, 2016. The seminar, entitled “Asian CORE-COMSEA Seminar on Coastal Ecosystems in Southeast Asia”, was aimed at presenting and discussing recent findings by project members, synthesizing the accomplishments throughout the five years, and planning for future collaborations in research and education. A total of 70 participants, including 47 from the five collaborating countries (Indonesia, Malaysia, Philippine, Thailand and Vietnam), joined the Seminar.

The seminar was comprised of five sessions with different foci. Session-1 included presentations on the current status of physical processes, biodiversity, and environmental pollution in seagrass habitats, coral reefs, and other coastal ecosystems representing Southeast Asia; there were 20 oral and 28 poster presentations with active discussion. Session-2 presented and discussed the results from the “Integrative Ecosystem Research (IER)”, which focused on the large seagrass ecosystem in the Merambong Shoal, Johor, Malaysia; it also included related contributions from other areas and countries, with 12 presentations in total. In Session-3, activities from each research group were presented and summarized by the Group Leaders, while in Session-4, activities from collaborating countries were synthesized by the National Coordinators. The final session, Session-5, was dedicated to the discussion of our future collaborations, and the scope of a newly adopted 3-year (FY2016–2018) project under the JSPS Core-to-Core Program, entitled “Research and Education Network on Coastal Ecosystems in Southeast Asia (CCore-RENSA)” was introduced. It was agreed that our collaborations, for the time being, will be largely made under the umbrella of this program.

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1. Asian CORE-COMSEA Seminar
View during the oral presentation

Activities of the IOC Sub-Commission for the Western Pacific (WESTPAC)

Yutaka MICHIDA
Professor, Center for International Collaboration

WESTPAC is the most active regional program of the IOC, which was upgraded to an IOC Sub-Commission from a regional Committee in 1989 based on its outstanding outcomes since 1979. WESTPAC has 22 Member States as of the end of 2016. Japan has continuously played a leading role in the strategic planning and implementation of several scientific and services projects. WESTPAC organized the Advisory Group (AG) meeting twice in 2016—in January and November. The first AG meeting in 2016 was held from January 13–15 in Yogyakarta, Indonesia; the second meeting took place from November 28–30 in Qingdao, China. Prof. Michida participated in both meetings as one of the experts invited to the AG. Dr. Kentaro Ando of JAMSTEC also joined the meeting as one of the designated official members of the AG.

The AG meetings were chaired by Dr. Youn-Ho Lee of the Republic of Korea, the first vice-chair of WESTPAC, to exchange views of experts on the WESTPAC work plan and make advisory suggestions for its implementation, including the evaluation of research projects and organization of the forthcoming WESTPAC International Scientific Conference in 2017 (WESTPAC ISC-10).

WESTPAC ISC-10 will be held from April 17–20, 2017, in Qingdao, China. The Local Organizing Committee (LOC) of the conference estimated the participation of more than 600 people presenting more than 400 papers.



WESTPAC Advisory Group meeting in January 2016 in Yogyakarta, Indonesia



WESTPAC Advisory Group meeting in November 2016 in Qingdao, China



Prof. Michida (left), Dr. Lee (first Vice-Chair of WESTPAC; center), and Dr. Khokiattiwong (Chairman of WESTPAC; right) having a preparatory discussion at the Advisory Group meeting in Yogyakarta

The 49th Session of the Executive Council of the Intergovernmental Oceanographic Commission (IOC-EC)

Yutaka MICHIDA

Professor, Center for International Collaboration

The 49th Session of the Executive Council of the Intergovernmental Oceanographic Commission (IOC) was held from June 7–10, 2016, at the UNESCO headquarters in Paris. Prof. Mitsuo Uematsu, director of the Center for International Collaboration (CIC) of AORI, participated as the head of the Japanese delegation. Prof. Yutaka Michida and Associate Prof.

Hiroaki Saito also attended the meeting as members of the delegation. The session adopted various decisions to prioritize the programs of the IOC. These decisions involved the IOC's contribution towards Agenda 2030 of the United Nations, which contains a set of Sustainable Development Goals (SDGs). In particular, SDG-14, calling to 'conserve and sustainably use of the oceans, seas and marine resources for sustainable development', is directly relevant to the work of the IOC. Another decision related to the work of the UN was a follow-up to the Paris Climate Change Conference 2015 based on which the IOC should consider more active contributions to the Paris Agreement/UN Framework Convention on Climate Change (UNFCCC). In addition, it was decided during the session to take action to enhance the IOC's involvement in the General Bathymetric Chart of the Oceans (GEBCO), a joint project of the IOC and the International Hydrographic Organization (IHO), which has been ongoing for more than 30 years.



Japanese delegation at the 49th Session of the IOC-EC. Front row from the left: Prof. Uematsu, the head of delegation; Prof. Michida, the alternate; and Dr. Kawano (JAMSTEC). On the left end of the back row: Assoc. Prof. Saito.

SOLAS in Asia: A Future SOLAS Symposium in Qingdao, China

Mitsuo UEMATSU

Professor and Director, Center for International Collaboration

The Surface Ocean - Lower Atmosphere Study (SOLAS) is an international interdisciplinary research initiative. Its primary objective is to achieve quantitative understanding of key biogeochemical-physical interactions and feedbacks between the ocean and the atmosphere. The SOLAS community is very proud of the extraordinary accomplishments made during the past decades as a core project under the International Geosphere-Biosphere Programme (IGBP), which ended in 2015. Challenges remain however, when we look to the future of SOLAS, not only in coordinating cross-disciplinary basic research, but also in climate and ecosystem services, because SOLAS became a core project of Future Earth. Considering Asian countries acting as the world economic engines, SOLAS studies should strengthen internal collaborations and pioneer some international collaboration programs to better service future socioeconomic activities on earth.

Prior to the Future SOLAS symposium, the international SOLAS SSC meeting was held and several SSC members remained for the symposium. The SOLAS SSC members, invited scientists, and Chinese scientists gave talks and opened discussion for future collaborations within Asian countries and elsewhere. Many young Chinese scientists joined the discussions with great enthusiasm. The symposium was carried out at the Qingdao National Laboratory for Marine Science and Technology (QNLN). The facility was launched with an investment of 200 million USD, and a total floor area of 150,000 m², 420,000 m² in land area, and still under construction. It is has been supported by the Ministry of Science and Technology, Shandong Province Government, and Qingdao Municipal Government since October 2015. We should maintain a close relationship with the Chinese and Asian ocean communities.



Group photo with young Chinese students of ocean sciences at QNLN

International Symposium “Sustainable Ocean Initiative Global Dialogue”

Hiroaki SAITO
Professor, Center for International Collaboration

The United Nations (UN) environment program (UNEP) and Convention on Biological Diversity (CBD) held an international symposium “Sustainable Ocean Initiative Global Dialogue” from September 26–29, 2016, in Seoul. The goal was to facilitate the dialogue to exchange experiences and identify options and opportunities to enhance the cross-sectional collaboration between regional seas organizations (RSOs) and regional fisheries bodies (RFBs). The collaboration between RFOs and RSOs is essential to reach the Aichi Biodiversity Target and UN Sustainable Development Goals (SDGs). The attendees shared information on the success and failure of the collaboration between the RFOs and RSOs. However, it seemed that both organizations do not understand each other well with respect to the reasons of establishment, decision-making processes, and stakeholders. To reach the goal, which is still far away, continuous dialogue between RFOs and RSOs is essential.



Group discussion to exchange information and experience between the RFOs and RSOs

SIMSEA Regional Symposium 2016 held in Diliman, Quezon City

Mitsuo UEMATSU
Professor and Director, Center for International Collaboration

The 3-day Regional Symposium of the Sustainability Initiative in the Marginal Seas of South and East Asia (SIMSEA) began on 26 September 2016 in Diliman, Quezon City, Philippines. Hosted by the Regional Office of SIMSEA and the Marine Science Institute (MSI) of the University of the Philippines, Diliman, the symposium attracted the participation of 111 scientists, including young local students and other stakeholders from 11 countries in the region.

The symposium’s goal was to promote transdisciplinary research in the context of Sustainable Development Goals (SDGs) focused on coastal and marine issues. Examples include, exploring opportunities for research collaboration and networking towards sustainable development in the region, and introducing transdisciplinary research in sustainable development to early career and other scholars in the region. Fourteen scientists from Japan joined the symposium. Professor Emeritus Toshio YAMAGATA from the University of Tokyo and Professor Emeritus Yasuhiko Naito from the National Institute of Polar Research (NIPR) have the plenary presentations. From AORI, Professor Emeritus Nobuyuki MIYAZAKI and Professor Katsufumi SATO and his group led the discussions, especially application of bio-logging science in the region.

SIMSEA was endorsed as a regional activity of Future Earth, the new international research platform that aims to provide knowledge and support to accelerate transformations to a sustainable world. Fortunately, Emeritus Professor Mohd. Nordin Hasan from the Universiti Kebangsaan Malaysia (National University of Malaysia), who stepped down from the position as director for the ICSU Regional Office for Asia and the Pacific (ICSU ROAP), is still actively involved with Future Earth as Chair of the Regional Advisory Committee of the Regional Center for Future Earth in Asia and continues to be active *inter alia* in promoting SIMSEA. Our participation in the symposium encouraged us to revitalize SIMSEA activity in Japan.



Group photo during the SIMSEA Regional Symposium 2016

Join the Workshop on development of Future Earth “Oceans KAN” in Kiel, Germany

Mitsuo UEMATSU
Professor and Director, Center for International Collaboration

Oceans provide vital ecosystem services to humans, and these services are currently subject to multiple stresses that are both increasing and changing, creating complex, often unpredictable feedbacks. Defining acceptable targets for ocean health and sustainability, establishing a knowledge base needed to maintain and improve the health of ocean systems, and developing tools to predict and respond to shocks or disasters to and from ocean systems are all critical research needs.

Developing such systems-approaches will require integrated transdisciplinary ocean research and direct links to decision-makers around the world. Future Earth is well positioned to facilitate the formation of transdisciplinary teams together with partners, such as WCRP, UNESCO-IOC, ICSU-SCOR, UNEP, and practitioners. Together, they can address these challenges through a suite of new integrative initiatives under the framework of an ocean research platform, the Future Earth Knowledge-Action Networks (KANs).

A workshop at an integrated ocean science meeting was held to develop the content for an ocean knowledge for action (Oceans KAN) platform. Approximately 100 ocean experts from academia, government, business, non-governmental organizations came to Kiel to co-design new research on 4-5 December 2016. There were only 9 participants from Asian countries.

The primary aims of the workshop were as follows.

- 1) To assemble representatives from several existing academic and practitioner communities dealing with ocean sustainability to co-design priority research activities.
- 2) To discuss core ideas, practicalities, and expectations for an integrative ocean research network, including a synthesis of outcomes of recent, related workshops.
- 3) To identify prospective partners (including non-academic, action-oriented groups) and possible funding institutions.
- 4) To support the creation of a Development Team for the Ocean Research Network, and to define their roles and responsibilities.

The workshop included a few short presentations, panel discussions and facilitated discussion working group and a poster session. The World Café discussed 10 themes, including: “Games and Comics: New formats for ocean science engage”, “Engaging society in integrated ocean science” and “Identifying key stakeholders for integrated oceans sciences and how does stakeholder dialogue work best?” at 10 tables on the floor. Eleven break-out groups exchanged their knowledges and ideas on through such topics as: “Impact of marine debris, plastics, and other pollutants on ocean health”, “Predicting, mitigating and responding to ocean disasters to reduce risk”, “Ocean solutions for a sustainable future-supporting the SDG 14 agenda” and so on. These break-out session topics were considered for the Belmont Collaborative Research Action (CRA) proposal preparing by the Development Team for the Ocean Research Network. A policy paper on priorities for integrative ocean sustainability research and a synthesis of research knowledge derived from the workshop will serve as the basis for a major deliverable for the SDG 14 meeting in New York City in June 2017. Please visit the URL (<http://www.futureearth.org/events/future-earth-oceans-knowledge-action-network-workshop>) to obtain further information.



Snapshot during the break-out session of “Ocean solutions for a sustainable future-supporting the SDG 14 agenda”



Group photo of the Oceans KAN workshop in Kiel

The 25th Anniversary of PICES

Hiroaki SAITO
Professor, Center for International Collaboration

The North Pacific Marine Science Organization (PICES) is an intergovernmental scientific organization promoting and coordinating marine research in the northern North Pacific and adjacent seas. Its present members are Canada, Japan, China, Korea, Russia, and the USA. PICES held its 25th anniversary annual meeting “25 Years of PICES: Celebrating the Past, Imaging the Future” from November 1–13, 2016, in San Diego.



PICES' new logo

Two important decisions were made during the meeting. The first was the decision

to establish the Committee of Human Dimension. This clearly indicates that PICES activates studies using social science approaches to understand the relationship between the marine ecosystems and people and to solve societal issues related to marine ecosystem changes and degradation. The second decision is including the Arctic Sea to the area concerned where anthropogenic environmental change is rapidly progressing. After the meeting, Prof. Hiroaki Saito (CIC, AORI) became the chair of the science board.

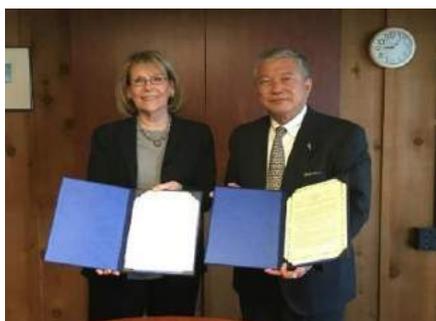


Reception scenery

Memorandum of Understanding between AORI and SIO

Hiroaki SAITO
Professor, Center for International Collaboration

On March 29, 2016, AORI signed a revised Memorandum of Understanding (MOU) for academic exchange with the Scripps Institute of Oceanography (SIO) of the University California, San Diego. The SIO has been a leading institute in marine sciences since its foundation in 1902 and has produced leading scientists, including two Nobel Laureates. The AORI and SIO signed an MOU in 1988 and many collaborative studies have been carried out since then. The MOU has now been revised to build a closer relationship between the top institutions in the west and east of the Pacific Ocean. The signing ceremony of the MOU was held on March 29, 2016, at SIO. During the signing ceremony, Prof. Mitsuo Uematsu, director of CIC (AORI), and Dr. Margaret Leinen, director of SIO, exchanged the signed MOU. Following the MOU revision, the AORI–SIO Symposium for Building a Strategic Partnership was held on October 3–4, 2016, at the Martin Johnson House of the SIO, facing the beautiful La Jolla coast. Director Atsushi Tsuda and 22 faculty members, postdocs, and students from AORI attended the symposium. The participants discussed recent findings of each scientific discipline and future collaborations. At the end of the symposium, the attendees reached the consensus of having joint studies and exchanging students.



Prof. Uematsu and Dr. Leinen at the signing ceremony



Attendee of the joint symposium at SIO

NTU-UTokyo Joint Conference

Yuji SANO

Professor, Department of Chemical Oceanography and Analytical Center for Environmental Study

Kotaro SHIRAI

Assistant Professor, International Coastal Research Center

The University of Tokyo and National Taiwan University are building a collaborative relationship under the framework of a “Strategic Partnership” project. Following the Joint Symposium held at The University of Tokyo last December, the Second Joint Conference was held at the National Taiwan University this November 30 and December 1st, 2016. Approximately 90 scientists, including 18 students from the University of Tokyo, and more than 200 people from the Taiwan University attended. The following 15 scientists from the Atmosphere and Ocean Research Institute joined the conference: Profs. Kano, Kawamura, Saito, Tsuda and Hyodo (Biology), Sachihiko Ito, Komatsu, Kiyoshi Tanaka, Yanase (Physics), Kagoshima, Kuroda, Yamaguchi (Geology), Sano, Shirai, Nagata (Chemistry).

On the morning of the 30th, an opening ceremony was held with all participants from nine departments. On the afternoon of Nov. 30th and morning of Dec. 1st, participants separated into 19 sessions organized by each NTU department to search for possible collaborations. At the AORI-UTokyo and IO-NTU session, on the afternoon of the 30th, a group discussion was held separately in each research field, and we briefly introduced our own research topics and discussed the possibility for future collaborations. That evening, we were invited to a banquet, and deepened our friendship while enjoying delicious Taiwanese cuisine.

On the morning of Dec 1st, we held a joint seminar. One scientist from each research field from each University gave a presentation. Presenters and titles are as follows; Prof. Saito (Biology), "Pivotal role of boreal copepod *Neocalanus* linking the end-to-end food web in the subarctic North Pacific"; Prof. Yanase (Physics), "Environmental factors responsible for tropical cyclone development"; Prof. Kuroda (Geology), "Radiogenic isotopic record of marine sediments as a tracer of extreme climate events in the geologic past"; Prof. Nagata (Chemistry), "Radiocarbon as a new tool for investigating fish migration in the ocean". On the afternoon of Dec. 1st, a closing ceremony was held and again all participants gathered. In addition to a brief report from each department's achievement over the two days, Professor Jan, the deputy director of the IO-NTU, gave a presentation entitled “The Kuroshio, eddies, and typhoons: The link between the East and Northeast Asia”, and Prof. Hyodo gave a presentation entitled “Environmental adaptation of marine organisms” and briefly introduced AORI activity and his study, on behalf each Universities.

From this Joint Conference, I believe that we built friendship and good partnership that will lead to future collaborative research projects between AORI-UTokyo and IO-NTU.



Photo of the group discussion (chemistry) on Nov 30.



Photo of all participants taken at the opening ceremony

Professor Stephen Eggins visits AORI

Yusuke YOKOYAMA
Professor, Analytical Center for Environmental Study

On 24 June 2016, Professor Stephen Eggins from Research School of Earth Sciences (RSES), The Australian National University (ANU) visited AORI. Professor Eggins is director of RSES and his visit was made under the auspices of a top global university project between UTokyo and ANU; the project was a strong motive visiting AORI while at the University of Tokyo. The meeting was held at the AORI director's room with Professors Atsushi Tsuda (Director, AORI), Mitsuo Uematsu (Director of CIC), Hiroaki Saito (CIC Professor) and Yusuke Yokoyama (ACES Professor and officiator of the ANU exchange). Fruitful discussions were made on such topics as, research exchanges, staff and student exchanges, and collaborations using research vessels. Although Professor Eggins is geochemist originally studying magmatic processes, his research interests have expanded to marine biogeochemistry; one of his research group's main topics is biogeochemical cycles using trace element chemistry of marine plankton. Therefore, the research discussions within the AORI meeting included the topic of marine ecosystem changes.

Professor Eggins subsequently gave a special lecture after the meeting, in the auditorium, presenting a foraminiferal ecology study using trace element chemistry. Both parties agreed to extend and strengthen relationships between AORI and ANU. These ties will be aimed at including Fishery and Biological science fields in addition to Earth Science. More than 15 ANU students will be visiting UTokyo in mid 2017 under this exchange agreement.

Professor Eggins also kindly gave a special two-day lecture series at the Hongo Campus with his colleagues (Doctors Yuri Amelin and Penelope King) to students from the Schools of Science and Engineering, and others.



Special lecture by Professor Eggins during the Paleoclimate Workshop organized by the Analytical Center for Environmental Study.



Professor Eggins in the AORI director room with Professors Tsuda, Uematsu, Saito and Yokoyama

The 4th International Workshop on Nonhydrostatic Numerical Models

Masaki SATOH
Professor, Center for Earth Surface System Dynamics

Nonhydrostatic models are one of the core types of numerical model used in atmospheric simulations, particularly for capturing meso-scale and even finer-scale motion. In addition to nonhydrostatic dynamical schemes, they require studies on details of physical processes such as cloud microphysics, turbulence, and radiation. Data assimilations of various uses of observations are related studies. Nonhydrostatic models have typically been used at horizontal grid intervals of less than 5 km, but they can also be run with grid intervals of 100 m or even 5 m in what is known as large eddy simulation (LES) models. Thanks to recent advances in computational power, nonhydrostatic models can now simulate atmospheric events over the global domain in unprecedented detail; such models are referred to as global nonhydrostatic models. The Nonhydrostatic Icosahedral Atmospheric Model (NICAM), which was developed by the Atmosphere and Ocean Research Institute (AORI) in collaboration with other institutes, particularly shows its strength and usefulness for studying multi-scale phenomena such as the Madden-Julian oscillations (MJO) and tropical cyclones.

Nonhydrostatic models are now used in a broad range of researches including weather forecast and climate studies. In recognition of the importance of the development and applications of nonhydrostatic models, Research Group on Nonhydrostatic Numerical Models of the Meteorological Society of Japan (MSJ) launched workshops on this topic around 2000. The domestic workshops have been held annually for the first ten years. In 2010, we decided to hold biennial international workshops to reflect wider global interest in nonhydrostatic models.

The 4th International Workshop on Nonhydrostatic Numerical Models was held at Hakone, Kanagawa, from November 30 to December 2, 2016, organized mainly by AORI, together with RIKEN, the Advanced Institute for Computational Science (AICS), and MSJ's Research Group on Non-hydrostatic Numerical Models. More than 60 participants including 16 international delegates joined. A broad range of research topics was presented in oral and poster presentations: deep convection, meso-scale circulations, dynamical cores, numerical schemes, MJO, field experiments, assimilations, cloud schemes, clouds, aerosols, and LES.

Several studies presented at the meeting were particularly impressive, in my view. a global domain sub-kilometer mesh simulation by Dr. Yashiro, an LES of local valley wind by Dr. Ito, and research towards low cloud permitting superparameterization by Dr. Pritchard are notable as using massive parallel supercomputers (such as the K computer). As innovative ideas in numerical and physical schemes, Mr. Nishikawa discussed a topographic scheme and Drs. Morrison and Hashimoto described cloud schemes. New avenues were opened for assimilation studies; Dr. Miyoshi reviewed "big data assimilations" and Dr. Honda described the use of Himarari-8 for assimilation. Prof. Sui and Dr. Nasuno presented field experiment studies for the Year of the Maritime Continent (YMC). The talks by Prof. Randall about the new dynamical core and by Dr. Khairoutdinov about the near-global cloud-resolving System for Atmospheric Modelling (SAM) were also enlightening. I cannot site all interesting talks here, but the presentation files can be viewed at the web page: <http://157.82.240.172/~nhm/>. I thank all the participants.

Special thanks are given to the following organizations for their supports of the workshop: Japan Meteorological Agency, Center for Earth Surface System Dynamics of AORI, the Virtual Laboratory for the Earth's Climate Diagnostics Program, FOCUS Establishing Supercomputing Center of Excellence, FLAGSHIP2020 Project Priority Issue 4, Meteorological Society of Japan, Japan Geoscience Union, and SGI Japan, Ltd.



Oral presentation and discussion



Group photo of the 4th International Workshop on Nonhydrostatic Models, The Prince Hakone Lake Ashinoko



Professor Mitsuo Uematsu awarded Japan Prime Minister's Prize

Mitsuo UEMATSU
Professor and Director, Center for International Collaboration

On 25 August 2016, Professor Mitsuo Uematsu was awarded the 9th National Maritime Award, the Japan Prime Minister's Commendations for Contributors to promote the country as a "Maritime Nation", in recognition of his significant achievements and contributions to the development of multidisciplinary studies in marine and atmospheric science at national, regional, and global levels over 35 years. He was recognized for his pioneering work, understanding large-scale transport of aerosols from land to the ocean and their impacts on marine ecosystems. He served as a national focal point of Japan for WESTPAC, as well as serving on the Intergovernmental Oceanographic Commission of UNESCO (IOC/UNESCO) since December 2011 as Chair of the IOC Working Group under the Subcommittee on Natural Science, UNESCO National Committee of Japan, Ministry of Education, Culture, Sports, Science and Technology (MEXT). He is the second recipient of this award from the CIC following Prof. Yutaka MICHIDA in 2015.



Professor Mitsuo Uematsu (the second right on the front row), Mr. Jun Matsumoto, the Minister in charge of marine policy (the middle on the front



Professor Uematsu received the award from the Minister in charge of Ocean Policy, Mr. Jun Matsumoto



1. Certificate for decoration of the Officer of "l'Ordre National du Mérite" of France to Prof. Teruhisa Komatsu with the signature of His Excellency François Hollande, the President of the French Republic as the center of three signatures dated 9 March 2016.

Assoc. Professor Teruhisa Komatsu awarded the Officer of "l'Ordre national de Mérite" of France

Teruhisa KOMATSU
Associate Professor, Behavior, Ecology and Observation Systems

Assoc. Professor Teruhisa Komatsu was promoted to the rank of Officer of the National Order of Merit (l'Ordre National du Mérite) of France on 9 March 2016 by the French Republic (Picture 1), in recognition of his outstanding contributions to promote exchange in oceanography and fisheries science between Japan and France.

He has organized more than ten workshops and symposiums in France and Japan to promote scientific research collaboration between the two countries. He has hosted more than twenty French students as interns in his laboratory. He was Vice-President of the Société franco-japonaise d'Océanographie (SFJO) of Japan from 2010 to 2012 and has been President since 2012. After the huge tsunami on 11 March 2011, he mobilized SFJOs of Japan and France to restore oyster cultures on Sanriku Coast, which had helped French oyster culture through exports of oyster seeds in the 1960s. The groups provided plankton nets and microscopes to fishery experimental stations in the Miyagi and Iwate Prefectures to obtain natural seeds for oyster cultures in the summer of 2011. He has organized several France-Japan symposiums for realizing restoration of the Sanriku fisheries from the viewpoint of sustainable development since 2012.

The order of merit ceremony was held at the Residence of French Ambassador on 9 December 2016 (Picture 2) with attendance of President of JAMSTEC, Prof. Asahiko Taira, Executive Director, Prof. Yoshihisa Shirayama, Vice-President of the University of Tokyo, Prof. Ken Furuya, Vice-President of Tokyo University of Marine Science and Technology, Prof. Jyota Kanda, Officer of MEXT, Mr. Eisho Sato, Director of Ocean Policy Research Institute, Mr. Hiroshi Terashima, President of The Oceanographic Society of Japan, Prof. Toshiyuki Hibiya, Ex-president of The Japanese-French Oceanographic Society, Prof. Shiro Imawaki, Director of AORI, Prof. Atsushi Tsuda, Vice-Director, Prof. Yutaka Michida, Director of CIC, Mitsuo Uematsu, friends and colleagues (Picture 3).



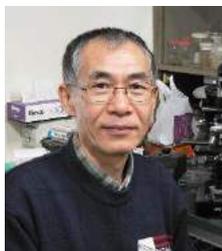
2. His Excellency Thierry Dana, the Ambassador of the French Republic, awarded the decoration of the Officer of "l'Ordre National du Mérite" to Prof. Komatsu on 9 December 2016.



3. Prof. Komatsu attaching the medal of the Officer and His Excellency Thierry Dana, Ambassador of France, at the front row center with other participants at the award ceremony for "l'Ordre National du Mérite" at the Residence of the French Ambassador, Embassy of France in Tokyo on 9 December 2016.

-On the occasion of my retirement

Shuhei NISHIDA
Professor Emeritus



I had sent off many senior colleagues, subordinates, and supervisors on their retirement, and then I realized last March that it was my turn. I was employed as a research associate for the Plankton Laboratory of the Ocean Research Institute (ORI) in 1980, and worked for really long time, 36 years, as a member of ORI (1980–2010) and the Atmosphere and Ocean Research Institute (AORI, 2010–2016). During this period, I enjoyed my research on plankton, especially on the functional morphology of the feeding and sensory organs of copepods, mechanisms for generation and maintenance of species diversity, and food-web structure. The study sites for this research were based in the mesopelagic realm of the oceans, by utilizing the research vessels Hakuho-Maru and Tansei-Maru.

Since 2010, when I transferred to the Center for International Collaboration, I have been engaged in coordinating international collaboration of five Southeast Asian countries (Indonesia, Malaysia, Philippines, Thailand and Vietnam) and Japan to enhance the research and education network for coastal marine science in the region. To our pleasure, we were able to obtain funding support from the Japan Society for the Promotion of Science (JSPS) under the Core University Program (FY2001–2010) and the Asian CORE Program (FY2011–2015), both of which have been highly successful and were evaluated as excellent. Fortunately, a new 3-year project under the JSPS Core-to-Core Program was accepted and began in April 2016; I hope to continue a little longer working on this program.

Finally, I would like to express my gratitude to all coworkers and wish continued success of our international collaboration.



Scenery from the training course on zooplankton taxonomy in the Philippines (August, 2013)

-New member of CIC

Hiroaki SAITO
Professor, Center for International Collaboration



In June, Dr. Hiroaki Saito was appointed as professor of the Section of International Research Cooperation of the Center for International Collaboration (CIC). Prof. Saito is a biological oceanographer studying the roles of organisms in food-web dynamics and biogeochemical cycling. His primary target organisms are plankton, but he also studies fish, top predators, and human beings. He has made contributions to various international organizations and programs such as IMBER (Integrated Marine Biogeochemistry and Ecosystem Research) and PICES (North Pacific Marine Science Organization). After his arrival at CIC, he is seeking the best way to develop international collaborations considering the benefits for scientists and students of AORI and the expectations toward AORI from foreign universities and institutions.

Visiting Professors

Name / Affiliation	Nationality	Length of stay	Subject for study
HAMILTON, Kevin <i>International Pacific Research Center, University of Hawaii Retired Professor and Director</i>	USA	2015/4/1-2015/6/25	Atmospheric dynamics: mountain torque and tides
MARTY, Bernard <i>Centre de Recherches Petrographiques et Geochimiques, Universite de Lorraine Professor</i>	France	2015/5/10-2015/5/29	Geochemistry of volatile elements of origin of the atmosphere and oceans, noble gas geochemistry
DAI, Tie <i>Institute of Atmospheric Physics, Chinese Academy of Sciences Associate Professor</i>	China	2015/6/1-2015/9/30	Aerosol data assimilation using NICAM+SPRINT ARS model
WU, Liang <i>Chinese Academy of Sciences, Institute of Atmospheric Physics, Center for Monsoon System Research Associate Professor</i>	China	2/15/7/1-2015/12/31	The Role of Tropical Waves in Tropical Cyclogenesis over the Western North Pacific
CLARK, Geoffrey <i>College of Asia and the Pacific, The Australian National University Associate Professor</i>	Australia	2015/9/3-2015/11/16	A high-resolution palaeoclimate study for the Central Pacific based on speleothem data
MILLER, Patrick <i>Scottish Oceans Institute, School of Biology, University of St. Andrews Leader</i>	USA	2015/9/16-2016/1/15	Foraging behavior and body condition of marine mammals using bio-logging method
HENDON, Harry H. <i>Bureau of Meteorology Melbourne, Australia Senior Principal Research Scientist, Program Team Leader</i>	Australia	2015/9/15-2015/12/10	Study on the influence of large-scale climate mode at high latitudes upon subtropical precipitation
LEICHTER, James <i>Scripps Institution of Oceanography Professor</i>	USA	2015/9/25-2015/11/8	Establishing a framework for Japan-USA collaborative research on coastal oceanography including coral reef ecology

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

Visiting professors' reports

HAMILTON, Kevin

International Pacific Research Center, University of Hawaii

I was delighted to have the opportunity to visit CCSR/AORI in spring 2015. A key activity was giving a one-credit graduate course at the Hongo Campus "Special Lectures in Atmospheric and Oceanic Science IV" which I used to present a detailed summary of our knowledge of the circulation in the tropical middle atmosphere. I think I surprised the students by showing how much detailed knowledge there already is about such a specialized topic and how much

research remains to be done to achieve a truly satisfying understanding of the dynamics of this atmospheric region. The students should see this as illustrating the remarkably subtle phenomena that emerge spontaneously out of the



motions of the thin fluid layers we call the ocean and atmosphere!

I presented a seminar describing IPRC's Hawaii climate modeling effort at several centers (here at AORI, at the Hongo campus and at Kyoto University). I was gratified by the interest expressed by my colleagues at each venue. The microclimates in both Hawaii and Japan are characterized by strong horizontal contrasts caused by steep and narrow topography, and so I think our experience with Hawaii climate simulation resonates with colleagues concerned about modeling Japan's regional climate.

My visit allowed me to interact closely with colleagues at JAMSTEC and this resulted in the initiation or continuation of a number of collaborative research projects. I was able to persuade JAMSTEC's Shingo Watanabe to use his version of the MIROC Earth System Model to simulate the hypothesized effects of the 1908 Tunguska meteor on the global ozone layer and we are looking for an indirect signal of this event in actual barometric data from that time. I was also pleased with progress in ongoing projects with JAMSTEC's Yoshio Kawatani on the representation of the stratospheric QBO in global reanalysis data and on middle atmosphere water vapor variability.

I enjoyed learning about the impressive accomplishments and plans of the NICAM group led by Masaki Satoh, and I was pleased to have a chance to comment on the development of the "middle atmosphere" version of NICAM. I expect the interactions I had during this period in Japan will be influencing my research agenda for the next few years!

It has been a joy to have an extended visit in Japan. I have visited Japan many times but this was the first time I could stay through most of the spring bloom of flowers – seeing successively *sakura* (cherry), *tsubaki* (camellia), *tsutsuji* (azalea), *fuji* (wisteria), *ajisai* (hydrangea), *hanashobu* (iris) & *bara* (rose). The abundant gifts of nature and the skill and sensibility of Japan's landscape gardeners make Japan a very special place to experience the spring season!

I would like to thank Masaki Satoh for his kindness as my host, as well as Kazuki Matsumoto for her efficient and friendly assistance beginning months before I actually arrived. They made it a real pleasure for me to stay at the Kashiwa campus! At Hongo I would like to thank Kaoru Sato for the chance to teach the graduate course and Masashi Kohma for his assistance.

BERNARD Marty

Professor of Geochemistry, Université de Lorraine, France

I have known Professor Yuji Sano from AORI University of Tokyo since more than three decades. I met him for the first time when I was post-doc at the University of Tokyo, Geophysical Institute, with Prof. Minoru Ozima, in the early 80's. Yuji Sano was a Ph. D. student at that time and he introduced me to the art of helium isotopes in natural gases. Since then, we have been close collaborators and friends, and visited each other on several opportunities, including several stays in Nancy (France) supported by the French National Center for Scientific Research. We wrote several papers together, and my stay at AORI was another opportunity to make collaborate work. The University of Tokyo kindly invited me for three weeks in May-June 2015 and one week in February 2016. This was the first time for me to stay at the Kashiwa no Ha campus and I enjoyed the peacefulness and the friendly atmosphere of AORI. All the staff from Prof. Sano's lab made their best to have me a relaxed stay, through many conversations and informal exchanges. I gave three lectures, at AORI, at Todai main campus, and at the Japan Geological Congress which I also attended with Prof. Sano in June 2015.

The quietness of the campus was an excellent opportunity for me to focus on science. Being involved in the Rosetta space mission (European Space Agency), I dedicated part of my time in interpreting the recently obtained argon data from the coma of Comet 67P/Churyumov-Gerasimenko, analyzed by the Rosina instrument, a mass spectrometer on board of the Rosetta spacecraft. Collaboration with Prof. Sano greatly helped me to put in shape ideas and concepts. We were interested



Enjoying friendship and scientific discussions at night. From right to left: Prof. Yuji Sano, Ph.D. student Hsin-yi Wen, Prof. Bernard Marty, Post-doc Yama Tomonaga, Prof. Daniele Pinti from Univ. Quebec at Montréal.

in investigating the delivery of volatile elements to the atmospheres of Mars and Earth, and managed to write a draft that was subsequently published in Earth and Planetary Science Letters (Marty, Avicé, Sano et al., *EPSL* 441, 91-102, 2016). We also defined a project with Prof. Sano and Dr. Kagoshima to sample volcanic gases in Southern Japan in order to investigate the geochemical sources contributing volatile elements in these areas. In February 2016, we went to Kagoshima to catch a boat to Yakushima Island and sample there geothermal gases. Unfortunately, the rough weather conditions resulted in the cancellation of all commercial boats and we changed our plans, heading then to sample gases in the Kirishima volcano area. The samples are now under analysis.

My visits at AORI have been highly rewarding in terms of science and of collaboration. The conditions were excellent, and I would like to sincerely thank Prof. Sano and his team - students, post docs, assistant professor, administrative staff - for their welcome. There I met Ms. Koike, a graduate student with Prof. Sano, who will come to my laboratory in Nancy next Autumn to carry on specific analyses on Martian meteorites and to develop a model of the early evolution of the atmosphere of Mars. Our collaboration will thus continue, thanks to the kind invitation of the AORI department.

HENDON, Harry H.

*Senior Principal Research scientist, Program Team Leader
Bureau of Meteorology, Melbourne, Australia*

I visited AORI September-December 2015 and was hosted by Prof. Yukari Takayabu. My main research focus is on tropical climate variability and predictability and so it was a great honor to be able to spend 3 months visiting Prof. Takayabu's group to discuss and learn more about tropical convection. While at AORI I also made visits to the other U Tokyo campuses. In particular I owe thanks to Prof. Hiro Miura for organizing a "mini MJO symposium" at Hongo Campus and Prof. Hisashi Nakamura for organizing a "mini dynamics symposium" at the Komaba Campus.

Prof. Takayabu also helped to organize visits for me to JAMSTEC, where I was hosted for 2 days by Takeshi Doi and Prof Yamagata. I also visited MRI to discuss seasonal prediction research, thanks to Yukiko Yamada and Shuhei Maeda. I learned that we have common interests in El Nino predictability.

A key highlight of my visit was attending a workshop on the two-way interaction of the tropical troposphere with the tropical stratosphere, hosted by Prof Shigeo Yoden at Kyoto University. My interest in the interaction of the tropical Madden-Julian Oscillation (MJO) with the stratospheric Quasi-Biennial Oscillation (QBO) was sparked and has subsequently resulted in a submitted paper to the J. Climate. I also attended the 1st Asian Meteorology Conference at Kyoto University. Prof Masahiro Watanabe was on the organizing committee, and kindly allowed for my participation. Prof. M. Satoh invited me to the University Allied Workshop at AORI that brought together outstanding graduate students



and post docs from Japan, Korea, Taiwan, and China. I made a presentation at that workshop on the role of anomalous ocean temperatures in the equatorial central Pacific for promoting MJO activity, that then feeds back to the onset of El Nino. Based on discussions and feedback at that workshop, a paper has now been published in GRL on that topic. Since returning to Australia, I have continued to explore the MJO-QBO interaction and hope to present new results at the SPARC General Assembly in Kyoto later in 2017.

My visit to AORI would not have been possible without the assistance of Eiko Niikura and Marie Iwagami. My insight into Japanese culture was also heightened by memorable meals and excursions organized by Dr. Junya Uchida, Prof. Yukio Masumoto, Prof. Toshi Hibiya, Prof. Hiro Miura, Dr. Tomoki Tozuka, and of course Prof. Takayabu. I am forever indebted to their kindness and willingness to entertain and host me and my wife.

DAI, Tie

*Associate Professor
Institute of Atmospheric Physics, Chinese Academy of Sciences*

I am an associate researcher from the Institute of Atmospheric Physics, Chinese Academy of Sciences. My research interests are aerosol model and data assimilation. I have visited the Atmosphere and Ocean Research Institute (AORI) for several times. First time, I visited the AORI as a student on 2010. Then I worked in AORI for about one and half a year as a postdoc researcher. This time, I am really honored to be a visiting researcher in AORI for four months. During this stay, I extend the aerosol assimilation system to include pollutant emissions inversion function with the host NICAM+SPRINTARS model, which is developed by the AORI as the next generation model (especially for high resolution simulation). During the stay, I also have a chance to join the 9th Asian Aerosol Conference in Kanazawa and have a short visit to the Kyushu University. Beyond the research, I also have a nice summer trip



to Atami. I would like to take this opportunity to thank my host, Prof. Teruyuki Nakajima, Prof. Masaki Satoh and Prof. Kentaroh Suzuki. I am looking forward to more productive collaborations in aerosol simulations and data assimilations.

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