



= Foreword =

International Research Activities at RISH in 2013

Professor Mamoru Yamamoto
Chair of the International Academic Exchange
Committee of the RISH, Kyoto University



Humanospheric science is a new interdisciplinary field of research concerning a “humanosphere”. The Research Institute for Sustainable Humanosphere (RISH) of Kyoto University was established in 2004 to promote this new science with academic activities conducted through domestic and international collaborative research programs. RISH contributes to both academia and society in general. International collaborations are especially important in the academic activities of RISH. In fact, most members of RISH have been involved in multilateral collaborations with other universities or research institutes at the international level. As a preface to the international newsletter, we would like to overview our international research activities in fiscal year 2013.

RISH holds Memoranda of Under-

standing (MOU) with many foreign institutions. The number of MOUs has reached 19, as listed in Table 1. Our counterparts are widely spread over 12 countries in 7 Asian, 3 European, and 2 North American regions. This year there was one MOU renewal, with the National Atmospheric Research Laboratory (NARL) of India. We are happy to add more MOU when collaborations with foreign institutions cover wide spectra, such as several research fields or including a number of RISH members. To explore possible new collaborations, the Minister of Education of Laos visited RISH on July 3, 2013.

Table 2 lists visiting scientists in fiscal year 2013. Among these professors and associate professors, Prof. Subyakuto from LIPI (Indonesia), Prof. Satyavir Singh from the Indian Institute of Geomagnetism (India), Prof. Endang

Sukara from LIPI (Indonesia), and Prof. Lakshmi Kantha from the University of Colorado (USA) kindly contributed to this international newsletter with reports on their visits to RISH. We also collected a report from Dr. Takuro Mori, who visited the University of New Brunswick, Canada, for about six months with support from the John Mung Program of Kyoto University.

RISH sponsors many symposia and scientific meetings. In fiscal year 2013, a total of 29 symposia were supported. Of these, seven were regarded as international meetings: the Symposium on Microsatellites for Remote Sensing 2013 (August 8-9, Chiba University), Humanosphere Science School 2013 (HSS2013) (September 17-19, Bengkulu, Indonesia), International Symposium on Earth-Science Challenges (ISEC) 2013 (October 3-5, Uji Campus of

Kyoto University), The 4th International Conference on Sustainable Future for Human Security (SustainN) 2013 (October 19-20, Yoshida Campus of Kyoto University), International CAWSES-II Symposium (November 18-22, Nagoya University), International Symposium on Frontier Researches in Sustainable Humanosphere 2013 (November 27-28, Uji Campus of Kyoto University), and International Symposium on Meso-scale Meteorology Using GPS, Radars and Numerical Models (January 13, Bandung, Indonesia).

Internationalization is an important keyword for Kyoto University. In 2013, Kyoto University proposed a

new strategy for the purpose: The “2x by 2020” initiative, which simply aims to double all international indices in research, education, and international service by 2020. In association with this initiative, RISH obtained “Special funding for the international promotion of Kyoto University” from university headquarters, and used the funds to foster humanosphere science for young foreign researchers from Asian countries. We used this budget to support three of the symposia mentioned above: the HSS 2013 in Bengkulu, Indonesia, the “International Symposium on Frontier Researches in Sustainable Humanosphere 2013” in Uji, and the “Inter-

national Symposium on Meso-scale Meteorology Using GPS, Radars and Numerical Models” in Bandung, Indonesia. We also used the funds to increase educational lectures that were mainly aimed to promote atmospheric studies in the equatorial region. We will continue these kinds of efforts. For fiscal year 2015, we are proposing a budget for a project entitled “International promotion of sustainable humanosphere science centered around the Asia Research Node”, which is a project to develop a network of research centers to form the Asia Research Node, and to enhance both research and education for the sustainable humanosphere.

= News Topics =

Study report on stay at the University of New Brunswick

Assistant Professor Takuro Mori

I stayed at the Wood Science and Technology Centre (WSTC), a wood-related research centre of the University of New Brunswick (UNB; Fredericton, New Brunswick, Canada) for six months as a visiting researcher. My staying at WSTC was sponsored by the Kyoto University Global Frontier Project for Young Professionals: the John Mung Program. WSTC is similar to RISH at Kyoto University. It WSTC was established in 1988 with start-up funding from the federal and provincial governments. WSTC has grown from a small regional research centre

to one that is nationally and internationally recognized, particularly for its strength in wood engineering. It is one of the best places to do research on wood construction and engineered wood products.

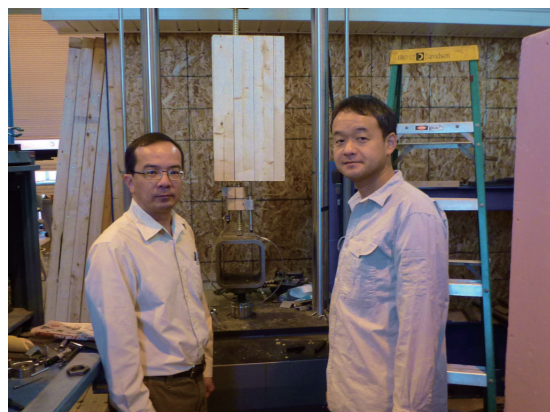
During my stay at WSTC, I did several experimental studies on the pull-out strength of lagscrewbolted (LSB) connections in cross-laminated timber (CLT); these studies are the first of their kind in the world. The goals of my research were to examine the effects of the insertion direction of LSBs into wood, the edge distance,

and the number of LSBs. The results revealed strength and stiffness properties similar to those of LSB connections in glued laminated timber (glulam). However, the results also showed that both the strength and stiffness values of LSB connections in CLT were slightly lower than those in glulam. This could be due to the cross lamination, further theoretical analysis is required to answer this question. My overall objective in using LSBs in CLT is to establish design values for mid-rise wooden buildings. More research, both theoretical and experimental, on this topic is needed.

Finally, this study abroad was a very nice experiment for me, and I thank the John Mung program of Kyoto University as well as Professor Chui and Dr. Gong of WSTC at UNB.



State of the seminar



Test set-up with Professor Chui

= News Topics =

My visit and research activities at RISH

Dr. Subyakto

Visiting Professor from Indonesian Institute
of Sciences, Indonesia

I am a researcher at Research and Development Unit for Biomaterials, Indonesian Institute of Sciences, Indonesia. I stayed 3 months from January 4 to March 29, 2013 at Laboratory of Sustainable Materials, RISH, Kyoto University as a visiting associate professor. My hosts were Professor Suichi Kawai and Associate Professor Kenji Umemura. Actually this is not the first time for me to be here. I did my doctoral study with Ronpaku Program sponsored by the JSPS (Japan Society for the Promotion of Science) here in 1999 to 2002 under supervision of Prof. Kawai. During the period, I came to Kyoto University for three months each year.

During my three months stay, my research activities are to develop particleboard as a green composite from oil palm frond fibers using citric acid and sucrose adhesives. Citric acid as a natural adhesive for wood and particleboard is firstly developed by Ass. Prof. Umemura. Citric acid is contained in fruits such as lemons and limes. To produce particleboard usually wood particles are used as raw material, so by using oil palm frond fibers it is a new topic. Oil palm frond fibers is abundant-

ly available as waste of oil palm industry in Indonesia. Indonesia now is the largest country in the world in term of oil palm plantation with about 8 million hectares. Every year many biomass wastes are produced such as empty fruit bunch, trunk, frond, and shell. Especially for frond, about 80 million tons each year is generated and this is not optimally used. Now oil palm frond is just left in the field. Oil palm frond has a high hemicelluloses and cellulose contents which is suitable for particleboard production. Particleboard is a composite product that used for furniture or building materials. In the particleboard industry, wood particles is mainly used as raw material, however with decreasing wood resource, other lignocellulosic materials such as oil palm frond can be a potential substitute material. By using oil palm wastes, it is expected to produce particleboard with lower production cost.

In the experiment, first I made particleboard from oil palm frond fibers using citric acid only as adhesive at different resin content. After obtained an optimum resin content, I made particleboard from frond fibers using combination of citric acid and sucrose.

Sucrose was added to increase the physical

and mechanical properties of the board. I tried to find an optimum ratio between citric acid and sucrose. And finally in the third experiment I tried some different hot pressing temperatures to make particleboard. We got a new and interesting result when using oil palm frond fibers as raw materials of particleboard with citric acid and sucrose. These findings are different to those of wood particles as raw material of particleboard. We try to find the reason by analyzing with some instruments such as FTIR, TGA and DCS. Hopefully we can publish the result in a scientific journal. In addition, the particleboard properties that we made is met the JIS standard. Therefore, by showing the results, may be some oil palm industries in Indonesia are interested to develop a new particleboard factory using oil palm fronds as raw material instead of wood. We proved in our research that particleboard made from oil palm fronds is as good as wood and met the standard.

Besides doing research, I had chance to visit some places in Kyoto. I was lucky because at the end of March I could see some sakura blossoms, which is usually can only be seen on early of April.

In this good opportunity I would like to deliver my sincere thank to Prof. Shuichi Kawai and Assoc. Prof. Kenji Umemura for their time, hospitality and assistance during my stay. I would like to thank all members of Sustainable Materials Laboratory including Ms. Yuki Nakamura and graduate students, Mr. Zhongyuan Zhao, Mr. Akinori Takeyama for their help on my experiment. Special thanks to Ms. Nobuko Yagi for her help in every matter during my stay. Finally I would like to acknowledge RISH for inviting me as a Visiting Associate Professor and for the sponsorship.



= News Topics =

My Research Visit to RISH

Dr. Satyavir Singh
Visiting Associate Professor
From Indian Institute of Geomagnetism,
Navi Mumbai, India



The preparation for my visit to RISH started six month in advance. This was result of the interaction with Professor Y. Omura during his visit to COSPAR 2012 in Mysore, India. There, we discussed research topics of mutual interest and challenges ahead. He has been excellent researcher and has given new dimension to numerical simulation on electrostatic solitary waves, chorus emissions as well as electromagnetic ion cyclotron (EMIC) waves. I was very much delighted to get this opportunity to work with him and his group at RISH. The first day itself we discussed the direction forward for the rest of the six months I was going to spend at RISH. The first task on hand was to test the Kyoto University Plasma Dispersion Analysis Package (KUPDAP) which has been converted to C-language from FORTRAN by young master's student Mr. H. Sugiyama. Some of my theoretical results were tested with this new KUPDAP. The regular group meetings were conducted which were very beneficial and cleared lots of doubts raised during the discussion. The results

obtained by the WHAMP dispersion solver were verified with new KUPDAP which showed very good agreement. During the visit, the analysis of the electromagnetic ion cyclotron wave dispersion was carried out using the Cluster data in the inner magnetosphere. For the first time, the observations from the Cluster had shown the EMIC triggered emissions. For the data from this event, for parallel propagation, we obtained three distinct bands of EMIC wave propagation with helium branch showing the highest growth rate compare to proton and oxygen branches. The EMIC waves were driven unstable by hot proton temperature anisotropy. At more oblique angles resonance interaction of EMIC and helium showed second harmonic generation at helium gyro-frequency and perpendicular heating of helium ions. Further, the scope of the KUPDAP was extended to include energetic particle distributions such as kappa-distribution. This type of distribution is observed in the inner magnetosphere during the magnetospheric storms. Therefore, it was appropriate

to include this. This makes KUPDAP unique in terms of its utility and it gives many dispersion curves depending upon the wavenumber ranges. The GUI interface makes it easier to work through the KUPDAP. I also worked on the kinetic Alfven waves in the solarwind where we could generate these waves through proton beams. These waves are important from the point of view the particle acceleration in the Earth's magnetosphere.

During my stay at RISH, I had the opportunity to attend CAWSES-II symposium at Nagoya University and showcase our results. I also made business visits to ISAS-JAXA and STEL, Nagoya University and interacted with groups working on EMIC waves and would like to thank Dr. I. Sinohara and Dr. K. Shiokawa, respectively.

I am indebted Professor Y. Omura for providing the opportunity to work with him and his group, Dr. Y. Ebihara, students Mr. H. Sugiyama and Ms. Yuko Kubota. The interactive sessions with them were the most interesting and enjoyable and at the same time helped gain more knowledge about the various phenomena. I also thank Professor T. Tsuda, Director RISH. I would like to express my sincere thanks to Ms. Nobuko Yagi for taking care of my visit to RISH and making sure that everything is in place. For me it was like homecoming after 10 years of my first visit to RISH in 2003. In enjoyed my work as well as the cultural city of Kyoto and its affectionate people. Also, I alongwith my family take this opportunity to thank Professor H. Matsumoto, President, Kyoto University for sharing his precious time with us.



Visit to historic
Nagoya Castle

= Visiting Professor =

Conservation and sustainable use of biological resources with main emphasis on microbial resources

[The implementation of Nagoya protocol under the convention on biological diversity]

Professor Endang SUKARA
Visiting Professor from Indonesia



Biodiversity has tremendous intrinsic values to mankind, but our awareness on the important of biodiversity is very limited. Not many people understood that biodiversity is the most important system that can support our life on Earth. Consequently, care on biodiversity is very low. Many species are in danger of extinction, threatened by habitat transformation, overexploitation, invasive alien species, pollution and climate change. The disappearance of biodiversity is one of the greatest threats facing humans.

Biodiversity is a complicated nature and forms a complex ecosystem and perfect natural environment to provide almost all of our basic need to live, to breathe, to eat, to drink and to shelter ourselves. It is estimated that there are around 10 million of living species currently inhabit Planet Earth, and almost 2 million species are currently known and documented.

But due our limited knowledge, only small numbers of species are being

used. Human being is now enjoying life supported by a small number of species e.g. paddy, wheat, potatoes, soybean, corn, small number of mammal and poultry species and limited number of fish species. When I visited Kikkoman a few days ago, I just realized that the biggest soy sauce manufacturing company with net sales of JPY 300,200 million and the operating income of JPY 19,817 million in 2013. This illustrate, the utilization of biological resources e.g. *Aspergillus oryzae* could serve million people to enjoy the beauty of soy sauce flavor. This company has the opportunity to have an access to 589 Indonesian microbial strains and found 1 strains able to synthesize fruc-6P-oxidase, an enzyme important for development of new glucose diagnostic kit. Chugai Pharma Co., has an opportunity to access to 1834 microbial samples and 12 sample showing activity against infectious diseases, 9-29 positive in metabolic field HTS assay, 3 positive in immunology field HTS assay. While Kyowa Hakko Kirin Co Ltd, found that among 3379 samples, 5 actinomycetes strains

and 2 fungal strains showing positive results for the development of central nervous system and for tumor therapy.

Through the rapid development on science and technology in particularly biology and biotechnology, the economic value of biodiversity is continuously discovered. It is anticipated that the exploitation of genetic resources and its related traditional knowledge, bio-prospecting, to further discover the economic value of biodiversity will continue to grow.

The Convention on Biological Diversity (CBD) is the most important legally binding instrument to conserve biodiversity, to sustainably use and to ensure fair and equitable sharing of the benefits arising out of the utilization of genetic resources. It is noted, however, that the 20 years implementation of CBD does not able to significantly halt biodiversity loss. In fact, the loss of biodiversity is continued and even in accelerated fashion.

Nagoya Protocol (NP) which is adopted late 2010 in Nagoya, Japan, is a hope to change the conditions. This NP is focusing on the third objective of the CBD, the fair and equitable sharing of the benefits arising from the utilization of genetic resources. NP is designed to ensure the appropriate access to genetic resources, the appropriate transfer of relevant technologies, and fair and equitable sharing of the benefits from the utilization of genetic resources and its traditional knowledge while acknowledging the sovereign right of the Party. NP could significantly contribute to the conservation of biodiversity and the sus-



Wagashi

Momiji

Yuki

tainable use of its components. Through the implementation of NP, the Convention's objectives may significantly be advanced by creating many incentives which include technology transfer and biodiversity-based economic cooperation to improve research and innovation capacities of the developing nations which eventually could add the economic value to genetic resources for the benefit of mankind. The proper implementation of NP may be used as an instrument for improving the awareness of the society on the important of biodiversity while creating prosperity to mankind through the conservation and sustainable use of biodiversity.

Indonesian Government adopted NP into National Act No. 11 on April 8th, 2013. It is timely for Indonesia and Japan to continue strengthening research partnership to explore the value of Indonesian biodiversity. With this journey, it is hope that our understanding on the important of conservation,

sustainable use and benefit sharing arising from the use of biodiversity in particular microbial genetic resources improved.

It was my great honor to accept the invitation of Prof. Toshitaka Tsuda, Director of Research Institute for Sustainable Humanosphere (RISH), Kyoto University-Japan to take up a Visiting Professor position. My assignment started on September 1st 2013 and ended at February 28th 2014. My task primarily associated with the CONSERVATION AND SUSTAINABLE USE OF BIOLOGICAL RESOURCES WITH MAIN EMPHASIS ON MICROBIAL RESOURCES [THE IMPLEMENTATION OF NAGOYA PROTOCOL (NP) UNDER THE CONVENTION ON BIOLOGICAL DIVERSITY (CBD)].

I would like to express my gratitude especially to Prof. Toshiaki Umezawa for hosting my visit and for the opportunity to meet with other colleagues from research institutes and industry and the

excellent support given to me at RISH in understanding the use of biological resources in Japan and in promoting conservation and sustainable use of biological resources at Kyoto University particularly RISH through seminars, symposium, and lectures.

I had experienced the great hospitality and diverse opportunities to meet scholars at Kyoto University to discuss on the implementation of NP/CBD and related issues. Discussion with expert from Japan Bio-industry Association (JBA) provides me with deeper understanding on the Japanese policy on the implementation of NP/CBD.

I have greatly appreciated the opportunity to get glimpse of the way of life in Japan. Learning Japanese language, practical course on soba and *wagashi* making, and experiencing with *momiji* and *yuki* has given memories that will stay with me and my wife.

Endang Sukara.

= Visiting Professor =

My Visit to RISH and Kyoto

Dr. Lakshmi Kantha

Professor, Aerospace Engineering Sciences,

College of Engineering,

University of Colorado, Boulder, USA.

Visiting Professor (Sept 15 to Dec 15, 2013), RISH,
Kyoto University, Japan.

Associate Scientist, Institute for Marine Research,
Venice, Italy.

I have always had an immense interest in Japan and Japanese culture. This interest springs from my belief in the teachings of Siddhartha Gautama, more widely known as Buddha, whom I revere as the Greatest Sensei of all time. Growing up in India, where Buddha was born and from where Buddhism spread to China, Korea and eventually to Japan, I have always been curious about the Oriental culture. I came to USA in 1969 to pursue higher studies and after

obtaining my Doctorate degree from Massachusetts Institute of Technology, I became an immigrant. I spent my professional career at Johns Hopkins and Princeton universities, before becoming a Professor in 1990 in the University of Colorado, Boulder. Over the last four decades, I have become a well-known scientist, author and researcher in the fields of Oceanography and Atmospheric Sciences, and in this capacity, I have been able to travel to many countries in



Europe and Asia. I have visited Japan half a dozen times since 1990's to attend professional meetings related to the Sea of Japan. These visits have enabled me to experience Japan first hand and satisfy my desire to visit as many Japanese temples and castles as possible. During my sabbatical in 1999, my family and I went around the world, visiting Japan, Korea, India, Italy, France and England. We spent a week in Kyoto and I gave seminars at Kyoto University. It was then that I was profoundly impressed by the rich heritage and unparalleled beauty of Kyoto. I vowed to return some day and when the opportunity arose to become a Visiting Professor at RISH during my sabbatical in 2013, needless

to say I grabbed it !

Before coming to Kyoto on September 11, 2013, I spent two and a half months at the Japanese Agency for Marine Research and Technology (JAMSTEC) in Yokohama, helping researchers there in modeling waves, ecosystem and ocean circulation around Japan. I gave numerous seminars there and at Tokyo University, including a keynote talk at a Workshop on Wave-Turbulence Interactions at JAMSTEC. I arrived at Kyoto University earlier than I had planned so that I could deliver a talk at the MUR-EAR Workshop on September 12th and started to work in Professor Yamamoto-sensei's Lab on September 15th. The principal goal was to conduct a week-long observational campaign in November at the university's Shigaraki MU radar facility and become more familiar with the MST radar community. Thanks to Professor Tsuda-sensei, I was introduced to the field of atmospheric gravity waves, to which Professor Tsuda and the MUR have contributed much by elucidating the role of atmospheric gravity waves in Middle Atmosphere Dynamics.

My stay at RISH has been a great success, both professionally and personally. Professionally, I have been able to advance my research on turbulence in the free atmosphere and interact with atmospheric and radar scientists at RISH and from elsewhere in the world. During the observational campaign at the MUR facility, conducted in collaboration with French scientists, we spent nights launching radiosondes at one and a half hour intervals, while operating the MUR in a high resolution mode so as to be able to compare the turbulence data extracted from sondes

with those measured by the radar. The data collected will also help ascertain if useful information on atmospheric gravity waves can be extracted from sonde data. The ascent speed of radiosondes is affected by fluctuations in the ambient vertical velocity due to such waves, and so in principle, it is possible to see the wave signature in the measured vertical velocity profiles. However, the signal is contaminated by the fluctuations in the sonde speed due to changes in the flow over the balloon that carries the sonde aloft. Unfortunately, the relevant Reynolds number falls within the range of transition from turbulent to laminar flow as the balloon ascends, and this, combined with the inherently unsteady nature of the separated flow in the balloon wake, makes it hard to extract wave information. But being an aerodynamicist all my life, this problem is just the right challenge for me to tackle, and I am glad to report that I have made some progress in extracting the wave signature. Simultaneous measurements of vertical velocity by the MUR have been helpful in this task.

I am a turbulence expert and have worked on turbulent mixing in the oceans and the atmosphere all my life. However, turbulence in the free atmosphere above the atmospheric boundary layer has been a challenge to observe, study and model, for two reasons: 1. Its highly intermittent nature in both time and space and the small spatial and temporal scales involved, and 2. The difficulty in measuring and monitoring it. It is possible to identify and quantify turbulence in the atmospheric column from radiosonde as well as GPS radio occultation data. However, independent observations are necessary for calibra-

tion and validation. It is here that MUR helps, along with the EAR Kyoto University operates. I have access to data from these facilities, including the high resolution RO data at RISH, that should help in establishing routine monitoring of turbulence in the atmosphere for application to aviation safety, not to mention atmospheric research.

I have given numerous talks at Kyoto University on a variety of topics, including proper classification of typhoons. After all, disaster prevention and mitigation is a focus of research at RISH.

I planned my visit to Kyoto so that I could witness the glory of autumn here. Not only have I been able to do so by visiting famous Kyoto temples before, during and after the fall season, and thus witness nature in action, my family has also been able to come and see the brilliant red and yellow foliage of the Japanese maple and ginkgo biloba trees at temples such as Ginka-kuji, Kinka-kuji and Kiyomizu-dera.

I thank Professor Hashiguchi-san, my gracious host, for his invaluable help during my visit, and Yagi-san, without whose help, I would not have been able to navigate the intricacies of train travel and grocery shopping (among other things) in Japan. I also thank Professor Tsuda-sensei and Professor Yamamoto-sensei for providing me the opportunity to be involved in their research. I hope I will be able to come back and visit my new colleagues here at RISH and continue our very fruitful research collaboration, and in the process see the eternally beautiful cities of Kyoto, Uji and Nara again and again. More specifically, I would like to see the Uji temple and Himeji Castle, which on-going renovation prevented me from seeing. I did finally manage to catch a glimpse of Fujiyama (after nearly 20 years since I began to visit Japan) from Shinkansen, while traveling from Kyoto to Tokyo. I enclose three of the 4,000+ pictures I took in Kyoto using my 21 megapixel Nikon camera, including one of Fujiyama and one of myself at the Nijo Castle.

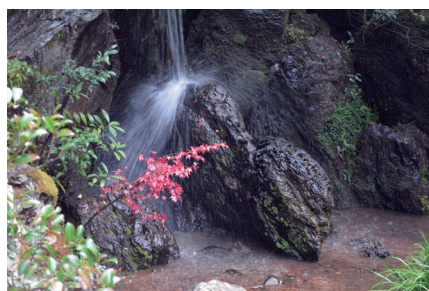
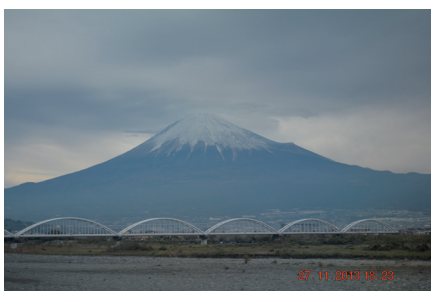


Table 1. List of international MOU in FY2013

No.	Institution	Country
1	Nanjing Forestry University	China
2	Center National de la Recherche Scientifique, Center de Recherches sur les Macromolécules Végétales	France
3	The National Institute of Aeronautics and Space of the Republic of Indonesia (LAPAN)	Indonesia
4	School of Biological Sciences, Universiti Sains Malaysia	Malaysia
5	VTT Technical Research Centre of Finland	Finland
6	Zhejiang Forestry University	China
7	The Centre for Research in Earth and Space Science (CRESS) of York University	Canada
8	National Atmospheric Research Laboratory (NARL)	India
9	The College of Atmospheric and Geographic Sciences, the University of Oklahoma	USA
10	Institute of Mathematics and Informatics of the Bulgarian Academy of Sciences	Bulgaria
11	Southwest Forestry University	China
12	National Cheng Kung University (College of Planning and Design)	Taiwan
13	Tanjungpura University (Faculty of Forestry)	Indonesia
14	Indonesian Institute of Sciences (LIPI) (Research and Development Unit for Biomaterials)	Indonesia
15	Chulalongkorn University (Faculty of Science)	Thailand
16	College of Forest and Environmental Sciences, Kangwon National University	Korea
17	The Research Institute for Human Settlements Agency for Research and Development Ministry of Public Works – Indonesia	Indonesia
18	Faculty of Civil Engineering and Planning, Islamic University of Indonesia	Indonesia
19	University of Riau	Indonesia

Table 2. Visiting Professors of RISH from January 2013 to February 2014

Name and Affiliation	Research title	Period
SUBYAKTO The Indonesian Institute of Sciences, Indonesia	Development of plant fiber composites from empty fruit bunches fibers of oil palm using natural adhesives.	1 January 2013-31 March 2013
Satyavir SINGH Indian Institute of Geomagnetism, India	Wave-particle interactions in the ring current region involving quasi-electrostatic modes	1 August 2013-31 January 2014
Endang SUKARA The Indonesian Institute of Sciences, Indonesia	Conservation and sustainable use of biological resources with main emphasis on microbial resources.	1 September 2013-28 February 2014
Lakshmi KANTHA, University of Colorado, U.S.A.	Synergistic Use of MST Radar and GNSS Radio Occultations to Monitor Turbulence Locations and Intensities in the Free Atmosphere	15 September 2013- 14 December 2013

Table 3. International Symposium from August 2013 to March 2014

Period	Theme	Place
8-9 August 2013	Symposium on Microsatellites for Remote Sensing (SOMIRES2013) (231 st RISH Symposium)	Nishi Chiba Campus, Chiba University, Japan
17-18 September 2013	Humanosphere Science School 2013 (HSS2013) The 3rd International Symposium for Sustainable Humanosphere (234 th RISH Symposium)	University of Bengkulu, Indonesia
October 3-5, 2013	International Symposium on Earth-Science Challenges (ISEC) 2013 The 3rd Summit Between the University of Oklahoma and Kyoto University (236 th RISH Symposium)	Kyoto University Uji Campus, Japan
19-20 October 2013	The 4th International Conference on Sustainable Future for Human Security (SustaiN) 2013 (237 th RISH Symposium)	Kyoto University Clock Tower Centennial Hall, Japan
18-22 November 2013	International CAWSES-II Symposium (239 rd RISH Symposium)	Nagoya, Japan
13 January 2014	International Symposium on Meso-scale Meteorology Using GPS, Radars and Numerical Models (243 th RISH Symposium)	Aston Primera Pasteur Hotel, Bandung, Indonesia
25 March 2014	Symposium on the Geospace dynamics (256 th RISH Symposium)	Japan Aerospace Exploration Agency, Japan

The Committee of International Academic Exchange

Mamoru Yamamoto (Chair), Toshitaka Tsuda, Takashi Watanabe, Hiroshi Yamakawa, Kazufumi Yazaki, Yoshiharu Omura, Toshiaki Umezawa, Hiroyuki Yano, Kenshi Takahashi and Hirotsugu Kojima (Chief Editor of the International Newsletter)

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