

2012 Asia-Pacific Remote Sensing

29 October – 1 November 2012

Technical Program

www.spie.org/aprs



Conference

29 October –
1 November 2012

Location

The Kyoto International Conference Center
(Kyoto ICC)
Kyoto, Japan

Organizing Committee

SYMPOSIUM TECHNICAL PROGRAM COMMITTEE



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National Institute of
Information and
Communications
Technology (Japan)



Jiancheng Shi
Institute of Remote
Sensing Applications
(China)

SYMPOSIUM INTERNATIONAL ORGANIZING COMMITTEE



Haruhisa Shimoda
Tokai Univ. (Japan)

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Organization (India)

Toru Fukuda, Japan Aerospace
Exploration Agency (Japan)

George Komar, NASA Headquarters
(United States)

Shailesh R. Nayak, Ministry of Earth
Sciences Government of India (India)

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Chair: **Upendra N. Singh**, NASA Langley
Research Ctr. (United States)

Co-Chair: **George J. Komar**, NASA
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States)

Kazuhiro Asai, Tohoku Institute of
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Takashi Moriyama, Japan Aerospace
Exploration Agency (Japan)

Kohei Mizutani, National Institute of
Information and Communications
Technology (Japan)

Haruhisa Shimoda, Tokai Univ. (Japan)

Welcome

Welcome to the 8th SPIE Asia-Pacific Remote Sensing in Kyoto, Japan, with a focus on "Remote sensing for the environment and the prevention and mitigation of disaster."

Rapid growth and development in Asian countries has increased their economic and social importance in the world; their effects on the global environment have become serious as well. Examples include increasing releases of greenhouse gases, environmental contamination, exhaustion of water resources, and vulnerability to severe natural disasters. Under such circumstances it is imperative to monitor the global environment by remote sensing and to understand environmental changes in order to preserve the environment for our lives and the future.

The individual conferences focus on active and passive remote sensing techniques, applications of atmosphere, land and marine sensing technologies, and development of new remote sensing sensors. The symposium brings together policy makers, scientists and engineers from the Asia-Pacific region and other parts of the world to discuss the issues and the development of the remote sensing technologies, data processing techniques, applications of remote sensing data, modeling aspects that make use of remotely sensed data sets and societal benefits of remote sensing products.

We look forward to meeting you and to having a productive week in beautiful Kyoto.

Symposium Chairs:



Upendra Singh
NASA Langley Research Ctr.
(United States)



Toshio Iguchi
National Institute
of Information and
Communications
Technology (Japan)

Symposium Co-Chair:



A. S. Kiran Kumar
Space Applications Ctr.
(India)



2012 Asia-Pacific Remote Sensing

29 October – 1 November 2012
The Kyoto International Conference Center (KICC)
Kyoto, Japan



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Conferences

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8524 Land Surface Remote Sensing (Entekhabi, Honda, Sawada, Shi, Oki)	13–16
8525 Remote Sensing of the Marine Environment II (Frouin, Ebuchi, Pan, Saino)	17–18
8526 Lidar Remote Sensing for Environmental Monitoring XIII (Asai, Sugimoto, Singh, Jayaraman, Huang, Mueller)	19–21
8527 Multispectral, Hyperspectral, and Ultraspectral Remote Sensing Technology, Techniques and Applications IV (Larar, Chung, Suzuki, Wang)	22–23
8528 Earth Observing Missions and Sensors: Development, Implementation, and Characterization II (Shimoda, Xiong)	24–26
8529 Remote Sensing and Modeling of the Atmosphere, Oceans, and Interactions IV (Kawamiya, Krishnamurti, Maksyutov)	27

Co-sponsors

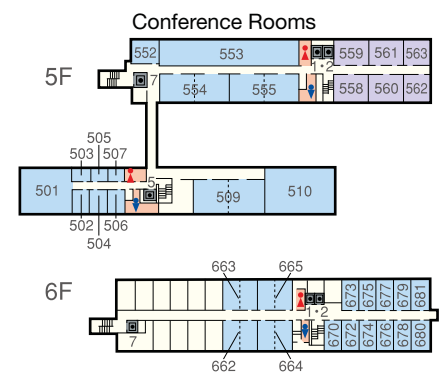
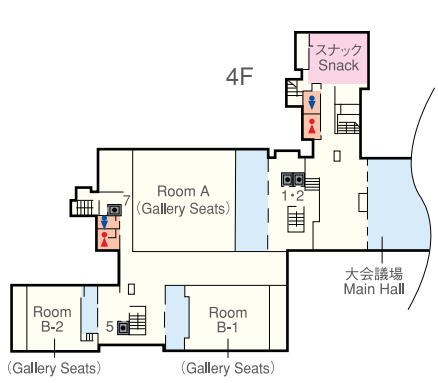
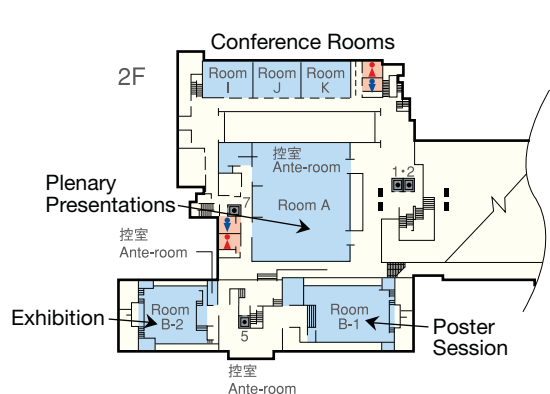
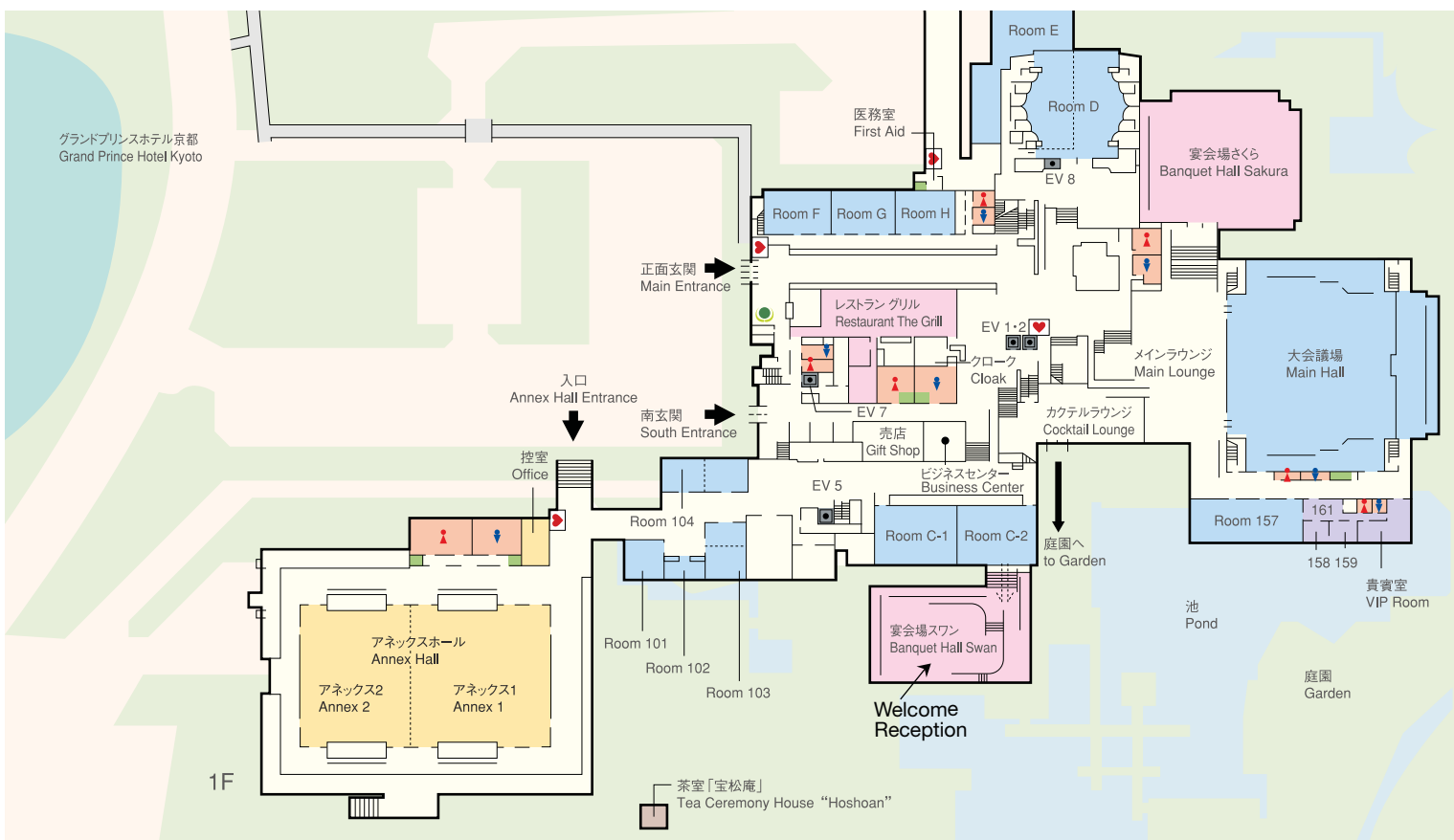


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Cooperating Organization



Kyoto ICC Facility Map



Welcome and Plenary Session

Monday 29 October · 08.50 to 12.00
Room A

Symposium Chairs:



Upendra N. Singh
NASA Langley Research Ctr.
(United States)



Toshio Iguchi
National Institute of Information
and Communications Technology
(Japan)



Join your colleagues for updates from our sponsoring organization for these special plenary presentations.

08:50 to 09:20

Welcome Address

Symposium Chairs and:



Masanori Homma
Japan Aerospace Exploration Agency (Japan)

09:20 to 09:40

Space technology for sustainable development



Yasushi Horikawa
Japan Aerospace Exploration Agency (Japan)

Abstract: Space science and technology and their applications can contribute more efficiently to the efforts of humankind to promote sustainable development in all countries and regions of the world.

Information obtained from space-derived geospatial data is providing essential inputs for decision-making in areas such as disaster management and emergency response. The Earth observation satellites can be well applied through observations of the Earth's surface from space to help in the preservation of forests by grasping the seriousness of deforestation or with mitigation of devastating disasters by capturing images and studying geographical changes in affected areas. Having "No Sustainable Development without Space" in mind? I would like to speak the significance of the utilization of the Earth observation data. Space technology provides a wide range of essential tools for making informed decisions in support of development at local, national, regional and global levels in both public and private domains.

A continuous monitoring and observation system that feeds into decision support systems and ensures an informed decision-making is crucial. I would also like to touch upon the related activities conducted in the United Nations Committee on the Peaceful Use of outer Space.

Biography: He is a technical counselor of Japan Aerospace Exploration Agency (JAXA), Tokyo Japan. He graduated at Tokyo University and he received PhD from Tokyo University on Electrical Engineering. He worked for many years in the field of spacecraft design. He contributed



to the successful implementation of Japanese meteorological satellite programs and the Earth observation programs as well as the laying down of the space station program. During this time, he stationed at Hughes Aircraft Company in Los Angeles for two years. He contributed to the implementation of the Japanese space station program as the Program Manager. After that, he was responsible for all application satellite programs as an executive director of JAXA, including Earth observations, communications and broadcasting, and global positioning satellites and those operation and utilization as well. At the present time, he is advising to the activities of the Japanese application satellite development and utilization programs.

09:40 to 10:00

Remote sensing of Earth and environment for global sustainability



Ghassem Asrar
World Meteorological Organization (Switzerland)

Biography: Dr Ghassem R. Asrar is currently the Director of the World Climate Research Program (WCRP) in Geneva, Switzerland. He served as chief scientist for the Earth Observing System in the Office of Earth Science at NASA prior to being named as the Associate Administrator for Earth Science in 1998. While in his position of chief scientist, he led an international team developing the scientific priorities and measurements to be obtained from a series of advanced Earth-orbiting satellites that provided fundamental new insights into the connections between Earth's land, oceans, atmosphere, ice and life. He also established the NASA Earth System Science graduate fellowship and New Investigators Programs to support training of the next generation of Earth scientists and engineers that have graduated more than 1000 recipients to date.

Dr Asrar earned his education in civil engineering and environmental physics from Michigan State University, East Lansing, Michigan. He conducted research and trained undergraduate and post-graduate students for nine years in academia prior to joining NASA as a senior scientist in 1987. He has authored more than 90 peer-reviewed scientific and technical papers, primarily in the fields of biosphere and atmosphere studies, and has edited several remote-sensing reference books. Dr Asrar has been invited speaker at several hundred scientific, technical and education conferences and meetings. He has also served as the chair and member of numerous national and international scientific and technical committees for evaluating academic and national environmental research and education programs and proposals in Europe, Asia and America.

Dr Asrar is the recipient of U.S. Presidential Distinguished Executive Award (2002), an elected Fellow of American Meteorological Society (2001), and IEEE (2000). He has received numerous awards and honors, including the NASA Exceptional Performance Award in 1997, the AIAA Goddard Memorial Lecture Medal in 1998, NASA Exceptional Service Medal, 1999, NASA Distinguished Leadership Medal, 2000, the Space System Award from the American Institute of Aeronautics and Astronautics, 2006, and Distinguished Alumni Award from the Michigan State University, 2008.

10:00 to 10:20

NASA's future Earth science missions: opportunities and challenges



George J. Komar
NASA Goddard Space Flight Ctr. (United States)

Abstract: The overarching goal of the Earth Science Division at NASA is to advance Earth System science through spaceborne data acquisition, research and analysis, and predictive modeling. This plenary address summarizes recent mission developments and future directions within the NASA Earth Science community.

A central part of this strategy is a robust technology investment program, to improve Earth observation capabilities. After a brief overview of technologies addressing each of these key challenges, the remainder of the talk focuses upon active remote sensing technology developments, including both lidar and radar advancements. The majority of future Earth-science missions will require active remote sensing capabilities. This presentation provides an overview of the technology investments NASA is making in Earth Science.

Biography: George J. Komar has over 38 years experience in engineering, program, project and operational management. Presently he serves as the Associate Director in the Earth Science Division and Program Manager for the Earth Science Technology Office (ESTO) for NASA. In this capacity he is responsible for developing, integrating and managing all the advanced technology developments that will enable future Earth Science capabilities.

He recently he served as the Deputy Associate Administrator for Technology for the NASA Science Mission Directorate (SMD), where he was responsible for planning, advocating, and optimizing an integrated advanced technology program. He was the Program Manager for the Landsat 7 Program and the TOPEX/Poseidon Program. George also managed the integration of the NASA Space Station Ground System Program for Space Station Freedom.

Coffee Break · 10:20 to 11:00

1100 to 11:20

Introduction of satellite earth observation in China



Xiaohan Liao
The Ministry of Science and Technology (China)

Abstract: After decades of explorations and technology accumulations, a framework of earth observations has been established in China and among them satellite observation has been playing an important role. This presentation briefly summarizes 1) the current status of the satellite earth observation systems, data and applications in China, and 2) China's policy in international earth observation collaborations, including those in Asia-Pacific regions.

There are several satellite earth observation systems in China, including the series of the resource (ZY), the oceanic (HY), the meteorology (FY), and the environmental disaster mitigation (HJ). In addition, the Chang-E (CE-1) and (CE-2) lunar orbiters expanded the satellite remote sensing into deep space. In addition, the second-generation polar orbit meteorological satellite, FY-3, can be used in the fields of global numerical weather prediction, global change, monitoring of large-scale natural disasters and the surface environment. The overall efforts made for satellites data sharing will be described. The application examples in the fields of meteorology, agriculture, environment protection, oceanography, seismology and urban planning, based on China's satellite data will be presented in this talk.

China is also active in GEOSS progress and plays a significant role. The CMACast is one of three GEOSS earth observation data distribution platforms (GEONETCast). It provides the observations over the Asia-Pacific regions from the weather and environmental satellites, such as FY-1D, FY-2C/2D, NOAA-16/17/18, MTSAT-1R, and EOS/MODIS with roughly 22GB data volume per day. China's activities and policy in international earth observation collaborations, especially in Asia-Pacific regions will be demonstrated. The role of NRSCC in the yearly coordinating of government R & D funds for remote sensing is also introduced.

Biography: Dr. Liao obtained his bachelor (1984) and master (1987) degrees from Peking Univ, and Chinese Academy of Sciences, respectively. During 1988-1992 He did his doctoral research in school of Geography, Oxford University with research interest in General Circulation Model (GCM) sensitivity experiments using different cloud parameterizations of UK Met Office GCM. Since 1992 he worked for NASA Goddard Institute for Space Studies as a scientist for seven years and focused in the field of global monitoring of upper atmospheric aerosol extinction using remote sensing data from NASA Stratospheric Aerosol and Gas Experiment (SAGE) II. He also studied the data with high-level clouds detection and global statistics by concurrently using nadir-looking (ISCCP) and occultation (SAGE II) data. Many of his research results in modeling and remote sensing data applications were published as the first author and cited. He also is the co-author of earlier version of SAGE II gridded data products officially distributed by NASA.

Dr. Liao became the DDG responsible for IT and remote sensing R & D in the High-Tech Department (2004-2008) of the Ministry of Science and Technology (MOST). Later he moved to take the DDG position responsible for national laboratories, state key programs and big R & D infrastructures in the Basic Research Department (2008-2011). He is now the Director General of National Remote Sensing Center of China (NRSCC), which is an executive agency of MOST, responsible for organizing and implementing government programs and coordinating various agencies in various application areas.

11:20 to 11:50

Greenhouse gas measurement from space: status of GOSAT Project and recent outcomes

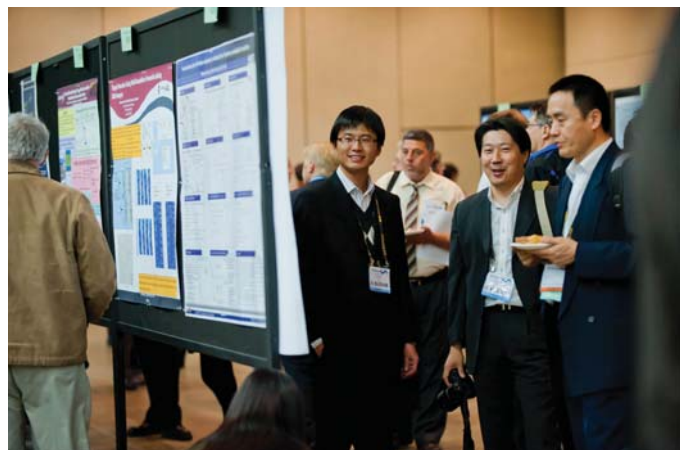


Tatsuya Yokota
National Institute for Environmental Studies (Japan)

Abstract: Augmenting the surface-based measurements of greenhouse gases such as carbon dioxide (CO₂) and methane (CH₄) is an important task in better understanding the global carbon cycle. To this end, the Greenhouse gases Observing SATellite (GOSAT) was launched in early 2009. The main sensors onboard GOSAT are the Thermal And Near-infrared Sensor for carbon Observation (TANSO) - Fourier Transform Spectrometer (FTS) and the TANSO - Cloud and Aerosol Imager (CAI). These sensors have been collecting data since June 2009. The column concentrations of CO₂ and CH₄ are retrieved from the spectral data by TANSO-FTS. The TANSO-CAI data are used to remove scans that are contaminated with clouds. The column concentrations of CO₂ and CH₄ (TANSO-FTS Level 2 products) have been disseminated to the general public. The quality of the retrieved concentrations was validated by comparing with reference data collected by ground-based FTSS and airborne in-situ instruments. The GOSAT-based CO₂ data and ground-based observations were used together to estimate monthly surface CO₂ fluxes for 64 sub-continental regions and obtain three-dimensional CO₂ distributions. Here, I will present the status and progress of the GOSAT Project and touch on recent major outcomes.

Biography: Dr. Tatsuya Yokota received Ph.D. degree in Measurement and Information Systems Engineering from the University of Tokyo in 1987. He is the project leader of the Greenhouse Gases Observing Satellite (GOSAT) in the National Institute for Environmental Studies (NIES), and the head of the Remote Sensing Research Section of Center for Global Environmental Research (CGER), NIES. Currently, he is in charge of data retrieval algorithm development, data validation, higher level processing of the GOSAT data, and distributing the GOSAT products to the researchers and general users. He was engaged in several atmospheric satellite remote sensing projects in Japan, ILAS, ILAS-II, SOFIS, for polar ozone layer monitoring.

Special Events



Welcome Reception

Monday 29 October · 18:00 to 19:30 · Swan Banquet Hall

Join your colleagues for refreshments and networking at the Welcome Reception. The event will include Japanese cultural entertainment. Name badges required.

All Conference Awards Dinner

Tuesday 30 October · 19:00 to 21:00 · Grand Prince Hotel

All attendees are invited to attend the All-Conference Awards Dinner. Come enjoy a delicious dinner and recognition of conference organizers. Japanese cultural entertainment and conference awards. Name badges required.

Interactive Poster Session

Wednesday 31 October · 16:30 to 18:00 · Room B-1

All symposium attendees are invited to attend the poster session as an opportunity to review poster papers and network with colleagues. Name badges are required.

Authors of poster papers will be present to answer questions concerning their papers.

Poster Set-Up - begins at 10:00

Poster Viewing - 11:00 to 18:00

Interactive Poster Session - 16:30 to 18:00

Poster authors are asked to display their poster papers early to allow additional time for poster viewing. View the Poster Presentation Guidelines to prepare your poster.

Posters must be removed at the end of the interactive poster session. Posters not removed will be considered unwanted and will be discarded.



Visit the Exhibition

Attend this exhibition that provides one-on-one interactions with a unique multi-disciplinary mix of audience and end product.

Monday–Wednesday 29–31 October · 10:00 to 17:00
Location: Room B-2

Meet vendors working on solutions relevant to your work:

ARGO Corporation

ARTRAY Co., LTD.

Bruker Optics

ImageONE Co., Ltd.

Japan Space Systems

Japan Aerospace Exploration Agency (JAXA)

KLV Co., Ltd.

National Institute of Information and Communications Technology (NICT)

Remote Sensing Technology Center of Japan (RESTEC)

Trimatiz, Ltd./Sevensix, Inc.

Onsite Registration and Information

Monday	07:00 to 17:00
Tuesday	07:30 to 17:00
Wednesday	07:30 to 16:00
Thursday	07:30 to 12:00

Exhibition Hours

Room: B-2

Monday–Wednesday 09:00 to 17:00

Coffee Breaks

Room: B-2

Complimentary coffee will be served twice each day of the conference at approximately 10:00 and 15:00. Please check the individual technical conference listings for exact times.

Food for Purchase

The Kyoto ICC has two food outlets. The Grill is located on the 1st floor of the main building and is open daily from 10:00 to 17:00. The Cocktail Lounge near the main lobby offers an assortment of foods in a casual dining setting.

Wireless Internet

The Kyoto ICC provides free wireless access in the lobbies of the first and second floors.

Policies

Audio/Video/Digital Recording Policy

In the Meeting Rooms and Poster Sessions: For copyright reasons, recordings of any kind are strictly prohibited without prior written consent of the presenter in any conference session, course or of posters presented. Each presenter being taped must file a signed written consent form. Individuals not complying with this policy will be asked to leave a given session and asked to surrender their film or recording media. Consent forms are available at the Speaker Check-In Desk.

In the Exhibition Hall: For security and courtesy reasons, photographing or videotaping individual booths and displays in the exhibit hall is allowed ONLY with explicit permission from on-site company representatives. Individuals not complying with this policy will be asked to surrender their film and to leave the exhibit hall.

Laser Pointer Safety Information

SPIE supplies tested and safety approved laser pointers for all conference meeting rooms, and for course rooms if instructors request one. For safety reasons, SPIE requests that presenters use our provided laser pointers available in each meeting room.

If using your personal laser pointer:

- Please have it tested at your facility to make sure it has <5 mW power output. Laser pointers in Class II and IIIa (<5 mW) are eye safe if power output is correct - but don't automatically trust the labeling. Commercially available laser pointers, red or green (or any color), could be incorrectly labeled as to their wavelength and power output.
- We require that you to come to the Audiovisual Desk onsite and test your pointer on our power meter. If the pointer fails the safe power level you may not use the pointer at the conference. You will be required to sign a waiver releasing SPIE of any liability for use of potentially non-safe laser pointers.
- Use of a personal laser pointer at an SPIE event represents user's acceptance of liability for use of a non-SPIE supplied laser pointer device. Misuse of any laser pointer could lead to eye damage.

Underage Persons on Exhibition Floor

For safety and insurance reasons, no persons under the age of 16 will be allowed in the exhibition area during move-in and move-out. During open exhibition hours, only children over the age of 12 accompanied by an adult will be allowed in the exhibition area.

Unauthorized Solicitation

Any manufacturer or supplier who is not an exhibitor and is observed to be soliciting business in the aisles, or in another company's booth, will be asked to leave immediately. Unauthorized solicitation in the Exhibition Hall is prohibited.

Unsecured Items

Personal belongings such as laptops briefcases, backpacks, coats, book bags, etc. should not be left unattended in meeting rooms or public areas. These items will be subject to removal by security upon discovery.

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for environmental monitoring

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Remote Sensing 2014:
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Daily Conference Session Schedule

MONDAY 29 October		TUESDAY 30 October		WEDNESDAY 31 October		THURSDAY 1 November	
Conference 8523 · Room: I							
Remote Sensing of the Atmosphere, Clouds, and Precipitation IV							
WELCOME AND PLENARY SESSION		SESSION 3 · Ground-Based and Airborne Measurements of Precipitation		SESSION 7 · Modeling and Simulation of Cloud and Precipitation Parameters			
		Coffee Break		Coffee Break			
		SESSION 4 · New Missions and Emerging Instruments for Atmospheric Remote Sensing		SESSION 8 · EarthCare Mission and Instruments			
Lunch Break		Lunch Break		Lunch Break			
SESSION 1 · Precipitation Retrieval Techniques		SESSION 5 · Satellite Observations of Aerosol and Air Pollutants		SESSION 9 · Remote Sensing of Clouds			
Coffee Break		Coffee Break		Coffee Break			
SESSION 2 · Remote Sensing of Clouds and Precipitation		SESSION 6 · Ground Observations and Modeling of Aerosol and Dust		POSTER SESSION			
Conference 8524 · Room: J							
Land Surface Remote Sensing							
WELCOME AND PLENARY SESSION		SESSION 2 · Water Cycle		SESSION 4 · Forest and Vegetation I		SESSION 6 · Forest and Vegetation II	
Lunch Break		Lunch Break		Lunch Break		Lunch Break	
SESSION 1 · Land Use and Land Cover Change		SESSION 3 · Thermal Remote Sensing and Evapotranspiration		SESSION 5 · Disasters and Hazards		SESSION 7 · Remote Sensing Analysis and Modeling	
				POSTER SESSION			
Conference 8525 · ROOM: 554							
Remote Sensing of the Marine Environment II							
WELCOME AND PLENARY SESSION				SESSION 1 · Remote Sensing of Surface Properties I		SESSION 4 · Ocean-Color Algorithms and Applications II	
				Coffee Break		Coffee Break	
				SESSION 1 · Remote Sensing of Surface Properties I continued		SESSION 5 · Coral Reefs, Sea Grass, and Mangroves I	
				Lunch Break		Lunch Break	
				SESSION 2 · Remote Sensing of Surface Properties II		SESSION 6 · Coral Reefs, Sea Grass, and Mangroves II	
				SESSION 3 · Ocean-Color Algorithms and Applications I			
				POSTER SESSION			
Conference 8526 · Room: 554							
Lidar Remote Sensing for Environmental Monitoring XIII							
WELCOME AND PLENARY SESSION		SESSION 4 · Meteorological Measurements (Wind and Water Vapor)					
		SESSION 5 · Space Lidars and Applications					
Lunch Break		Lunch Break					
SESSION 1 · Lasers for Lidar Remote Sensing		SESSION 6 · Aerosol and Cloud Measurements					
Coffee Break		Coffee Break					
SESSION 2 · Lidar Methods and Technologies		SESSION 6 · Aerosol and Cloud Measurements continued					
SESSION 3 · Laser Ranging				POSTER SESSION			

Daily Conference Session Schedule

MONDAY 29 October	TUESDAY 30 October	WEDNESDAY 31 October	THURSDAY 1 November
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Conference 8527 · Room: 555 Multispectral, Hyperspectral, and Ultraspectral Remote Sensing Technology, Techniques and Applications IV

WELCOME AND PLENARY SESSION	SESSION 1 · Atmospheric Remote Sensing	SESSION 3 · Remote Sensing Applications
	Coffee Break	Coffee Break
	SESSION 1 · Atmospheric Remote Sensing continued	SESSION 4 · Sensor Characterization and Calibration I
	Lunch Break	Lunch Break
	SESSION 2 · Land Remote Sensing and Image Enhancement	SESSION 5 · Sensor Characterization and Calibration II
	Coffee Break	Coffee Break
	SESSION 2 · Land Remote Sensing and Image Enhancement continued	SESSION 6 · Future Measurement Systems
		POSTER SESSION

Conference 8528 · Room: K Earth Observing Missions and Sensors: Development, Implementation, and Characterization II

WELCOME AND PLENARY SESSION		SESSION 4 · Post-launch Calibration and Validation II	SESSION 8 · JAXA II
	Coffee Break	Coffee Break	Coffee Break
	SESSION 1 · Existing and New Missions and Sensors I	SESSION 5 · Improved Data Analysis Methodologies and Results	SESSION 9 · JAXA III
	Lunch Break	Lunch Break	Lunch Break
	SESSION 2 · Post-launch Calibration and Validation I	SESSION 6 · Enabling Technologies and New Sensor Test Concept	SESSION 10 · JAXA IV
	Coffee Break	Coffee Break	Coffee Break
	SESSION 3 · Existing and New Missions and Sensors II	SESSION 7 · JAXA I	SESSION 11 · JAXA V
		POSTER SESSION	

Conference 8529 · Room: I Remote Sensing and Modeling of the Atmosphere, Oceans, and Interactions IV

WELCOME AND PLENARY SESSION		SESSION 1 · Remote Sensing and Modeling I
		Coffee Break
		SESSION 2 · Remote Sensing and Modeling II
		Lunch Break
		SESSION 3 · Remote Sensing and Modeling III
		Coffee Break
		POSTER SESSION
		SESSION 4 · Remote Sensing and Modeling IV

Plenary Sessions

Plenary sessions will take place on Monday from 08:50 to 12:00.

See pages 3–5 for details.

One Fee Gains You Access to All Conferences.

Remote Sensing of the Atmosphere, Clouds, and Precipitation IV

Conference Chairs: **Tadahiro Hayasaka**, Tohoku Univ. (Japan); **Kenji Nakamura**, Nagoya Univ. (Japan); **Eastwood Im**, Jet Propulsion Lab. (United States)

Program Committee: **V. Chandrasekar**, Colorado State Univ. (United States); **Naimeng Lu**, China Meteorological Administration (China); **Graeme L. Stephens**, Jet Propulsion Lab. (United States); **Byung-Ju Sohn**, Seoul National Univ. (Korea, Republic of); **Song Yang**, U.S. Naval Research Lab. (United States)

Monday 29 October

WELCOME AND PLENARY PRESENTATIONS	
Room: A	Mon 8:50 to 11:50
Symposium Chairs: Upendra N. Singh , NASA Langley Research Ctr. (United States); Toshio Iguchi , National Institute of Information and Communications Technology (Japan)	
08:50 to 09:20	Welcome Address Symposium Chairs and Masanori Homma , Japan Aerospace Exploration Agency (Japan)
09:20 to 09:40	Space technology for sustainable development Yasushi Horikawa , Japan Aerospace Exploration Agency (Japan)
09:40 to 10:00	Remote sensing of Earth and environment for global sustainability Ghassem Asrar , World Meteorological Organization (Switzerland)
10:00 to 10:20	NASA's future Earth science missions: opportunities and challenges George J. Komar , NASA Goddard Space Flight Ctr. (United States)
10:20 to 11:00	Coffee Break
11:00 to 11:20	Introduction of satellite earth observation in China (Paper 8523-504) Xiaohan Liao , The Ministry of Science and Technology (China)
11:20 to 11:50	Greenhouse gas measurement from space: status of GOSAT Project and recent outcomes (Paper 8523-502) Tatsuya Yokota , National Institute for Environmental Studies (Japan)
See details pages 3-5	

Lunch Break Mon 11:50 to 13:30

SESSION 1

Room: I **Mon 13:30 to 15:30**

Precipitation Retrieval Techniques

Session Chairs: **Toshio Iguchi**, National Institute of Information and Communications Technology (Japan); **Ziad S. Haddad**, Jet Propulsion Lab. (United States)

13:30: **A potential DSD retrieval process for dual-frequency precipitation radar (DPR) on board GPM**, Minda Le, V. Chandrasekar, Colorado State Univ. (United States) [8523-1]

13:50: **Impact of non-uniform beam filling on spaceborne cloud and precipitation radar retrieval algorithms**, Simone Tanelli, Gian Franco Sacco, Stephen L. Durden, Ziad S. Haddad, Jet Propulsion Lab. (United States) [8523-2]

14:10: **Development of precipitation retrieval algorithm for passive microwave sounder over land**, Satoshi Kida, Takuji Kubota, Misako Kachi, Japan Aerospace Exploration Agency (Japan); Shoichi Shige, Kyoto Univ. (Japan); Riko Oki, Japan Aerospace Exploration Agency (Japan) [8523-3]

14:30: **New GSMaP over-land precipitation retrieval algorithm for AMSR2**, Kazumasa Aonashi, Meteorological Research Institute [8523-4]

14:50: **A development of rain retrieval algorithm from satellite microwave radiometers caused by orography and over high elevations area**, Munehisa K. Yamamoto, Aina Taniguchi, Shoichi Shige, Kyoto Univ. (Japan) [8523-5]

15:10: **A feasible method for merging datasets of TRMM PR and TMI**, Yunfei Fu, Qi Liu, Liang Sun, Yu Wang, Ming Ma, Rui Li, Univ. of Science and Technology of China (China) [8523-6]

Coffee Break Mon 15:30 to 16:00

SESSION 2

Room: I **Mon 16:00 to 17:20**

Remote Sensing of Clouds and Precipitation

Session Chairs: **V. Chandrasekar**, Colorado State Univ. (United States); **Yunfei Fu**, Univ. of Science and Technology of China (China)

16:00: **Exploitation and validation of TRMM satellite rainfall estimates in landslide early warning systems in Italy**, Mauro Rossi, Consiglio Nazionale delle Ricerche (Italy) and Univ. degli Studi di Perugia (Italy); Dalia Kirschbaum, NASA Goddard Space Flight Ctr. (United States); Silvia Luciani, Alessandro C. Mondini, Consiglio Nazionale delle Ricerche (Italy) and Univ. degli Studi di Perugia (Italy); Fausto Guzzetti, Consiglio Nazionale delle Ricerche (Italy) [8523-7]

16:20: **A physically based algorithm for non-blackbody correction of the cloud top temperature for the convective clouds**, Chunpeng Wang, Univ. of Michigan (United States); Zhengzhao Luo, The City College of New York (United States); Xianglei Huang, Xiuhong Chen, Univ. of Michigan (United States); Xiping Zeng, Wei-Kuo Tao, NASA Goddard Space Flight Ctr. (United States) [8523-9]

16:40: **Constraining CloudSat-based snowfall profiles using surface observations and C-band ground radar**, Ziad S. Haddad, Jet Propulsion Lab. (United States) [8523-10]

17:00: **Use of ASTER GDEM for separating rain echo and surface clutter in the radar observation of rain from space**, Jun Awaka, Tokai Univ. (Japan); Toshio Iguchi, National Institute of Information and Communications Technology (Japan) [8523-11]

Tuesday 30 October

SESSION 3

Room: I **Tue 8:00 to 10:00**

Ground-Based and Airborne Measurements of Precipitation

Session Chairs: **Eastwood Im**, Jet Propulsion Lab. (United States); **Hiroaki Horie**, National Institute of Information and Communications Technology (Japan)

8:00: **Precipitation observation using a dual Ka-band radar system**, Kenji Nakamura, Masanori Nishikawa, Nagoya Univ. (Japan); Shuji Shimizu, Japan Aerospace Exploration Agency (Japan); Katsuhiro Nakagawa, Hiroshi Hanado, National Institute of Information and Communications Technology (Japan) [8523-12]

8:20: **Raindrop size distribution (DSD) retrieval with commercial microwave communication links and dual-polarization weather radar**, V. Chandrasekar, Colorado State Univ. (United States); Eiichi Yoshikawa, Colorado State Univ. (United States) and Japan Aerospace Exploration Agency (Japan) [8523-13]

8:40: **Microphysical structure of stratiform precipitation observed by an X-band dual-polarization radar and hydrometeor vide sondes during the Baiu around Okinawa, Japan**, Mariko Oue, Tadayasu Ohigashi, Kazuhisa Tsuboki, Taro Shinoda, Takeharu Kouketsu, Hiroshi Uyeda, Haruya Minda, Nagoya Univ. (Japan); Eiichi Nakakita, Kyoto Univ. (Japan) [8523-14]

9:00: **Urban flash flood applications of high-resolution rainfall estimation by X-band dual-polarization radar network**, V. Chandrasekar, Haonan Chen, Colorado State Univ. (United States); Masayuki Maki, National Research Institute for Earth Science and Disaster Prevention (Japan) [8523-15]

9:20: **Measurement of vertical air velocity and hydrometeors in stratiform precipitation by the 47-MHz wind profiler radar and 532-nm polarization lidar**, Masayuki K. Yamamoto, Kyoto Univ. (Japan); Makoto Abo, Yasukuni Shibata, Tokyo Metropolitan Univ. (Japan); Tomoaki Mega, Hiroyuki Hashiguchi, Noriyuki Nishi, Kyoto Univ. (Japan); Hajime Okamoto, Kaori Sato, Kyushu Univ. (Japan); Toyoshi Shimomai, Shimane Univ. (Japan); Manabu D. Yamanaka, Japan Agency for Marine-Earth Science and Technology (Japan) and SATREPS-MCCOE Promotion Office (Indonesia) and Kobe Univ. (Japan); Mamoru Yamamoto, Kyoto Univ. (Japan); Manik Timbul, Sir Syafrifon, National Institute of Aeronautics and Space (Indonesia) [8523-16]

9:40: **Recent observations of clouds and precipitation by the airborne precipitation radar 2nd generation in support of the GPM and ACE missions**, Stephen L. Durden, Simone Tanelli, Jet Propulsion Lab. (United States) [8523-17]

Coffee Break. Tue 10:00 to 10:30

SESSION 4

Room: I Tue 10:30 to 12:10

New Missions and Emerging Instruments for Atmospheric Remote Sensing

Session Chairs: **Kenji Nakamura**, Nagoya Univ. (Japan); **Stephen L. Durden**, Jet Propulsion Lab. (United States)

10:30: **New cloud science derived from GCOM-C satellite mission**, Husi Letu, Takashi Y. Nakajima, Takashi N. Matsui, Tokai Univ. (Japan) ... [8523-18]

10:50: **A CloudSat perspective of the atmospheric water cycle and precipitation: recent progress and grand challenges**, Graeme L. Stephens, Deborah G. Vane, Eastwood Im, Jet Propulsion Lab. (United States) . [8523-19]

11:10: **Usefulness of dual-frequency precipitation SAR (PSAR) for next-generation space-based precipitation mission**, Toshiaki Kozu, Tatsuro Sasaki, Toyoshi Shimomai, Shimane Univ. (Japan)..... [8523-20]

11:30: **3D wind field retrieval from spaceborne Doppler radar**, Yvon Lemaître, Nicolas Viltard, LATMOS (France)..... [8523-21]

11:50: **Towards next-generation spaceborne precipitation radar systems**, Eastwood Im, Simone Tanelli, Stephen L. Durden, Momin Quddus, Jet Propulsion Lab. (United States); Yahya Rahmat-Samii, Univ. of California, Los Angeles (United States) [8523-22]

Lunch Break Tue 12:10 to 13:40

SESSION 5

Room: I Tue 13:40 to 15:20

Satellite Observations of Aerosol and Air Pollutants

Session Chairs: **Tadahiro Hayasaka**, Tohoku Univ. (Japan); **Jianping Huang**, Lanzhou Univ. (China)

13:40: **Aerosol-cloud-interaction during contrasting Indian summer monsoon years; 2008 and 2009**, Rohini Bhawar, APCC (India)..... [8523-23]

14:00: **China Collection 1.1: an aerosol optical depth dataset at 1km resolution over China retrieved from satellite data**, Yong Xue, Institute of Remote Sensing Applications (China) [8523-24]

14:20: **Column-averaged concentrations of CO₂ and CH₄ retrieved from GOSAT TANSO-FTS SWIR spectra and their use in estimating regional surface fluxes**, Tatsuya Yokota, Yukio Yoshida, Isamu Morino, Osamu Uchino, Hiroshi Takagi, Shamil Maksyutov, Hiroshi Watanabe, GOSAT members, National Institute for Environmental Studies (Japan) [8523-25]

14:40: **Relationship between trace gases and aerosols from biomass burning in Southeast Asia using satellite and emission data**, Yoshimi Azuma, Maya Nakamura, Makoto Kuji, Nara Women's Univ. (Japan) . [8523-52]

15:00: **The temperature correction for retrieval of sulfur dioxide from ultraviolet satellite measurements**, Huanhuan Yan, Liangfu Chen, Lin Su, Jinhua Tao, Dong Han, Institute of Remote Sensing Applications (China)..... [8523-27]

Coffee Break. Tue 15:20 to 15:50

SESSION 6

Room: I Tue 15:50 to 17:30

Ground Observations and Modeling of Aerosol and Dust

Session Chairs: **Byung-Ju Sohn**, Seoul National Univ. (Korea, Republic of); **Yong Xue**, Institute of Remote Sensing Applications (China)

15:50: **Observed radiative effects caused by yellow dust aerosol at Sendai**, Shuichiro Katagiri, Kyohei Yamada, Tadahiro Hayasaka, Tohoku Univ. (Japan); Nobuo Sugimoto, National Institute for Environmental Studies (Japan)..... [8523-28]

16:10: **Ground-based observation of Asia dust aerosol and their impact on climate over northwest China**, Jianrong Bi, Jianping Huang, Yuzhi Liu, Lanzhou Univ. (China); Tamio Takamura, Chiba Univ. (Japan); Jinsen Shi, Zhongwei Huang, Jinming Ge, Yongkun Xie, Zhiyuan Hu, Lanzhou Univ. (China); Kahatri Pradeep, Chiba Univ. (Japan)..... [8523-29]

16:30: **The retrieval of aerosol optical depth with an improved model over Lanzhou and surroundings**, Wu Zhang, Jingjing Feng, Xinghua Zhang, Yan Chen, Lanzhou Univ. (China) [8523-30]

16:50: **Aerosol models characterization in arctic region using cluster analysis based on long-term AERONET observations**, Chi Li, Ctr. for Earth Observation and Digital Earth (China) and Graduate Univ. of Chinese Academy of Sciences (China); Yong Xue, Ctr. for Earth Observation and Digital Earth (China) and London Metropolitan Univ. (United Kingdom); Leiku Yang, Beijing Normal Univ. (China) and Henan Polytechnic Univ. (China); Yingjie Li, Institute of Remote Sensing Applications (China) and Graduate Univ. of Chinese Academy of Sciences (China) [8523-31]

17:10: **Scattering properties of the heterogenous and non-spherical haze particles in the SWIR band**, Meng Fan, Institute of Remote Sensing Applications (China) and Graduate Univ. of Chinese Academy of Sciences (China); Liangfu Chen, Shenshen Li, Jinhua Tao, Lin Su, Mingmin Zou, Dong Han, Ying Zhang, Institute of Remote Sensing Applications (China) .. [8523-32]

Wednesday 31 October

SESSION 7

Room: I Wed 8:50 to 10:10

Modeling and Simulation of Cloud and Precipitation Parameters

Session Chairs: **Kazumasa Aonashi**, Meteorological Research Institute (Japan); **Simone Tanelli**, Jet Propulsion Lab. (United States)

8:50: **Vertical structures of IWC from CloudSat retrievals and NICAM simulations**, Byung-Ju Sohn, Seoul National Univ. (Korea, Republic of); Seung Hee Ham, NASA Langley Research Ctr. (United States)..... [8523-34]

9:10: **Modeling of tropospheric integrated water vapor content using GPS, radiosonde, radiometer, rain gauge and surface meteorological data in a tropical region (French Polynesia)**, Jonathan Serafini, Jean-Pierre Barriot, Lydie Sichoix, Univ. de la Polynésie Française (French Polynesia); Abdelali Fadil, Otago Univ. (New Zealand) [8523-35]

9:30: **MODIS data assimilation under cloudy conditions and its impact on rain forecast**, Weiyu Ding, Institute of Tropical and Marine Meteorology (China)..... [8523-36]

9:50: **The satellite on-orbit observation simulations system**, Haibing Sun, Perot Systems Government Service (United States); Walter Wolf, Christopher D. Barnet, Mitchell D. Goldberg, National Oceanic and Atmospheric Administration (United States); Thomas S. King, Perot Systems Government Service (United States)..... [8523-37]

Coffee Break. Wed 10:10 to 10:40

SESSION 8

Room: I **Wed 10:40 to 12:10**

EarthCare Mission and Instruments

Session Chairs: **Graeme L. Stephens**,
Jet Propulsion Lab. (United States);

Toshiyoshi Kimura, Japan Aerospace Exploration Agency (Japan)

10:40: **On the cloud observations in JAXA's next coming satellite mission** (*Invited Paper*), Takashi Y. Nakajima, Takashi N. Matsui, Hui Letu, Tokai Univ. (Japan); Haruma Ishida, Yamaguchi Univ. (Japan); Kentaro Suzuki, NASA, Jet Propulsion Lab. (United States) [8523-39]

11:10: **The EarthCARE Cloud Profiling Radar, its latest design and testing results from the engineering model**, Hirotsuka Nakatsuka, Toshiyoshi Kimura, Yoshihiro Seki, Gaku Kadosaki, Yoshiya Iide, Kazuyuki Okada, Japan Aerospace Exploration Agency (Japan); Nobuhiro Takahashi, Yuichi Ohno, Hiroaki Horie, Kenji Sato, National Institute of Information and Communications Technology (Japan) [8523-73]

11:30: **Simulation for spaceborne cloud profiling Doppler radar: EarthCARE/CPDR**, Hiroaki Horie, Nobuhiro Takahashi, Yuichi Ohno, National Institute of Information and Communications Technology (Japan) . . . [8523-40]

11:50: **Advances in cloud screening and retrieving algorithm for the multispectral imager on-board the EarthCARE satellite**, Takashi N. Matsui, Takashi Y. Nakajima, Tokai Univ. (Japan); Haruma Ishida, Yamaguchi Univ. (Japan); Kentaro Suzuki, Jet Propulsion Lab. (United States); Hajime Okamoto, Yuichiro Hagihara, Kyushu Univ. (Japan) [8523-41]

Lunch Break Wed 12:10 to 14:00

SESSION 9

Room: I **Wed 14:00 to 15:40**

Remote Sensing of Clouds

Session Chair: **Takashi Y. Nakajima**, Tokai Univ. (Japan)

14:00: **Statistical analysis of the subtropical cloud regime transition in the northeastern Pacific Ocean: observations from AIRS and MODIS compared to ERA-40 and other sounding instruments**, Mathias Schreier, Univ. of California, Los Angeles (United States) and Jet Propulsion Lab. (United States); Brian H. Kahn, Kay Suselj, Qing Yue, Jet Propulsion Lab. (United States) [8523-42]

14:20: **Cloud liquid water retrieval using AMSR-E on land**, Dabin Ji, Jiancheng Shi, Institute of Remote Sensing Applications (China) . . . [8523-62]

14:40: **Categorizing precipitating cloud by using radar and geostationary satellite**, Parichat Wetchayont, Tadahiyo Hayasaka, Tohoku Univ. (Japan) [8523-44]

15:00: **Cloud optical depth measured with ground-based, uncooled infrared imagers**, Joseph A. Shaw, Paul W. Nugent, Brian J. Redman, Montana State Univ. (United States); Sabino Piazzolla, Jet Propulsion Lab. (United States) [8523-45]

15:20: **Retrieval of cirrus cloud radiative properties from brightness temperatures in infrared window bands**, Hironobu Iwabuchi, Soichiro Yamada, Tohoku Univ. (Japan) [8523-46]

POSTERS-WEDNESDAY

Room: B1 **Wed 16:30 to 18:00**

Session Chairs: **Jun Awaka**, Hokkaido Tokai Univ. (Japan);
Simone Tanelli, Jet Propulsion Lab. (United States);
Hirotsuka Nakatsuka, Japan Aerospace Exploration Agency (Japan)

The interactive poster session with authors in attendance will be Wednesday 16:30 to 18:00. Poster authors are asked to display their posters beginning at 10:00 for extended viewing. Authors should remove their posters at the end of the interactive poster session. Posters left displayed will be considered unwanted and will be discarded.

Influence and discrimination of clouds in the detection of dust and sandstorms using AVI, Yoshinobu Kato, Fukui Univ. of Technology (Japan) [8523-47]

Algorithm development for remote sensing of aerosol from MSI, Satoru Fukuda, Japan Aerospace Exploration Agency (Japan); Teruyuki Nakajima, Hideaki Takenaka, The Univ. of Tokyo (Japan) [8523-48]

Multi-angular polarized remote sensing of aerosol over East Asia, Tianhai Cheng, Xingfa Gu, Donghai Xie, Hao Chen, Institute of Remote Sensing Applications (China) [8523-49]

Evaluation of aerosol single scattering albedo derived from ozone monitoring instrument and its applications over East Asia, Qi Liu, Yulan Hong, Yunfei Fu, Univ. of Science and Technology of China (China) . . [8523-50]

Satellite aerosol retrieval using dark target algorithm by coupling BRDF effect over AERONET site, Leiku Yang, Beijing Normal Univ. (China) and State Key Lab. of Remote Sensing Science (China) and Henan Polytechnic Univ. (China); Yong Xue, Institute of Remote Sensing Applications (China) and London Metropolitan Univ. (United Kingdom); Jie Guang, Institute of Remote Sensing Applications (China); Chi Li, Ctr. for Earth Observation and Digital Earth (China) and Graduate Univ. of Chinese Academy of Sciences (China); Yingjie Li, Institute of Remote Sensing Applications (China) and Graduate Univ. of Chinese Academy of Sciences (China) [8523-51]

HCI/Cly ratios of just before the breakup of the Antarctic vortex as observed by SMILES/MLS/ACE-FTS, Takafumi Sugita, National Institute for Environmental Studies (Japan); Yasuko J. Kasai, National Institution of Information and Communication Technology (Japan); Yukio Terao, National Institute for Environmental Studies (Japan); Sachiko Hayashida, Nara Women's Univ. (Japan) [8523-53]

DRAGON-Osaka experiment with local pollutants and long-range transported Asian aerosols, Makiko Nakata, Sonoyo Mukai, Itaru Sano, Yuzuru Nakaguchi, Kinki Univ. (Japan); Brent N. Holben, NASA Goddard Space Flight Ctr. (United States); Nobuo Sugimoto, National Institute for Environmental Studies (Japan) [8523-54]

DRAGON-West Japan campaign in 2012: regional aerosol measurements over Osaka, Itaru Sano, Sonoyo Mukai, Kinki Univ. (Japan); Brent N. Holben, NASA Goddard Space Flight Ctr. (United States) [8523-55]

Geographical and climatological characterization of aerosol optical depth distribution of MODIS in China, Xiaobo Zheng, Guizhou Institute of Mountainous Climate and Environment (China); Tianliang Zhao, Environment Canada (Canada); Yuxiang Luo, Guizhou Institute of Mountainous Climate and Environment (China) [8523-56]

Microphysical properties of low clouds over the North Pacific Ocean, Takumi Maruyama, Tadahiyo Hayasaka, Tohoku Univ. (Japan) [8523-57]

Cloud characteristics in global arid and semi-arid regions detected by A-train satellite measurements, Xiaodong Ding, Lanzhou Univ. (China); Yuhong Yi, Science Systems and Applications, Inc. (United States); Jianping Huang, Jiming Li, Zhongwei Huang, Lanzhou Univ. (China) [8523-58]

A new method for retrieving the vertical distribution of extinction coefficient of stratocumulus clouds from collocated active and passive satellite data, Jiming Li, Jianping Huang, Xiaodong Ding, Lanzhou Univ. (China) [8523-59]

Relationship between cloud base height retrieved by lidar and downward longwave irradiance, Kyohei Yamada, Tadahiyo Hayasaka, Tohoku Univ. (Japan); Nobuo Sugimoto, National Institute for Environmental Studies (Japan) [8523-60]

A novel calibration method of the spaceborne precipitation radar using surface NRCS, Runfeng Yang, Beijing Research Institute of Telemetry (China); Cheng Li, Memorial Univ. of Newfoundland (Canada); Lianghai Li, Yong Yu, Beijing Research Institute of Telemetry (China); Hua Liang, Beijing Institute of Space Machinery (China) [8523-63]

Satellite observation of water vapor over East Asia during summer monsoon season, Minghui Tao, Liangfu Chen, Lin Su, Jinhua Tao, Institute of Remote Sensing Applications (China) [8523-65]

Development and observation of the radar network with high resolution, Tomoo Ushio, Eiichi Yoshikawa, Zen Kawasaki, Satoru Yoshida, Osaka Univ. (Japan) [8523-66]

A study on aspect sensitivity of clear-air turbulence using coherent radar imaging of VHF Atmospheric radar, Jenn-Shyong Chen, Chienkuo Technology Univ. (Taiwan); Jun-ichi Furumoto, Kyoto Univ. (Japan) . . [8523-68]

The effect of characteristics of partially coherent flat-topped beam truncated by a circular aperture on the M2-factor in turbulent atmosphere, Naby Hadilou, Golazin Taherabadi, Mehdi Alavinejad, Bijan Ghafary, Iran Univ. of Science and Technology (Iran, Islamic Republic of) [8523-69]

The effect of characteristics of partially coherent dark hollow beam on the degree of polarization in non-Kolmogorov turbulent atmosphere, Golazin Taherabadi, Naby Hadilou, Mahdi Alavinejad, Bijan Ghafary, Iran Univ. of Science and Technology (Iran, Islamic Republic of) [8523-70]

Development of a land surface emissivity algorithm for use by microwave rain retrieval algorithms, Fumie A. Furuzawa, Hirohiko Masunaga, Kenji Nakamura, Nagoya Univ. (Japan) [8523-71]

A comparison of performance of automatic cloud coverage assessment algorithm for Formosat-2 image using clustering-based and spatial thresholding methods, Kuo-Hsien Hsu, National Space Organization (Taiwan) [8523-72]

Land Surface Remote Sensing

Conference Chairs: **Dara Entekhabi**, Massachusetts Institute of Technology (United States); **Yoshiaki Honda**, Chiba Univ. (Japan); **Haruo Sawada**, The Univ. of Tokyo (Japan); **Jiancheng Shi**, Institute of Remote Sensing Applications (China); **Taikan Oki**, The Univ. of Tokyo (Japan)

Program Committee: **Christopher D. Elvidge**, National Oceanic and Atmospheric Administration (United States); **Peng Gong**, Univ. of California, Berkeley (United States); **Alfredo R. Huete**, Univ. of Technology Sydney (Australia); **Koji Kajiwara**, Chiba Univ. (Japan); **Joon Kim**, Seoul National Univ. (Korea, Republic of); **Masao Moriyama**, Nagasaki Univ. (Japan); **Dawen Yang**, Tsinghua Univ. (China)

Monday 29 October

WELCOME AND PLENARY PRESENTATIONS	
Room: A	Mon 8:50 to 11:50
Symposium Chairs: Upendra N. Singh , NASA Langley Research Ctr. (United States); Toshio Iguchi , National Institute of Information and Communications Technology (Japan)	
08:50 to 09:20	Welcome Address Symposium Chairs and Masanori Homma , Japan Aerospace Exploration Agency (Japan)
09:20 to 09:40	Space technology for sustainable development Yasushi Horikawa , Japan Aerospace Exploration Agency (Japan)
09:40 to 10:00	Remote sensing of Earth and environment for global sustainability Ghassem Asrar , World Meteorological Organization (Switzerland)
10:00 to 10:20	NASA's future Earth science missions: opportunities and challenges George J. Komar , NASA Goddard Space Flight Ctr. (United States)
10:20 to 11:00	Coffee Break
11:00 to 11:20	Introduction of satellite earth observation in China (Paper 8523-504) Xiaohan Liao , The Ministry of Science and Technology (China)
11:20 to 11:50	Greenhouse gas measurement from space: status of GOSAT Project and recent outcomes (Paper 8523-502) Tatsuya Yokota , National Institute for Environmental Studies (Japan) <i>See details pages 3-5</i>

Lunch Break Mon 11:50 to 13:30

SESSION 1

Room: J **Mon 13:30 to 17:20**

Land Use and Land Cover Change

Session Chairs: **Koji Kajiwara**, The Univ. of Tokyo (Japan); **Peng Gong**, Univ. of California, Berkeley (United States)

13:30: **Impacts of land-use/land-cover (LULC) changes on land surface temperature (LST) in Addis Ababa, Ethiopia, based on satellite images of December 1986 and 2010 respectively**, Daniel M. Mbithi, Kenya Meteorological Services (Kenya) [8524-1]

13:50: **Application of MERIS in retrieval of chlorophyll-a concentration in the highly turbid Taihu Lake**, Ronghua Ma, Nanjing Institute of Geography and Limnology (China); Zhongping Lee, Univ. of Massachusetts Boston (United States) [8524-2]

14:10: **Mapping fifty global cities' growth using time-series Landsat data**, Hasi Bagan, Yoshiki Yamagata, National Institute for Environmental Studies (Japan) [8524-3]

14:30: **China's 30m global land cover map**, Peng Gong, Tsinghua Univ. (China) [8524-4]

14:50: **Polarimetric analysis of coastal region using time series of Radarsat-2 images**, Hsiu-Wen Wang, Kun-Shan Chen, National Central Univ. (Taiwan); Horn-Ru Liao, National Science Council (Taiwan) [8524-5]

Coffee Break Mon 15:10 to 15:40

15:40: **Validation of the wetland map derived from MODIS imagery in North America**, Gegen Tana, Chiba Univ. (Japan); Husi Letu, Tokai Univ. (Japan); Ryutarō Tateishi, Chiba Univ. (Japan) [8524-6]

16:00: **Land cover classification comparisons between dual polarimetric, pseudo-fully polarimetric and fully polarimetric SAR imagery**, Bhogendra Mishra, Junichi Susaki, Kyoto Univ. (Japan) [8524-7]

16:20: **A compound method for automatically extracting plateau wetlands from satellite imagery**, Jay Gao, The Univ. of Auckland (New Zealand) [8524-8]

16:40: **Monitoring land and water use in Nha Trang, Vietnam by remote sensing technique**, Phan Minh-Thu, Wageningen Univ. (Netherlands); Michael E. Schaepman-Strub, Zurich Univ. of Applied Sciences (Netherlands); Rik Leemans, Wageningen Univ. (Netherlands); Nguyen Tac-An, Tong Phuoc Hoang-Son, Institute of Oceanography (Viet Nam) [8524-9]

17:00: **PolSAR change detection applied to specific land cover type**, Meng Liu, Hong Zhang, Bo Zhang, Fan Wu, Bo Chen, Ctr. for Earth Observation and Digital Earth (China) [8524-11]

Tuesday 30 October

SESSION 2

Room: J **Tue 8:50 to 11:40**

Water Cycle

Session Chairs: **Taikan Oki**, The Univ. of Tokyo (Japan); **Dawen Yang**, Tsinghua Univ. (China)

8:50: **Estimation of soil moisture with the combined L-band radar and radiometer measurements**, Jiancheng Shi, Institute of Remote Sensing Applications (China) [8524-13]

9:10: **Calibration of a land surface model using microwave remote sensing observations**, Hui Lu, Tsinghua Univ. (China) [8524-14]

9:30: **Assimilation of surface soil moisture into catchment hydrologic model via ensemble Kalman smoother**, Fangni Lei M.D., Wuhan Univ. (China); Chunlin Huang, Cold and Arid Regions Environmental and Engineering Research Institute (China); Huanfeng Shen, Wuhan Univ. (China) [8524-15]

9:50: **Analyzing the inundation patterns in Asia floodplains by passive microwave data**, Haolu Shang, Institute of Remote Sensing Applications (China) and Technische Univ. Delft (Netherlands); Jia Li, Institute of Remote Sensing Applications (China) and Wageningen Univ. (Netherlands); Massimo Menenti, Technische Univ. Delft (Netherlands) [8524-37]

Coffee Break Tue 10:10 to 10:40

10:40: **A simple method for estimating irrigation area using HJ-1A/1B CCD data**, Zhongli Zhu, Fan Du, Beijing Normal Univ. (China) [8524-18]

11:00: **Airborne active and passive L-band measurements using PALS instrument in SMAPVEX12 soil moisture field campaign**, Andreas Colliander, Seth L. Chazanoff, Steven J. Dinardo, Simon H. Yueh, Jet Propulsion Lab. (United States); Thomas J. Jackson, U.S. Dept. of Agriculture (United States); Heather McNairn, Agriculture and Agri-Food Canada (Canada); Eni G. Njoku, Jet Propulsion Lab. (United States) [8524-20]

11:20: **A nested global-local hydrological model for large scale flood forecasting using remote sensing satellite data: a contribution to monitoring global environmental change**, Amir AghaKouchak, Ali Mehran, Navid Nakhjiri, Univ. of California, Irvine (United States) [8524-21]

Lunch Break Tue 11:40 to 13:50

SESSION 3

Room: J **Tue 13:50 to 17:20**

Thermal Remote Sensing and Evapotranspiration

Session Chairs: **Jiancheng Shi**, Institute of Remote Sensing Applications (China); **Masao Moriyama**, Nagasaki Univ. (Japan)

13:50: **Monitoring surface climate with its emissivity derived from satellite measurements**, Daniel K. Zhou, Allen M. Larar, Xu Liu, NASA Langley Research Ctr. (United States) [8524-22]

14:10: **Estimation and monitoring heat discharge rates using Landsat ETM+ thermal infrared data: a case study in Unzen geothermal field, Kyushu, Japan**, Md. B. Mia, Yasuhiro Fujimitsu, Kyushu Univ. (Japan); Chris Bromely, GNS Science (New Zealand) [8524-23]

14:30: **Estimation of global ET-Index from satellite imagery for water resources management**, Masahiro Tasumi, Univ. of Miyazaki (Japan); Reiji Kimura, Tottori Univ. (Japan); Masao Moriyama, Nagasaki Univ. (Japan); Richard G. Allen, Univ. of Idaho (United States); Aiko Fujii, Univ. of Miyazaki (Japan) [8524-24]

14:50: **Semi-analytical land surface temperature estimation algorithm for GCOM-C/SGLI**, Masao Moriyama, Nagasaki Univ. (Japan) [8524-25]

Coffee Break. Tue 15:10 to 15:40

15:40: **Remote-sensing-based continuous estimation of regional evapotranspiration by improved SEBS model**, Dawen Yang, He Chen, Tsinghua Univ. (China) [8524-26]

16:00: **Operational retrieval results of land surface temperature from the first Korean geostationary satellite: COMS data**, Ara Cho, Myoung-Seok Suh, Ki-Hong Park, Kongju National Univ. (Korea, Republic of); Jung-Lim Lee, National Meteorological Satellite Ctr. (Korea, Republic of) [8524-28]

16:20: **Regression imputation with ground air temperature for the satellite-based lake and reservoir temperature database in Japan**, Hideyuki Tonooka, Ibaraki Univ. (Japan) [8524-29]

16:40: **Evaluation of single-source, dual-source algorithms for the remote sensing of evapotranspiration**, Li Jia, Institute of Remote Sensing Applications (China) and Wageningen Univ. (Netherlands); Massimo Menenti, Technische Univ. Delft (Netherlands); Guangcheng Hu, Zhangsheng Li, Institute of Remote Sensing Applications (China) [8524-30]

17:00: **Analysis of microwave backscatter measured by radar altimeter on land to study surface aerodynamic roughness**, Le Yang, Qinhua Liu, Institute of Remote Sensing Applications (China) [8524-31]

Wednesday 31 October

SESSION 4

Room: J **Wed 8:30 to 11:40**

Forest and Vegetation I

Session Chairs: **Haruo Sawada**, The Univ. of Tokyo (Japan); **Yoshiaki Honda**, Chiba Univ. (Japan)

8:30: **The development of microwave vegetation index for SMOS applications**, Jiancheng Shi, Institute of Remote Sensing Applications (China); Qiang Liu, Yunqing Li, Institute of Remote Sensing Applications (China) and Graduate Univ. of Chinese Academy of Sciences (China) [8524-32]

8:50: **Calibration and validation of Landsat-based time-series of persistent green-vegetation fraction for Australia**, Kasper Johansen, The Univ. of Queensland (Australia); Tony Gill, NSW Office of Environment and Heritage (Australia); Peter Scarth, Dept. of Environment and Resource Management (Australia); Stuart Phinn, The Univ. of Queensland (Australia); Rebecca Trevithick, Dept. of Environment and Resource Management (Australia) [8524-33]

9:10: **A decadal observation of vegetation dynamics using multi-resolution satellite images**, Yang-Sheng Chiang, Kun-Shan Chen, Chang-Jen Chu, National Central Univ. (Taiwan) [8524-34]

9:30: **Characterizing vegetation dynamics in forestland of Java using MODIS time-series imagery: a monitoring approach of ecological resources in regional scale**, Yudi Setiawan, Kunihiko Yoshino, Univ. of Tsukuba (Japan) [8524-35]

9:50: **SAR-based monitoring of plantation area in peatland forests of Sarawak, Malaysia**, Ram Avtar, Hideki Kobayashi, Hadi Fadaei, Rikie Suzuki, Japan Agency for Marine-Earth Science and Technology (Japan) ... [8524-36]

Coffee Break. Wed 10:10 to 10:40

10:40: **On the high-fidelity monitoring of C3 and C4 crops under nutrient and water stress**, Gladimir V. G. Baranoski, Tenn F. Chen, Bradley Kimmel, Erik Miranda, Univ. of Waterloo (Canada) [8524-38]

11:00: **Isolated tree 3D modeling: based on photographing leaf area density(LAD) calculation and L-system method**, Shengye Jin, Masayuki Tamura, Kyoto Univ. (Japan) [8524-39]

11:20: **Pastureland use planning in Bayan, Mongolia using remote sensing and GIS**, Khishigsuren Nyamsambuu, Kunihiko Yoshino, Univ. of Tsukuba (Japan) [8524-40]

Lunch Break Wed 11:40 to 13:30

SESSION 5

Room: J **Wed 13:30 to 16:30**

Disasters and Hazards

Session Chairs: **Joon Kim**, Seoul National Univ. (Korea, Republic of); **Yoshiaki Honda**, Chiba Univ. (Japan)

13:30: **Detection of three-dimensional crustal movements due to the 2011 Tohoku, Japan earthquake from TerraSAR-X intensity images**, Wen Liu, Chiba Univ. (Japan) and Japan Society for the Promotion of Science (Japan); Fumio Yamazaki, Chiba Univ. (Japan) [8524-41]

13:50: **Monitoring southwest drought of China using HJ-1A/B and Landsat remote sensing data**, He Huang, Siqian Yang, Haixia He, National Disaster Reduction Ctr. of China (China) [8524-42]

14:10: **Detecting damage to coastal forests caused by the Tohoku Earthquake 2011 in Japan using time-series remote sensing images**, Eiji Kodani, Katsunori Nakamura, Tomoki Sakamoto, Tohoku Research Ctr. (Japan); Koki Kimura, Aomori Prefectural Industrial Technology Research Ctr. (Japan) [8524-43]

14:30: **Detection of damaged buildings using GeoEye-1 imagery and airborne lidar data: a case study on the 2011 Tohoku earthquake**, Yoshiyuki Yamamoto, Aichi Institute of Technology (Japan); Tomohito Asaka, Sadayoshi Aoyama, Keishi Iwashita, Katsuteru Kudou, Nihon Univ. (Japan) [8524-44]

14:50: **Disaster monitoring by using the Pi-SAR2**, Seiho Uratsuka, Toshihiko Umehara, Tatsuharu Kobayashi, Makoto Satake, Jyunpei Uemoto, Shoichiro Kojima, National Institute of Information and Communications Technology (Japan) [8524-45]

Coffee Break. Wed 15:10 to 15:30

15:30: **A framework for diagnosis of environmental health based on remote sensing**, Chunxiang Cao, Min Xu, Institute of Remote Sensing Applications (China) [8524-46]

15:50: **Semi-automatic recognition and mapping of event-induced landslides by exploiting HR MS satellite images and VHR DEMs in a Bayesian framework**, Alessandro C. Mondini, Consiglio Nazionale delle Ricerche (Italy); Kang-tsung Chang, Kainan Univ. (Taiwan); Mauro Rossi, Ivan Marchesini, Fausto Guzzetti, Consiglio Nazionale delle Ricerche (Italy) [8524-47]

16:10: **Damage estimation of the great east Japan earthquake by NICT airborne SAR (PI-SAR2)**, Makoto Satake, Tatsuharu Kobayashi, Jyunpei Uemoto, Toshihiko Umehara, Uratsuka Seiho, National Institute of Information and Communications Technology (Japan) [8524-48]

POSTERS-WEDNESDAY

Room: B-1 **Wed 16:30 to 18:00**

The interactive poster session with authors in attendance will be Wednesday 16:30 to 18:00. Poster authors are asked to display their posters beginning at 10:00 for extended viewing. Authors should remove their posters at the end of the interactive poster session. Posters left displayed will be considered unwanted and will be discarded.

Land Use and Land Cover Change

Urban waterbody extraction using medium-resolution, multispectral remote sensing image based on knowledge-based decision tree, Jingbo Chen, Chengyi Wang, Dongxu He, Institute of Remote Sensing Applications (China) [8524-68]

Influence of intensified human activities on coastal environment over Yellow River delta from multiscale remote sensing, Yonghong Hu, Ctr. for Earth Observation and Digital Earth (China); Gensuo Jia, Yuting He, Institute of Atmospheric Physics (China) [8524-69]

Accuracy assessment of land use classification using hybrid methods, Kuan-Tsung Chang, F. G. Yiu, Minghsin Univ. of Science and Technology (Taiwan); J. T. Hwang, National Taipei Univ. (Taiwan); Y. X. Lin, Minghsin Univ. of Science and Technology (Taiwan) [8524-70]

Global land cover classification using annual statistical values, Noriko Soyama, Tenri Univ. (Japan); Kanako Muramatsu, Nara Women's Univ. (Japan); Motomasa Daigo, Doshisha Univ. (Japan) [8524-71]

Impact of land use/land cover change on land surface temperature to estimate urban heat islands in Hino City, Nang Mya Mya Nwe, Tokyo Univ. of Marine Science and Technology (Japan) [8524-108]

Water Cycle

Time series microwave emission properties of snow-covered surface in South China both using model simulation and observations, Lingmei Jiang, Beijing Normal Univ. (China) [8524-19]

Microwave monitoring of the soil moisture, Ferdenant A. Mkrtchyan, Institute of Radio Engineering and Electronics (Russian Federation) . [8524-73]

Thermal Remote Sensing and Evapotranspiration

The satellite-based, forest-water stress detection algorithm, Satoshi Tanigawa, Masao Moriyama, Nagasaki Univ. (Japan); Yoshiaki Honda, Koji Kajiwara, Chiba Univ. (Japan) [8524-78]

The effects of urban stream improving the thermal environment in urban area, Jin-Ki Park, Sang Il Na, Jong-Hwa Park, Chungbuk National Univ. (Korea, Republic of) [8524-79]

Retrieval of land surface temperature by cross-calibrated SWISSR thermal infrared data onboard China geostationary satellite, Xiaoying Ouyang, Institute of Remote Sensing Applications (China); Li Jia, Institute of Remote Sensing Applications (Cocos Islands); Guangcheng Hu, Jie Zhou, Massimo Menenti, Institute of Remote Sensing Applications (China) . [8524-80]

Forest and Vegetation

Radiometric calibration method of the general purpose digital camera and its application for the vegetation monitoring, Kenta Tokunaga, Masao Moriyama, Nagasaki Univ. (Japan) [8524-81]

Satellite-based fire detection algorithm for GCOM-C1/SGLI, Takashi Miura, Masao Moriyama, Nagasaki Univ. (Japan) [8524-82]

Exploring optimal design of look-up table for PROSAIL model inversion, He Wei Sr., Hua Yang, Beijing Normal Univ. (China) [8524-83]

Estimating the gross primary production capacity from global observation satellite, Kanako Muramatsu, Juthasinee Thanyapraneedkul, Nara Women's Univ. (Japan); Shinobu Furumi, Narasaho College (Japan) [8524-84]

Assimilation of HJ-1 NDVI data into a parameterized vegetation NDVI dynamics models, Jinling Song, Beijing Normal Univ. (China) [8524-85]

Relation between vegetation activity and local climate over East Asia using GIMMS NDVI and climate data, Ara Cho, Myoung-Seok Suh, Seung-Hwan Kwak, Kongju National Univ. (Korea, Republic of) [8524-86]

Research on the intensity of invasion and distribution of eupatorium adenophorum in the south east of China based on multi-temporal remote sensing images, Li Wang, Suhong Liu, Beijing Normal Univ. (China). [8524-87]

The study on the method of evaluating development status of island based on multiscale vegetation indices' analysis, Li H. Li, The Second Institute of Oceanography, SOA (China) [8524-89]

Temporal and spatial variation of MODIS vegetation index for Nantong city, Zhenhua Chao, Nantong Univ. (China); Xiaohong Gao, Qinghai Normal Univ. (China) [8524-106]

Multispectral lidar for vegetation reflectance and fluorescence detection, Song Shalei, Wuhan Institute of Physics and Mathematics (China) [8524-107]

Disasters and Hazards

Landslide detection using very high-resolution satellite imageries, Yuzo Suga, Hiroshima Institute of Technology (Japan); Tomohisa Konishi, Nihon CADIC Co., Ltd. (Japan) [8524-90]

Analysis of road damage after a large-scale earthquake using satellite images, Keishi Yamaguchi, Hitoshi Saji, Shizuoka Univ. (Japan) . . . [8524-91]

Study on the tie point selection for DEM extraction from stereo PRISM images, Yoshiyuki Kawata, Akihiro Funatsu, Satoshi Yoshii, Kazuya Takemata, Kanazawa Institute of Technology (Japan) [8524-92]

Assessing remote topographic datasets: comparing ASTER GDEM, SRTM and the role of ICESat/GLAS transect data with survey control points for floodplain modelling, Abdollah A. Jarihani, The Univ. of Queensland (Australia) and Azad Islamic Univ. (Iran, Islamic Republic of); Nikolaus J. Callow, The Univ. of Queensland (Australia) [8524-93]

GIS-based data assimilation of a numerical model for hazard assessment, Tuba Zahra, The Univ. of Tokyo (Japan); Prasun K. Gupta, Indian Institute of Remote Sensing (India) [8524-94]

Remote Sensing Analysis and Modeling

Basic study of BRDF over Tokyo for the spaceborne measurements of atmospheric trace gases, Katsuyuki Noguchi, Nara Women's Univ. (Japan); Andreas Richter, John P. Burrows, Univ. Bremen (Germany); Hitoshi Irie, Chiba Univ. (Japan); Kazuyuki Kita, Ibaraki Univ. (Japan) [8524-95]

A MATLAB toolbox for Envisat InSAR data processing, visualization, and analysis, Yilong Lu, Zhidong Zhang, Zunjing Ma, Ganlu Chen, Yan Chen, Nanyang Technological Univ. (Singapore) [8524-96]

Extraction of road traffic information using satellite images and a three-dimensional digital map, Fumito Shinmura, Hitoshi Saji, Shizuoka Univ. (Japan) [8524-97]

Relationship between DMSP/OLS nighttime light and CO₂ emission from electric power plant, Husi Letu, Tokai Univ. (Japan); Yuhai Bao, Inner Mongolia Normal Univ. (China); Masanao Hara, VisionTech Inc. (Japan); Gegen Tana, Fumihiko Nishio, Chiba Univ. (Japan) [8524-98]

Landsat-imagery-based water turbidity monitoring in lake Paldang, Korea, Sang Il Na, Jong-Hwa Park, Jin-Ki Park, Shin Chul Baek, Si-Young Oh, Chungbuk National Univ. (Korea, Republic of) [8524-99]

Methane analysis using SCIAMACHY data in permafrost area of China, Cen Yi, Taixia Wu, Hengqian Zhao, Lifu Zhang, Institute of Remote Sensing Applications (China) [8524-100]

A study of fraction of absorbed photosynthetically active radiation characteristics based on SAIL model simulation, Li Li, Yongming Du, Yong Tang, Institute of Remote Sensing Applications (China) [8524-101]

Distribution of solar radiation including slope effect in South Korea, Shin Chul Baek, Sang Il Na, Jin-Ki Park, Jong-Hwa Park, Chungbuk National Univ. (Korea, Republic of) [8524-102]

Hyperspectral land surface remote sensing using a VNIR airborne imaging spectrometer, Yegor V. Dmitriev, Institute of Numerical Mathematics (Russian Federation); Timopheev V. Kondranin, Moscow Institute of Physics and Technology (Russian Federation); Vladimir V. Kozoderov, Lomonosov Moscow State Univ. (Russian Federation); Tamara A. Sushkevich, M. V. Keldysh Institute of Applied Mathematics (Russian Federation) [8524-103]

Forest biomass estimation algorithms for the earth observation satellite optical sensor using multi-angle observation data, Koji Kajiwara, Chiba Univ. (Japan); Yusaku Ono, Japan Aerospace Exploration Agency (Japan); Yoshiaki Honda, Chiba Univ. (Japan) [8524-104]

Thursday 1 November

SESSION 6

Room: J **Thu 8:30 to 12:00**

Forest and Vegetation II

Session Chairs: **Yoshiaki Honda**, Chiba Univ. (Japan);
Koji Kajiwara, Chiba Univ. (Japan)

8:30: The relationship between GPP and spectral reflectance for monitoring grassland status and carbon uptake in an alpine grassland in the Qinghai-Tibetan Plateau, Hideki Kobayashi, Japan Agency for Marine-Earth Science and Technology (Japan); Tomomichi Kato, Univ. de Versailles Saint-Quentin-en Yvelines (France); Shin Nagai, Japan Agency for Marine-Earth Science and Technology (Japan); Yanhong Tang, National Institute for Environmental Studies (Japan); Mingyuan Du, National Institute for Agro-Environmental Sciences (Japan) [8524-49]

8:50: Accuracy evaluation of satellite remote-sensing-based phenological observations in East Asia by performing long-term continuous ground-truthing and ecological examinations, Shin Nagai, Japan Agency for Marine-Earth Science and Technology (Japan); Takeshi Motohka, Japan Aerospace Exploration Agency (Japan); Hideki Kobayashi, Rikie Suzuki, Japan Agency for Marine-Earth Science and Technology (Japan); Hiroyuki Muraoka, Gifu Univ. (Japan); Kenlo N. Nasahara, Univ. of Tsukuba (Japan); Taku M. Saitoh, Gifu Univ. (Japan) [8524-50]

9:10: Retrieval of leaf area index using wireless sensor network, Yonghua Qu, Beijing Normal Univ. (China) [8524-51]

9:30: Assessing the sensitivity of two new indicators of vegetation response to water availability for drought monitoring, Li Jia, Alterra B.V. (Netherlands) and Institute of Remote Sensing Applications (China); Massimo Menenti, Technische Univ. Delft (Netherlands); Jie Zhou, Guangcheng Hu, Institute of Remote Sensing Applications (China) [8524-52]

9:50: A novel method of scales transformation for quantitative remote sensing retrievals: fractal and its analysis, improvement, Haijun Luan, Nanjing Univ. (China); Xingfa Gu, Tao Yu, Institute of Remote Sensing Applications (China); Qingjiu Tian, Nanjing Univ. (China); Qingyan Meng, Xinli Hu, Chunzhu Wei, Institute of Remote Sensing Applications (China) . [8524-54]

Coffee Break **Thu 10:10 to 10:40**

10:40: **Quantification of human activity on NPP change during 2000-2010 in China**, Juan Gu, Xin Li, Chunlin Huang, Lanzhou Univ. (China) . . . [8524-55]

11:00: **Study on forest above ground biomass synergy inversion from GLAS and HJ-1 data**, Zhou Fang, Chunxiang Cao, Min Xu, Huicong Jia, Wei Ji, Jian Zhao, Haibing Xiang, Institute of Remote Sensing Applications (China) . . . [8524-56]

11:20: **Satellite remote sensing of photosynthetic potential of boreal forest in Alaska**, Rikie Suzuki, Shin Nagai, Hideki Kobayashi, Japan Agency for Marine-Earth Science and Technology (Japan); Taro Nakai, Yongwon Kim, International Arctic Research Ctr. (United States) . . . [8524-57]

11:40: **Mapping Sargassum beds off, ChonBuri Province, Thailand, using ALOS AVN2 image**, Thidarat Noiraksar, Burapha Univ. (Thailand); Teruhisa Komatsu, Shuhei Sawayama, The Univ. of Tokyo (Japan); Sophany Phauk, Royal Univ. of Phnom Penh (Cambodia); Ken-ichi Hayashizaki, Kitasato Univ. (Japan) . . . [8524-58]

Lunch BreakThu 12:00 to 13:30

SESSION 7

Room: JThu 13:30 to 16:40

Remote Sensing Analysis and Modeling

Session Chairs: **Dara Entekhabi**, Massachusetts Institute of Technology (United States); **Masao Moriyama**, Nagasaki Univ. (Japan)

13:30: **Possibility of mutual verification between satellite products and climate model simulation results**, Kazuo Mabuchi, Meteorological Research Institute (Japan); Yoshiaki Honda, Chiba Univ. (Japan); Kenlo N. Nasahara, Univ. of Tsukuba (Japan); Hiroshi Murakami, Masahiro Hori, Japan Aerospace Exploration Agency (Japan); Masao Moriyama, Nagasaki Univ. (Japan); Akiko Ono, Nara Women's Univ. (Japan) . . . [8524-59]

13:50: **Multiple view angle effects on classification of forward-modelled MODIS reflectance**, Ziti Jiao, Beijing Normal Univ. (China) . . . [8524-60]

14:10: **Monte Carlo modeling in problems of land surface aerospace sensing**, Boris A. Kargin, Arseny B. Kargin, Institute of Computational Mathematics and Mathematical Geophysics (Russian Federation) . . [8524-62]

14:30: **Parametric representation of soil isoline equation and its accuracy estimation in red-NIR reflectance space**, Kenta Taniguchi, Yasuhiro Ikuta, Aichi Prefectural Univ. (Japan); Kenta Obata, Univ. of Hawai'i (United States); Masayuki Matsuoka, Kochi Univ. (Japan); Hiroki Yoshioka, Aichi Prefectural Univ. (Japan) . . . [8524-63]

14:50: **Influences of band-correlated noise on FVC by VI-isoline based LMM: characteristic behavior of propagated error**, Yasuhiro Ikuta, Kenta Taniguchi, Aichi Prefectural Univ. (Japan); Kenta Obata, Univ. of Hawai'i (Japan); Masayuki Matsuoka, Kochi Univ. (Japan); Hiroki Yoshioka, Aichi Prefectural Univ. (Japan) . . . [8524-64]

Coffee BreakThu 15:10 to 15:40

15:40: **Mapping spatial and temporal continuous daily land surface shortwave albedo with MODIS and AMSR-E data**, Ying Qu, Lizhao Wang, Youbin Feng, Gongqi Zhou, Qiang Liu, Suhong Liu, Beijing Normal Univ. (China) . . . [8524-65]

16:00: **Comparison between the research result of mathematical morphology method applied to satellite SAR data and the other reported results for the detection of the 2011 off the Pacific coast of Tohoku Japan earthquake and tsunami-affected farmlands**, Yasuharu Yamada, National Agriculture and Food Research Organization (Japan) . . . [8524-66]

16:20: **Supporting elephant conservation in Sri Lanka through MODIS imagery**, Kithsiri Perera, Univ. of Southern Queensland (Australia); Ryutaro Tateishi, Chiba Univ. (Japan) . . . [8524-67]

Remote Sensing of the Marine Environment II

Conference Chairs: **Robert J. Frouin**, Scripps Institution of Oceanography (United States); **Naoto Ebuchi**, Hokkaido Univ. (Japan); **Delu Pan**, The Second Institute of Oceanography, SOA (China); **Toshiro Saino**, Japan Agency for Marine-Earth Science and Technology (Japan)

Program Committee: **David P. Doxaran**, Lab. d'Océanographie de Villefranche (France); **Cécile Dupouy**, Institut de Recherche pour le Développement (New Caledonia); **Joji Ishizaka**, Nagoya Univ. (Japan); **Zhongping Lee**, Boston Univ. (United States); **Hubert Loisel**, Univ. du Littoral Côte d'Opale (France); **Mervyn J. Lynch**, Curtin Univ. of Technology (Australia); **Hiroshi Murakami**, Japan Aerospace Exploration Agency (Japan); **Kevin Ruddick**, Royal Belgian Institute of Natural Sciences (Belgium); **Menghua Wang**, NOAA/NESDIS Ctr. for Satellite Applications and Research (United States); **Sinjaee Yoo**, Korea Ocean Research & Development Institute (Korea, Republic of)

Wednesday 31 October

SESSION 1

Room: 554 Wed 8:30 to 12:20

Remote Sensing of Surface Properties I

Session Chair: **Naoto Ebuchi**, Hokkaido Univ. (Japan)

8:30: **Evaluation of sea surface salinity observed by Aquarius on SAC-D**, Naoto Ebuchi, Hiroto Abe, Hokkaido Univ. (Japan). [8525-1]

8:50: **Effective monitoring for marine debris after great east Japan earthquake by using spaceborne synthetic aperture radar**, Motofumi Arii, Yoshifumi Aoki, Masakazu Koiwa, Mitsubishi Space Software Co., Ltd. (Japan). [8525-2]

9:10: **A new PolSAR ship detector on RADARSAT-2 data**, Yuan Sun, Hong Zhang, Chao Wang, Fan Wu, Bo Zhang, Ctr. for Earth Observation and Digital Earth (China). [8525-3]

9:30: **Civilian ship classification based on structure features in high resolution SAR images**, Shaofeng Jiang, Hong Zhang, Chao Wang, Fan Wu, Bo Zhang, Ctr. for Earth Observation and Digital Earth (China). [8525-4]

9:50: **A novel normalized scan algorithm for wake detection in SAR images**, Jie Nan, Hong Zhang, Chao Wang, Bo Chen, Bo Zhang, Ctr. for Earth Observation and Digital Earth (China). [8525-5]

Coffee Break. Wed 10:10 to 10:40

10:40: **On oil films detection on the sea surface using optical remote sensing method**, Irina Sergievskaya, Stanislav A. Ermakov, Institute of Applied Physics (Russian Federation). [8525-6]

11:00: **Slicks on the sea surface: their origin and remote sensing**, Stanislav A. Ermakov, Institute of Applied Physics (Russian Federation). [8525-7]

11:20: **Retrieval of swell parameters using PALSAR onboard ALOS and its application**, Yongliang Wei, Shanghai Ocean Univ. (China); Hiroshi Kawamura, Tohoku Univ. (Japan). [8525-8]

11:40: **Measurement of ocean waves using a cross-track interferometric SAR technique**, Akitsugu Nadai, Toshihiko Umehara, Makoto Satake, Tatsuharu Kobayashi, Seiho Uratsuka, National Institute of Information and Communications Technology (Japan). [8525-9]

12:00: **Seasonal and interannual variability of sea surface temperature and sea surface wind in the eastern part of Indonesian Sea: ten years analysis of satellite remote sensing data**, I Dewa Nyoman Nurweda Putra, Yamaguchi Univ. (Japan) and Udayana Univ. (Indonesia); Tasuku Tanaka, Yamaguchi Univ. (Japan). [8525-10]

Lunch Break. Wed 12:20 to 13:50

SESSION 2

Room: 554 Wed 13:50 to 14:50

Remote Sensing of Surface Properties II

Session Chair: **Naoto Ebuchi**, Hokkaido Univ. (Japan)

13:50: **Spatio-temporal geostatistical data fusion technique for merging MODIS and AMSR-E SST products**, Yan Chen Bo, Aihua Li, Yuxin Zhu, Beijing Normal Univ. (China). [8525-11]

14:10: **SAR monitoring of coastline changes of Nanhui New City, Shanghai, China**, Xianwen Ding, Shanghai Ocean Univ. (China); Xiaofeng Li, NOAA Science Ctr. (United States) and Shanghai Ocean Univ. (China) and SFU-NOAA Joint Ctr. (China). [8525-12]

14:30: **Mesoscale and submesoscale eddies in SAR and optical images**, Olga Y. Lavrova, Andrey N. Serebryany, Space Research Institute (Russian Federation). [8525-13]

SESSION 3

Room: 554 Wed 14:50 to 15:50

Ocean-Color Algorithms and Applications I

Session Chair: **Toshiro Saino**, Nagoya Univ. (Japan)

14:50: **Estimation of inherent optical properties using in-situ hyperspectral radiometer and MODIS data along the east coast of New Caledonia**, Hiroshi Murakami, Japan Aerospace Exploration Agency (Japan); Cécile Dupouy, Institut de Recherche pour le Développement (New Caledonia); Robert J. Frouin, Scripps Institution of Oceanography (United States) [8525-14]

15:10: **Monitoring the diffuse attenuation coefficient Kd in open and turbid waters from ocean color images using a neural network inversion**, Cédric Jamet, Hubert Loisel, David Dessailly, Lab. d'Océanologie et de Géosciences (France). [8525-15]

15:30: **Estimation of total suspended matter from three near infrared bands**, Mitsuhiro Toratani, Tokai Univ. (Japan); Joji Ishizaka, Nagoya Univ. (Japan); Yoko Kiyomoto, Seikai National Fisheries Research Institute (Japan); Yu-Hwan Ahn, Sinjoe Yoo, Korea Ocean Research & Development Institute (Korea, Republic of); Sang-Woo Kim, National Fisheries Research and Development Institute (Korea, Republic of); Junwu Tang, National Satellite Ocean Application Service (China). [8525-17]

POSTERS-WEDNESDAY

Room: B-1 Wed 16:30 to 18:00

The interactive poster session with authors in attendance will be Wednesday 16:30 to 18:00. Poster authors are asked to display their posters beginning at 10:00 for extended viewing. Authors should remove their posters at the end of the interactive poster session. Posters left displayed will be considered unwanted and will be discarded.

SMOS sea surface salinity validation and application in South China Sea, Yongzheng Ren, Ctr. for Earth Observation and Digital Earth (China). [8525-35]

A preliminary study on the application of remotely sensed SST in locating evaporation duct height, Muhammad Hasan A. Baig, Institute of Remote Sensing Applications (China). [8525-36]

Accelerating ocean radiative transfer simulation using GPU with CUDA, Keping Du, Kun Xue, Beijing Normal Univ. (China); Zhongping Lee, Univ. of Massachusetts Boston (United States). [8525-37]

Status and threats on seagrass beds using GIS in Vietnam, Cao V. Luong, Nguyen V. Thao, Institute of Marine Environment and Resources (Viet Nam). [8525-38]

Monitoring of debris flowing to the ocean by huge tsunami caused by the 2011 off the Pacific coast of Tohoku earthquake, Takashi Aoyama, Fukui Univ. of Technology (Japan). [8525-39]

Optical remote sensing technique for monitoring of water basins, Victor I. Titov, Institute of Applied Physics (Russian Federation). [8525-40]

Wave effects on the retrieved wind field from the ASCAT scatterometer, Lin Ren, Jingsong Yang, The Second Institute of Oceanography, SOA (China). [8525-41]

Image feature analysis of Taiwan Bank sand wave group based on HJ-1 satellites remote sensing images, Huaguo Zhang, The Second Institute of Oceanography, SOA (China). [8525-42]

Relationship between Zhejiang coastal upwelling and red tides in the East China Sea, Xiulin Lou, Aiqing Shi, Qingmei Xiao, Huaguo Zhang, The Second Institute of Oceanography, SOA (China). [8525-43]

Data processing of airborne infrared remote sensing for monitoring thermal discharge drained from nuclear plant, Difeng Wang, Delu Pan, Fang Gong, Yifan Wang, Zengzhou Hao, The Second Institute of Oceanography, SOA (China). [8525-44]

A 15-year time series of photosynthetically available radiation over the world oceans from SeaWiFS and MODIS data, Robert J. Frouin, John McPherson, Kyoze Ueyoshi, Univ. of California, San Diego (United States); Bryan A. Franz, NASA Goddard Space Flight Ctr. (United States). . . . [8525-45]

Spectral response of the coral rubber, living corals and dead corals: study case on the Spermonde archipelago, Indonesia. Nurjannah Nurdin, Hasanuddin Univ. (Indonesia); Teruhisa Komatsu, The Univ. of Tokyo (Japan); Hiroya Yamano, National Institute for Environmental Studies (Japan); Gulam Arafat, Chair Rani, M. As Akbar, Hasanuddin Univ. (Indonesia) [8525-46]

Did huge tsunami on 11 March 2011 impact seagrass bed distributions in Shizugawa Bay, Sanriku Coast, Japan? Shuji Sasa, Shuhei Sawayama, Shingo Sakamoto, The Univ. of Tokyo (Japan); Ryo Tsujimoto, Genki Terauchi, Northwest Pacific Action Plan (Japan); Hiroshi Yagi, VisionTech Inc. (Japan); Teruhisa Komatsu, The Univ. of Tokyo (Japan) [8525-48]

Thursday 1 November

SESSION 4

Room: 554 Thu 8:30 to 10:30

Ocean-Color Algorithms and Applications II

Session Chair: **Toshiro Saino**, Nagoya Univ. (Japan)

8:30: Improved ocean-color remote sensing in the Arctic using the POLYMER algorithm. Robert J. Frouin, Pierre-Yves Deschamps, Univ. of California, San Diego (United States); Didier Ramon, Francois Steinmetz, Hygeos (France) [8525-18]

8:50: Phytoplankton blooms in the South China Sea and the Western North Pacific subtropical gyre as observed by multiple satellite sensors: impact of aerosol, typhoon, and volcano. I.-I. Lin, Chun-Chi Lien, National Taiwan Univ. (Taiwan); George T. F. Wong, Academia Sinica (Taiwan); Chih-Wei Huang, National Taiwan Univ. (Taiwan) and Academia Sinica (Taiwan) [8525-19]

9:10: Spatial and temporal variations of satellite-derived phytoplankton biomass in the Malacca Straits. Eko Siswanto, Univ. Teknologi Malaysia (Malaysia); Katsuhisa Tanaka, Japan International Research Ctr. for Agricultural Sciences (Japan) [8525-20]

9:30: Retrieval of chlorophyll-a using satellite and ground spectral data in Japanese and Sri Lankan water bodies. Dahanayakage Don G. Dahanayaka, Hideyuki Tonooka, Ibaraki Univ. (Japan); Jayantha Wijeyaratne, Univ. of Kelaniya (Sri Lanka); Atsushi Minato, Satoru Ozawa, Ibaraki Univ. (Japan) [8525-21]

9:50: Remote sensing application for Sardinella lemuru assessment: a case study of the south waters of Malang Regency, East Java, Indonesia. Abu B. Sambah, Univ. Brawijaya (Indonesia); Fusanori Miura, Yamaguchi Univ. (Japan); Hanggar P. Kadarisman, Aida Sartimbul, Univ. Brawijaya (Indonesia) [8525-22]

10:10: Ocean color variability in the Southern Atlantic and Southeastern Pacific. Natalia M. Rudorff, Instituto Nacional de Pesquisas Espaciais (Brazil); Robert J. Frouin, Univ. of California, San Diego (United States); Milton Kampel, Instituto Nacional de Pesquisas Espaciais (Brazil) [8525-23]

Coffee Break Thu 10:30 to 11:00

SESSION 5

Room: 554 Thu 11:00 to 12:00

Coral Reefs, Sea Grass, and Mangroves I

Session Chair: **Robert J. Frouin**, Scripps Institution of Oceanography (United States)

11:00: Detection of coral bleaching on Sekisei-Lagoon using multispectral sensor data. Emiko Ariyasu, Satomi Kakuta, Asia Air Survey Co., Ltd. (Japan); Norichika Asada, Japan Space Systems (Japan); Tsuneo Matsunaga, National Institute for Environmental Studies (Japan) [8525-24]

11:20: Coral reef habitats mapping of Spermonde Archipelago using remote sensing, compared with in situ survey of fish abundance. Shuhei Sawayama, Teruhisa Komatsu, The Univ. of Tokyo (Japan); Nurjannah Nurdin, Hasanuddin Univ. (Indonesia) [8525-25]

11:40: Mapping seaweed forests with IKONOS image based on bottom surface reflectance. Tatsuyuki Sagawa, Remote Sensing Technology Ctr. of Japan (Japan); Atsuko Mikami, Teruhisa Komatsu, The Univ. of Tokyo (Japan); Masakazu Aoki, Tohoku Univ. (Japan) [8525-27]

Lunch Break Thu 12:00 to 13:50

SESSION 6

Room: 554 Thu 13:50 to 17:00

Coral Reefs, Sea Grass, and Mangroves II

Session Chair: **Robert J. Frouin**, Scripps Institution of Oceanography (United States)

13:50: Comparison of contrast improvement of extracted laver cultivation area using parameters derived from polarimetric SAR data. Mitsunobu Sugimoto, Kazuo Ouchi, Yasuhiro Nakamura, National Defense Academy (Japan) [8525-28]

14:10: Small leaf seagrass bed detection in turbid water using ALOS AVNIR 2 in Lap An lagoon, Thua Thien Hue, Vietnam. Ha N. Thang, Kunihiko Yoshino, Univ. of Tsukuba (Japan); Tong P. H. Son, Institute of Oceanography (Viet Nam) [8525-29]

14:30: Using remote sensing technique for analyzing temporal changes of seagrass beds by human impacts in waters of Cam Ranh Bay, Vietnam. Phan Minh-Thu, Tong Phuoc Hoang-Son, Institute of Oceanography (Viet Nam); Teruhisa Komatsu, The Univ. of Tokyo (Japan) [8525-49]

14:50: Mangrove analysis using ALOS imagery in Hai Phong City, Vietnam. Dat Tien Pham, Center for Agricultural Research and Ecological Studies (CARES), Hanoi Univ. of Agriculture (Viet Nam) and Graduate School of Life and Environmental Sciences, Univ. of Tsukuba (Japan); Kunihiko Yoshino, Univ. of Tsukuba (Japan) [8525-31]

Coffee Break Thu 15:10 to 15:40

15:40: Marine Habitat Mapping: using ALOS AVNIR-2 satellite image for seagrass beds at Rabbit (Koh Tonsay) Island, Cambodia. Sophany Phauk, Royal Univ. of Phnom Penh (Cambodia); Teruhisa Komatsu, The Univ. of Tokyo (Japan); Thidarat Noiraksa, Burapha Univ. (Thailand) [8525-47]

16:00: Evaluation of classification techniques for benthic habitat mapping. Aidy Muslim, D. Dianachia, Univ. Malaysia Terengganu (Malaysia) [8525-32]

16:20: Impact of huge tsunami in March 2011 on seaweed bed distributions in Shizugawa Bay, Sanriku Coast, revealed by remote sensing. Shingo Sakamoto, Shuhei Sawayama, Shuji Sasa, The Univ. of Tokyo (Japan); Ryo Tsujimoto, Genki Terauchi, Northwest Pacific Action Plan (Japan); Hiroshi Yagi, VisionTech Inc. (Japan); Teruhisa Komatsu, The Univ. of Tokyo (Japan) [8525-33]

16:40: Can ALOS-3/HISUI detect seaweed beds more precisely than ALOS/AVNIR-2? Tatsuyuki Sagawa, Tomohiro Watanabe, Remote Sensing Technology Ctr. of Japan (Japan); Akira Watanuki, Alpha Hydraulic Engineering Co. Ltd. (Japan); Heihachiro Kamimura, Japan Aerospace Exploration Agency (Japan); Teruhisa Komatsu, The Univ. of Tokyo (Japan) [8525-34]

Lidar Remote Sensing for Environmental Monitoring XIII

Conference Chairs: **Kazuhiro Asai**, Tohoku Institute of Technology (Japan); **Nobuo Sugimoto**, National Institute for Environmental Studies (Japan); **Upendra N. Singh**, NASA Langley Research Ctr. (United States); **Achuthan Jayaraman**, National Atmospheric Research Lab. (India); **Jianping Huang**, Lanzhou Univ. (China); **Detlef Mueller**, Gwangju Institute of Science and Technology (Korea, Republic of), Science Systems and Applications, Inc. (United States), Leibniz Institute for Tropospheric Research (IfT) (Germany)

Program Committee: **Makoto Abo**, Tokyo Metropolitan Univ. (Japan); **Robert L. Byer**, Stanford Univ. (United States); **Weibiao Chen**, Shanghai Institute of Optics and Fine Mechanics (China); **Takashi Fujii**, Central Research Institute of Electric Power Industry (Japan); **Yongxiang Hu**, NASA Langley Research Ctr. (United States); **Dengxin Hua**, Xi'an Univ. of Technology (China); **Dong Liu**, Anhui Institute of Optics and Fine Mechanics (China); **Philippe L. Keckhut**, Univ. de Versailles Saint-Quentin-en Yvelines (France); **Dukhyeon Kim**, Han Bat National Univ. (Korea, Republic of); **Thomas J. McGee**, NASA Goddard Space Flight Ctr. (United States); **Kohei Mizutani**, National Institute of Information and Communications Technology (Japan); **Tomohiro Nagai**, Meteorological Research Institute (Japan); **Masakatsu Nakajima**, Japan Aerospace Exploration Agency (Japan); **Laurent Sauvage**, Leosphere France (France); **Takashi Shibata**, Nagoya Univ. (Japan); **Tatsuo Shiina**, Chiba Univ. (Japan); **Venkataraman Sivakumar**, Council for Scientific and Industrial Research (South Africa); **Jinxue Wang**, Raytheon Co. (United States); **Yingjian Wang**, Anhui Institute of Optics and Fine Mechanics (China); **Songhua Wu**, Ocean Univ. of China (China); **Fan Yi**, Wuhan Univ. (China); **Jirong Yu**, NASA Langley Research Ctr. (United States)

Monday 29 October

SESSION 1

Room: 554 **Mon 13:30 to 15:20**

Lasers for Lidar Remote Sensing

Session Chairs: **Upendra N. Singh**, NASA Langley Research Ctr. (United States); **Kazuhiro Asai**, Tohoku Institute of Technology (Japan)

13:30: Development of laser/lidar technologies for enabling NASA earth science measurements (*Keynote Presentation*), George J. Komar, NASA Headquarters (United States) [8526-44]

14:00: Conductive-cooled 2-micron laser development for wind and CO₂ measurements, Kohei Mizutani, Shoken Ishii, Yasui Motoaki, Toshikazu Itabe, National Institute of Information and Communications Technology (Japan); Atsushi Sato, Kazuhiro Asai, Tohoku Institute of Technology (Japan); Hirotake Fukuoka, Hamamatsu Photonics K.K. (Japan); Takayoshi Ishikawa, Nippon Aleph Corp. (Japan) [8526-1]

14:20: 1.5-µm high-average power laser amplifier using a Er,Yb:glass planar waveguide for coherent Doppler lidar, Takeshi Sakimura, Yojiro Watanabe, Toshiyuki Ando, Shumpei Kameyama, Kimio Asaka, Hisamichi Tanaka, Takayuki Yanagisawa, Yoshihito Hirano, Mitsubishi Electric Corp. (Japan); Hamaki Inokuchi, Japan Aerospace Exploration Agency (Japan) [8526-2]

14:40: All-solid-state rapidly tunable coherent 6-10 µm light source for lidar environmental sensing, Norihito Saito, Masaki Yumoto, Takayuki Tomida, Utako Takagi, Satoshi Wada, RIKEN (Japan) [8526-3]

15:00: Development of a simultaneous dual-wavelength Q-switched Nd:YAG laser at 1064 and 1319 nm, Atsushi Sato, Takumi Abe, Shimpei Okubo, Kazuhiro Asai, Tohoku Institute of Technology (Japan); Nobuo Sugimoto, National Institute for Environmental Studies (Japan); Shoken Ishii, Kohei Mizutani, National Institute of Information and Communications Technology (Japan) [8526-4]

Coffee Break. Mon 15:20 to 15:40

SESSION 2

Room: 554 **Mon 15:40 to 16:40**

Lidar Methods and Technologies

Session Chairs: **Yongxiang Hu**, NASA Langley Research Ctr. (United States); **Takashi Fujii**, Central Research Institute of Electric Power Industry (Japan)

15:40: Study of fluorescence of atmospheric aerosols using a lidar spectrometer, Nobuo Sugimoto, National Institute for Environmental Studies (Japan); Zhongwei Huang, Lanzhou Univ. (China); Tomoaki Nishizawa, Ichiro Matsui, National Institute for Environmental Studies (Japan) [8526-5]

16:00: Application of lidar and optical data for oil palm plantation management in Malaysia, Helmi Zulhaidi Mohd Shafri, Ismail Mohd Hasmadi, Univ. Putra Malaysia (Malaysia); Mohamad Razi Mohamad Khairil, Felda Technoplant Sdn Bhd (Malaysia); Mohd Izzudin Annuar, Univ. Putra Malaysia (Malaysia); Abdul Rahman Bin Ahmad, Pejabat FELDA Wilayah Alor Star (Malaysia) [8526-7]

16:20: Development of polarization optical particle counter to detect particle shape information, Hiroshi Kobayashi, Univ. of Yamanashi (Japan); Masahiko Hayashi, Fukuoka Univ. (Japan); Yoshinobu Nakura, Yamanashi Gijyutsu Kobo (Japan); Takayuki Enomoto, Kazuhiko Miura, Tokyo Univ. of Science (Japan); Hiroshi Takahashi, Yasuhito Igarashi, Meteorological Research Institute (Japan); Hiroaki Naoe, Japan Meteorological Agency (Japan); Tomoaki Nishizawa, Nobuo Sugimoto, National Institute for Environmental Studies (Japan) [8526-8]

WELCOME AND PLENARY PRESENTATIONS

Room: A **Mon 8:50 to 11:50**

Symposium Chairs: **Upendra N. Singh**, NASA Langley Research Ctr. (United States); **Toshio Iguchi**, National Institute of Information and Communications Technology (Japan)

08:50 to 09:20 Welcome Address
Symposium Chairs and **Masanori Homma**, Japan Aerospace Exploration Agency (Japan)

09:20 to 09:40 Space technology for sustainable development
Yasushi Horikawa, Japan Aerospace Exploration Agency (Japan)

09:40 to 10:00 Remote sensing of Earth and environment for global sustainability
Ghassem Asrar, World Meteorological Organization (Switzerland)

10:00 to 10:20 NASA's future Earth science missions: opportunities and challenges
George J. Komar, NASA Goddard Space Flight Ctr. (United States)

10:20 to 11:00 Coffee Break

11:00 to 11:20 Introduction of satellite earth observation in China (Paper 8523-504)
Xiaohan Liao, The Ministry of Science and Technology (China)

11:20 to 11:50 Greenhouse gas measurement from space: status of GOSAT Project and recent outcomes (Paper 8523-502)
Tatsuya Yokota, National Institute for Environmental Studies (Japan)

See details pages 3-5

Lunch Break Mon 11:50 to 13:30

SESSION 3

Room: 554 **Mon 16:40 to 17:40**

Laser Ranging

Session Chairs: **Tatsuo Shiina**, Chiba Univ. (Japan);
Shoken Ishii, National Institute of Information and Communications
Technology (Japan)

16:40: **Range accuracy and simulation of lidar ranging system based on time-correlated single-photon counting**, Weiji He, Yunfei Chen, Nanjing Univ. of Science & Technology (China); Yaojin Cheng, Wei Cheng, Science and Technology on LLL Night Vision Lab. (China); Qian Chen, Nanjing Univ. of Science & Technology (China) [8526-9]

17:00: **Lie-EM-ICP algorithm: a novel frame for 2D shape registration**, Chunxiao Shao, Yaxin Peng, Shihui Ying, Shanghai Univ. (China) . . . [8526-10]

17:20: **A study of lidar-based sense making and topographic mapping**, Yilong Lu, Qinghua Wu, Nanyang Technological Univ. (Singapore) . . . [8526-11]

Tuesday 30 October

SESSION 4

Room: 554 **Tue 8:00 to 9:00**

Meteorological Measurements (Wind and Water Vapor)

Session Chair: **Dengxin Hua**, Xi'an Univ. of Technology (China)

8:00: **Profiling tropospheric water vapor with an infra-red differential absorption lidar: a sensitivity analysis**, Philippe Baron, Shoken Ishii, Kohei Mizutani, Motoaki Yasui, National Institute of Information and Communications Technology (Japan) [8526-12]

8:20: **Wind sensing demonstration of more than 30km measurable range with a 1.5µm coherent Doppler lidar which has the power laser amplifier using Er,Yb:glass planar waveguide**, Shumpei Kameyama, Takeshi Sakimura, Yojiro Watanabe, Toshiyuki Ando, Kimio Asaka, Hisamichi Tanaka, Takayuki Yanagisawa, Yoshihito Hirano, Mitsubishi Electric Corp. (Japan); Hamaki Inokuchi, Japan Aerospace Exploration Agency (Japan) [8526-13]

8:40: **A combined rotational-vibrational Raman lidar for profiling the atmospheric temperature, humidity, and aerosol of the troposphere**, Yufeng Wang, Dengxin Hua, Huige Di, Shichun Li, Xi'an Univ. of Technology (China); Takao Kobayashi, Univ. of Fukui (Japan) [8526-14]

SESSION 5

Room: 554 **Tue 9:00 to 11:50**

Space Lidars and Applications

Session Chairs: **Kohei Mizutani**, National Institute of Information and Communications Technology (Japan); **Nobuo Sugimoto**, National Institute for Environmental Studies (Japan)

9:00: **Global distribution of dust devil derived from CALIPSO lidar measurements**, Jianping Huang, Jingjing Liu, Hongru Yan, Lanzhou Univ. (China); Yuhong Yi, Science Systems and Applications, Inc. (United States) [8526-16]

9:20: **Remote sensing for physical geography from ISS by JEM-EUSO**, Takayuki Tomida, Takayo Ogawa, Satoshi Wada, RIKEN (Japan); M. D. Rodriguez Frias, Univ. de Alcalá (Spain); Andrii Neronov, ISDC Data Ctr. for Astrophysics (Switzerland) [8526-17]

9:40: **Particulate backscatter coefficient statistics of suspended particulate matter (coastal and open ocean) from CALIPSO**, Yongxiang Hu, NASA Langley Research Ctr. (United States) [8526-18]

10:00: **High energy solid-state 2-micron laser transmitter development for wind and CO₂ measurements**, Upendra N. Singh, Jirong Yu, Mulugeta Petros, Michael J. Kavaya, Grady J. Koch, NASA Langley Research Ctr. (United States); Yingxin Bai, Science Systems and Applications, Inc. (United States) [8526-19]

Coffee Break. Tue 10:20 to 10:50

10:50: **i-LOVE: ISS-JEM lidar for observation of vegetation environment**, Kazuhiro Asai, Tohoku Institute of Technology (Japan) [8526-20]

11:10: **Simulation and visualization of echo signals from forest for iLOVE**, Takahiro Endo, The Univ. of Tokyo (Japan); Takashi Kobayashi, Yohei Satoh, Japan Aerospace Exploration Agency (Japan); Yoshito Sawada, The Univ. of Tokyo (Japan); Nobuo Sugimoto, National Institute for Environmental Studies (Japan); Kohei Mizutani, National Institute of Information and Communications Technology (Japan); Haruo Sawada, The Univ. of Tokyo (Japan); Kazuhiro Asai, Tohoku Institute of Technology (Japan) [8526-21]

11:30: **Measuring forest canopy height using ICESat/GLAS data for applying to Japanese spaceborne lidar mission**, Masato Hayashi, Nobuko Saigusa, Hiroyuki Oguma, Yoshiki Yamagata, National Institute for Environmental Studies (Japan); Gen Takao, Forestry and Forest Products Research Institute (Japan); Haruo Sawada, The Univ. of Tokyo (Japan); Kohei Mizutani, National Institute of Information and Communications Technology (Japan); Nobuo Sugimoto, National Institute for Environmental Studies (Japan); Kazuhiro Asai, Tohoku Institute of Technology (Japan) [8526-22]

Lunch Break Tue 11:50 to 13:30

SESSION 6

Room: 554 **Tue 13:30 to 16:40**

Aerosol and Cloud Measurements

Session Chairs: **Jianping Huang**, Lanzhou Univ. (China);
Philippe L. Keckhut, LATMOS (France)

13:30: **Lidar remote sensing of atmospheric aerosol and cloudiness: Monte Carlo modeling**, Boris A. Kargin, Evgeniya Kablukova, Arseny B. Kargin, Institute of Computational Mathematics and Mathematical Geophysics (Russian Federation) [8526-23]

13:50: **Interaction between the low altitude atmosphere and clouds by high-precision polarization lidar**, Tatsuo Shiina, Chiba Univ. (Japan); Kazuo Noguchi, Chiba Institute of Technology (Japan); Tetsuo Fukuchi, Central Research Institute of Electric Power Industry (Japan) [8526-25]

14:10: **Low altitude fog-haze measurements by Raman-Rayleigh-Mie lidar in Nanjing**, Nianwen Cao, Nanjing Univ. of Information Science & Technology (China) [8526-26]

14:30: **Improvement of NIES lidar network observations by adding Raman scatter measurement function**, Tomoaki Nishizawa, Nobuo Sugimoto, Ichiro Matsui, Atsushi Shimizu, National Institute for Environmental Studies (Japan) [8526-27]

14:50: **Lidar measurements of dust aerosols and dusty cloud over Northwest China**, Zhongwei Huang, Jianping Huang, Jianrong Bi, Lanzhou Univ. (China) [8526-28]

Coffee Break. Tue 15:10 to 15:40

15:40: **Observation and analysis of urban boundary layer characteristics with Raman-Mie lidar**, Qing Yan, Dengxin Hua, Yufeng Wang, Shichun Li, Jiandong Mao, Xi'an Univ. of Technology (China); Takao Kobayashi, Univ. of Fukui (Japan) [8526-29]

16:00: **Determination of atmospheric boundary layer height using combined scanning Mie lidar and vertical Raman lidar measurements**, Fei Gao, Xi'an Univ. of Technology (China) and Univ. of Nova Gorica (Slovenia); Samo Stanic, Univ. of Nova Gorica (Slovenia); Dengxin Hua, Xi'an Univ. of Technology (China); Klemen Bergant, Univ. of Nova Gorica (Slovenia) [8526-30]

16:20: **Typical patterns of PBL structure and dynamics in regional ocean-continent zone in summer and winter in Far East region**, Konstantin A. Shmirko, Andrey N. Pavlov, Sergey Y. Stolyarchuk, Oleg A. Bukin, Institute of Automation and Control Processes (Russian Federation) [8526-31]

Wednesday 31 October**POSTERS-WEDNESDAY****Room: B-1 Wed 16:30 to 18:00**

The interactive poster session with authors in attendance will be Wednesday 16:30 to 18:00. Poster authors are asked to display their posters beginning at 10:00 for extended viewing. Authors should remove their posters at the end of the interactive poster session. Posters left displayed will be considered unwanted and will be discarded.

3-year-program to improve critical 1-micron Qsw laser technology for earth observation, Daisuke Sakaizawa, Yohei Satoh, Shiro Yamakawa, Japan Aerospace Exploration Agency (Japan); Satoshi Wada, Takayo Ogawa, RIKEN (Japan); Shoken Ishii, Kohei Mizutani, Motoaki Yasui, National Institute of Information and Communications Technology (Japan) [8526-32]

Study on all-fiber Mach-Zehnder interferometer as frequency discriminator for Doppler wind lidar, Li Wang, Xi'an Univ. of Technology (China); Wei Hao, Xi'an Institute of Optics and Precision Mechanics (China); Yi Zhou, Linqiu Tan, Yufeng Wang, Shichun Li, Jing Le, Dengxin Hua, Xi'an Univ. of Technology (China) [8526-33]

Remote sensing of hydrogen gas concentration distribution by Raman lidar, Ippei Asahi, Sachiyo Sugimoto, Hideki Ninomiya, Shikoku Research Institute Inc. (Japan); Tetsuo Fukuchi, Central Research Institute of Electric Power Industry (Japan); Tatsuo Shiina, Chiba Univ. (Japan). [8526-34]

The characteristics of solid etalon Doppler discriminator and transmitter in designing Doppler lidar, Dukhyeon Kim, Hanbut National Univ. (Korea, Republic of); Hae-Du Cheong, Korea Atomic Energy Research Institute (Korea, Republic of). [8526-35]

Performance evaluation of coherent 2- μ m differential absorption and wind lidar for wind measurement, Hironori Iwai, Shoken Ishii, National Institute of Information and Communications Technology (Japan); Ryoko Oda, Chiba Institute of Technology (Japan); Kohei Mizutani, Yasuhiro Murayama, National Institute of Information and Communications Technology (Japan). [8526-36]

Evaluation of water vapor Raman lidar signals from clouds, Tetsuo Fukuchi, Takashi Fujii, Central Research Institute of Electric Power Industry (Japan). [8526-37]

Meteorological observation with Doppler and Raman lidars and comparison with numerical weather simulations, Hidetoshi Tamura, Naoto Kihara, Takashi Fujii, Tetsuo Fukuchi, Koji Wada, Hiromaru Hirakuchi, Central Research Institute of Electric Power Industry (Japan) [8526-38]

Multi-wavelength lidar for water vapor and cloud properties measurements, Shengguang Qin, Songhua Wu, Ocean Univ. of China (China). [8526-39]

Observation of aerosol parameters at Saga using GOSAT product validation lidar, Shoichiro Takubo, Hiroshi Okumura, Takeru Kawasaki, Indra N. Abdullah, Saga Univ. (Japan); Osamu Uchino, Isamu Morino, Tatsuya Yokota, National Institute for Environmental Studies (Japan); Tomohiro Nagai, Tetsu Sakai, Takashi Maki, Meteorological Research Institute (Japan); Kohei Arai, Saga Univ. (Japan). [8526-40]

Possible atmospheric and oceanic observations with ISS-JEM lidar observation of vegetation environment (i-LOVE), Tomoaki Nishizawa, Nobuo Sugimoto, National Institute for Environmental Studies (Japan); Kohei Mizutani, Shoken Ishii, National Institute of Information and Communications Technology (Japan); Kazuhiro Asai, Tohoku Institute of Technology (Japan). [8526-43]

Multispectral, Hyperspectral, and Ultraspectral Remote Sensing Technology, Techniques and Applications IV

Conference Chairs: **Allen M. Larar**, NASA Langley Research Ctr. (United States); **Hyo-Sang Chung**, Chosun Univ. (Korea, Republic of); **Makoto Suzuki**, Japan Aerospace Exploration Agency (Japan); **Jian-yu Wang**, Shanghai Institute of Technical Physics (China)

Program Committee: **Mitchell D. Goldberg**, National Oceanic and Atmospheric Administration (United States); **Tamotsu Igarashi**, Japan Aerospace Exploration Agency (Japan); **Ryoichi Imasu**, The Univ. of Tokyo (Japan); **Sonoyo Mukai**, Kinki Univ. (Japan); **Thomas S. Pagano**, Jet Propulsion Lab. (United States); **Jeffery J. Puschell**, Raytheon Space & Airborne Systems (United States); **Henry E. Revercomb**, Univ. of Wisconsin-Madison (United States); **William L. Smith Sr.**, Hampton Univ. (United States)

Tuesday 30 October

SESSION 1

Room: 555 Tue 8:50 to 12:10

Atmospheric Remote Sensing

Session Chair: **William L. Smith Sr.**, Hampton Univ. (United States)

8:50: **The Cross-track Infrared Sounder (CrIS) on Suomi NPP: expected radiometric and spectral performance and calibration/validation results: part I (Invited Paper)**, Henry E. Revercomb, David C. Tobin, Robert O. Knuteson, Daniel H. DeSlover, Joseph K. Taylor, Graeme Martin, Raymond K. Garcia, Lori Borg, Univ. of Wisconsin-Madison (United States) [8527-1]

9:20: **Performance status of the Atmospheric Infrared Sounder ten years after launch**, Thomas S. Pagano, Hartmut H. Aumann, Denis A. Elliott, Steven E. Broberg, Jet Propulsion Lab. (United States) [8527-2]

9:40: **Temperature and moisture sounding from Suomi NPP ATMS/CRIS sounder suite**, Xu Liu, NASA Langley Research Ctr. (United States); Susan H. Kizer, Science Systems and Applications, Inc. (United States); Daniel K. Zhou, Allen M. Larar, NASA Langley Research Ctr. (United States); Christopher D. Barnett, Murty G. Divakarla, Guang Guo, X. Xiong, M. Wilson, National Oceanic and Atmospheric Administration (United States); D. Gui, Northrop Grumman Aerospace Systems (United States) [8527-3]

10:00: **Retrieval of carbon dioxide and ozone from thermal infrared spectra observed by GOSAT TANSO-FTS sensor over urban area**, Ryoichi Imasu, Yoji Hayashi, The Univ. of Tokyo (Japan); Yutaka Matsumi, Nagoya Univ. (Japan); Hiroaki Kondo, National Institute of Advanced Industrial Science and Technology (Japan); Naoko Saitoh, Chiba Univ. (Japan); Kei Shiomi, Japan Aerospace Exploration Agency (Japan) [8527-4]

Coffee Break. Tue 10:20 to 10:50

10:50: **Atmospheric sounding information obtainable from present-day advanced infrared systems**, Allen M. Larar, Daniel K. Zhou, Xu Liu, NASA Langley Research Ctr. (United States); William L. Smith Sr., Hampton Univ. (United States) [8527-5]

11:10: **Hyperspectral measurements of greenhouse gases**, William L. Smith Sr., Hampton Univ. (United States); R. Bradley Pierce, National Oceanic and Atmospheric Administration (United States); Luc Rochette, LR Tech (Canada); Paul E. Lewis, National Geospatial-Intelligence Agency (United States); Allen M. Larar, NASA Langley Research Ctr. (United States) .. [8527-6]

11:30: **Methane retrieval from ground-based AERI measurement at Anmyeonddo, Korea and its validation**, Tae-Young Goo, Mi-Lim Ou, National Institute of Meteorological Research (Korea, Republic of); Zen H. Mariani, Kimberly Strong, Univ. of Toronto (Canada); Mathias Palm, Univ. Bremen (Germany) [8527-7]

11:50: **A combined atmospheric radiative transfer (CART) model and its applications for cirrus clouds simulations**, Heli Wei, Yanan Cao, Xiuhong Chen, Anhui Institute of Optics and Fine Mechanics (China) [8527-8]

Lunch Break. Tue 12:10 to 13:40

SESSION 2

Room: 555 Tue 13:40 to 16:50

Land Remote Sensing and Image Enhancement

Session Chair: **Jian-yu Wang**, Shanghai Institute of Technical Physics (China)

13:40: **Feature extraction with the AD-LIsoMap method for classification of hyperspectral imagery**, Weiwei Sun, Chun Liu, Beiqi Shi, Weyue Li, Tongji Univ. (China) [8527-9]

14:00: **Quality evaluation of pansharpened hyperspectral images generated using multispectral images**, Masayuki Matsuoka, Kochi Univ. (Japan); Hiroki Yoshioka, Aichi Prefectural Univ. (Japan) [8527-10]

14:20: **Pan-sharpening based on compressed sensing via truncated l1-norm minimization**, Guixu Zhang, Zhihan Jian, East China Normal Univ. (China); Yaxin Peng, Shanghai Univ. (China); Chaomin Shen, East China Normal Univ. (China) [8527-11]

14:40: **A method for enhancing spectral resolution of multispectral satellite imagery**, Tao Guo, Toshihiro Kujirai, Takashi Watanabe, Yu Kitano, Yu Zhao, Hitachi, Ltd. (Japan) [8527-12]

15:00: **Spectral unmixing based on non-negative matrix factorization via truncated l1-norm minimization**, Chaomin Shen, East China Normal Univ. (China); Yaxin Peng, Shanghai Univ. (China); Guixu Zhang, East China Normal Univ. (China) [8527-13]

Coffee Break. Tue 15:20 to 15:50

15:50: **SVM multispectral-texture classification for tropical vegetation mapping**, Sébastien Chabrier, Univ. de la Polynésie Française (French Polynesia); Jean-Baptiste Goujon, ESEO (France); Benoit Stoll, Univ. de la Polynésie Française (French Polynesia) [8527-14]

16:10: **Emissivity and temperature separation algorithm based on noise separation**, Hang Yang, Lifu Zhang, Institute of Remote Sensing Applications (China) [8527-15]

16:30: **A novel statistical method for 3D range data registration based on lie group framework**, Yaxin Peng, Wei Lin, Shanghai Univ. (China); Chaomin Shen, East China Normal Univ. (China); Shihui Ying, Shanghai Univ. (China) [8527-16]

Wednesday 31 October

SESSION 3

Room: 555 Wed 8:30 to 10:30

Remote Sensing Applications

Session Chair: **Hyo-Sang Chung**, Chosun Univ. (Korea, Republic of)

8:30: **Determine the optimum spectral reflectance of juniper and pistachio in arid and semi-arid region**, Hadi Fadaei, Rikie Suzuki, Japan Agency for Marine-Earth Science and Technology (Japan) [8527-17]

8:50: **Detection of seagrass beds in Khunk Graben Bay, Thailand, using ALOS AVN2 image**, Teruhisa Komatsu, The Univ. of Tokyo (Japan); Thidarat Noiraksar, Burapha Univ. (Thailand); Shingo Sakamoto, Hiroomi Miyamoto, Shuhei Sawayama, The Univ. of Tokyo (Japan); Sophany Phauk, Royal Univ. of Phnom Penh (Cambodia); Pornthep Thongdee, Suthep Jualaong, Ministry of Natural Resources and Environment (Thailand); Shuhei Nishida, The Univ. of Tokyo (Japan) [8527-18]

9:10: **Hyperspectral data application for peat swamp forest monitoring in Central Kalimantan, Indonesia**, Takashi Ohki, Keigo Yoshida, Hozuma Sekine, Taichi Takayama, Mitsubishi Research Institute, Inc. (Japan); Tomomi Takeda, Kazuyo Hirose, Japan Space Systems (Japan); Muhammad Evri, Agency for the Assessment and Application of Technology (Indonesia); Mitsuru Osaki, Hokkaido Univ. (Japan) [8527-19]

9:30: **The assessment of tsunami damage in Ban Nam Khem, Khao Lak and Thai Mueang, Thailand using IKONOS imagery**, Ajira Tiangtrong, Pasu Kongapai, Chulalongkorn Univ. (Thailand) [8527-20]

9:50: **Vehicle extraction from high-resolution satellite imagery using RBF neural network and object-oriented approach**, Yalan Liu, Zhumei Liu, Yuhuan Ren, Institute of Remote Sensing Applications (China) [8527-21]

10:10: **Remote estimation of nitrogen contents of summer corn leaf by hyperspectral reflectance under rainfed condition**, Muhammad N. Tahir, Northwest A&F Univ. (China) [8527-22]

Coffee Break. Wed 10:30 to 10:50

SESSION 4

Room: 555 Wed 10:50 to 11:50

Sensor Characterization and Calibration I

Session Chair: **Allen M. Larar**,
NASA Langley Research Ctr. (United States)

- 10:50: **On-orbit Absolute Radiance Standard (OARS) for the next generation of IR remote sensing instruments**, Fred A. Best, Douglas P. Adler, Claire Pettersen, Henry E. Revercomb, P. Jonathan Gero, Joseph K. Taylor, Robert O. Knuteson, John H. Perepezko, Univ. of Wisconsin-Madison (United States) [8527-23]
- 11:10: **The heated halo for space-based blackbody emissivity measurement**, P. Jonathan Gero, Joe K. Taylor, Fred A. Best, Henry E. Revercomb, Raymond K. Garcia, Univ. of Wisconsin-Madison (United States) [8527-25]
- 11:30: **The University of Wisconsin Space Science and Engineering Center Absolute Radiance Interferometer (ARI): instrument overview and radiometric performance**, Joe K. Taylor, Henry E. Revercomb, Univ. of Wisconsin-Madison (United States); Henry Buijs, Frederic J. Grandmont, ABB Analytical Measurement (Canada); P. Jonathan Gero, Fred A. Best, David C. Tobin, Robert O. Knuteson, Univ. of Wisconsin-Madison (United States) [8527-24]
- Lunch Break Wed 11:50 to 13:20

SESSION 5

Room: 555 Wed 13:20 to 15:00

Sensor Characterization and Calibration II

Session Chair: **Ryoichi Imasu**, The Univ. of Tokyo (Japan)

- 13:20: **Calibration of Superconducting Submillimeter-Wave Limb-Emission Sounder (SMILES) on the ISS**, Satoshi Ochiai, Ken-ichi Kikuchi, National Institute of Information and Communications Technology (Japan); Toshiyuki Nishibori, Satoko Mizobuchi, Japan Aerospace Exploration Agency (Japan); Takeshi Manabe, Osaka Prefecture Univ. (Japan) [8527-26]
- 13:40: **Geometry and spectral calibration of pushbroom dispersive hyperspectral imager**, Zhiping He, Rong Shu, Jian-yu Wang, Shanghai Institute of Technical Physics (China) [8527-27]
- 14:00: **Calibration of imaging spectrometer based on acousto-optic tunable filter (AOTF)**, Rui Xu, Yanhua Ma, Zhiping He, Jian-yu Wang, Shanghai Institute of Technical Physics (China) [8527-28]
- 14:20: **The measurement of optical and geometric parameters by a coordinate measuring machine**, Shenq-Tsong Chang, Wei-Cheng Lin, Ting-Ming Huang, Ming-Ying Hsu, Po-Hsuan Huang, Yu-Chuan Lin, Instrument Technology Research Ctr. (Taiwan) [8527-29]
- 14:40: **On-orbit estimation research of optical system deformation of ZY-3 satellite multispectral camera**, Xiaoyong Zhu, Satellite Surveying and Mapping Application Ctr. (China) [8527-30]
- Coffee Break Wed 15:00 to 15:20

SESSION 6

Room: 555 Wed 15:20 to 16:40

Future Measurement Systems

Session Chair: **Makoto Suzuki**,
Japan Aerospace Exploration Agency (Japan)

- 15:20: **Radiometric calibration plan for the Hyperspectral Imager Suite (HISUI) instruments**, Hirokazu Yamamoto, Ryosuke Nakamura, Satoshi Tsuchida, National Institute of Advanced Industrial Science and Technology (Japan) [8527-31]
- 15:40: **Development of onboard fast lossless compressors for multi and hyperspectral sensors**, Tetsuhiro Nanbu, NEC Engineering, Ltd. (Japan); Jun Takada, NEC Corp. (Japan); Takahiro Kawashima, Hiroki Hihara, Hitomi Inada, NEC TOSHIBA Space Systems, Ltd. (Japan); Makoto Suzuki, Taeko Seki, Satoshi Ichikawa, Japan Aerospace Exploration Agency (Japan) [8527-32]
- 16:00: **The Geostationary Remote Infrared Pollution Sounder (GRIPS)**, Hal J. Bloom, Science and Technology Corp. (United States) [8527-33]
- 16:20: **Scientific objectives and concept design of a narrow angle camera for Japanese Mars meteorological orbiter**, Makoto Suzuki, Kazunori Ogohara, Takeshi Imamura, Takehiko Sato, Japan Aerospace Exploration Agency (Japan); George L. Hashimoto, Okayama Univ. (Japan); Yoshiyuki O. Takahashi, Kyoto Univ. (Japan); Yoshiyuki Hayashi, Kobe Univ. (Japan) [8527-34]

POSTERS-WEDNESDAY

Room: B-1 Wed 16:30 to 18:00

Session Chair: **Daniel K. Zhou**,
NASA Langley Research Ctr. (United States)

The interactive poster session with authors in attendance will be Wednesday 16:30 to 18:00. Poster authors are asked to display their posters beginning at 10:00 for extended viewing. Authors should remove their posters at the end of the interactive poster session. Posters left displayed will be considered unwanted and will be discarded.

- Observation planning strategy of a Japanese spaceborne sensor: Hyperspectral Imager Suite (HISUI)**, Kenta Ogawa, Rakuno Gakuen Univ. (Japan); Tsuneo Matsunaga, Satoru Yamamoto, National Institute for Environmental Studies (Japan); Osamu Kashimura, Tetsushi Tachikawa, Japan Space Systems (Japan); Satoshi Tsuchida, National Institute of Advanced Industrial Science and Technology (Japan); Jun Tani, Japan Space Systems (Japan); Shuichi Rokugawa, The Univ. of Tokyo (Japan) [8527-35]
- Effect of particle size on prediction of soil TN with remote sensing based on NIR spectroscopy**, Xiaofei An, Minzan Li, Lihua Zheng, Yumeng Liu, China Agricultural Univ. (China) [8527-38]
- Monitoring of maize chlorophyll content based on multispectral vegetation indices**, Hong Sun, Minzan Li, Lihua Zheng, Yane Zhang, Wei Yang, China Agricultural Univ. (China) [8527-39]
- A multimodal image sensor system for identifying water stress in grapevines**, Yong Zhao, China Agricultural Univ. (China); Qin Zhang, Washington State Univ. (United States); Minzan Li, China Agricultural Univ. (China); Yongni Shao, Jianfeng Zhou, Washington State Univ. (United States) [8527-40]
- Comparing the new generation WorldView-2 to hyperspectral image data for species discrimination**, Khalid M. Mansour, Onesimo Mutanga, Univ. of KwaZulu-Natal (South Africa) [8527-41]
- A PIF-based relative radiometric normalization method for multitemporal remote sensing images**, Xia Zhang, Institute of Remote Sensing Applications (China) [8527-42]
- Object-oriented high-resolution and multispectral remote sensing image information extraction of urban green space based on support vector machine**, Xuerong Li, Qianguo Xing, Yantai Institute of Coastal Zone Research (China); Chao Xu, South China Sea Institute of Oceanology (China) .. [8527-43]
- Development of a portable spectroscopy-based device to detect nutrient status of apple tree**, Yao Zhang, Lihua Zheng, Minzan Li, Xiaolei Deng, China Agricultural Univ. (China) [8527-44]
- The growth forecasting model for apple tree based on ground-based remote sensing**, Ronghua Ji, Lihua Zheng, Xiaolei Deng, Yao Zhang, Hong Sun, Minzan Li, China Agricultural Univ. (China) [8527-45]
- Analysis of soil phosphorus concentration based on Raman spectroscopy**, Lihua Zheng, China Agricultural Univ. (China); Won Suk Lee, Univ. of Florida (United States); Minzan Li, China Agricultural Univ. (China); Anurag Katti, Ce Yang, Han Li, Univ. of Florida (United States) [8527-46]
- Estimation of tomato leaf nitrogen content using continuum-removal spectroscopy analysis technique**, Yongjun Ding, Minzan Li, Lihua Zheng, Hong Sun, China Agricultural Univ. (China) [8527-47]
- Predicting apple tree leaf nitrogen content based on hyperspectral and wavelet packet analysis**, Yao Zhang, Lihua Zheng, Minzan Li, Xiaolei Deng, Hong Sun, Xiaofei An, China Agricultural Univ. (China) [8527-48]
- Optical discrimination of harmful algal species based on hyperspectral reflectance in the East China Sea: model results**, Bangyi Tao, Zhuhua Mao, The Second Institute of Oceanography, SOA (China) [8527-49]
- Retrieving the oil and gas microleakage information using the hyperspectral data**, Sihong Jiao, Beijing Vocational and Technical Institute of Industry (China) [8527-50]
- The Cross-track Infrared Sounder (CrIS) on Suomi NPP: expected radiometric and spectral performance and calibration/validation results: part II**, Daniel H. DeSlover, Henry E. Revercomb, David C. Tobin, Robert O. Knuteson, Joe K. Taylor, Graeme Martin, Raymond K. Garcia, Lori Borg, Univ. of Wisconsin-Madison (United States) [8527-51]
- Parallel evaluation for detector devices of the hyperspectral imager with a supercontinuum source**, Yu Yamaguchi, Juntaro Ishii, Yoshiro Yamada, National Metrology Institute of Japan (Japan) [8527-52]
- Temporal and spatial variation of canopy spectral characteristics in apple orchard**, Xiaolei Deng, Minzan Li, Lihua Zheng, Yao Zhang, China Agricultural Univ. (China) [8527-53]
- Remote sensing applications with NH-1 hyperspectral portable video camera**, Yohei Takara, EBA Japan Co. Ltd. (Japan); Naohiro Manago, Hayato Saito, Yusaku Mabuchi, Akihiko Kondoh, Chiba Univ. (Japan); Takahiro Fujimori, Fuminori Ando, EBA Japan Co. Ltd. (Japan); Makoto Suzuki, Japan Aerospace Exploration Agency (Japan); Hiroaki Kuze, Chiba Univ. (Japan) [8527-54]
- Scattering properties of two blooming algae: Skeletonema costatum and Prorocentrum donghaiense**, Yuzhang Shen, Zhuhua Mao, Bangyi Tao, The Second Institute of Oceanography, SOA (China) [8527-55]

Earth Observing Missions and Sensors: Development, Implementation, and Characterization II

Conference Chairs: **Haruhisa Shimoda**, Tokai Univ. (Japan); **Xiaoxiong Xiong**, NASA Goddard Space Flight Ctr. (United States)

Conference Co-Chairs: **Changyong Cao**, National Oceanic and Atmospheric Administration (United States); **Xingfa Gu**, Institute of Remote Sensing Applications (China); **Choen Kim**, Kookmin Univ. (Korea, Republic of); **A. S. Kiran Kumar**, Space Applications Ctr. (India)

Program Committee: **James J. Butler**, NASA Goddard Space Flight Ctr. (United States); **Raju U. Datla**, National Institute of Standards and Technology (United States); **Bruce Guenther**, National Oceanic and Atmospheric Administration (United States); **Xiuqing Hu**, China Meteorological Administration (China); **Jens Nieke**, European Space Research and Technology Ctr. (Netherlands); **Sanjeevi Shanmugam**, Anna Univ. Chennai (India); **Kazuhiro Tanaka**, Japan Aerospace Exploration Agency (Japan)

Tuesday 30 October

SESSION 1

Room: K Tue 10:30 to 12:20

Existing and New Missions and Sensors I

Session Chair: **Xiaoxiong Xiong**,
NASA Goddard Space Flight Ctr. (United States)

10:30: **Sentinel-1 system overview and performance** (*Invited Paper*), Dirk Geudtner, European Space Research and Technology Ctr. (Netherlands). [8528-1]

11:00: **The development status of EarthCARE**, Robert V. Gelsthorpe, European Space Research and Technology Ctr. (Netherlands) [8528-2]

11:20: **CMOS sensor for RSI applications**, Bill Wang, Shengmin Lin, CMOS Sensor Inc. (United States). [8528-3]

11:40: **An assessment of Ozone Mapping and Profiler Suite (OMPS) limb sensor performance and calibration**, Glen Jaross, Grace Chen, Michael Haken, Mark Kowitt, Nick Gorkavyi, Science Systems and Applications, Inc. (United States); Philippe Xu, Science Applications International Corp. (United States); David Flittner, NASA Langley Research Ctr. (United States). . . [8528-4]

12:00: **OMPS Nadir early on-orbit performance evaluation and calibration**, Chunhui Pan, Univ. of Maryland, College Park (United States). [8528-5]

Lunch Break Tue 12:20 to 13:50

SESSION 2

Room: K Tue 13:50 to 15:10

Post-launch Calibration and Validation I

Session Chair: **Jens Nieke**,
European Space Research and Technology Ctr. (Netherlands)

13:50: **COMS MI visible channel responsivity trend monitoring**, Kyoung-Wook Jin, Bong-Kyu Park, Seok-Bae Seo, Korea Aerospace Research Institute (Korea, Republic of) [8528-6]

14:10: **Long-term calibration monitoring of medium resolution spectral imager (MERSI) onboard FY-3**, Xiuqing Hu, Ling Sun, Na Xu, China Meteorological Administration (China) [8528-7]

14:30: **Comparison of MODIS and VIIRS solar diffuser stability monitor performance**, Xiaoxiong Xiong, NASA Goddard Space Flight Ctr. (United States). [8528-8]

14:50: **Preliminary analysis of ATMS pitch maneuver data and implications for earth scene simulations**, Hu Yang, Univ. of Maryland, College Park (United States) and National Satellite Meteorological Ctr. (China); Fuzhong Weng, National Environmental Satellite, Data, and Information Service (United States). [8528-9]

Coffee Break Tue 15:10 to 15:40

SESSION 3

Room: K Tue 15:40 to 17:50

Existing and New Missions and Sensors II

Session Chair: **James J. Butler**,
NASA Goddard Space Flight Ctr. (United States)

15:40: **Lessons from MODIS instrument calibration, operation, and performance** (*Invited Paper*), Xiaoxiong Xiong, NASA Goddard Space Flight Ctr. (United States); William Barnes, Univ. of Maryland, Baltimore County (United States); James J. Butler, NASA Goddard Space Flight Ctr. (United States). [8528-10]

16:10: **The Ocean and Land Colour Imager (OLCI) for the Sentinel 3 GMES Mission: status and first test results**, Jens Nieke, Franck Borde, Constantin Mavrocordatos, Bruno Berruti, European Space Research and Technology Ctr. (Netherlands). [8528-11]

16:30: **NPP VIIRS on-orbit performance, data quality, and new applications**, Changyong Cao, National Oceanic and Atmospheric Administration (United States); Xiaoxiong Xiong, NASA Goddard Space Flight Ctr. (United States); Frank De Luccia, The Aerospace Corp. (United States); Slawomir Blonski, Quanhua Liu, Univ. of Maryland, College Park (United States); Bruce Guenther, National Oceanic and Atmospheric Administration (United States); James J. Butler, NASA Goddard Space Flight Ctr. (United States); Fuzhong Weng, National Environmental Satellite, Data, and Information Service (United States). [8528-12]

16:50: **CERES flight model 5 on NPP: post-launch performance and initial SDR validation results**, Kory J. Priestley, NASA Langley Research Ctr. (United States); Lou Smith, Susan Thomas, Science Systems and Applications, Inc. (United States). [8528-13]

17:10: **CrIS SDR calibration and validation status and NOAA-STAR related activities**, Denis Tremblay, Science Data Processing Inc. (United States); Yong Han, National Oceanic and Atmospheric Administration (United States); Yong Chen, Cooperative Institute for Research in the Atmosphere (United States); Xin Jin, National Oceanic and Atmospheric Administration (United States); Likun Wang, Univ. of Maryland (United States); Mark Liu, National Oceanic and Atmospheric Administration (United States). [8528-14]

17:30: **Ocean altimetry and wind applications of a GNSS nanosatellite constellation**, Randall Rose, Southwest Research Institute (United States); Christopher Ruf, Univ. of Michigan (United States); Haruo Seki, Meisei Electric Co., Ltd. (Japan) [8528-21]

Wednesday 31 October

SESSION 4

Room: K Wed 8:30 to 10:00

Post-launch Calibration and Validation II

Session Chair: **Changyong Cao**,
National Oceanic and Atmospheric Administration (United States)

8:30: **NOAA operational calibration support to NPP/JPSS program** (*Invited Paper*), Fuzhong Weng, National Environmental Satellite, Data, and Information Service (United States). [8528-15]

9:00: **Improvements to radiometric consistency between AVHRR, MODIS, and VIIRS in SST bands using MICROS online near-real time system**, Xingming Liang, Alexander Ignatov, Quanhua Liu, Yong Chen, David Groff, National Oceanic and Atmospheric Administration (United States); Xiaoxiong Xiong, NASA Goddard Space Flight Ctr. (United States); Changyong Cao, National Oceanic and Atmospheric Administration (United States); Eva Borbas, Univ. of Wisconsin-Madison (United States). [8528-16]

9:20: **Inter-comparison of NPP/CrIS radiances with VIIRS, AIRS, and IASI: a post-launch calibration assessment**, Likun Wang, Univ. of Maryland, College Park (United States); Yong Han, Denis Tremblay, National Oceanic and Atmospheric Administration (United States); Fuzhong Weng, National Environmental Satellite, Data, and Information Service (United States); Mitchell D. Goldberg, National Oceanic and Atmospheric Administration (United States) [8528-17]

9:40: **Using CEOS reference standard targets to assess the on-orbit performance of Resourcesat-2 AWiFS in comparison with Terra MODIS**, Amit Angal, Science Systems and Applications, Inc. (United States); A. Senthil Kumar, National Remote Sensing Ctr. (India); Xiaoxiong Xiong, NASA Goddard Space Flight Ctr. (United States); A. S. Kiran Kumar, Space Applications Ctr. (India); V. K. Dadhwal, Indian Institute of Remote Sensing (India); Taeyoung Jason Choi, Sigma Space Corp. (United States) [8528-18]

Coffee Break. Wed 10:00 to 10:30

SESSION 5

Room: K Wed 10:30 to 11:50

Improved Data Analysis Methodologies and Results

Session Chair: **Kazuhiro Tanaka**,
Japan Aerospace Exploration Agency (Japan)

10:30: **Sensitivity analysis of scene dependence of the convolution correction for inter-sensor comparison between multispectral and hyperspectral sensors**, Yong Xie, George Mason Univ. (United States) [8528-19]

10:50: **Earthshine ray tracing simulation with 3D lunar BRDF model for Earth albedo observation**, Jinhee Yu, Sug-whan Kim, Yonsei Univ. (Korea, Republic of) [8528-20]

11:10: **MODIS RSB calibration improvements in Collection 6**, Junqiang Sun, Sigma Space Corp. (United States); Amit Angal, Science Systems and Applications, Inc. (United States); Xiaoxiong Xiong, NASA Goddard Space Flight Ctr. (United States) [8528-64]

11:30: **Calibration of low gain radiance at VIIRS emissive band (M13)**, Quanhua Liu, National Oceanic and Atmospheric Administration (United States); Vincent Chiang, Sigma Space Corp. (United States); Changyong Cao, National Oceanic and Atmospheric Administration (United States); Xiaoxiong Xiong, NASA Goddard Space Flight Ctr. (United States); Xi Shao, Slawek Blonski, Univ. of Maryland, College Park (United States); Fuzhong Weng, National Environmental Satellite, Data, and Information Service (United States) [8528-23]

Lunch Break. Wed 11:50 to 14:00

SESSION 6

Room: K Wed 14:00 to 14:40

Enabling Technologies and New Sensor Test Concept

Session Chair: **Xingfa Gu**,
Institute of Remote Sensing Applications (China)

14:00: **PHazeRS: a polar haze cubesat concept**, Jose V. Martins, Earth Resources Technology, Inc. (United States); Mark Schoeberl, NASA Goddard Space Flight Ctr. (United States) [8528-25]

14:20: **A new approach for spectroradiometric calibration consistency on the ground and in space**, Donald F. Heath, Heath Earth (United States); Georgi Georgiev, Sigma Space Corp. (United States) and NASA Goddard Space Flight Ctr. (United States) [8528-27]

SESSION 7

Room: K Wed 14:40 to 15:40

JAXA I

Session Chair: **Shinichi Sobue**,
Japan Aerospace Exploration Agency (Japan)

14:40: **The overview of space applications for environment initiatives**, Shinichi Sobue, Toru Fukuda, Tomoyuki Nukui, Kei Oyoshi, Japan Aerospace Exploration Agency (Japan) [8528-28]

15:00: **Applications of an automatic change detection for disaster monitoring by the knowledge-based framework**, Takeo Tadono, Japan Aerospace Exploration Agency (Japan); Shutaro Hashimoto, Masahiko Onosato, Hokkaido Univ. (Japan); Masahiro Hori, Japan Aerospace Exploration Agency (Japan) [8528-29]

15:20: **The assimilation of satellite microwave observation in JMA's meso-scale model**, Masahiro Kazumori, Japan Meteorological Agency (Japan) [8528-30]

POSTERS-WEDNESDAY

Room: B-1 Wed 16:30 to 18:00

The interactive poster session with authors in attendance will be Wednesday 16:30 to 18:00. Poster authors are asked to display their posters beginning at 10:00 for extended viewing. Authors should remove their posters at the end of the interactive poster session. Posters left displayed will be considered unwanted and will be discarded.

An overview of MODIS RSB calibration and look-up-table delivery process, Amit Angal, Science Systems and Applications, Inc. (United States); Hongda Chen, Taeyoung Jason Choi, Xu Geng, Junqiang Sun, Brian Wenny, Sigma Space Corp. (United States); Xiaoxiong Xiong, NASA Goddard Space Flight Ctr. (United States) [8528-22]

Assessments of FY-3A microwave humidity sounder (MWS) measurements using NOAA-18 microwave humidity sounder (MHS), Li Guan, Nanjing Univ. of Information Science & Technology (China); Xiao Lei Zou, The Florida State Univ. (United States) [8528-53]

Preliminary analysis of ZY-3 satellite imagery geolocation accuracy, Li-ping Zhao, Satellite Surveying and Mapping Application Ctr. (China) and Wuhan Univ. (China); Xin-ming Tang, Xing-ke Fu, Yu-xing Li, Zhen-ming Wang, Xian-hui Dou, Satellite Surveying and Mapping Application Ctr. (China) [8528-54]

The correction of TMI brightness temperature due to TRMM boost, Yu Wang, Yunfei Fu, Wei Tao, Qi Liu, Univ. of Science and Technology of China (China) [8528-55]

Current status of global rainfall map using satellite-borne microwave radiometers by the GSMaP project, Takuji Kubota, Misako Kachi, Satoshi Kida, Riko Oki, Japan Aerospace Exploration Agency (Japan); Kazumasa Aonashi, Meteorological Research Institute (Japan); Shoichi Shige, Kyoto Univ. (Japan); Tomoo Ushio, Osaka Univ. (Japan); Ken'ichi Okamoto, Tottori Univ. of Environmental Studies (Japan) [8528-56]

Design and analysis of the multispectral remote sensing imager, Shenq-Tsong Chang, Instrument Technology Research Ctr. (Taiwan); Heng-Chuan Hung, Cheng-En Ho, Mei-Yi Yang, National Space Organization (Taiwan); Ting-Ming Huang, Instrument Technology Research Ctr. (Taiwan); Chia-Ray Chen, National Space Organization (Taiwan) [8528-57]

The extreme ultraviolet imagers (EUVIs): Earth-observing telescopes on International Space Station, Kentaro Uji, Ichiro Yoshikawa, The Univ. of Tokyo (Japan); Kazuo Yoshioka, Go Murakami, Japan Aerospace Exploration Agency (Japan); Hiroaki Ishii, The Univ. of Tokyo (Japan) [8528-58]

GOES-R AWG product processing system framework, Shanna Sampson, Walter Wolf, Aiwu Li, Tianxu Yu, National Oceanic and Atmospheric Administration (United States); Raymond K. Garcia, Graeme Martin, Univ. of Wisconsin-Madison (United States); Xingpin Liu, National Oceanic and Atmospheric Administration (United States); William Straka III, Univ. of Wisconsin-Madison (United States); Meizhu Fan, National Oceanic and Atmospheric Administration (United States); Eva Schiffer, Univ. of Wisconsin-Madison (United States); Mitchell D. Goldberg, National Oceanic and Atmospheric Administration (United States) [8528-59]

Agricultural monitoring for food security with high-temporal resolution imagery, Kei Oyoshi, Shinichi Sobue, Japan Aerospace Exploration Agency (Japan) [8528-60]

Monitoring landscape change in Kathmandu metropolitan region using multi-temporal satellite imagery, Rajesh B. Thapa, Japan Aerospace Exploration Agency [8528-61]

Post disaster monitoring for the great east Japan earthquake with a new L-band airborne SAR 'Pi-SAR-L2', Noriyuki Kawano, Masanobu Shimada, Japan Aerospace Exploration Agency (Japan) [8528-63]

Thursday 1 November

SESSION 8

Room: K Thu 8:00 to 10:10

JAXA II

Session Chair: **Haruhisa Shimoda**, Tokai Univ. (Japan)

8:00: **Overview of Japanese Earth-observation programs (Invited Paper)**, Haruhisa Shimoda, Tokai Univ. (Japan) and Japan Aerospace Exploration Agency (Japan) [8528-31]

8:30: **Onboard calibration status of the ASTER instrument**, Fumihiro Sakuma, Masakuni Kikuchi, Japan Space Systems (Japan); Hitomi Inada, NEC TOSHIBA Space Systems, Ltd. (Japan); Shigeki Akagi, Mitsubishi Electric Corp. (Japan); Hidehiko Ono, Fujitsu Ltd. (Japan) [8528-32]

8:50: **On-orbit calibration of TANSO on GOSAT**, Kei Shiomi, Shuji Kawakami, Hiroshi Suto, Akihiko Kuze, Japan Aerospace Exploration Agency (Japan) [8528-33]

9:10: **GOSAT higher level products and their variation of retrieved XCO₂ and XCH₄**, Hiroshi Watanabe, Akira Yuki, Fumie Kawazoe, Tatsuya Yokota, National Institute for Environmental Studies (Japan) [8528-34]

9:30: **Calibration comparison of GOSAT TANSO TIR band using Aqua AIRS and MetOp IASI**, Robert O. Knuteson, Henry E. Revercomb, David C. Tobin, P. Jonathan Gero, Univ. of Wisconsin-Madison (United States); Akihiko Kuze, Kei Shiomi, Japan Aerospace Exploration Agency (Japan) [8528-35]

9:50: **Characterization and validation of CO₂ and CH₄ products from GOSAT thermal infrared band**, Tomoaki Tanaka, Kei Shiomi, Shuji Kawakami, Japan Aerospace Exploration Agency (Japan); Naoko Saitoh, Chiba Univ. (Japan); Ryoichi Imasu, The Univ. of Tokyo (Japan); Makoto Inoue, Isamu Morino, Osamu Uchino, National Institute for Environmental Studies (Japan); Colm Sweeney, Pieter Tans, National Oceanic and Atmospheric Administration (United States) [8528-36]

Coffee Break Thu 10:10 to 10:40

SESSION 9

Room: K Thu 10:40 to 12:00

JAXA III

Session Chair: **Masanobu Shimada**, Japan Aerospace Exploration Agency (Japan)

10:40: **Overview of ALOS-2 and ALOS-3**, Shinichi Suzuki, Yukihiro Kankaku, Hiroko Imai, Yuji Osawa, Japan Aerospace Exploration Agency (Japan) [8528-37]

11:00: **ALOS-2 science program and high resolution SAR applications**, Masanobu Shimada, Yuji Osawa, Japan Aerospace Exploration Agency (Japan) [8528-38]

11:20: **The instrument development status of hyper-spectral imager suite (HISUI)**, Jun Tanii, Japan Resources Observation System and Space Utilization Organization (Japan); Akira Iwasaki, The Univ. of Tokyo (Japan); Takahiro Kawashima, Hitomi Inada, NEC TOSHIBA Space Systems, Ltd. (Japan) [8528-39]

11:40: **Pi-SAR-L2 observation of agricultural area damaged by seawater caused by the Great East Japan Earthquake in 2011**, Manabu Watanabe, Noriyuki Kawano, Kazuhiro Naoki, Japan Aerospace Exploration Agency (Japan); Chinatsu Yonezawa, Tohoku Univ. (Japan); Masanobu Shimada, Japan Aerospace Exploration Agency (Japan) [8528-40]

Lunch Break Thu 12:00 to 13:30

SESSION 10

Room: K Thu 13:30 to 15:10

JAXA IV

Session Chair: **Taikan Oki**, The Univ. of Tokyo (Japan)

13:30: **Status of AMSR2 instrument on GCOM-W1**, Keiji Imaoka, Takashi Maeda, Misako Kachi, Marehito Kasahara, Norimasa Ito, Keizo Nakagawa, Japan Aerospace Exploration Agency (Japan) [8528-41]

13:50: **Products and science from GCOM-W1**, Taikan Oki, The Univ. of Tokyo (Japan); Keiji Imaoka, Misako Kachi, Japan Aerospace Exploration Agency (Japan) [8528-42]

14:10: **Overview of GCOM-C1/SGLI science**, Yoshiaki Honda, Chiba Univ. (Japan) [8528-43]

14:30: **Engineering model testing for SGLI IRS especially TIR radiometric data**, Tamiki Hosokawa, NEC TOSHIBA Space Systems, Ltd. (Japan) [8528-44]

14:50: **An overview of the cryosphere products and validation plans for GCOM-C1/SGLI observations**, Masahiro Hori, Japan Aerospace Exploration Agency (Japan); Teruo Aoki, Meteorological Research Institute (Japan); Knut Stamnes, Stevens Institute of Technology (United States); Tomonori Tanikawa, Japan Aerospace Exploration Agency (Japan); Wei Li, Nan Chen, Stevens Institute of Technology (United States) [8528-45]

Coffee Break Thu 15:10 to 15:40

SESSION 11

Room: K Thu 15:40 to 18:00

JAXA V

Session Chair: **Kenji Nakamura**, Nagoya Univ. (Japan)

15:40: **Dual-frequency precipitation radar (DPR) development on the global precipitation measurement (GPM) core observatory**, Masahiro Kojima, Takeshi Miura, Kinji Furukawa, Yasutoshi Hyakusoku, Takayuki Ishikiri, Hiroki Kai, Japan Aerospace Exploration Agency (Japan); Toshio Iguchi, Hiroshi Hanado, Katsuhiro Nakagawa, National Institute of Information and Communications Technology (Japan) [8528-46]

16:00: **GPM science status in Japan**, Kenji Nakamura, Nagoya Univ. (Japan); Riko Oki, Japan Aerospace Exploration Agency (Japan); Toshio Iguchi, National Institute of Information and Communications Technology (Japan) [8528-47]

16:20: **An overview of the precipitation retrieval algorithm for the dual-frequency precipitation radar (DPR) on the global precipitation measurement (GPM) mission's core satellite**, Toshio Iguchi, National Institute of Information and Communications Technology (Japan); Shinta Seto, The Univ. of Tokyo (Japan); Robert Meneghini, NASA Goddard Space Flight Ctr. (United States); Jun Awaka, Hokkaido Tokai Univ. (Japan); Takuji Kubota, Japan Aerospace Exploration Agency (Japan); Toshiaki Kozu, Shimane Univ. (Japan); V. Chandrasekar, Minda Le, Colorado State Univ. (United States); Liang Liao, NASA Goddard Space Flight Ctr. (United States); Simone Tanelli, Stephen L. Durden, Jet Propulsion Lab. (United States) [8528-48]

16:40: **EarthCARE mission in Japan and CPR development status**, Toshiyoshi Kimura, Hirotaka Nakatsuka, Yoshihiro Seki, Gaku Kadosaki, Yoshiya Iide, Kazuyuki Okada, Jun Yamaguchi, Japan Aerospace Exploration Agency (Japan); Nobuhiro Takahashi, Yuichi Ohno, Hiroaki Horie, Kenji Satoh, National Institute of Information and Communications Technology (Japan) and Japan Aerospace Exploration Agency (Japan) [8528-49]

17:00: **Calibration and characterization concept of EarthCARE cloud profiling radar**, Hirotaka Nakatsuka, Japan Aerospace Exploration Agency (Japan) [8528-50]

17:20: **Current status of the JAXA/EarthCARE algorithm development and production model**, Riko Oki, Takuji Kubota, Maki Hirakata, Satoru Fukuda, Tomoyuki Nomaki, Toshiyoshi Kimura, Japan Aerospace Exploration Agency (Japan); Teruyuki Nakajima, The Univ. of Tokyo (Japan) [8528-51]

17:40: **Conceptual study of the future cloud-precipitation observation mission from space**, Nobuhiro Takahashi, National Institute of Information and Communications Technology (Japan); Misako Kachi, Takuji Kubota, Kinji Furukawa, Japan Aerospace Exploration Agency (Japan) [8528-52]

Remote Sensing and Modeling of the Atmosphere, Oceans, and Interactions IV

Conference Chairs: **Michio Kawamiya**, Japan Agency for Marine-Earth Science and Technology (Japan); **Tiruvalam N. Krishnamurti**, The Florida State Univ. (United States); **Shamil Maksyutov**, National Institute for Environmental Studies (Japan)

Wednesday 31 October

POSTERS-WEDNESDAY

Room: B-1 Wed 16:30 to 18:00

The interactive poster session with authors in attendance will be Wednesday 16:30 to 18:00. Poster authors are asked to display their posters beginning at 10:00 for extended viewing. Authors should remove their posters at the end of the interactive poster session. Posters left displayed will be considered unwanted and will be discarded.

Spatio-temporal variability of drought over northern China and its relationships with Indian-Pacific sea surface temperatures, Qing Dong, Cunjin Xue, Yongzheng Ren, Ctr. for Earth Observation and Digital Earth (China) [8529-21]

Semi-diurnal variation of surface rainfall over the tropics studied from global cloud-system resolving model and satellite observations, Toshiro Inoue, The Univ. of Tokyo (Japan); Kavirajan Rajendran, C-MMACS (India); Masaki Satoh, The Univ. of Tokyo (Japan) and Japan Agency for Marine-Earth Science and Technology (Japan); Hiroaki Miura, The Univ. of Tokyo (Japan) [8529-23]

Absorption coefficient of CDOM in Zhejiang coastal waters, Guannan Fan, Chen Peng, The Second Institute of Oceanography, SOA (China) [8529-24]

Thursday 1 November

SESSION 1

Room: I Thu 8:30 to 10:10

Remote Sensing and Modeling I

Session Chair: **Tiruvalam N. Krishnamurti**, The Florida State Univ. (United States)

8:30: **Precipitation characteristics around Bangladesh revealed by TRMM data**, Kenji Nakamura, Fumie A. Furuzawa, Masanori Nishikawa, Nagoya Univ. (Japan) [8529-2]

8:50: **Ensemble-based variational assimilation method to incorporate microwave imager brightness temperatures into a cloud-resolving model**, Kazumasa Aonashi, Meteorological Research Institute (Japan) [8529-3]

9:10: **Is the simulated increasing trend of dry static stability true or not?**, Masato Sugi, Japan Agency for Marine-Earth Science and Technology (Japan) [8529-4]

9:30: **Modification of hurricane Helene (2006) development by dust-radiation-cloud interactions**, Shu-Hua Chen, Univ. of California, Davis (United States); C. T. Cheng, National Science and Technology Ctr. for Disaster Reduction (Taiwan); Jen-Ping Chen, Y. C. Lin, National Taiwan Univ. (Taiwan); H. H. Lee, Yi-Chin Liu, Univ. of California, Davis (United States); I. C. Tsai, National Taiwan Univ. (Taiwan) [8529-5]

9:50: **An approach to the simulation of polarized infrared remotely sensing data in the design of novel sensor**, Xinli Hu, Xingfa Gu, Tao Yu, Qingyan Meng, Juan Li, Institute of Remote Sensing Applications (China); Jing Wang, Peking Univ. (China) [8529-6]
Coffee Break. Thu 10:10 to 10:40

SESSION 2

Room: I Thu 10:40 to 12:00

Remote Sensing and Modeling II

Session Chair: **Guosheng Liu**, The Florida State Univ. (United States)

10:40: **Satellite-based 3D structure of cloud and aerosols over the Indian Monsoon region: implications for aerosol-cloud interaction**, Sagnik Dey, Nidhi Nidhi, Kamalaika Sengupta, George Basil, Parul Srivastava, Indian Institute of Technology Delhi (India) [8529-7]

11:00: **Assimilation of satellite data in south Asian regional reanalysis**, Sarat C. Kar, National Ctr. for Medium Range Weather Forecasting (India) [8529-8]

11:20: **Use of hyperspectral observations at Indian Space Research Organization (ISRO): simulation of ISRO's future satellite observations and their assimilation in mesoscale NWP models**, Chandra M. Kishtawal, Pradeep K. Thapliyal, Indian Space Research Organization (India); Randhir Singh, Indian Space Research Organisation (India); Pradip K. Pal, Indian Space Research Organization (India) [8529-9]

11:40: **Future Doppler lidar wind measurement from space in Japan**, Shoken Ishii, National Institute of Information and Communications Technology (Japan); Toshiki Iwasaki, Tohoku Univ. (Japan); Masaki Sato, The Univ. of Tokyo (Japan); Riko Oki, Japan Aerospace Exploration Agency (Japan); Koza Okamoto, Meteorological Research Institute (Japan); Philippe Baron, National Institute of Information and Communications Technology (Japan); Tomoaki Nishizawa, National Institute for Environmental Studies (Japan) [8529-10]

Lunch Break Thu 12:00 to 13:40

SESSION 3

Room: I Thu 13:40 to 15:40

Remote Sensing and Modeling III

Session Chair: **Kenji Nakamura**, Nagoya Univ. (Japan)

13:40: **Observing system simulation experiments at Joint Center for Satellite Data Assimilation**, Michiko Masutani, National Oceanic and Atmospheric Administration (United States); Lars Peter Riishojgaard, Joint Ctr. for Satellite Data Assimilation (United States); John S. Woollen, National Oceanic and Atmospheric Administration (United States); Sean Casey, Joint Ctr. for Satellite Data Assimilation (United States) [8529-11]

14:00: **Scatterometer observations of the pre-monsoon transition**, Ziad S. Haddad, Jet Propulsion Lab. (United States) [8529-12]

14:20: **Integrated instrument simulator suites for Earth science**, Simone Taneli, Noppasin Niamsuwan, Jet Propulsion Lab. (United States) .. [8529-13]

14:40: **Impacts of enhanced CCN on the organization of convection and recent reduced counts of monsoon depressions**, Tiruvalam N. Krishnamurti, Andrew Martin, Ruby Krishnamurti, Anu Simon, Aype Thomas, Vinay Kumar, The Florida State Univ. (United States) [8529-14]

15:00: **Modeling of forecast sensitivity on the march of monsoon isochrones from Kerala to New Delhi, the first 25 days**, Anu Simon, Tiruvalam N. Krishnamurti, Thomas Pynadath Aype, Akhilesh K. Mishra, The Florida State Univ. (United States); Dev Sikka, Consultant Meteorologist (India); Dev Niyogi, Purdue Univ. (United States); Arindam Chakraborty, Indian Institute of Science (India); Li Li, U.S. Naval Research Lab. (United States) [8529-15]

15:20: **Estimation of regional surface CO₂ fluxes with GOSAT observations using inverse modeling approaches**, Shamil Maksyutov, Hiroshi Takagi, Dmitry A. Belikov, Tazu Saeki, National Institute for Environmental Studies (Japan); Ruslan Zhuravlev, Alexander Ganshin, Central Aerological Observatory (Russian Federation); Makoto Saito, Lab. des Sciences du Climat et de l'Environnement (France); Vinu Valsala, Indian Institute of Tropical Meteorology (India); Tom Oda, Colorado State Univ. (United States); Ryu Saito, Japan Agency for Marine-Earth Science and Technology (Japan); Sergey Oshchepkov, Andrey I. Bril, Yukio Yoshida, National Institute for Environmental Studies (Japan); Alexander Lukyanov, Central Aerological Observatory (Russian Federation); Robert J. Andres, Oak Ridge National Lab. (United States); Tatsuya Yokota, National Institute for Environmental Studies (Japan) [8529-16]

Coffee Break. Thu 15:40 to 16:00

SESSION 4

Room: I Thu 16:00 to 16:40

Remote Sensing and Modeling IV

Session Chair: **Shu-Hua Chen**, Univ. of California, Davis (United States)

16:00: **Remote sensing of solid precipitation from satellite observations**, Guosheng Liu, The Florida State Univ. (United States) [8529-17]

16:20: **Evaluating the spatial and temporal solar energy potential in South Korea**, Jong-Hwa Park, Si-Young Oh, Jin-Ki Park, Chungbuk National Univ. (Korea, Republic of) [8529-19]

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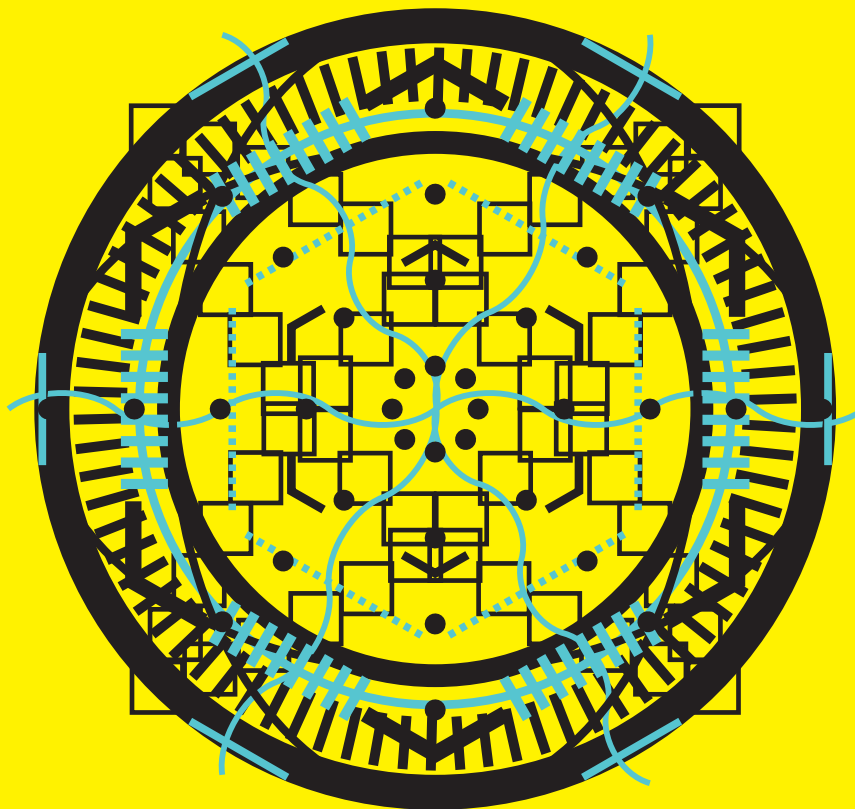
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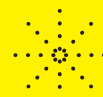
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