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Asia-Pacific Remote Sensing

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remote sensing industry

Technical Program

Conferences:
11–14 October 2010

Songdo Convensia
Incheon, Republic of Korea

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SPIE

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Welcome to SPIE Asia-Pacific Remote Sensing

The Northeast Asia region (China, Korea, and Japan) is highly affected by human activities and has diverse natural phenomena such as Asian dust, harmful algal bloom, and turbid water.

Each conference will focus on existing active and passive remote sensing technologies and their applications to ocean, atmosphere, and land studies, new remote sensing technologies, and upcoming development programs, including the Geostationary Ocean Color Imager (GOCI) mission.

The symposium brings together policy makers, scientists, and engineers from the Northeast Asia region, and other parts of the world, to share information and expertise and discuss the development of remote sensing technology, data processing techniques, applications of remote sensing data, and the societal benefits of remote sensing systems.

Thank you for your participation.

Symposium Chairs



Upendra N. Singh,
NASA Langley Research
Center (USA)



Yu-Hwan Ahn,
Korea Ocean Research &
Development Institute (KORDI)
(Republic of Korea)



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Thank you to the organizers of Asia-Pacific Remote Sensing 2010

Organizing Committee

Symposium Chairs

Upendra N. Singh, NASA Langley Research Center (USA)

Yu-Hwan Ahn, Korea Ocean Research & Development Institute (KORDI) (Republic of Korea)

Symposium General Co-Chairs

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

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

Dr. Delu Pan, State Oceanic Administration (China)

Symposium Honorary Chairs

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Dr. Takashi Moriyama, Japan Aerospace Exploration Agency (Japan)

Dr. Ranganath R. Navalgund, Space Applications Ctr. (India)

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Dr. Vaddadi Jayaraman, Indian Space Research Organisation (India)

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

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

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Prof. Jinyu Cheng, Chinese Society of Oceanography (China)

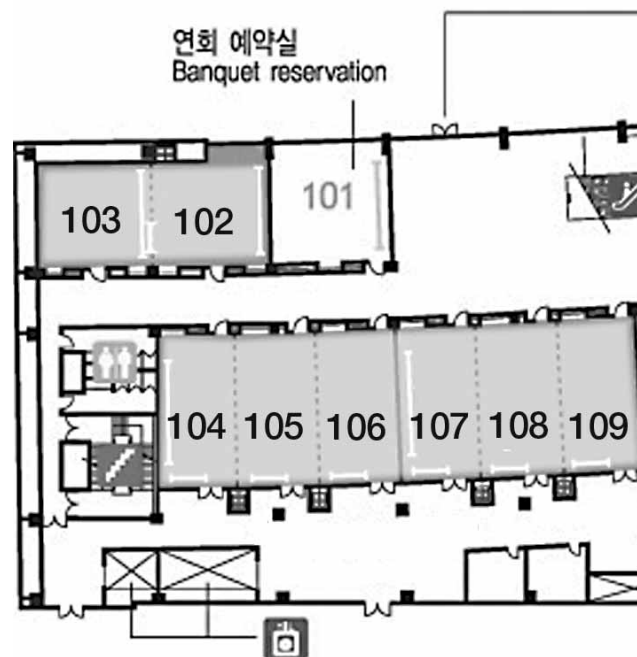
Dr. Adarsh Deepak, Science and Technology Corp. (United States)

Dr. Ramesh K. Kakar, NASA Headquarters (United States)

Prof. Teruyuki Nakajima, The Univ. of Tokyo, AORI (Japan)

Prof. Haruhisa Shimoda, Japan Aerospace Exploration Agency (Japan)

Ms. Lelia B. Vann, NASA Langley Research Ctr. (United States)



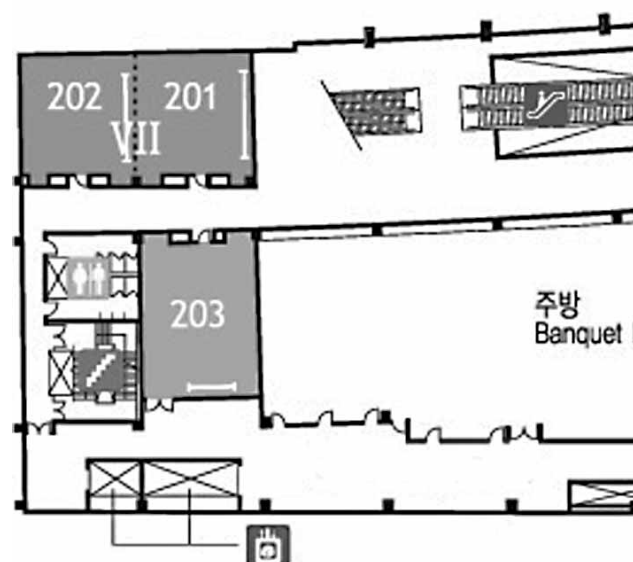
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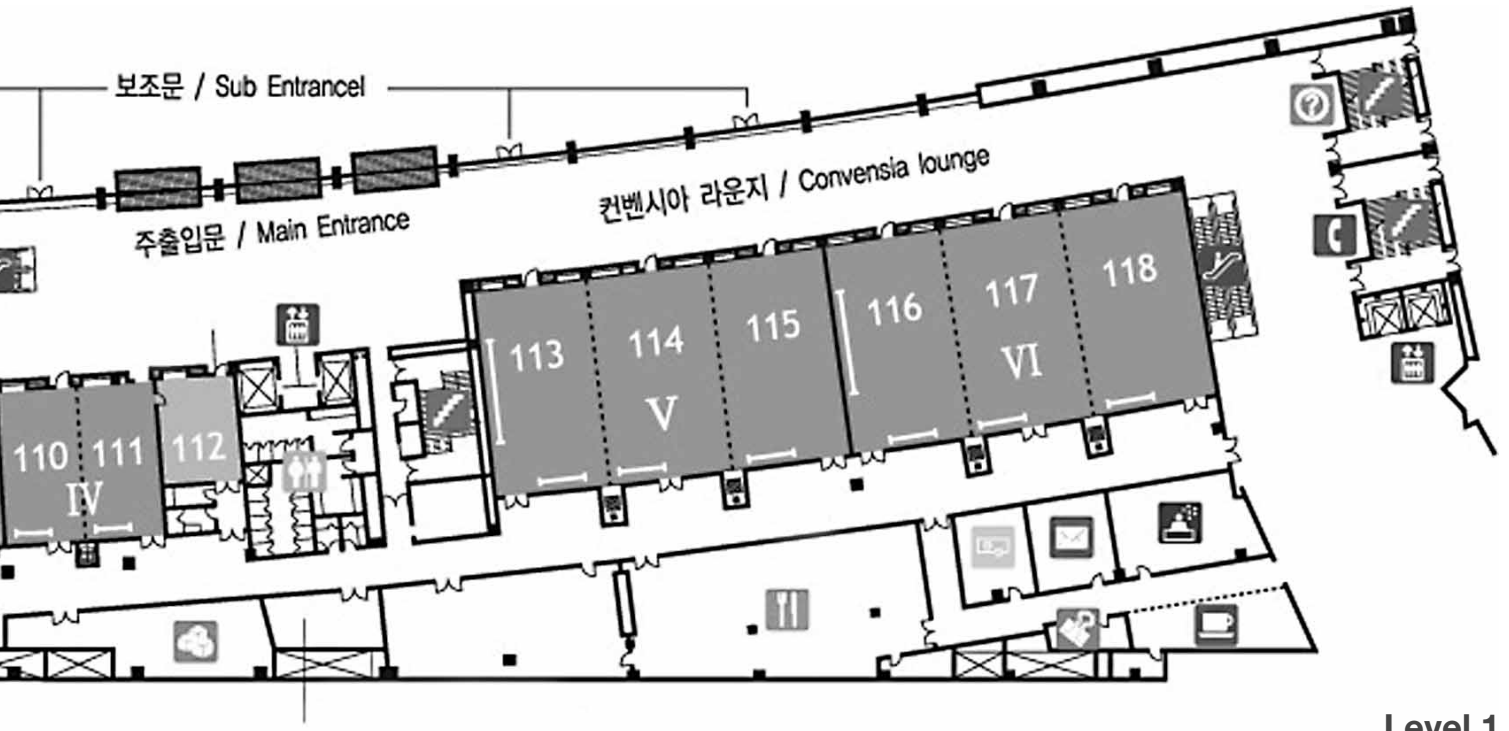
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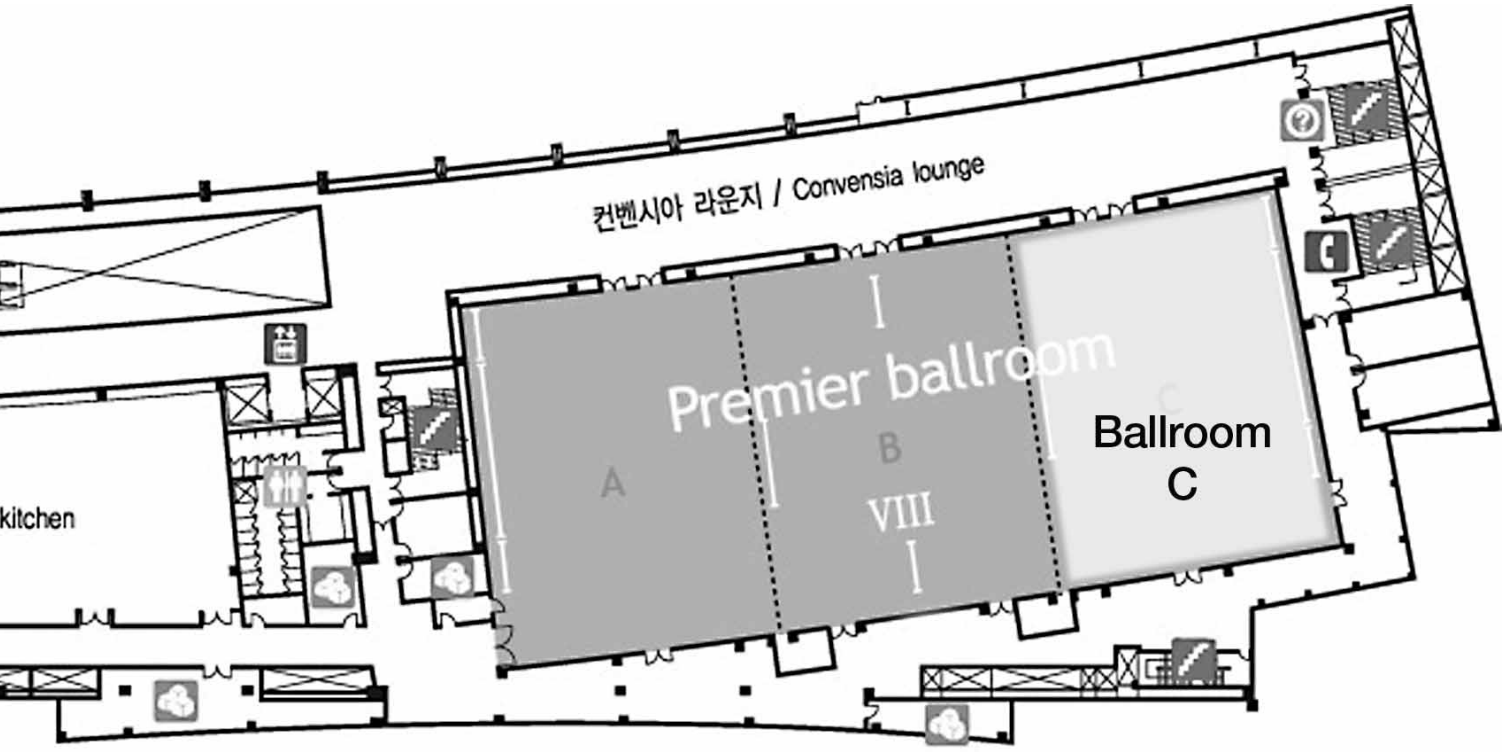
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Level 1



Level 2

Premier Ballroom C:
Opening Session/Plenary Session/Poster Session

Daily Schedule

Monday 11 October	Tuesday 12 October	Wednesday 13 October	Thursday 14 October
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Conferences

		7856 Remote Sensing and Modeling of the Atmosphere, Oceans, and Interactions III (<i>Krishnamurti, Kim, Moriyama</i>), p. 6	
		7857 Multispectral, Hyperspectral, and Ultraspectral Remote Sensing Technology, Techniques, and Applications III (<i>Larar, Chung, Suzuki</i>), p. 8	
		7858 Remote Sensing of the Coastal Ocean, Land, and Atmosphere Environment (<i>Frouin, Yoo, Won, Feng</i>), p. 11	
	7859 Remote Sensing of the Atmosphere and Clouds III (<i>Mukai, Frouin, Sohn</i>), p. 14		7859 Remote Sensing of the Atmosphere and Clouds III (<i>Mukai, Frouin, Sohn</i>), p. 14
	7860 Lidar Remote Sensing for Environmental Monitoring XI (<i>Singh, Mizutani, Jayaraman, Liu</i>), p. 16		
	7861 Geostationary Ocean Color Imager (GOCI) Technical Development, Operation, and Applications (<i>Ahn, Antoine, Bontempi, Pan</i>), p. 18	7862 Earth Observing Missions and Sensors: Development, Implementation, and Characterization (<i>Xiong, Kim, Shimoda</i>), p. 19	

Special Events

Opening Event and Plenary Session , 10.30 - 17.00, p. 5		All-Conference Awards Dinner , 19.00 to 21.00, p. 5	Interactive Poster Session , 16.30 to 18.00, p. 5
Welcome Reception , 18.00 to 20.30, p. 5			



Optional Tours on Friday

Optional Tours and Dinner Cruise, 10.00 to 17.00, p. 5

- Seoul City Tour
- Hwamunseok Mat-making and tidelands visit



Registration Hours

Monday 11 October	09.00 to 17.30
Tuesday 12 October	08.00 to 17.30
Wednesday 13 October	08.00 to 17.30
Thursday 14 October	08.00 to 17.30

Opening Event and Plenary Session

Room: Level 2, Premier Ballroom C

Monday 11 October	10.30 - 17.00
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Opening Ceremony

Welcome Addresses

Dr. Ralph B. James, President of SPIE Board of Directors

Dr. Upendra Singh and **Dr. Yu-Hwan Ahn**, Symposium Chairs

Government Official, Republic of Korea

CEO, Korea Ocean Research & Development Institute (KORDI)
(Republic of Korea)

Lunch Break	12.00 to 13.30
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Plenary Presenters

Dr. Yu-Hwan Ahn, Korea Ocean Research & Development Institute (KORDI) (Republic of Korea)

Dr. Jack A. Kaye, Earth Science Division, NASA Headquarters (United States)

Dr. Takashi Moriyama, Japan Aerospace Exploration Agency (Japan)

Dr. Changyong Cao, NOAA, National Environmental Satellite, Data, and Information Service (United States)

Additional plenary presenters from India and China have been invited. A panel discussion will follow.

Welcome Reception

Monday 11 October	18.00 to 20.30
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All registered conference attendees are invited to relax, socialize, and enjoy refreshments. Please remember to wear your conference registration badge (required). Dress is casual.

All-Conference Awards Dinner

Wednesday 13 October	19.00 to 21.00
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All attendees are invited to attend the All-Conference Awards Dinner at the Harbor Park Hotel. Come enjoy a delicious dinner, recognition of conference organizers, and traditional Korean entertainment. Name badges required. Transportation will be provided.

Interactive Poster Session

Thursday 14 October	16.30 to 18.00
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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. Light refreshments will be served.

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.

Posters must be removed at the end of the interactive poster session.

Posters not removed will be considered unwanted and will be discarded.



Optional Tours and Dinner Cruise on Friday

Friday 15 October	10.00 to 17.00
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Two optional tours on Friday are planned for meeting attendees.

Space is limited. The cost to meeting attendees equals US\$30. Sign up and pay at the Registration Desk before Wednesday at noon to reserve your spot.

Both tours will include a Han River Dinner Cruise where you will enjoy dinner, night views, and a traditional Korean show. Choose one of the following:

Seoul City Tour

The tour begins with visits to famous tourist attractions in Seoul including: Jogyesa Buddhist Temple, Gyeongbokgung Palace, Insadong, Blue House, Ginseng Center or Amethyst Factory, and Changdeokgung Palace. After lunch, participants can shop in Namdaemun Market and the farmers market to experience dietary life of Korea.

Experience Hwamunseok Mat-making and the Tideland of Dongmak Beach

The Hwamunseok is the traditional sedge mat of Korea. Participants will tour the gallery where they can enjoy various handicrafts from the past to the present. Visitors will have the opportunity to create their own sedge artwork with the help of local craftsmen.

The tour will continue to the tidelands of Dongmak Beach, one of the five largest tidelands in the world. Relax on the beach, dig clams, enjoy sea life, and take a mudbath at low tide. Shower facilities are available.

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

Conference Chairs: **Tiruvalam N. Krishnamurti**, Florida State Univ. (USA); **Jhoon Kim**, Yonsei Univ. (Korea, Republic of); **Takashi Moriyama**, Japan Aerospace Exploration Agency (Japan)

Program Committee: **Chandra Mohan Kishtawal**, Indian Space Research Organisation (India); **Ashis K. Mitra**, National Ctr. for Medium Range Weather Forecasting (India); **Guosheng Liu**, The Florida State Univ. (USA); **Syed Ismail**, NASA Langley Research Ctr. (USA); **Akiyo Yatagai**, Research Institute for Humanity and Nature (Japan); **Ravi S. Nanjundiah**, Indian Institute of Science (India); **Sumant Nigam**, Univ. of Maryland, College Park (USA); **Shu-Hua Chen**, Univ. of California, Davis (USA); **Tadashi Tsuyuki**, Meteorological Research Institute (Japan)

Wednesday 13 October

SESSION 1

Room: Level 1, Rooms 106 and 107. . . Wed. 09.00 to 12.00

Clouds and Precipitation

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

09.00: **GRIP field experiment** (*Invited Paper*), Ramesh K. Kakar, NASA Headquarters (United States) [7856-01]

09.30: **Diurnal variation of Indian summer monsoon rainfall as perceived from TRMM observations** (*Invited Paper*), Ravi S. Nanjundiah, Indian Institute of Science (India); Sandeep Sahany, Indian Institute of Science (India) and Univ. of California, Los Angeles (United States); Vuruputur Venugopal, Indian Institute of Science (India) [7856-02]

10.00: **A daily precipitation analysis by using TRMM/PR and a dense network of rain-gauge over South Asia**, Akiyo Yatagai, Research Institute for Humanity and Nature (Japan) [7856-03]

Refreshment Break 10.20 to 10.40

10.40: **Instantaneous vertical profiling of precipitation using passive microwave radiometers** (*Invited Paper*), Ziad S. Haddad, Jet Propulsion Lab. (United States); Kwung-won Park, Joint Institute for Regional Earth System Science and Engineering (United States) [7856-04]

11.10: **A principal component-based radiative transfer forward model (PCRTM) for vertically inhomogeneous cloud** (*Invited Paper*), Hui Li, Xu Liu, NASA Langley Research Ctr. (United States); Ping Yang, Texas A&M Univ. (United States); David P. Kratz, NASA Langley Research Ctr. (United States) [7856-05]

11.40: **Detection of Cirrus based on the refractive index retrieval using MODIS data**, Sungwook Hong, Inchul Shin, Wontae Yun, Korea Meteorological Administration (Korea, Republic of) [7856-06]

Lunch Break 12.00 to 13.40

SESSION 2

Room: Level 1, Rooms 106 and 107. . . Wed. 13.40 to 17.00

Aerosols and Clouds

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

13.40: **Dissecting the satellite observed aerosol indirect effect: implication to parameterizing aerosol indirect effect in GCMs** (*Invited Paper*), Guosheng Liu, Gauher Shaheen, Hongfei Shao, The Florida State Univ. (United States) [7856-08]

14.10: **Validation of the dust layer structure over the Taklimakan Desert, China by the CALIOP space-borne lidar using ground-based lidar** (*Invited Paper*), Yoshitaka Jin, Kenji Kai, Takashi Shibata, Nagoya Univ. (Japan); Kecun Zhang, Cold and Arid Regions Environmental and Engineering Research Institute (China); Hongfei Zhou, Xinjiang Institute of Ecology and Geography (China) [7856-09]

14.40: **Spatio-temporal structure of SST in El Niño regions and its relationships with zonal displacement anomaly of western Pacific warm pool**, Cunjin Xue, Qing Dong, Ctr. for Earth Observation and Digital Earth (China); Jiong Xie, Institute of Geographical Sciences and Natural Resources Research (China) [7856-10]

Refreshment Break 15.00 to 15.20

15.20: **Red tide detection by means of peak shift of remote sensing reflectance and possibility of red tide detection with polarized radiance measurements** (*Invited Paper*), Kohei Arai, Yasunori Terayama, Saga Univ. (Japan) [7856-11]

15.50: **Cyclone induced changes in the upper layers of the ocean over the Arabian Sea**, Kailasam Muni Krishna, Andhra Univ. (India) [7856-12]

16.10: **Development of a cloud-top height estimation method by geostationary satellite split-window measurements trained with CloudSat data**, Atsushi Hamada, Research Institute for Humanity and Nature (Japan); Noriyuki Nishi, Kyoto Univ. (Japan) [7856-13]

16.30: **Impact of carbonaceous aerosols on Indian monsoon rainfall** (*Invited Paper*), Om Prakash Sharma, Hashmi Fatima, Harish C. Upadhyaya, Indian Institute of Technology Delhi (India) [7856-14]

Thursday 14 October

SESSION 3

Room: Level 1, Rooms 106 and 107. . . Thurs. 09.00 to 12.10

Climate Remote Sensing and Modeling

Session Chair: **Kohei Arai**, Saga Univ. (Japan)

09.00: **Regional hydroclimate change over the Indian Subcontinent: impact of the expanding Thar desert** (*Invited Paper*), Sumant Nigam, Univ. of Maryland, College Park (United States); Massimo Bolasina, Princeton Univ. (United States) [7856-15]

09.30: **Downscaled multi-model superensemble and probabilistic forecasts of seasonal rains over the Asian monsoon belt** (*Invited Paper*), Tiruvalam N. Krishnamurti, Vinay Kumar, The Florida State Univ. (United States) . . . [7856-16]

10.10: **Improving estimation technique of typhoon wind radius using satellite remote sensor data**, Jun-Dong Park, Jin-Sung Hwang, Jae-Myun Shim, Jong Seo Park, National Meteorological Satellite Ctr. (Korea, Republic of) [7856-17]

Refreshment Break 10.30 to 11.00

11.00: **Using water vapor measurements from hyperspectral advanced IR sounder for tropical cyclone forecast** (*Invited Paper*), Jun Li, Univ. of Wisconsin-Madison (United States); Hui Liu, National Ctr. for Atmospheric Research (United States); Jinlong Li, Timothy J. Schmit, Univ. of Wisconsin-Madison (United States) [7856-18]

11.30: **Recent trend in surface vegetation and dust frequency over Mongolia**, Eun-Hee Lee, Byung-Ju Sohn, Seoul National Univ. (Korea, Republic of) [7856-20]

Lunch Break 11.50 to 13.50

SESSION 4

Room: Level 1, Rooms 106 and 107. . Thurs. 13.50 to 15.10

Monsoon and Tropical Cyclone Applications

Session Chair: Ziad S. Haddad, Jet Propulsion Lab. (USA)

13.50: Algorithm for retrieval of aerosol optical properties over the ocean from the geostationary ocean color imager (Invited Paper), Jhoon Kim, Jaehwa Lee, Yonsei Univ. (Korea, Republic of) and Jet Propulsion Lab. (United States) and Univ. of California, Los Angeles (United States); Chul Han Song, Gwangju Institute of Science and Technology (Korea, Republic of); Joo-Hyung Ryu, Yu-Hwan Ahn, Korea Ocean Research & Development Institute (Korea, Republic of); Changkeun Song, National Institute of Environmental Research (Korea, Republic of) [7856-23]

14.20: Sensitivity of target size, pixel selection, and height assignment in satellite-derived atmospheric motion vectors, Jeong-Hyun Park, Somyoung Kim, Mi-Lim Ou, Korea Meteorological Administration (Korea, Republic of); Hee-Je Cho, Seoul National Univ. (Korea, Republic of); Hyun-Cheoul Shin, Korea Meteorological Administration (Korea, Republic of) [7856-24]

14.40: Dual-frequency radar (DPR) and the global precipitation measurement (GPM) in Japan (Invited Paper), Kenji Nakamura, Nagoya Univ. (Japan); Riko Oki, Japan Aerospace Exploration Agency (Japan); Toshio Iguchi, National Institute of Information and Communications Technology (Japan) [7856-25]

Room: Level 2, Ballroom C Thurs. 16.30 to 18.00

Poster Session

Poster authors will be available to answer questions. Poster presenters are asked to display their posters on Thursday beginning at 10:00 to allow for extended poster viewing.

Retrieval of aerosol optical depth and surface reflectance from geostationary satellite data with MODIS BRDF, Mijin Kim, Jhoon Kim, Jongmin Yoon, Jaehwa Lee, Yonsei Univ. (Korea, Republic of) [7856-27]

Study on retrieval algorithms of sea surface wind fields from TerraSAR-X images, Yongzheng Ren, Ocean Univ. of China (China); Susanne Lehner, Deutsches Zentrum für Luft- und Raumfahrt e.V. (Germany); Mingxia He, Ocean Univ. of China (China) [7856-28]

Internal wave location and parameters estimation from ENVISAT SAR images, Ren Lin, Pan Delu, XianQiang He, Difeng Wang, The Second Institute of Oceanography, SOA (China) [7856-29]

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

Conference Chairs: **Allen M. Larar**, NASA Langley Research Ctr. (USA); **Hyo-Sang Chung**, Chosun Univ. (Korea, Republic of); **Makoto Suzuki**, Japan Aerospace Exploration Agency (Japan)

Program Committee: **Gail E. Bingham**, Utah State Univ. (USA); **Ryoichi Imasu**, The Univ. of Tokyo (Japan); **Kyu-Sung Lee**, Inha Univ. (Korea, Republic of); **John F. Le Marshall**, Bureau of Meteorology (Australia); **Thomas S. Pagano**, Jet Propulsion Lab. (USA); **Jeff Puschell**, Raytheon Space & Airborne Systems (USA); **Henry E. Revercomb**, Univ. of Wisconsin-Madison (USA); **William L. Smith, Sr.**, Hampton Univ. (USA); **Jianyu Wang**, Shanghai Institute of Technical Physics (China)

Wednesday 13 October

Room: Level 1, Rooms 102 and 103. . . Wed. 09.00 to 09.05

Opening Remarks

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

SESSION 1

Room: Level 1, Rooms 102 and 103. . . Wed. 09.05 to 12.20

Atmospheric Sounding, Retrievals, and Information Content

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

09.05: **Eight years of AIRS on Aqua** (*Invited Paper*), Sung-Yung Lee, Thomas S. Pagano, Jet Propulsion Lab. (United States) [7857-01]

09.35: **IR ultraspectral remote sensing: an efficient physical-statistical nonlinear sounding retrieval algorithm**, William L. Smith, Sr., Hampton Univ. (United States) and Univ. of Wisconsin-Madison (United States); Stanislav V. Kireev, Hampton Univ. (United States); Elisabeth Weisz, Univ. of Wisconsin-Madison (United States); Allen M. Larar, NASA Langley Research Ctr. (United States); Henry E. Revercomb, Univ. of Wisconsin-Madison (United States) [7857-02]

09.55: **How well can infrared sounders observe the atmosphere and surface through clouds?**, Daniel K. Zhou, Allen M. Larar, Xu Liu, NASA Langley Research Ctr. (United States); William L. Smith, Sr., Hampton Univ. (United States); Larrabee Strow, Univ. of Maryland, Baltimore County (United States); Ping Yang, Texas A&M Univ. (United States) [7857-03]

10.15: **Testing NPOESS CrIMSS EDR performance using proxy data from IASI and AMSU**, Xu Liu, NASA Langley Research Ctr. (United States); Susan Kizer, Science Systems and Applications, Inc. (United States); Allen M. Larar, Daniel K. Zhou, NASA Langley Research Ctr. (United States); William L. Smith, Sr., Hampton Univ. (United States); Chris Barnet, Murty G. Divakarla, Guang Guo, National Environmental Satellite, Data, and Information Service (United States); William J. Blackwell, Vincent Leslie, Laura Jairam, MIT Lincoln Lab. (United States); Karen St. Germain, National Oceanic and Atmospheric Administration (United States); Richard J. Lynch, Atmospheric and Environmental Research, Inc. (United States) [7857-04]

Refreshment Break 10.35 to 11.00

11.00: **Spectral resolution and coverage impact on advanced sounder information content**, Allen M. Larar, Xu Liu, Daniel K. Zhou, NASA Langley Research Ctr. (United States); William L. Smith, Sr., Hampton Univ. (United States) [7857-05]

11.20: **Expanded use of the information content of ultraspectral observations in NWP**, John F. Le Marshall, Bureau of Meteorology/Victoria (Australia); Jim A. Jung, Joint Ctr. for Satellite Data Assimilation (United States); William L. Smith, Sr., Hampton Univ. (United States) [7857-06]

11.40: **Retrieval of minor constituents from thermal infrared spectra observed by GOSAT TANSO-FTS sensor**, Ryoichi Imasu, Yoji Hayashi, Akiko Inagoya, The Univ. of Tokyo (Japan); Naoko Saitoh, Chiba Univ. (Japan); Kei Shiomi, Japan Aerospace Exploration Agency (Japan) [7857-07]

12.00: **Aerosol optical properties derived from solar spectrum measurements and their application to atmospheric correction of satellite data**, Naohiro Manago, Shuji Miyazawa, Kenji Masuda, Hiroaki Kuze, Chiba Univ. (Japan) [7857-08]

Lunch Break 12.20 to 14.00

SESSION 2

Room: Level 1, Rooms 102 and 103. . . Wed. 14.00 to 15.30

Data Processing, Compression, and Fusion

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

14.00: **Recent progress in ultraspectral and multispectral data processing and real-time applications** (*Invited Paper*), Allen H. L. Huang, Univ. of Wisconsin-Madison (United States) [7857-09]

14.30: **Preprocessing of hyperspectral imagery with consideration of smile and keystone properties**, Naoto Yokoya, Norihide Miyamura, Akira Iwasaki, The Univ. of Tokyo (Japan) [7857-10]

14.50: **Fast compression implementation for hyperspectral sensor**, Hiroki Hihara, Jun Yoshida, Juro Ishida, NEC TOSHIBA Space Systems, Ltd. (Japan); Jun Takada, NEC Informatec Systems Ltd. (Japan); Yuzo Senda, NEC Corp. (Japan); Makoto Suzuki, Taeko Seki, Japan Aerospace Exploration Agency (Japan); Satoshi Ichikawa, Japan Aerospace Exploration Agency (Japan); Nagamitsu Ohgi, Japan Resource Observation System and Space Utilization Organization (Japan) [7857-12]

15.10: **A novel satellite mass-data compression algorithm based on fractal theory**, Yiming Zhou, Pinxiong Liu, Jun Ma, Yumin Huang, China Academy of Space Technology (China) [7857-13]

Refreshment Break 15.30 to 15.50

SESSION 3

Room: Level 1, Rooms 102 and 103. . . Wed. 15.50 to 17.10

Remote Sensing Air Quality Applications

Session Chair: **Jianyu Wang**, Shanghai Institute of Technical Physics (China)

15.50: **Development of natural biogenic volatile organic compounds (BVOC) emission model using remote sensing and GIS techniques: an example in Hong Kong**, Man Sing Wong, Janet E. Nichol, The Hong Kong Polytechnic Univ. (Hong Kong, China) [7857-14]

16.10: **Application of THEOS for PM10 mapping over Penang Island, Malaysia**, Hwee San Lim, Mohd. Zubir Mat Jafri, Khiruddin Abdullah, Univ. Sains Malaysia (Malaysia) [7857-15]

16.30: **Performance of satellite regional biooptical algorithms depending on relationships between chlorophyll-a and dissolved organic matter concentrations**, Oleg A. Bukin, Maritime State Univ. (Russian Federation); Pavel A. Salyuk, V.I. Il'ichev Pacific Oceanological Institute (Russian Federation); Andrey N. Pavlov, Institute for Automation and Control Processes (Russian Federation); Igor Stepochkin, Maritime State Univ. (Russian Federation) [7857-16]

16.50: **Tuning of hyperspectral biooptical algorithms in the Peter the Great Bay**, Pavel A. Salyuk, V.I. Il'ichev Pacific Oceanological Institute (Russian Federation); Oleg A. Bukin, Igor Stepochkin, Maritime State Univ. named after G.I. Nevelskoi (Russian Federation); Andrey N. Pavlov, Institute for Automation and Control Processes (Russian Federation) [7857-17]

Thursday 14 October

SESSION 4

Room: Level 1, Rooms 102 and 103. . Thurs. 09.00 to 12.00

Future Sensors: Calibration and Sensor Design

Session Chair: Daniel K. Zhou, NASA Langley Research Ctr. (USA)

09.00: **The CLARREO benchmark climate mission: achieving high accuracy with high spectral resolution IR observations** (*Invited Paper*), Henry E. Revercomb, Fred A. Best, Robert O. Knuteson, David C. Tobin, Joe K. Taylor, Robert E. Holz, P. Jonathon Gero, Univ. of Wisconsin-Madison (United States) [7857-18]

09.30: **On-orbit absolute temperature calibration using multiple phase change materials: overview of recent technology advancements**, Fred A. Best, Douglas P. Adler, Claire Pettersen, Henry E. Revercomb, John H. Perepezko, Univ. of Wisconsin-Madison (United States) [7857-19]

09.50: **The University of Wisconsin Space Science and Engineering Center absolute radiance interferometer (ARI)**, Joe K. Taylor, Henry E. Revercomb, Univ. of Wisconsin-Madison (United States); Henry L. Buijs, Frederic J. Grandmont, ABB-Bomem Inc. (Canada); P. Jonathon Gero, Fred A. Best, David C. Tobin, Robert O. Knuteson, Daniel D. LaPorte, Richard Cline, Mark Schwarz, Jeff Wong, Univ. of Wisconsin-Madison (United States) [7857-20]

10.10: **On-orbit absolute blackbody emissivity determination using the heated halo method**, P. Jonathon Gero, Joe K. Taylor, Fred A. Best, Henry E. Revercomb, Robert O. Knuteson, David C. Tobin, Douglas P. Adler, Nick N. Ciganovich, Steven T. Dutcher, Raymond K. Garcia, Univ. of Wisconsin-Madison (United States) [7857-21]

Refreshment Break 10.30 to 11.00

11.00: **The functional evaluation model for the on-board hyperspectral radiometer**, Nagamitsu Ohgi, Kenji Tatsumi, Hisashi Harada, Toneo Kawanishi, Fumihiro Sakuma, Japan Resource Observation System and Space Utilization Organization (Japan); Yoshito Narimatsu, Hitomi Inada, Takahiro Kawashima, Yoshiyuki Ito, NEC Corp. (Japan); Akira Iwasaki, The Univ. of Tokyo (Japan) [7857-22]

11.20: **Design and applications of space-borne imaging spectrometer based on acousto-optic tunable filter (AOTF)**, Jianyu Wang, Zhiping He, Rong Shu, Shanghai Institute of Technical Physics (China) [7857-23]

11.40: **Remote sensing sensors, hyperspectral and multispectral, new techniques for lower cost, compact and high performance image sensing using advanced CCD and CMOS**, David R. Cochrane, DALSA Corp. (Canada) [7857-24]

Lunch Break 12.00 to 13.30

SESSION 5

Room: Level 1, Rooms 102 and 103. . Thurs. 13.30 to 14.50

Remote Sensing Land Applications

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

13.30: **Spectral characteristics of mine vegetation in the press of heavy metal**, Feng-jie Yang, Shandong Univ. of Science and Technology (China) [7857-33]

13.50: **Remotely based monitoring of the mangroves over Penang Island, Malaysia**, Boon Choon Beh, Mohd. Zubir Mat Jafri, Hwee San Lim, Univ. Sains Malaysia (Malaysia) [7857-27]

14.10: **Research on land use and land cover change in Changqing based on RS**, Qixia Man, East China Normal Univ. (China) [7857-28]

14.30: **Performances of frequency-based contextual classifier in land use/cover classification using high resolution satellite images**, Mohd Rifhan Mustapha, Hwee San Lim, Mohd. Zubir Mat Jafri, Faez M. Hassan, Univ. Sains Malaysia (Malaysia) [7857-35]

Room: Level 2, Ballroom C. Thurs. 16.30 to 18.00

Poster Session

Poster authors will be available to answer questions. Poster presenters are asked to display their posters on Thursday beginning at 10:00 to allow for extended poster viewing.

Enhancing remote sensing images by adjusting histogram globally and locally, Fu Chen, Xinpeng Li, Fangjun Li, Jianbo Liu, Jin Yang, Ctr. for Earth Observation and Digital Earth (China) [7857-31]

Pixel discontinuity handling of ortho-rectification image for airborne pushbroom imager, Jyun-Yi Lai, Ming-Fu Chen, Tzu-Hsuan Wei, Chia-yen Chan, Ting-Ming Huang, Instrument Technology Research Ctr. (Taiwan) [7857-32]

Extracting method for alteration information of remote sensing geology and effect evaluation, Heng-qi Xin, Feng-jie Yang, Shandong Univ. of Science and Technology (China) [7857-34]

Defective CCDs detection and image restoration based on inter-band radiance interpolation for hyperspectral imager, Ming-Fu Chen, Jyun-Yi Lai, Long-Jeng Lee, Ting-Ming Huang, Instrument Technology Research Ctr. (Taiwan) [7857-36]

Simulation of spectral effects of Asian dusts on the AIRS infrared radiances and its application to retrieve dust properties, Hyo-Jin Han, Byung-Ju Sohn, Seoul National Univ. (Korea, Republic of); Allen H. L. Huang, Elisabeth Weisz, Univ. of Wisconsin-Madison (United States) [7857-37]

Remote sensing image classification method based on evidence theory and decision tree, Xuerong Li, Graduate Univ. of Chinese Academy of Sciences (China) and Yantai Institute of Coastal Zone Research (China); Ping Shi, Qianguo Xing, Yantai Institute of Coastal Zone Research (China); Lingyan Kang, Graduate Univ. of Chinese Academy of Sciences (China) and Yantai Institute of Coastal Zone Research (China) [7857-38]

A study on decision tree classification method to extract the orchard in Jiaodong Peninsula, Xinyang Yu, Anding Zhang, Yunhua Sun, Ludong Univ. (China); Xiyong Hou, Mingjie Li, Yantai Institute of Coastal Zone Research (China) [7857-39]

Analysis for spectral characteristics of submerged plant Vallisneria spiralis in Hangzhou Bay Wetland, Xiuju Wu, Qian Cheng, Zhejiang Gongshang Univ. (China) [7857-40]

Effects of N fertilization on the relationship between photosynthetic light use efficiency and photochemical reflectance index of wetland vegetation, Qian Cheng, Xiuju Wu, Zhejiang Gongshang Univ. (China) [7857-41]

A method for extracting the number of growing season from NDVI profile, Shouzheng Liang, Yantai Institute of Coastal Zone Research (China) . . [7857-42]

Key technologies of land use information extraction based upon multisource remote sensing data: a case study of hilly-plain transition region in the middle and lower reaches of the Yellow River, Heli Lu, Guifang Liu, Henan Univ. (China) [7857-43]

Pose parameter extraction of corn canopy remote sensing images based on parallel multi-ocular imaging, Xin Li, Heilongjiang Bayi Agriculture Univ. (China); Yane Zhang, China Agricultural Univ. (China); Jingfu Zhu, Heilongjiang Bayi Agriculture Univ. (China); Ruijiao Zhao, Minzan Li, China Agricultural Univ. (China) [7857-44]

Evaluation of land use classification accuracy based upon TM and CBERS-02B HR data fusion, Guifang Liu, Heli Lu, Henan Univ. (China) [7857-45]

Predicting chlorophyll concentration of greenhouse tomato with ground-based remote sensing, Yongjun Ding, Minzan Li, Shuqiang Li, Dengkui An, Xiuhua Li, China Agricultural Univ. (China) [7857-46]

Study on the spectral characteristics of the damaged rice plant by brown Planthopper, Nilaparvata lugens, Xiuju Wu, Qian Cheng, Zhejiang Gongshang Univ. (China) [7857-47]

Mixed-spectrum generation mechanism analysis of dispersive hyperspectral imaging caused by scanning error for improving coastal waters monitoring, Feng Xie, Gonghai Xiao, Hongxing Qi, Qi Du, Rong Shu, Yongqi Xue, Shanghai Institute of Technical Physics (China) [7857-48]

Study on soil erosion in Zuli River basin based on RS and GIS, Hui Han, Lanzhou Jiaotong Univ. (China) [7857-49]

Variable rate fertilization based on spectral index and remote sensing, Shuqiang Li, Minzan Li, Yongjun Ding, Ruijiao Zhao, China Agricultural Univ. (China) [7857-50]

Study on spaceborne LWIR FPA imaging system, Chunlai Li, YinNian Liu, Shanghai Institute of Technical Physics (China); Jianyu Wang, Shanghai Institute for Biological Sciences (China) [7857-51]

Aerosol optical thickness retrieval by using a handheld spectroradiometer over Penang Island, Malaysia, Hwee San Lim, Mohd. Zubir Mat Jafri, Khiruddin Abdullah, Nasirun Mohd. Saleh, Univ. Sains Malaysia (Malaysia) [7857-52]

- Land-use/land cover change analysis with Landsat TM and ETM+ data in the Huangshui River basin, northwestern China**, Xiaohong Gao, Jian Kang, Qinghai Normal Univ. (China) [7857-53]
- Computation of electrical conductivity over large area by remote sensing**, Yusufujang Rusuli, Alimujiang Kasimu, Xinjiang Normal Univ. (China). [7857-54]
- Research on the sequential images registration of the temporally and spatially modulated Fourier transform imaging spectrometer**, Xiubao Zhang, Yan Yuan, Qian Wang, BeiHang Univ. (China); Zhiliang Zhou, Univ. of Science and Technology of China (China); Chengming Sun, BeiHang Univ. (China) [7857-55]
- Land cover mapping based on a frequency based contextual classifier from remote sensing data over Penang Island, Malaysia**, Hwee San Lim, Mohd. Zubir Mat Jafri, Khiruddin Abdullah, Univ. Sains Malaysia (Malaysia)..... [7857-56]
- Winter wheat nutrition diagnosis under different N treatments based on multi-spectral images and remote sensing**, Ruijiao Zhao, Minzan Li, Shuqiang Li, Yongjun Ding, China Agricultural Univ. (China) [7857-57]
- Land cover/land use mapping in, Malaysia using radar and optical data**, Chong Keat Sim, Khiruddin Abdullah, Mohd. Zubir Mat Jafri, Hwee San Lim, Univ. Sains Malaysia (Malaysia) [7857-58]
- Spatial-temporal characters of evapotranspiration in the Yellow River Delta**, Mingming Zhu, Xiyong Hou, Mingjie Li, Yantai Institute of Coastal Zone Research (China)..... [7857-59]
- Monitoring growth status and nutritional condition of spring maize based on hyperspectra and wavelet packet analysis**, Lihua Zheng, Minzan Li, Yane Zhang, China Agricultural Univ. (China); Yongguang Hu, Jiangsu Univ. (China); Ruijiao Zhao, Yongjun Ding, China Agricultural Univ. (China)..... [7857-60]
- A hyperspectral imager with adjustable spectral selectivity based on AOTF**, Jifan Liu, Yanhua Ma, Rong Shu, Shanghai Institute of Technical Physics (China) [7857-61]
- E-AERI calibration performance certification**, Robert O. Knuteson, Fred A. Best, Raymond K. Garcia, Denny Hackel, Henry E. Revercomb, William L. Smith, Sr., Wayne F. Feltz, David D. Turner, Univ. of Wisconsin-Madison (United States) [7857-62]
- Spectral feature extraction and modeling of soil total nitrogen content based on NIR spectroscopy and wavelet packet analysis**, Lihua Zheng, Minzan Li, Xiaofei An, Ruijiao Zhao, Shuqiang Li, China Agricultural Univ. (China) [7857-63]
- Monitoring nitrogen nutrition status of maize with digital image analysis and remote sensing**, Yane Zhang, Yuanfang Xu, Ruijiao Zhao, Haihua Wang, Minzan Li, China Agricultural Univ. (China) [7857-64]
- Research on the classification of Karst rocky desertification based on hyperspectral remote sensing images**, Ke Zhu, Yulun An, Yuehong Zhang, Guizhou Normal Univ. (China)..... [7857-65]

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Remote Sensing of the Coastal Ocean, Land, and Atmosphere Environment

Conference Chairs: **Robert J. Frouin**, Univ. of California, San Diego (USA); **Hong-Rhyong Yoo**, Korea Ocean Research and Development Institute (Korea, Republic of); **Joong-Sun Won**, Yonsei Univ. (Korea, Republic of); **Aiping Feng**, First Institute of Oceanography, SOA (China)

Program Committee: **Malik Chami**, Lab. d'Océanographie de Villefranche (France); **Cécile Dupouy**, Institut de Recherche pour le Développement (New Caledonia); **ZhongPing Lee**, Mississippi State Univ. (USA); **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 G. Ruddick**, Royal Belgian Institute of Natural Sciences (Belgium); **Menghua Wang**, NASA Goddard Space Flight Ctr. (USA); **Sinjaee Yoo**, Korea Ocean Research and Development Institute (Korea, Republic of)

Wednesday 13 October

Room: Level 1, Rooms 108 and 109. . . Wed. 09.00 to 09.10

Introduction

Session Chair: **Robert J. Frouin**, Univ. of California, San Diego (USA)

SESSION 1

Room: Level 1, Rooms 108 and 109. . . Wed. 09.10 to 12.10

Retrieval of Water Composition and Optical Properties I

Session Chair: **Hong-Rhyong Yoo**, Korea Ocean Research & Development Institute (Korea, Republic of)

09.10: **Coastal ocean atmospheric correction for AVNIR-2 high resolution images**, Hiroshi Murakami, Japan Aerospace Exploration Agency (Japan); Cécile Dupouy, Institut de Recherche pour le Développement (New Caledonia) [7858-01]

09.30: **Statistical inference in atmospheric correction of ocean color**, Bruno Pelletier, Univ. de Rennes 2 (France); Robert J. Frouin, Univ. of California, San Diego (United States) [7858-02]

09.50: **TSS monitoring by using THEOS satellite imagery over Penang Island, Malaysia**, Hwee San Lim, Mohd. Zubir Mat Jafri, Khiruddin Abdullah, Univ. Sains Malaysia (Malaysia) [7858-03]

10.10: **Precision improvement of chlorophyll-a remote sensing inversion by data transformation in turbidity water under low concentrations: a case of Taihu lake, China**, Yuchun Wei, Nanjing Normal Univ. (China) [7858-04]

Refreshment Break 10.30 to 10.50

10.50: **Empirical nonlinear determination of the diffuse attenuation coefficient Kd(490) in coastal waters from ocean color images**, Cédric Jamet, Hubert Loisel, David Dessailly, Lab. d'Océanologie et de Géosciences (France) [7858-05]

11.10: **The Coastcolour project and Round Robin algorithm intercomparison exercise**, Kevin G. Ruddick, Institut Royal des Sciences Naturelles de Belgique (Belgium); Carsten Brockmann, Brockmann Consult GmbH (Germany); Roland Doerffer, GKSS-Forschungszentrum Geesthacht (Germany); Shubha Sathyendranath, Steven B. Groom, Plymouth Marine Lab. (United Kingdom); Richard P. Santer, Univ. du Littoral Côte d'Opale (France); Brotas Vanda, Univ. de Lisboa (Portugal); Simon Pincock, ESRIN (Italy) [7858-06]

11.50: **Underwater oil detection experiment by laser fluorescence remote sensing**, Jubai An, Dalian Maritime Univ. (China); Rongrong Yang, Ocean Univ. of China (China); Zhaoxia Liu, Dalian Maritime Univ. (China) [7858-08]

Lunch Break 12.10 to 13.30

SESSION 2

Room: Level 1, Rooms 108 and 109. . . Wed. 13.30 to 15.30

Retrieval of Water Composition and Optical Properties II

Session Chair: **Hong-Rhyong Yoo**, Korea Ocean Research & Development Institute (Korea, Republic of)

13.30: **Phase function effects for ocean color retrieval algorithm**, Keping Du, Beijing Normal Univ. (China); Zhongping Lee, Mississippi State Univ. (United States) [7858-09]

13.50: **Particle size and its relations to optical characteristics of Case-II waters at the Yellow Sea and the East China Sea**, Qianguo Xing, South China Sea Institute of Oceanology (China) and Yantai Institute of Coastal Zone Research (China); Dingfeng Yu, Yanju Hao, Yantai Institute of Coastal Zone Research (China); Chuqun Chen, South China Sea Institute of Oceanology (China); Ping Shi, Yantai Institute of Coastal Zone Research (China) . . [7858-10]

14.10: **Optical classification for optimizing remote sensing inversion algorithms in coastal waters**, Vincent Vantrepotte, Hubert Loisel, Xavier Mériaux, David Dessailly, Lab. d'Océanologie et de Géosciences (France) [7858-11]

14.30: **Remote sensing reflectance reconstruction to obtain water optical properties from MERIS multispectral satellite images**, Marjorie Schmeltz, Jean-Marie Froidefond, Univ. Bordeaux 1 (France); Frédéric Jourdin, Service Hydrographique et Océanographique de la Marine (France); Peter Gege, Deutsches Zentrum für Luft- und Raumfahrt e.V. (Germany) [7858-12]

14.50: **A model for the euphotic depth: effect of varying sky conditions**, Bouchra Nechad, Kevin G. Ruddick, Institut Royal des Sciences Naturelles de Belgique (Belgium); Aida Alvera-Azcarate, Univ. de Liège (Belgium) . . [7858-13]

15.10: **A statistical model of marine reflectance**, Robert J. Frouin, Univ. of California, San Diego (United States); Bruno Pelletier, Univ. de Rennes 2 (France) [7858-14]

Refreshment Break 15.30 to 16.00

SESSION 3

Room: Level 1, Rooms 108 and 109. . . Wed. 16.00 to 17.00

Ocean Processes, Phenomena, and Variability I

Session Chair: **Cécile Dupouy**, Institut de Recherche pour le Développement (New Caledonia)

16.00: **Spatial and temporal variations of the inherent and apparent optical properties in the sea areas around KOREA**, Jee-Eun Min, Joo-Hyung Ryu, Yu-Hwan Ahn, Korea Ocean Research & Development Institute (Korea, Republic of) [7858-15]

16.20: **Hydrographic and seasonal variability of CDOM in the Yangtze River Estuary, China**, Fang Shen, Weijian Zhu, Yunxuan Zhou, East China Normal Univ. (China) [7858-16]

16.40: **Use of ocean colour satellite data to study the dynamics of suspended particles in the Yangtze River plume (East China Sea)**, David P. Doxaran, Thomas Lorthiois, Observatoire Océanologique de Villefranche sur Mer (France); Kevin G. Ruddick, Institut Royal des Sciences Naturelles de Belgique (Belgium); Antoine Mangin, ACRI-ST (France); Malik Chami, Observatoire Océanologique de Villefranche sur Mer (France) [7858-17]

Thursday 14 October

SESSION 4

Room: Level 1, Rooms 108 and 109. . Thurs. 09.00 to 10.40

Ocean Processes, Phenomena, and Variability II

Session Chair: **Cécile Dupouy**, Institut de Recherche pour le Développement (New Caledonia)

- 09.00: **Temporal trend of low surface chlorophyll area in the South China Sea**, Caiyun Zhang, Shaoling Shang, Huasheng Hong, Xiamen Univ. (China) [7858-18]
- 09.20: **Monitoring optical properties of the southwest tropical Pacific**, Cécile Dupouy, Tatiana Savranski, Jerome Lefevre, Marc Despinoy, Morgan Mangeas, Institut de Recherche pour le Développement (New Caledonia); Rosalie Fuchs, Vincent Faure, Univ. de la Méditerranée (France); Sylvain Ouillon, Univ. Paul Sabatier (France); Michel M. Petit, Institut de Recherche pour le Développement (France) [7858-19]
- 09.40: **Temporal and spatial variability of SST and LST concentrations in the Korea Sea using empirical orthogonal function (EOF) analysis of remote sensing data**, Yoon Suk, Korea Ocean Research & Development Institute (Korea, Republic of) [7858-51]
- 10.00: **Sea ice optical properties measured by MODIS-Aqua in the Bohai Sea**, Wei Shi, Menghua Wang, National Oceanic and Atmospheric Administration (United States) [7858-21]
- 10.20: **Using remote sensing to analyze changes in artisanal fisheries in Nigeria: a novel case study of Cross River Estuary**, Francis M. Nwosu, Univ. of Calabar (Nigeria); Barnali Dixon, Univ. of South Florida (United States) [7858-22]
- Refreshment Break 10.40 to 11.00

SESSION 5

Room: Level 1, Rooms 108 and 109. . Thurs. 11.00 to 12.20

Mangroves, Wetlands, and Tidal Flats; Coastal Land Change I

Session Chair: **Joong-Sun Won**, Yonsei Univ. (Korea, Republic of)

- 11.00: **Fusion of ALOS and Quickbird imagery for mangrove analysis: a case study in Beilun Estuary, China**, Minhe Ji, Jia Hu, East China Normal Univ. (China) [7858-23]
- 11.20: **Volumetric estimation of mangrove biomass from microwave imaging**, Minhe Ji, Jing Feng, East China Normal Univ. (China) [7858-24]
- 11.40: **Satellite-based assessment of the extent and changes in the mangrove ecosystem of the Qeshm Island (Iran)**, Mansour Jafar Beiglu, Univ. of Tehran (Iran, Islamic Republic of); Alireza Salehipour Milani, Geological Survey of Iran (Iran, Islamic Republic of); Mehrnoosh Ghadimi, Somayeh Zahab, Univ. of Tehran (Iran, Islamic Republic of) [7858-25]
- 12.00: **Analysis on the seasonal variations of microphytobenthos distribution in a tidal flat using remotely sensed data**, Jong-Kuk Choi, Joo-Hyung Ryu, JinAh Eom, Jae Hoon Noh, Korea Ocean Research & Development Institute (Korea, Republic of) [7858-26]
- Lunch Break 12.20 to 13.50

SESSION 6

Room: Level 1, Rooms 108 and 109. . Thurs. 13.50 to 16.30

Mangroves, Wetlands, and Tidal Flats; Coastal Land Change II

Session Chair: **Joong-Sun Won**, Yonsei Univ. (Korea, Republic of)

- 13.50: **Study on the sediment classification in a tidal flat considering the pattern of channel distribution**, JinAh Eom, Jong-Kuk Choi, Joo-Hyung Ryu, Han Jun Woo, Korea Ocean Research & Development Institute (Korea, Republic of); Joong-Sun Won, Yonsei Univ. (Korea, Republic of) [7858-27]
- 14.10: **Super-resolution mapping and accuracy assessment in coastal vegetation environments**, Wan-Hazli Wan-Kadir, Univ. Teknologi Malaysia (Malaysia); Giles M. Foody, The Univ. of Nottingham (United Kingdom); Anuar Mikdad Muad, Univ. Kebangsaan Malaysia (Malaysia) [7858-28]
- 14.30: **Review of coastal geomorphology of Kangan by using satellite image**, Somayeh Zahab, Mansour Jafar Beiglu, Alireza Salehipour Milani, Mehrnoosh Ghadimi, Univ. of Tehran (Iran, Islamic Republic of) [7858-29]
- 14.50: **Monitoring and modeling coastal change of Urmia Lake using remote sensing**, Alireza Salehipour Milani, Ali Mohammadi, Geological Survey of Iran (Iran, Islamic Republic of) [7858-30]
- Refreshment Break 15.10 to 15.30

15.30: **Mechanism of formation and change Tom bolo, lagoon and barrier in coastal Bir of Iran (Makran Sea)**, Keramat Nezhad Afzali, Fateme Bayatani, Ebrahim Moghimi, Geological Survey of Iran (Iran, Islamic Republic of) [7858-31]

15.50: **Investigation of sand dune evolution in southeast coast of Caspian Sea using satellite data**, Babak Najaftha, Geological Survey of Iran (Iran, Islamic Republic of); Vladimir Boynagryan, Yerevan State Univ. (Armenia) . . . [7858-32]

16.10: **Application of optical and microwave remote sensing in flood hazard mapping: a case study of lower Gangetic plain**, India, Pousali Talapatra, Vidyasagar Univ. (India) [7858-33]

Room: Level 2, Ballroom C Thurs. 16.30 to 18.00

Poster Session

Poster authors will be available to answer questions. Poster presenters are asked to display their posters on Thursday beginning at 10:00 to allow for extended poster viewing.

Seafloor mapping with MeRIS images in the lagoon of New Caledonia, Cécile Dupouy, Institut de Recherche pour le Développement (New Caledonia); Audrey Minghelli-Roman, Univ. du Sud Toulon-Var (France); Christophe Chevillon, Province Sud (New Caledonia); Pascal Douillet, Univ. Autónoma Metropolitana (Mexico) [7858-07]

New Caledonia surface lagoon chlorophyll modeling as coastal reef area health indicator, Rosalie Fuchs, Univ. de la Méditerranée (France) and ACRI-ST (France); Christel Pinazo, Univ. de la Méditerranée (France); Pascal Douillet, Univ. Autónoma Metropolitana (Mexico); Cécile Dupouy, Institut de Recherche pour le Développement (New Caledonia); Vincent Faure, Univ. de la Méditerranée (France); Antoine Mangin, ACRI-ST (France) [7858-20]

Validation of MODIS aerosol optical depth along the coastal zone of South Yellow Sea, Eastern China, Zhifeng Yu, Wuhan Univ. (China); Xiaoling Chen, Wuhan Univ. (China) and Key Lab. of Poyang Lake Wetland and Watershed Research (China); Liqiao Tian, Wuhan Univ. (China) [7858-35]

GIMS: technology for the monitoring coastal and marine ecosystems, Ferdenant Mkrtchyan, Institute of Radio Engineering and Electronics (Russian Federation) [7858-36]

Analyzing the change of chlorophyll a and total suspended matter concentration using field spectral features in Hangzhou Bay wetland, China, Qian Cheng, Xiuju Wu, Zhejiang Gongshang Univ. (China) [7858-37]

Analysis of space-time pattern of land use/cover change based on Landsat TM, ETM+ image from 1999 to 2007 in Xining City, Jian Kang, Xiaohong Gao, Qinghai Normal Univ. (China) [7858-38]

Study on object-oriented information extraction technology and its application to LUCC in the north coast of Hainan Island, Congju Zhao, Pengshan Li, Hainan Normal Univ. (China) [7858-39]

Fusion of ALOS PALSAR and optical data for landcover classification at Tonle Sap floodplain, Cambodia, Trung V. Nguyen, Yonsei Univ. (Korea, Republic of) [7858-40]

Study on the changes of land use and the arable cultivated salinization lands use in Xinjiang Altay region in recent 15 years, Yang Han, Alimujiang Kasimu, Xinjiang Normal Univ. (China) [7858-41]

Study on the land use and cover change (LUCC) in Jiaodong Peninsula coastal zone during 1980-2000, Congju Zhao, Luxiang Xiao, Hainan Normal Univ. (China) [7858-42]

Response of vegetation change to climate change in Hulun Buir in past 30 years, Geli Zhang, Institute of Geographical Sciences and Natural Resources Research (China) [7858-43]

Algorithm for the estimation of chlorophyll-a concentration in water areas with different quality using satellite data, Takashi Aoyama, Fukui Univ. of Technology (Japan) [7858-44]

Quantitative study of soil erosion based on GIS: a case study of Henan Province, China, Junling Li, Chunhui Zou, Henan Institute of Meteorological Science (China) [7858-45]

Estimates of carbon flux from Poyang Lake wetland vegetation in the growing season, Hongxiu Wan, Nanjing Institute of Geography and Limnology (China); Zhihao Qin, Nanjing Univ. (China); Yuanbo Liu, Nanjing Institute of Geography and Limnology (China); Yongming Xu, Nanjing Univ. (China) [7858-46]

Spatial-temporal characteristics of chlorophyll a concentration in the Sanya Bay of China, Chunyan Shen, South China Sea Institute of Oceanology (China); Ping Shi, Qianguo Xing, Mingjie Li, Yantai Institute of Coastal Zone Research (China) [7858-47]

The extremely high concentration of suspended particulate matter in Changjiang Estuary detected by MERIS data, Yan Bai, Xianqiang He, Delu Pan, Qiankun Zhu, The Second Institute of Oceanography, SOA (China) [7858-48]

Investigation of coastal geomorphology of Kangan using high resolution satellite image, Mansour Jafar Beiglu, Univ. of Tehran (Iran, Islamic Republic of); Alireza Salehipour Milani, Geological Survey of Iran (Iran, Islamic Republic of); Somayeh Zahab, Mehrnoosh Ghadimi, Univ. of Tehran (Iran, Islamic Republic of) [7858-49]

- SAR change detection using Rayleigh copula**, Sofiene Hachicha, Ferdaous Chaabene, SUP'COM (Tunisia) [7858-50]
- Speckles of satellite chlorophyll-a concentration data and removal process optimized to the East Japan Sea**, Hwa-Jeong Chae, Kyung-Ae Park, Seoul National Univ. (Korea, Republic of) [7858-52]
- Sea ice and spring bloom in the East Japan Sea**, Kyung-Ae Park, Kyung-Ryul Kim, Hwa-Jeong Chae, Seoul National Univ. (Korea, Republic of) [7858-53]
- Effects of El Niño on spring phenology of the highest mountain in northeast Asia**, Kyung-Ae Park, Uudus Bayarsaikhan, Kyung-Ryul Kim, Seoul National Univ. (Korea, Republic of) [7858-54]
- Climatology and long-time change of the sea-surface temperature and chlorophyll concentration in East China Sea**, Qiankun Zhu, XianQiang He, DeLu Pan, The Second Institute of Oceanography, SOA (China) [7858-55]
- Evaluation of SIMBADA measurements of marine reflectance and aerosol optical thickness during ACE-Asia and AOPEX**, Robert J. Frouin, Univ. of California, San Diego (United States); Hubert Loisel, Antoine Poteau, . [7858-56]
- Sensitivity and efficiency of a semi-distributed hydrological model to different precipitation data**, Meiyang Yu, Xinjiang Institute of Ecology and Geography (China). [7858-57]
- POCIS: A system to generate pseudo top-of-atmosphere ocean color image for sensor and system evaluation**, ZhongPing Lee, Mississippi State Univ. (United States); Robert Amone, Ronnie Vaughan, U.S. Naval Research Lab. (United States) [7858-58]

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Remote Sensing of the Atmosphere and Clouds III

Conference Chairs: **Sonoyo Mukai**, Kinki Univ. (Japan); **Robert J. Frouin**, Univ. of California, San Diego (USA); **Byung-Ju Sohn**, Seoul National Univ. (Korea, Republic of)

Program Committee: **Brent N. Holben**, NASA Goddard Space Flight Ctr. (USA); **Jerome Riedi**, Univ. des Sciences et Technologies de Lille (France); **Jhoon Kim**, Yonsei Univ. (Korea, Republic of); **Myunghwan Ahn**, Meteorological Research Institute (Korea, Republic of); **Takashi Y. Nakajima**, Tokai Univ. (Japan); **Itaru Sano**, Kinki Univ. (Japan); **Makoto Kuji**, Nara Women's Univ. (Japan)

Tuesday 12 October

SESSION 1

Room: Level 1, Rooms 106 and 107. . . Tues. 09.00 to 10.20

Atmospheric Sounding and Trace Gas Species Remote Sensing

Session Chair: **Robert J. Frouin**, Univ. of California, San Diego (USA)

09.00: **Assessment of the calibration performance of Meteosat-8/9 and MTSAT-1R visible channels using cloud targets** (*Invited Paper*), Byung-Ju Sohn, Seung-Hee Ham, Seoul National Univ. (Korea, Republic of) . . . [7859-01]

09.30: **Global distribution of carbon dioxide and methane retrieved from GOSAT data** (*Invited Paper*), Tatsuya Yokota, Yukio Yoshida, Isamu Morino, Osamu Uchino, Shamil Maksyutov, Tsuneo Matsunaga, Hiroshi Watanabe, National Institute for Environmental Studies (Japan) [7859-02]

10.00: **Comparison of IASI temperature and moisture retrievals with radiosonde measurements and numerical model outputs over East Asia**, Eun-Han Kwon, Byung-Ju Sohn, Ahyoung Lim, Seoul National Univ. (Korea, Republic of); Sang-Won Joo, Korea Meteorological Administration (Korea, Republic of) [7859-03]

Refreshment Break 10.20 to 10.40

SESSION 2

Room: Level 1, Rooms 106 and 107. . . Tues. 10.40 to 12.20

Cloud and Aerosol Remote Sensing Including Profiling Techniques I

Session Chair: **Byung-Ju Sohn**, Seoul National Univ. (Korea, Republic of)

10.40: **Retrieving optical parameters of extended cloud from airborne observation** (*Invited Paper*), Irina N. Melnikova, Russian Academy of Sciences (Russian Federation) and Russian State Hydrometeorological University (Russian Federation); Genya M. Jefwa, Russian State Hydrometeorological Univ. (Russian Federation); Charles K. Gatebe, NASA Goddard Space Flight Ctr. (United States). [7859-04]

11.10: **Cloud sciences using satellite remote-sensing, cloud growth model, and radiative transfer** (*Invited Paper*), Takashi Y. Nakajima, Takashi Matsui, Hushi Letu, Tokai Univ. (Japan); Kentaroh Suzuki, Colorado State Univ. (United States); Haruma Ishida, Yamaguchi Univ. (Japan); Graeme L. Stephens, Colorado State Univ. (United States); Teruyuki Nakajima, The Univ. of Tokyo (Japan); Haruhisa Shimoda, Tokai Univ. (Japan). [7859-05]

11.40: **Estimating scaled cloud optical thickness from SEVIRI by implementing a semi-analytical cloud retrieval algorithm and its assimilation in mesoscale model**, Praveen K. Pandey, Koen De Ridder, VITO NV (Belgium); Nicole Van Lipzig, Katholieke Univ. Leuven (Belgium) . . [7859-06]

12.00: **Cloud-masking method of NOAA/AVHRR data for numerical model and data assimilation** (*Invited Paper*), Sung Soo Yang, Chan Su Yang, Jung Soo Jung, Kwang Soon Park, Korea Ocean Research & Development Institute (Korea, Republic of) [7859-07]

Lunch Break 12.20 to 14.10

SESSION 3

Room: Level 1, Rooms 106 and 107. . . Tues. 14.10 to 15.10

Cloud and Aerosol Remote Sensing Including Profiling Techniques II

Session Chair: **Tatsuya Yokota**, National Institute for Environmental Studies (Japan)

14.10: **Optical parameters of the atmosphere from multiangle data**, Irina N. Melnikova, INENCO RAS (Russian Federation); Alexander V. Vasilyev, St. Petersburg State Univ. (Russian Federation) [7859-09]

14.30: **Improved Goddard profiling (GPROF) database over the Korean Peninsula and its impact on TRMM TMI rainfall**, Geun-Hyeok Ryu, Byung-Ju Sohn, Seoul National Univ. (Korea, Republic of); Christian D. Kummerow, Colorado State Univ. (United States); Eun-Kyoung Seo, Kongju National Univ. (Korea, Republic of); Gregory J. Tripoli, Univ. of Wisconsin-Madison (United States) [7859-10]

14.50: **The current status of COMS meteorological data processing system operation**, Sunmi Na, Chu-Yong Chung, Wonseok Lee, Myunghwan Ahn, Ae-sook Suh, Korea Meteorological Administration (Korea, Republic of) . [7859-11]

Refreshment Break 15.10 to 15.30

SESSION 4

Room: Level 1, Rooms 106 and 107. . . Tues. 15.30 to 16.50

Validation Field Campaign, In-situ Data Analysis

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

15.30: **Atmospheric aerosols based on photo-polarimetry**, Masayoshi Yasumoto, Sonoyo Mukai, Itaru Sano, Takaaki Okuhara, Kinki Univ. (Japan) [7859-26]

15.50: **Relationship between aerosol characteristics and altitude based on multimeasurements and model simulations**, Makiko Nakata, Tsubasa Ohshima, Toshiyuki Fujito, Itaru Sano, Sonoyo Mukai, Kinki Univ. (Japan) [7859-13]

16.10: **A study of impact of Asian dusts and their transport pathways to Hong Kong, using multiple AERONET data, trajectory and in-situ measurements**, Janet E. Nichol, Man Sing Wong, The Hong Kong Polytechnic Univ. (Hong Kong, China) [7859-14]

16.30: **A new ENSO index inferred from water vapor transport**, Seong-Chan Park, Byung-Ju Sohn, Seoul National Univ. (Korea, Republic of) [7859-15]

Thursday 14 October

Room: Level 2, Ballroom C Thurs. 16.30 to 18.00

Poster Session

Poster authors will be available to answer questions. Poster presenters are asked to display their posters on Thursday beginning at 10:00 to allow for extended poster viewing.

The automatic storm recognition, the track and the early warning use the FY-2 satellite data, Yuling Liu, Sen Li, Jianwen Liu, Zhuhua Zhou, Beijing Institute of Aeronautical Meteorology (China) [7859-16]

Detection properties of dust and sandstorms by using AVI of MODIS data, Yoshinobu Kato, Fukui Univ. of Technology (Japan) [7859-18]

Effects of size distribution and radiation absorptivity on retrieved aerosol optical depth from MISR, Jaehwa Lee, Jhoon Kim, Yonsei Univ. (Korea, Republic of) [7859-19]

The calibration of Microtops II sun photometers over ocean, Zengzhou Hao, Difeng Wang, Delu Pan, Linchong Kang, The Second Institute of Oceanography, SOA (China) [7859-20]

Monitoring middle-atmospheric water vapor over Seoul by using a 22 GHz ground-based radiometer, SWARA, Soohyun Ka, Sookmyung Women's Univ. (Korea, Republic of); Evelyn de Wachter, Niklaus A. Kaempfer, Univ. Bern (Switzerland); Jung Jin Oh, Sookmyung Women's Univ. (Korea, Republic of) [7859-21]

Climate effect by dust aerosol over arid region of Makkah, Saudi Arabia, Nadzri Othman, Mohd. Zubir Mat Jafri, Hwee San Lim, Khiruddin Abdullah, Univ. Sains Malaysia (Malaysia) [7859-22]

Combined dust detection algorithm by using MODIS IR channels, Sang Seo Park, Jhoon Kim, Jaehwa Lee, Hi Ku Cho, Yonsei Univ. (Korea, Republic of) [7859-23]

Multiple light scattering calculations for aerosol retrieval, Sonoyo Mukai, Takuma Yokomae, Makiko Nakata, Itaru Sano, Kinki Univ. (Japan) . . . [7859-24]

The carbonaceous aerosols over Siberia and Kalimantan with GOSAT/CAI, Itaru Sano, Mizuki Tanabe, Takamasa Kamei, Makiko Nakata, Sonoyo Mukai, Kinki Univ. (Japan) [7859-25]

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Lidar Remote Sensing for Environmental Monitoring XI

Conference Chairs: **Upendra N. Singh**, NASA Langley Research Ctr. (USA); **Kohei Mizutani**, National Institute of Information and Communications Technology (Japan); **Achuthan Jayaraman**, National Atmospheric Research Lab. (India); **Dong Liu**, Anhui Institute of Optics and Fine Mechanics (China)

Program Committee: **Makoto Abo**, Tokyo Metropolitan Univ. (Japan); **Robert L. Byer**, Stanford Univ. (USA); **Weibiao Chen**, Shanghai Institute of Optics and Fine Mechanics (China); **Pierre Henri Flamant**, Lab. de Météorologie Dynamique (France); **Takashi Fujii**, Central Research Institute of Electric Power Industry (Japan); **Yongxiang Hu**, NASA Langley Research Ctr. (USA); **Dengxin Hua**, Xi'an Univ. of Technology (China); **Jason J. Hyon**, Jet Propulsion Lab. (USA); **Philippe L. Keckhut**, Univ. de Versailles Saint-Quentin-en Yvelines (France); **Zhishen Liu**, Ocean Univ. of China (China); **Thomas J. McGee**, NASA Goddard Space Flight Ctr. (USA); **Tomohiro Nagai**, Meteorological Research Institute (Japan); **Masakatsu Nakajima**, Japan Aerospace Exploration Agency (Japan); **Laurent Sauvage**, Leosphere France (France); **Shiv K. Sharma**, Univ. of Hawai'i (USA); **Takashi Shibata**, Nagoya Univ. (Japan); **Tatsuo Shiina**, Chiba Univ. (Japan); **Randhir K. Sinha**, L. S. College (India); **Venkataraman Sivakumar**, Council for Scientific and Industrial Research (South Africa); **Nobuo Sugimoto**, National Institute for Environmental Studies (Japan); **Sune Svanberg**, Lunds Tekniska Högskola (Sweden); **Thomas D. Wilkerson**, Utah State Univ. (USA); **Jinxue Wang**, Raytheon Co. (USA); **Fan Yi**, Wuhan Univ. (China); **Jirong Yu**, NASA Langley Research Ctr. (USA)

Tuesday 12 October

SESSION 1

Room: Level 1, Rooms 104 and 105. . . Tues. 09.00 to 12.00

Techniques and Technologies for Carbon Dioxide Profile and Column Measurements

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

09.00: **Active sensing technology investments supporting the earth science decadal survey**, George Komar, NASA Earth Science Technology (United States) [7860-01]

09.30: **High repetition rate pulsed 2-micron coherent DIAL/IPDA for CO₂ measurement** (*Invited Paper*), Upendra N. Singh, Jirong Yu, NASA Langley Research Ctr. (United States); Yingxin Bai, SAIC (United States); Mulugeta Petros, NASA Langley Research Ctr. (United States); Songsheng Chen, Science Systems and Applications, Inc. (United States) [7860-02]

10.00: **Development of coherent 2-µm differential absorption and wind lidar with laser frequency offset locking technique**, Shoken Ishii, Kohei Mizutani, National Institute of Information and Communications Technology (Japan); Hirotake Fukuoka, Hamamatsu Photonics K.K. (Japan); Takayoshi Ishikawa, Nippon Aleph Corp. (Japan); Philippe Baron, Hironori Iwai, Tetsuo Aoki, Toshikazu Itabe, National Institute of Information and Communications Technology (Japan); Atsushi Sato, Kazuhiro Asai, Tohoku Institute of Technology (Japan) [7860-03]

Refreshment Break 10.20 to 10.40

10.40: **Performance analysis on 1.6 micron CW modulation laser absorption spectrometer for CO₂ sensing**, Masaharu Imaki, Shumpei Kameyama, Yoshihito Hirano, Shinichi Ueno, Mitsubishi Electric Corp. (Japan); Daisuke Sakaizawa, Shuji Kawakami, Masakatsu Nakajima, Japan Aerospace Exploration Agency (Japan) [7860-04]

11.00: **A two micron coherent differential absorption lidar development**, Jirong Yu, NASA Langley Research Ctr. (United States); Mulugeta Petros, Science and Technology Corp. (United States); Songsheng Chen, Science Systems and Applications, Inc. (United States); Yingxin Bai, Science System & Applications, Inc. (United States); Paul E. Petzar, National Institute of Aerospace (United States); Bo C. Trieu, Grady J. Koch, Jeffrey Y. Beyon, Michael J. Kavaya, Upendra N. Singh, NASA Langley Research Ctr. (United States) [7860-05]

11.20: **Energy measurement studies for CO₂ measurement with a coherent Doppler lidar system**, Jeffrey Y. Beyon, Grady J. Koch, Randal L. VanValkenburg, Jirong Yu, Upendra N. Singh, Michael J. Kavaya, NASA Langley Research Ctr. (United States) [7860-06]

11.40: **Design of control software for a high-speed coherent Doppler lidar system for CO₂ measurement**, Randal L. VanValkenburg, Jeffrey Y. Beyon, Grady J. Koch, Jirong Yu, Upendra N. Singh, Michael J. Kavaya, NASA Langley Research Ctr. (United States) [7860-07]

Lunch Break 12.00 to 13.20

SESSION 2

Room: Level 1, Rooms 104 and 105. . . Tues. 13.20 to 14.10

Wind Lidar Technologies

Session Chairs: **George Komar**, NASA Goddard Space Flight Ctr. (USA); **Jirong Yu**, NASA Langley Research Ctr. (USA)

13.20: **2-micron laser developments for CO₂ and wind observations** (*Invited Paper*), Kohei Mizutani, Shoken Ishii, Toshikazu Itabe, Tetsuo Aoki, 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); Teiji Kase, Tetsuo Shiina, NEC Corp. (Japan) [7860-08]

13.50: **Development of the data acquisition and processing system for a pulsed 2-micron coherent Doppler lidar system**, Jeffrey Y. Beyon, Grady J. Koch, Michael J. Kavaya, NASA Langley Research Ctr. (United States) [7860-09]

SESSION 3

Room: Level 1, Rooms 104 and 105. . . Tues. 14.10 to 16.20

Lidar Methods and Technologies

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

14.10: **Optical design for near range lidar** (*Invited Paper*), Tatsuo Shiina, Chiba Univ. (Japan) [7860-10]

14.40: **Possibilities of the multichannel lidar spectrometer technique for investigation of the atmospheric aerosols and pollutions**, Boyan I. Tatarov, Nobuo Sugimoto, Ichiro Matsui, National Institute for Environmental Studies (Japan) [7860-11]

Refreshment Break 15.00 to 15.20

15.20: **Development of dual-wavelength high-spectral-resolution lidar**, Tomoaki Nishizawa, Nobuo Sugimoto, Ichiro Matsui, National Institute for Environmental Studies (Japan) [7860-12]

15.40: **Development of a new multi-wavelength lidar facility for studies on the mixed layer dynamics**, Yellapragada Bhavani Kumar, National Atmospheric Research Lab. (India) [7860-13]

16.00: **Carbonyl compounds and dial monitoring of tropospheric ozone generation and dynamics**, Taieb Gasmri, Saint Louis Univ., Madrid Campus (Spain) [7860-14]

SESSION 4

Room: Level 1, Rooms 104 and 105. . . Tues. 16.20 to 17.20

Space Lidar Technologies and Analysis

Session Chairs: **Achuthan Jayaraman**, National Atmospheric Research Lab. (India); **Dong Liu**, Anhui Institute of Optics and Fine Mechanics (China)

16.20: **ISS/JEM-LOVES (lidar for observation of vegetation environment from space)**, Kazuhiro Asai, Atsushi Sato, Tomohiro Terasaki, Tohoku Institute of Technology (Japan); Nobuo Sigimoto, National Institute for Environmental Studies (Japan) [7860-15]

16.40: **Characteristics of high-energy, Q-switched neodymium lasers operating near 1320 nm**, Atsushi Sato, Tomohiro Terasaki, Takumi Abe, Yoshiki Miyake, Kazuhiro Asai, Tohoku Institute of Technology (Japan); Shoken Ishii, Kohei Mizutani, National Institute of Information and Communications Technology (Japan) [7860-16]

17.00: **Lidar ratio estimation of trans-Atlantic African dust using combined CALIOP and AMSR-E observation**, Dong Liu, Anhui Institute of Optics and Fine Mechanics (China) and Key Lab. of Atmospheric Composition and Optical Radiation, CAS (China); Zhien Wang, Univ. of Wyoming (United States) and Key Lab. of Atmospheric Composition and Optical Radiation, CAS (China) [7860-17]

Wednesday 13 October

SESSION 5

Room: Level 1, Rooms 104 and 105. . . Wed. 09.00 to 11.50

Aerosols and Clouds

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

09.00: **Lidar network observation of tropospheric aerosols (Invited Paper)**, Nobuo Sugimoto, Ichiro Matsui, Atsushi Shimizu, Tomoaki Nishizawa, Yukari Hara, National Institute for Environmental Studies (Japan); Itsushi Uno, Kyushu Univ. (Japan) [7860-18]

09.30: **Development of the depolarization-Raman lidar for China Meteorological Administration**, Chenbo Xie, Dong Liu, Jun Zhou, Anhui Institute of Optics and Fine Mechanics (China) [7860-19]

09.50: **An iterative algorithm to estimate lidar ratio for thin cirrus cloud over aerosol layer**, Zhenzhu Wang, Dong Liu, Jun Zhou, Anhui Institute of Optics and Fine Mechanics (China) [7860-21]

Refreshment Break 10.10 to 10.30

10.30: **Integrated monitoring of Asian dust by multiwavelength Raman/quartz Raman lidar, sunphotometer, and satellite in Gwangju, Korea**, Youngmin Noh, Detlef Müller, Gwangju Institute of Science and Technology (Korea, Republic of); Kwon Ho Lee, Kyungil Univ. (Korea, Republic of); KwanChul Kim, Dongho Shin, Sungkyun Shin, Kyunghwa Lee, Young J. Kim, Gwangju Institute of Science and Technology (Korea, Republic of) . . . [7860-22]

10.50: **Lidar measurements of stratospheric aerosol from the 2009 Sarychev volcano eruption over Hefei (31.9°N, 117.2°E), China**, Decheng Wu, Zhenzhu Wang, Shunxing Hu, Dong Liu, Yingjian Wang, Jun Zhou, Anhui Institute of Optics and Fine Mechanics (China) [7860-23]

11.10: **Time-of-flight measurement with femtosecond pulses for high precision ranging lidar**, Joohyung Lee, Young-Jin Kim, Keunwoo Lee, Sanghyun Lee, Seung-Woo Kim, KAIST (Korea, Republic of) [7860-24]

Thursday 14 October

Room: Level 2, Ballroom C Thurs. 16.30 to 18.00

Poster Session

Poster authors will be available to answer questions. Poster presenters are asked to display their posters on Thursday beginning at 10:00 to allow for extended poster viewing.

A comparison of satellite- and ground-based aerosol extinction profile and aerosol optical depth, Kwon Ho Lee, Gwangju Institute of Science and Technology (Korea, Republic of); Nobuo Sugimoto, Atsushi Shimizu, National Institute for Environmental Studies (Japan); Soon C. Yoon, Seoul National Univ. (Korea, Republic of) [7860-25]

A combined Rayleigh-Raman-Mie lidar for quantitative measurement of atmospheric aerosols and temperature, Guangyu Bo, Zhiqing Zhong, Jun Zhou, Anhui Institute of Optics and Fine Mechanics (China) [7860-26]

Dynamics of land use/cover change in Iraqi marshlands region using remotely sensed, Falah H. Abed, Technical College-Baghdad (Iraq); Hongxia Zhang, Shandong Univ. of Technology (China) [7860-27]

Radiative components dynamics and its interactions at Far East region, Konstantin A. Shmirko, Institute for Automation and Control Processes (Russian Federation); Oleg A. Bukin, Maritime State Univ. (Russian Federation); Andrey N. Pavlov, Sergey Y. Stolyarchuk, Institute for Automation and Control Processes (Russian Federation) [7860-28]

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Geostationary Ocean Color Imager (GOCI) Technical Development, Operation, and Applications

Conference Chairs: **Yu-Hwan Ahn**, Korea Ocean Research and Development Institute (Korea, Republic of); **David Antoine**, Lab. d'Océanographie de Villefrance (France); **Paula S. Bontempi**, NASA Headquarters (USA); **Delu Pan**, State Oceanic Administration (China)

Program Committee: **Paul DiGiacomo**, National Oceanic and Atmospheric Administration (USA); **Hiroshi Kobayashi**, Univ. of Yamanashi (Japan); **Anne Lifermann**, Ctr. National d'Études Spatiales (France); **Joo-Hyung Ryu**, Korea Ocean Research and Development Institute (Korea, Republic of); **Palanisamy Shanmugam**, Korea Ocean Research and Development Institute (Korea, Republic of)

Tuesday 12 October

SESSION 1

Room: Level 1, Rooms 108 and 109. . . Tues. 09.00 to 10.20

GOCI/COMS Function Reports

Session Chair: **Paula S. Bontempi**, NASA Headquarters (USA)

09.00: **Overall status of GOCI**, Yu-Hwan Ahn, Seongick Cho, Hee-Jeong Han, Joo-Hyung Ryu, Hong-Rhyong Yoo, Korea Ocean Research & Development Institute (Korea, Republic of) [7861-01]

09.20: **In-orbit solar diffuser characterization for radiometric calibration of geostationary ocean color imager**, Seongick Cho, Yu-Hwan Ahn, Hee-Jeong Han, Joo-Hyung Ryu, Korea Ocean Research & Development Institute (Korea, Republic of) [7861-02]

09.40: **In-orbit performance assessment of day and night operation of GOCI**, Seongick Cho, Yu-Hwan Ahn, Hee-Jeong Han, Joo-Hyung Ryu, Korea Ocean Research & Development Institute (Korea, Republic of) [7861-03]

10.00: **Analysis anomaly to set up stabilized operation of GOCI during trial test and in-orbit test**, Joung Mi Ryu, Sun-Ju Lee, Hee-Jeong Han, Yu-Hwan Ahn, Korea Ocean Research & Development Institute (Korea, Republic of) [7861-04]

Refreshment Break 10.20 to 10.40

SESSION 2

Room: Level 1, Rooms 108 and 109. . . Tues. 10.40 to 12.20

GOCI Data Processing, CAL/VAL and Service

Session Chair: **David Antoine**, Lab. d'Océanographie de Villefranche (France)

10.40: **Introduction of atmospheric correction technics for geostationary ocean color imager (GOCI)**, Jae Hyun Ahn, Korea Ocean Satellite Ctr./KORDI (Korea, Republic of); Joo-Hyung Ryu, Jeong-Eon Moon, Young Baek Son, Jee-Eun Min, Korea Ocean Research & Development Institute (Korea, Republic of) [7861-05]

11.00: **Development of ocean environmental algorithms for GOCI**, Jeong-Eon Moon, Yu-Hwan Ahn, Joo-Hyung Ryu, Korea Ocean Research & Development Institute (Korea, Republic of); Palanisamy Shanmugam, Indian Institute of Technology Madras (India) [7861-06]

11.20: **Preliminary verification results of the geostationary ocean color satellite data processing software system**, Hee-Jeong Han, Joo-Hyung Ryu, Seongick Cho, Chan Su Yang, Yu-Hwan Ahn, Korea Ocean Research & Development Institute (Korea, Republic of) [7861-07]

11.40: **Preliminary study of validation for the geostationary ocean color imager (GOCI)**, Young Baek Son, Joo-Hyung Ryu, Jeong-Eon Moon, Jee-Eun Min, Jae Hyun Ahn, Seongick Cho, Yu-Hwan Ahn, Jae-Seol Shim, Korea Ocean Research & Development Institute (Korea, Republic of) [7861-08]

12.00: **GOCI data processing and distribution service**, Chan Su Yang, Sang-Soo Bae, Hee-Jeong Han, Seongick Cho, Yu-Hwan Ahn, Korea Ocean Research & Development Institute (Korea, Republic of) [7861-09]

Lunch Break 12.20 to 13.40

SESSION 3

Room: Level 1, Rooms 108 and 109. . . Tues. 13.40 to 15.40

GOCI Applications

Session Chair: **Pan Delu**, The Second Institute of Oceanography, SOA (China)

13.40: **Application studies using geostationary ocean color imager around the Korean waters**, Joo-Hyung Ryu, Jee-Eun Min, Yu-Hwan Ahn, Korea Ocean Research & Development Institute (Korea, Republic of) [7861-10]

14.00: **Potential applications of geostationary ocean color imagery for physical-biological interactions**, Young-Heon Jo, Xiao-Hai Yan, Univ. of Delaware (United States) [7861-11]

14.20: **Remote sensing of atmospheric aerosol and ocean color for the COMS/GOCI**, Kwon Ho Lee, Kyungil Univ. (Korea, Republic of); Young J. Kim, KwanChul Kim, Gwangju Institute of Science and Technology (Korea, Republic of); Man S. Wang, The Hong Kong Polytechnic Univ. (Korea, Republic of); Yu-Hwan Ahn, Korea Ocean Research & Development Institute (Korea, Republic of) [7861-12]

14.40: **Rapid geographic mapping method of remote sensing data it is applications**, Yong Q Kang, Pukyong National Univ. (Korea, Republic of) [7861-13]

15.00: **The diffuse attenuation coefficient model in the Yellow Sea for the Korean geostationary ocean color imager (GOCI)**, SeungHyun Son, National Oceanic and Atmospheric Administration (United States) and I.M. Systems Group, Inc. (United States); Menghua Wang, National Oceanic and Atmospheric Administration (United States) [7861-14]

15.20: **Determining particulate organic carbon (POC) using multispectral remote sensing data of GOCI: preliminary study**, Young Baek Son, Jeong-Eon Moon, Jee-Eun Min, Jae Hyun Ahn, Joo-Hyung Ryu, Yu-Hwan Ahn, Korea Ocean Research & Development Institute (Korea, Republic of) [7861-15]

Refreshment Break 15.40 to 16.00

SESSION 4

Room: Level 1, Rooms 108 and 109. . . Tues. 16.00 to 17.00

Future Geo Ocean Color Satellite

Session Chair: **Yu-Hwan Ahn**, Korea Ocean Research & Development Institute (Korea, Republic of)

16.00: **The ocean colour advanced permanent imager (OCAPI) geostationary ocean colour mission: science rationale and preliminary mission concept**, David Antoine, Lab. d'Océanographie de Villefranche (France) [7861-16]

16.20: **Geostationary ocean color (GEOCAPE) project in NASA**, Paula S. Bontempi, NASA Headquarters (United States) [7861-18]

16.40: **Mission and user requirements of geostationary ocean color imager-II (GOCI-II)**, Yu-Hwan Ahn, Joo-Hyung Ryu, Seongick Cho, Korea Ocean Research & Development Institute (Korea, Republic of) [7861-17]

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

Conference Chairs: **Xiaoxiong (Jack) Xiong**, NASA Goddard Space Flight Ctr. (USA); **Choen Kim**, Kookmin Univ. (Korea, Republic of); **Haruhisa Shimoda**, Japan Aerospace Exploration Agency (Japan)

Conference Co-Chairs: **Changyong Cao**, National Environmental Satellite, Data, and Information Service (USA); **Xingfa Gu**, Institute of Remote Sensing Applications (China); **A. S. Kiran Kumar**, Space Applications Ctr. (India)
Program Committee: **James J. Butler**, NASA Goddard Space Flight Ctr. (USA); **Gyanesh Chander**, U.S. Geological Survey (USA); **Raju U. Datla**, National Institute of Standards and Technology (USA); **Bruce W. Guenther**, National Oceanic and Atmospheric Administration (USA); **Jens Nieke**, European Space Research and Technology Ctr. (Netherlands); **Kazuhiro Tanaka**, Japan Aerospace Exploration Agency (Japan)

Wednesday 13 October

SESSION 1

Room: Level 1, Rooms 104 and 105. . . Wed. 13.20 to 15.15

Existing and New Missions and Sensors I

Session Chairs: **Haruhisa Shimoda**, Japan Aerospace Exploration Agency (Japan); **Choen Kim**, Kookmin Univ. (Korea, Republic of)

13.20: **Overview of Japanese Earth observation programs** (*Invited Paper*), Haruhisa Shimoda, Japan Aerospace Exploration Agency (Japan) . . . [7862-01]

13.45: **ESA's Sentinel 3 mission: ongoing and future calval activities for the optical payload** (*Invited Paper*), Jens Nieke, Craig Donlon, European Space Research and Technology Ctr. (Netherlands); Philippe Goryl, ESRIN (Italy); Bruno Berruti, European Space Research and Technology Ctr. (Netherlands) . . . [7862-02]

14.10: **Brief introduction to the NPOESS Preparatory Project (NPP) sensors and primary data products and directions on obtaining proxy data for the sensors** (*Invited Paper*), Bruce W. Guenther, National Oceanic and Atmospheric Administration (United States); Xiaoxiong (Jack) Xiong, NASA Goddard Space Flight Ctr. (United States); Frank DeLuccia, The Aerospace Corp. (United States); Gail E. Bingham, Space Dynamics Lab. (United States); William J. Blackwell, MIT Lincoln Lab. (United States); Scott J. Janz, NASA Goddard Space Flight Ctr. (United States); Kory J. Priestley, NASA Langley Research Ctr. (United States); Heather Kilcoyne, Lihang Zhou, National Oceanic and Atmospheric Administration (United States) . . . [7862-03]

14.35: **GOSAT higher level product status more than 1.5 year after the launch and planned improvement**, Hiroshi Watanabe, Tatsuya Yokota, Tsuneo Matsunaga, Hironari Ishihara, Kenji Hayashi, Fumie Kawazoe, Nobuyuki Kikichi, National Institute for Environmental Studies (Japan) . . . [7862-04]

14.55: **3000 pixel linear InGaAs sensor for the Proba-V satellite**, Jonas L. Bentell, Jan Vermeiren, Peet Verbeke, Alexandre de Kerckhove, Thierry Colin, Luis Rodriguez, Xenics NV (Belgium) . . . [7862-05]

Refreshment Break 15.15 to 15.45

SESSION 2

Room: Level 1, Rooms 104 and 105. . . Wed. 15.45 to 17.25

Existing and New Missions and Sensors II

Session Chairs: **James J. Butler**, NASA Goddard Space Flight Ctr. (USA); **Haruhisa Shimoda**, Japan Aerospace Exploration Agency (Japan)

15.45: **Aspects of the EarthCARE payload**, Robert V. Gelsthorpe, European Space Research and Technology Ctr. (Netherlands) . . . [7862-06]

16.05: **EarthCARE/CPR mission and development status**, Toshiyoshi Kimura, Japan Aerospace Exploration Agency (Japan); Nobuhiro Takahashi, National Institute of Information and Communications Technology (Japan); Haruhisa Shimoda, Japan Aerospace Exploration Agency (Japan) . . . [7862-07]

16.25: **Operation concept of the second-generation global imager (SGLI) conference: earth observing missions and sensors**, Kazuhiro Tanaka, Yoshihiko Okamura, Japan Aerospace Exploration Agency (Japan); Takahiro Amano, Masaru Hiramatsu, Koichi Shiratama, NEC TOSHIBA Space Systems, Ltd. (Japan) . . . [7862-08]

16.45: **APEX-airborne prism experiment: the testing phase of an airborne hyperspectral imager**, Jens Nieke, Hilde Schroeven-Deceuninck, Roland Meynart, European Space Research and Technology Ctr. (Netherlands) . . . [7862-09]

17.05: **Remote sensing mission using 50kg class satellites with 'Hodoyoshi' reliability**, Akito Enokuchi, Norihide Takeyama, Genesia Corp. (Japan); Yuya Nakamura, AXELSPACE Corp. (Japan); Yuta Nojiri, Next-generation Space Systems Technology Research Association (Japan); Norihide Miyamura, Akira Iwasaki, Shinichi Nakasuka, The Univ. of Tokyo (Japan) . . . [7862-10]

Thursday 14 October

SESSION 3

Room: Level 1, Rooms 104 and 105. . Thurs. 08.30 to 10.10

Enabling Technologies and New Sensor Test Concept

Session Chairs: **Jens Nieke**, European Space Research and Technology Ctr. (Netherlands); **Bruce W. Guenther**, National Oceanic and Atmospheric Administration (USA)

08.30: **Comparison of two methodologies for calibrating satellite instruments in the visible and shortwave infrared**, Robert A. Barnes, NASA Goddard Space Flight Ctr. (United States) and SAIC (United States); Steven W. Brown, Keith R. Lykke, National Institute of Standards and Technology (United States); Xiaoxiong (Jack) Xiong, James J. Butler, NASA Goddard Space Flight Ctr. (United States) . . . [7862-11]

08.50: **Initial studies of the bidirectional reflectance distribution function of carbon nanotube structures for stray light control applications**, James J. Butler, NASA Goddard Space Flight Ctr. (United States); Georgi T. Georgiev, Sigma Space Corp. (United States); June L. Tveekrem, Manuel A. Quijada, Stephanie A. Getty, John G. Hagopian, NASA Goddard Space Flight Ctr. (United States) . . . [7862-12]

09.10: **Opportunities to enhance calibration of the CERES reflected solar bands through collaboration with NIST**, Audra M. Bullock, Kory J. Priestley, NASA Langley Research Ctr. (United States); Herbert C. Bitting, Northrop Grumman Aerospace Systems (United States); Susan Thomas, Science Systems and Applications, Inc. (United States) . . . [7862-13]

09.30: **Nonequal spacing CMOS sensor impact on response between even and odd pixels**, Cynthia Liu, Nai-Yu Chen, National Space Organization (Taiwan) . . . [7862-14]

09.50: **An adaptive multichannel spectropolarimeter for the ecological monitoring water system**, Ferdenant Mkrtchyan, Institute of Radio Engineering and Electronics (Russian Federation) . . . [7862-15]

Refreshment Break 10.10 to 10.40

SESSION 4

Room: Level 1, Rooms 104 and 105. . Thurs. 10.40 to 12.00

Post-launch Calibration and Validation I

Session Chairs: **Robert A. Barnes**, NASA Goddard Space Flight Ctr. (USA); **Changyong Cao**, National Environmental Satellite, Data, and Information Service (USA)

10.40: **Simulation of the long term radiometric responses of the Terra MODIS and EO-1 ALI using Hyperion spectral responses over Railroad Valley Playa in Nevada (RVPN)**, Taeyoung (Jason) Choi, Sigma Space Corp. (United States); Xiaoxiong (Jack) Xiong, NASA Goddard Space Flight Ctr. (United States); Amit Angal, Science Systems and Applications, Inc. (United States); Gyanesh Chander, U.S. Geological Survey (United States) . . [7862-16]

11.00: **The characterization of deep convective cloud albedo as a calibration target using MODIS reflectances**, David R. Doelling, NASA Langley Research Ctr. (United States); Gang Hong, Daniel Morstad, Rajendra Bhatt, Arun Gopalan, Science Systems and Applications, Inc. (United States); Xiaoxiong (Jack) Xiong, NASA Goddard Space Flight Ctr. (United States) . . . [7862-17]

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11.20: **Spectral characterization of the Dunhuang calibration site using hyperspectral measurements**, Changyong Cao, National Environmental Satellite, Data, and Information Service (United States); Lingling Ma, The Academy of Opto-Electronics (China); Sirish Uprety, National Oceanic and Atmospheric Administration (United States) [7862-18]

11.40: **Monitoring the long term stability of the IRS-P6 AWiFS sensor using the Sonoran and RVPN sites**, Gyanesh Chander, U.S. Geological Survey (United States); Taeyoung (Jason) Choi, Sigma Space Corp. (United States); Amit Angal, Science Systems and Applications, Inc. (United States); Xiaoxiong (Jack) Xiong, NASA Goddard Space Flight Ctr. (United States); Dennis Helder, South Dakota State Univ. (United States) [7862-19]

Lunch Break 12.00 to 13.20

SESSION 5

Room: Level 1, Rooms 104 and 105. . Thurs. 13.20 to 14.20

Post-launch Calibration and Validation II

Session Chairs: **Kazuhiro Tanaka**, Japan Aerospace Exploration Agency (Japan); **Xingfa Gu**, Institute of Remote Sensing Applications (China)

13.20: **Introduction of calibration and validation site for KOMPSAT-3 and KOMPSAT-5 in Mongolia**, Dong-Han Lee, Doo-Chun Seo, Ji-Yeon Yang, Korea Aerospace Research Institute (Korea, Republic of); Tserenkhuu Battsetseg, National Remote Sensing Ctr. (Mongolia); Hyo-Suk Lim, Korea Aerospace Research Institute (Korea, Republic of) [7862-20]

13.40: **Results and lessons from a decade of Terra MODIS on-orbit spectral characterization**, Xiaoxiong (Jack) Xiong, NASA Goddard Space Flight Ctr. (United States); Taeyoung (Jason) Choi, Nianzeng Che, Sigma Space Corp. (United States); William L. Barnes, Univ. of Maryland, Baltimore County (United States) [7862-21]

14.00: **Characterization of the clouds and the earth's radiant energy system (CERES) sensors on Terra and Aqua spacecraft**, Susan Thomas, Science Systems and Applications, Inc. (United States); Kory J. Priestley, NASA Langley Research Ctr. (United States); Natividad M. Smith, Phillip C. Hess, Mohan Shankar, Science Systems and Applications, Inc. (United States); Norman G. Loeb, NASA Langley Research Ctr. (United States); Dale R. Walikainen, Zbigniew P. Szewczyk, Science Systems and Applications, Inc. (United States) [7862-22]

SESSION 6

Room: Level 1, Rooms 104 and 105. . Thurs. 14.20 to 16.30

Improved Data Analysis Methodologies and Results

Session Chairs: **Xiaoxiong (Jack) Xiong**, NASA Goddard Space Flight Ctr. (USA); **A. S. Kiran Kumar**, Space Applications Ctr. (India)

14.20: **CropCam UAV images for land use /cover over Penang Island, Malaysia using neural network approach**, Faez M. Hassan, Hwee San Lim, Univ. Sains Malaysia (Malaysia); Mohd. Zubir Mat Jafri, Univ. Sains Malaysia (United States) [7862-23]

14.40: **Analysis of SAR potential in hybrid (circular-linear) and fully polarimetric mode for snow/ice detection**, Gulab Singh, S. E. Park, Niigata Univ. (Japan) [7862-24]

Refreshment Break 15.00 to 15.30

15.30: **Extraction of power lines from aerial images based on Hough transform**, Qinggang Wu, Jubai An, Dalian Maritime Univ. (China); Rongrong Yang, Ocean Univ. of China (China) [7862-25]

15.50: **Super-resolution mapping for an accurate change detection of deforestation in Amazon rainforest**, Anuar Mikdad Muad, Univ. Kebangsaan Malaysia (Malaysia) and The Univ. of Nottingham (United Kingdom); Giles M. Foody, The Univ. of Nottingham (United Kingdom); Wan H. W. Kadir, Univ. Teknologi Malaysia (Malaysia) [7862-26]

16.10: **ASTER cloud coverage reassessment using MODIS cloud mask products**, Hideyuki Tonooka, Ibaraki Univ. (Japan); Kunjiro Omagari, Earth Remote Sensing Data Analysis Ctr. (Japan); Hirokazu Yamamoto, National Institute of Advanced Industrial Science and Technology (Japan); Tetsushi Tachikawa, Masaru Fujita, Earth Remote Sensing Data Analysis Ctr. (Japan); Zaoregulii Paitaer, Ibaraki Univ. (Japan) [7862-27]

Room: Level 2, Ballroom C. Thurs. 16.30 to 18.00

Poster Session

Poster authors will be available to answer questions. Poster presenters are asked to display their posters on Thursday beginning at 10:00 to allow for extended poster viewing.

An improved FFT-based algorithm for SAR raw data compression, Hongmei Song, Institute of Electronics (China) [7862-29]

A model calculating regional evapotranspiration using Fengyun-2C imagery combined with high special resolution data, Yuping Lei, Zhen Wang, Institute of Genetics and Developmental Biology (China); Yunqiao Shu, Univ. of Copenhagen (Denmark) [7862-30]

Precise spaceborne SAR image formation technique based on the analysis of critical errors using the spaceborne SAR simulator, Sangheun Shim, Yong Man Ro, KAIST (Korea, Republic of) [7862-31]

On-orbit assessment of the polarization response of COCTS onboard HY-1B satellite, Xianqiang He, Pan Delu, Qiankun Zhu, Fang Gong, The Second Institute of Oceanography, SOA (China) [7862-32]

Imagemall: a prototype of service-oriented multisensor remote sensed image processing and distribution system, Lei Lu, Jinnian Wang, Institute of Remote Sensing Applications (China) [7862-33]

Spectral response function effects on surface reflectance and NDVI measured with CCD cameras of HJ-1A/B small satellite constellation, Wenjuan Zhang, Bing Zhang, Lianru Gao, Ctr. for Earth Observation and Digital Earth (China) [7862-34]

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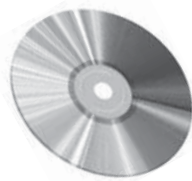
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