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Welcome from the General Chair

On behalf of the IEEE Geoscience and Remote Sensing Society and the IGARSS 2019 Organizing Committee, we are pleased to invite you to Yokohama, Japan for IGARSS 2019 that will be held from Sunday July 28th through Friday August 2nd, 2019 at Convention Center “PACIFICO Yokohama”.

This will be the 39th annual IGARSS symposium and will continue the excellent tradition of gathering world-class scientists, engineers and educators engaged in the fields of geoscience and remote sensing. We believe that the additional scientific themes of this event, focusing on ‘Global-Environment Observation and Disaster Mitigation’ will allow the formation of an inspiring technical program.

IGARSS is recognized today as a premier event in remote sensing and provides an ideal forum for obtaining up-to-date information about the latest developments, exchanging ideas, identifying future trends in your research area and making contacts with the international remote sensing community. With intensive and careful planning underway we anticipate a technically outstanding and most pleasant symposium.

We look forward to meeting you in Yokohama during IGARSS 2019.

Akira Hirose
The University of Tokyo
General Chair

Welcome from the IEEE Geoscience and Remote Sensing Society President

Welcome to IGARSS 2019! The IEEE Geoscience And Remote Sensing Symposium is the most important meeting for the membership of the IEEE Geoscience and Remote Sensing Society (GRSS). As the 2019 GRSS President, I am proud to welcome you at this important event!

During IGARSS, GRSS members and non-members share their latest results and novel developments in the area of geoscience and remote sensing. IGARSS is a big conference, and all the technical communities that form the GRSS community are gathering in different sessions, meetings and technical activities. I am sure each of you will find in this program many works that are directly important to your own research. However, the diverse technical program of IGARSS is also a place to engage other communities, who operate within our own field of interest but with whom traditionally we do not connect. Diversity is an advantage, and cross-fertilization of different ideas and points of view has always brought to new ideas and new research projects. The tracks about Special Topics that mark every IGARSS technical program, as well as the Invited Sessions, are the first – but not the only - means to accomplish this task.

Moreover, while I wish you fruitful technical discussions, let me remind you that, in addition to the technical program, there are many other activities at IGARSS that can be extremely helpful for starting new connections and relationships. For instance, the WinGRSS activities this year start with the Women in GRSS Luncheon, an informal platform for women and men to interact and network with senior members of the Society as well as guest speakers. Moreover, the GRSS IDEA (“Inspire, Develop, Empower, and Advance”) Committee organizes the IEEE Women in GRSS Forum to provide professional women in GRSS, whether in industry, academia, or government, the opportunity to create communities that fuel innovation, facilitate knowledge sharing, and provide support through a session designed to foster discussion and collaboration.

Finally, let’s not forget about the GRSS Booth, a traditional landmark in the IGARSS exhibition, and the easiest way to meet the Society officers, and learn about the Society news. At IGARSS 2018 this booth was a real experience, with a Social Media Wall, live-streamed interviews of senior Society leaders, and a photo contest. This year the team in charge of the booth is planning for more, with the opportunity to meet the Vice Presidents and Directors of the Society, and collect one of the many giveaways from the Society and its Technical Committees. Do not forget to come by and visit the GRSS Booth during your week in Yokohama!

As my final words, I must add that we are all very grateful to the Local Organizing Committee, who made IGARSS possible by an enormous amount of effort by many volunteers. From the reviewers devoting their time to reading and analyzing the submissions, to the Session Organizers recommending decisions on the papers, to the Technical Program Committee determining the schedule and content of the technical program, everybody worked to shape the final set of papers and presentations that are listed in this booklet. All these people deserve a big “thank you!” from us all, because everything that we enjoy during this conference is a direct result of their work.

Paolo Gamba
2019 President
IEEE Geoscience and Remote Sensing Society
Welcome from Technical Program Committee

The IGARSS 2019 Technical Program Committee (TPC) expresses great pleasure in welcoming you in Yokohama. IGARSS 2019 is a unique opportunity to exchange ideas and to obtain information about advances and the state of the art in remote sensing and geoscience. According to the IGARSS main theme ‘Disasters and Environment’, four special sub-themes will be presented in special oral sessions and during the plenary: monitoring of natural disasters and hazards, NewSpace initiatives in remote sensing, big data and machine learning, as well as identification of remote sensing indicators for climate change. In addition to IGARSS’s global theme we have extended the technical program and enriched it with new special topics covering the need for understanding the environment and emerging disasters.

For this year’s IGARSS we have received 3102 abstract submissions from over 57 countries. Each submitted abstract has been reviewed by a minimum of 2 expert reviewers, and the IGARSS 2019 Theme Coordinators and Session Organizers have determined abstract acceptance and placement based on the relevance, technical soundness, and originality of the paper. Following the review process, the IGARSS 2019 Theme Coordinators met in San Francisco to assemble an interesting and well balanced technical program which comprises 1061 oral sessions’ presentations and 1551 interactive poster sessions. About 37% out of 230 oral sessions have been organized as invited sessions and 7% are special dedicated technical sessions. Especially the high amount of submitted student papers needs to be highlighted.

We encourage you to review poster papers through the day, and to interact with poster authors during the poster sessions in the following primary areas: data analysis methods, atmosphere, cryosphere, oceans, land, but also missions, sensors and calibration or data management and education. All presented papers will be published in the conference proceedings on IEEE Xplore.

The technical program also includes the IGARSS Student Prize Paper Competition. From 305 submitted student paper abstracts only 10 could be selected for the student paper competition. The finalist papers have been selected by a committee of experts and will be presented in two dedicated sessions on Tuesday morning. The winners will be announced at the awards banquet on Thursday evening, to which everyone is cordially invited.

As a novelty this year we decided to forego the printed version of the IGARSS booklet in respect of the environment and will instead handout a thin foldable conference guide. The design of the conference guide is based on the Japanese traditional art called “Origami” that will introduce you into the IGARSS technical program and into the Japanese culture. This special pattern is called “Miura-ori”, and is used for foldable solar panel. In addition, a transition to the electronic version of the session chair evaluation form has been generated and will be available for all session chairs (oral and interactive sessions).

Finally, the program has been enriched by other events, seminars, and special activities that you can discover in the conference guide and by using the IGARSS 2019 App. In particular, the Technology, Industry, and Education (TIE) forum will provide opportunities for panel discussion and other interactions on a variety of important topics. The technical committees of GRSS will hold their meetings during the symposium, and warmly welcome all interested colleagues to participate.

Our highest appreciation goes to the Theme Coordinators, the Session Organizers, Invited Session Organizers, and the Reviewers of IGARSS 2019 for their extensive and persistent hard work in selecting high quality papers and creating an excellent technical program. Finally, we would like to thank Conference Management Service (CMS Inc.) for their dedicated support to the implementation of the IGARSS 2019 technical program and especially Lance Cotton of CMS for his outstanding support of our work.

We wish you a productive and exciting week at IGARSS 2019 in Yokohama!

Hiroyoshi Yamada, Akira Iwasaki and Irena Hajnsek
IGARSS 2019 Technical Program Co-Chairs
### ORAL SESSIONS, TECHNICAL AND SOCIAL EVENTS

#### Sunday, July 28

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<td>08:30 - 12:30</td>
<td>Preliminary Strategic Meeting</td>
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<td>09:30 - 12:45</td>
<td>KD-1 Bridge 3D Radial Transfer Simulations from optical, thermal, to microwave</td>
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<td>KD-8 Spectrum Management and Radio Frequency Interference (RFI) in Microwave Remote Sensing</td>
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<td>KD-9 Random Forest Classification: Guidelines on Model Optimization, Variable and Tuning Selection</td>
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<td>KD-10 Analysis of SAR Amplitude and Phase Time series for land applications</td>
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<td>18:00 - 20:00</td>
<td>Welcome Reception · Room 501 + 503</td>
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### OPENING, PLENARY, AND ORAL SESSIONS. TECHNICAL AND SOCIAL EVENTS

#### Monday, July 29

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<th>Room 211 + 212</th>
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<td>09:00 - 12:40</td>
<td>Plenary Session and Opening Ceremony · Main Hall</td>
<td>Room 507 + 508</td>
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<td>10:25 - 13:00</td>
<td>Walking Tour 1</td>
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<td>13:40 - 15:20</td>
<td>M03.R3 Advancing Remote Sensing in the Geosciences through Standardization I</td>
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<td>M03.R4 Radio Frequency Interference (RFI) in Passive Instruments</td>
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<td>M03.R5 Object Detection in SAR Imaging I</td>
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<td>M03.R6 Urban Land Use and Land Cover Change</td>
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<td>M03.R7 Global Precipitation Measurement Mission I</td>
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<td>M03.R8 ToaDEM-X and Innovative Applications I</td>
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<td>TIE: Education in Action</td>
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<td>M03.R11 Change Detection Techniques in Multitemporal SAR Images I</td>
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<td>M03.R12 Land Use Applications I</td>
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<td>M03.R13 International Spaceborne Imaging Spectroscopy Missions: Updates and News I</td>
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<td>M03.R14 NewSpace Initiatives in Remote Sensing</td>
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<td>15:20 - 16:20</td>
<td>Poster Sessions &amp; Break</td>
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<td>16:20 - 18:00</td>
<td>M04.R3 Advancing Remote Sensing in the Geosciences through Standardization II</td>
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<td>M04.R4 Radio Frequency Interference (RFI) and Spectrum Management Issues</td>
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<td>M04.R5 Object Detection in Urban Areas II</td>
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<td>M04.R10 Global SAR Instruments and Calibration</td>
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<td>M04.R13 Analysis of Multitemporal Optical Missions</td>
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<td>M04.R14 Recent Developments in UAV and SAR Imaging Missions</td>
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<td>M04.R15 International Spaceborne Imaging Spectroscopy Missions: Updates and News II</td>
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<td>M04.R16 Identification of Remote Sensing Indicators for Climate Change II</td>
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<td>19:00 - 21:00</td>
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<td>19:00 - 21:00</td>
<td>Noge Night (The Japanese Casual-Food Evening Walk in Noge Area)</td>
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## ORAL SESSIONS. TECHNICAL AND SOCIAL EVENTS

**Tuesday, July 30**

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<th>Time</th>
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| 08:00 - 09:40 | TU1.R1 New Developments in Monitoring of Ocean Surface Features with Polarimetric SAR I  
TU1.R2 Numerical Weather Prediction and Data Assimilation I  
TU1.R3 Advanced Flood Monitoring and Prediction for Global Disaster Risk Reduction I  
TU1.R4 Student Paper Competition I  
TU1.R5 Object Detection for Various Remote Sensing Techniques  
TU1.R6 Forest Methods using Radar Sensors  
TU1.R7 SAR Applications using International Virtual SAR Constellation I  
TU1.R8 Topography, Geology and Geomorphology I  
TU1.R9 SAR Interferometry: Along and Across I  
TU1.R10 Scatterometers and Rain Radars  
TU1.R11 Analysis of Image Time Series III  
TU1.R12 Estimation and Retrieval of Land Parameters I  
TU1.R13 GCOM & Himawari / ECO-GEO Synergy I |
| 09:40 - 10:40 | Poster Sessions & Break                                                  |
| 10:40 - 12:20 | TU2.R1 New Developments in Monitoring of Ocean Surface Features with Polarimetric SAR II  
TU2.R3 Advanced Flood Monitoring and Prediction for Global Disaster Risk Reduction II  
TU2.R4 Student Paper Competition II  
TU2.R5 Object Detection from Space  
TU2.R6 Forest Methods using Optical Sensors  
TU2.R7 SAR Applications using International Virtual SAR Constellation II  
TU2.R8 Topography, Geology and Geomorphology IV  
TU2.R9 SAR Interferometry: Along and Across IV  
TU2.R10 GNSSR Sensors, Techniques and Applications III  
TU2.R11 Deep Learning in Multitemporal Analysis  
TU2.R12 Image Restoration and Radiometric Correction  
TU2.R13 GCOM & Himawari / ECO-GEO Synergy II |
| 12:20 - 13:40 | Lunch Time                                                                |
| 12:20 - 13:40 | Student Prize Committee Lunch - Room 422                                 |
| 12:20 - 13:40 | TIE Women in GRSS Luncheon - Bay bridge cafeteria                       |
TU3.R3 Spaceborne SAR Missions  
TU3.R4 Space Lidar: Missions, Technologies and Observations I  
TU3.R5 Deep Learning for Object Detection II  
TU3.R6 Forest Methods using Lidar Sensors  
TU3.R7 Analytics on Satellites: & Analysis Ready Earth Data - supported by GRSS ESI, OIC, EOS, INDRAC I  
TU3.R8 Remote Sensing of Waterlands I  
TU3.R9 Differential SAR Interferometry: Methods and Techniques I  
TU3.R10 Data Fusion: The A Era I  
TU3.R12 Estimation Methods for Ocean and Atmosphere  
TU3.R13 Physical Modeling in Microwave and Optical Remote Sensing I |
| 15:20 - 16:20 | Poster Sessions & Break                                                  |
| 16:20 - 18:00 | TU4.R1 The 2011 Eastern Japan Great Earthquake Disaster II  
TU4.R2 Atmospheric Sounding II  
TU4.R3 Satellite Missions II  
TU4.R4 Space Lidar: Missions, Technologies and Observations I  
TU4.R5 Advanced Methods for Object Detection II  
TU4.R6 Forest Application and Modelling  
TU4.R7 Remote Sensing of Inland Waters II  
TU4.R8 Differential SAR Interferometry: Methods and Techniques V  
TU4.R9 Data Fusion: The A Era II  
TU4.R10 Unmanned Techniques for Hyperspectral Images III  
TU4.R11 Signal Estimation Techniques I  
TU4.R12 Physical Modeling in Microwave and Optical Remote Sensing II |
| 18:00 - 20:00 | Chapter Chairs Meeting - Room 503                                        |
| 19:00 - 21:00 | Japanese Style Cruise Tour                                               |
| 19:00 - 21:00 | Noge Night (The Japanese Casual-Food Evening Walk in Noge Area) 2          |
### Wednesday, July 31

<table>
<thead>
<tr>
<th>Time</th>
<th>Room 211 + 212</th>
<th>Room 213</th>
<th>Room 311 + 312</th>
<th>Room 313 + 314</th>
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<td>Technical Tour I (NICT)</td>
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<td>12:20 - 13:40</td>
<td>Author Education and Editors Meet-up - Room 421</td>
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<td>19:00 - 21:00</td>
<td>Technical Committees &amp; Chapter Chairs Dinner - RESTAURANT DANZERO</td>
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<td>19:00 - 21:00</td>
<td>IGARSS World Cup</td>
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<td>19:30 - 21:10</td>
<td>JAZZ Night &quot;Morton Blue&quot;</td>
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## ORAL SESSIONS. TECHNICAL AND SOCIAL EVENTS

### Thursday, August 1

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<tr>
<th>Time</th>
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<tr>
<td>08:00 - 09:40</td>
<td>IEEE Code Workshop</td>
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<td>09:40 - 10:40</td>
<td>Poster Sessions &amp; Break</td>
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<tr>
<td>10:25 - 13:45</td>
<td>Walking Tour 2 (Half day with Chinese Lunch)</td>
<td>Room 311 + 312</td>
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<td>IEEE Code Workshop</td>
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<td>12:20 - 13:40</td>
<td>Editors Lunch Meeting - Bay bridge Cafeteria</td>
<td>Room 411 + 412</td>
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<td>12:40 - 13:40</td>
<td>IEEE 3-Minutes Thesis competition - Room 211 + 212</td>
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<td>16:20 - 18:00</td>
<td>IEEE Code Workshop</td>
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<td>19:00 - 21:00</td>
<td>Awards Banquet - Oioinboshi Hall</td>
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<td>10:00 - 10:40</td>
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<td>TC Chairs Luncheon - Room 422</td>
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<td>15:20 - 15:40</td>
<td>Break</td>
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<tr>
<td>17:30 - 18:00</td>
<td>Closing Ceremony</td>
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# Poster Sessions

## Monday, July 29

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<tr>
<th>Session Code</th>
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<tr>
<td>MOP2.PA</td>
<td>Poster Area A</td>
<td>Object Detection in SAR Imaging II</td>
</tr>
<tr>
<td>MOP2.PB</td>
<td>Poster Area B</td>
<td>Object Detection in Urban Areas I</td>
</tr>
<tr>
<td>MOP2.PC</td>
<td>Poster Area C</td>
<td>Advanced Methods for Ship Detection</td>
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<tr>
<td>MOP2.PD</td>
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<td>Deep Learning for Object Detection I</td>
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<tr>
<td>MOP2.PE</td>
<td>Poster Area E</td>
<td>Advanced Methods for Static and Moving Objects</td>
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<td>MOP2.PF</td>
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<td>Advanced Methods for Object Detection I</td>
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<tr>
<td>MOP2.PG</td>
<td>Poster Area G</td>
<td>Advanced Methods for Object Detection II</td>
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<tr>
<td>MOP2.PH</td>
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<td>Change Detection Techniques in Multitemporal SAR Images II</td>
</tr>
<tr>
<td>MOP2.PI</td>
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<td>Analysis of Multitemporal Multispectral Images</td>
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<tr>
<td>MOP2.PJ</td>
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<td>Analysis of Image Time Series I</td>
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<tr>
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<td>Analysis of Image Time Series II</td>
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<tr>
<td>MOP2.PL</td>
<td>Poster Area L</td>
<td>Land Use Applications in Vegetated Areas</td>
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<tr>
<td>MOP2.PM</td>
<td>Poster Area M</td>
<td>Land Use Applications II</td>
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<tr>
<td>MOP2.PN</td>
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<td>Land Cover Dynamics for Vegetated Terrains</td>
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<tr>
<td>MOP2.PO</td>
<td>Poster Area O</td>
<td>Land Cover Dynamics in Urban and Hydrologic Systems</td>
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### Room 501-502

15:20 - 16:20

| MOP2.PA      | Poster Area A    | Object Detection in SAR Imaging II |
| MOP2.PB      | Poster Area B    | Object Detection in Urban Areas I |
| MOP2.PC      | Poster Area C    | Advanced Methods for Ship Detection |
| MOP2.PD      | Poster Area D    | Deep Learning for Object Detection I |
| MOP2.PE      | Poster Area E    | Advanced Methods for Static and Moving Objects |
| MOP2.PF      | Poster Area F    | Advanced Methods for Object Detection I |
| MOP2.PG      | Poster Area G    | Advanced Methods for Object Detection II |
| MOP2.PH      | Poster Area H    | Change Detection Techniques in Multitemporal SAR Images II |
| MOP2.PI      | Poster Area I    | Analysis of Multitemporal Multispectral Images |
| MOP2.PJ      | Poster Area J    | Analysis of Image Time Series I |
| MOP2.PK      | Poster Area K    | Analysis of Image Time Series II |
| MOP2.PL      | Poster Area L    | Land Use Applications in Vegetated Areas |
| MOP2.PM      | Poster Area M    | Land Use Applications II |
| MOP2.PN      | Poster Area N    | Land Cover Dynamics for Vegetated Terrains |
| MOP2.PO      | Poster Area O    | Land Cover Dynamics in Urban and Hydrologic Systems |

### Room 503

15:20 - 16:20

| MOP2.PQ      | Poster Area Q    | Identification of Remote Sensing Indicators for Climate Change I |
| MOP2.PR      | Poster Area R    | SAR Instruments and Calibration I |
| MOP2.PS      | Poster Area S    | SAR Instruments and Calibration II |
## Tuesday, July 30

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<thead>
<tr>
<th>Room 501-502</th>
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## Tuesday, July 30

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## Wednesday, July 31

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<td>Clouds and Precipitation: Data Products and Retrievals II</td>
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**Room 501-502**  
**09:40 - 10:40**

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**Room 503**  
**09:40 - 10:40**

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**Room 501-502**  
**15:20 - 16:20**

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#### Room 501-502
09:40 - 10:40

- **THP1.PA**: Poster Area A | Electromagnetic Modeling of the Sea, Land, Atmosphere
- **THP1.PB**: Poster Area B | Topics in Electromagnetic Modeling
- **THP1.PC**: Poster Area C | SAR Systems
- **THP1.PD**: Poster Area D | SAR Statistics
- **THP1.PE**: Poster Area E | Hyperspectral Remote Sensing III
- **THP1.PF**: Poster Area F | Deep Learning Techniques
- **THP1.PG**: Poster Area G | Advanced Information Processing
- **THP1.PH**: Poster Area H | Superresolution and Multiresolution Fusion Techniques III
- **THP1.PI**: Poster Area I | Superresolution and Multiresolution Fusion Techniques IV
- **THP1.PJ**: Poster Area J | Coastal Zones II
- **THP1.PK**: Poster Area K | Coastal Zones III
- **THP1.PL**: Poster Area L | Ocean Altimetry I
- **THP1.PM**: Poster Area M | Lidar Methods and Techniques
- **THP1.PN**: Poster Area N | Calibration
- **THP1.PO**: Poster Area O | Data Management and Systems I
- **THP1.PP**: Poster Area P | Data Management and Systems II

#### Room 503
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- **THP1.PQ**: Poster Area Q | Remote Sensing for Crop Classification, Mapping and Monitoring II
- **THP1.PR**: Poster Area R | Remote Sensing for Crop Classification, Mapping and Monitoring III
- **THP1.PS**: Poster Area S | Big Data and Machine Learning - Machine Learning for SAR and Meteorology

#### Room 501-502
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- **THP2.PA**: Poster Area A | Neural Networks in Polarimetry
- **THP2.PB**: Poster Area B | POLSAR Applications I
- **THP2.PC**: Poster Area C | POLSAR Applications II
- **THP2.PD**: Poster Area D | Hyperspectral Remote Sensing IV
- **THP2.PE**: Poster Area E | Data Analysis Methods: Feature Extraction and Reduction
- **THP2.PF**: Poster Area F | Data Fusion with Deep Learning Techniques
- **THP2.PG**: Poster Area G | Signal Processing and Data Fusion
- **THP2.PH**: Poster Area H | Geographic Information Science II
- **THP2.PI**: Poster Area I | Geographic Information Science III
- **THP2.PJ**: Poster Area J | Passive Sensors
- **THP2.PK**: Poster Area K | UAV Platforms and Applications
- **THP2.PL**: Poster Area L | Airborne Platforms
- **THP2.PM**: Poster Area M | Ground Based Systems I
- **THP2.PN**: Poster Area N | UAV Sensors
- **THP2.PO**: Poster Area O | Remote Sensing Data Policy and Decisions II

#### Room 503
15:20 - 16:20

- **THP2.PQ**: Poster Area Q | New Remote Sensing Methods for Estimating Crop Properties
- **THP2.PR**: Poster Area R | Remote Sensing for Crop Classification, Mapping and Monitoring IV
- **THP2.PS**: Poster Area S | Forest and Vegetation Observation by SAR and LiDAR
- **THP2.PT**: Poster Area T | Forest Parametrization with SAR and Optics
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NEC Space Business Vision

Giving the impacts across the whole satellite value chain

Data Utilization
Solving social problems using satellite data and ICT

Satellite Operation

Satellite Design / Integration

Simulated Images by NEC

NEC Satellite Operation Center

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Mitsubishi Electric’s satellite platforms deliver exceptional quality and reliability.

Mitsubishi Electric is one of the world’s leading names in the manufacture and sale of electrical and electronic products and systems. We are particularly proud of our extraordinary heritage in the space industry, having participated in numerous satellite and space exploration programs in Japan and around the world since the 1960s. In 2000, Mitsubishi Electric became the first Japanese manufacturer capable of designing, developing, assembling and testing satellites at a single location, our Kamakura Works. The Kamakura Works is our main manufacturing site for space products, and is equipped with one of Japan’s largest testing facilities. We boast a long history and unparalleled expertise in the production of satellites for communication, observation, science, and positioning applications, and our commitment to the field is ongoing.
Synspective is a Japanese startup company that will establish a synthetic aperture radar (SAR) satellite constellation and provide one-stop geo-solutions based on satellite imagery.

One-stop Geo Solution; Earth observation for anywhere anytime

**StriX Constellation**
- Size: 100kg class
- Sensor: SAR (X-band)
- Resolution: 1-3m
- Revisit: Daily

synspective.com
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The fields of interest of the GRS Society are the theory, concepts, and techniques of science and engineering as they apply to the remote sensing of the earth, oceans, atmosphere, and space, as well as the processing, interpretation and dissemination of this information. The society sponsors various conferences throughout the year, most notably the annual International Geoscience and Remote Sensing Symposium. If you wish to purchase additional copies of publications included in your membership, please contact www.ieee.org/contactcenter.

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GRSS web site: http://www.grss-ieee.org

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ENVI SARSCAPE®
READ, PROCESS, ANALYZE, AND OUTPUT PRODUCTS FROM SAR DATA.
Exhibits — Rooms 301-304

Exhibition Hours:
Monday, July 29 .......... 08:30 – 17:30
Tuesday, July 30 .......... 08:30 – 17:30
Wednesday, July 25 ...... 08:30 – 17:30
Thursday, July 26 ........ 08:30 – 17:30
Friday, July 28 .......... 08:30 – 11:00

Exhibitors

Japan Aerospace Exploration Agency (JAXA)
The Japan Aerospace Exploration Agency (JAXA) is a core performance agency to support the Japanese government’s overall aerospace development and utilization. JAXA conducts integrated operations from basic research and development, to utilization. JAXA obtains an enormous quantity of data from satellites such as the Greenhouse Gases Observation Satellite (GOSAT), the Global Precipitation Measurement/Dual-frequency Precipitation Radar (GPM/DPR), the Global Change Observation Mission (CGOM-W/C), and the Advanced Land Observation Satellite-2 (ALOS-2). JAXA provides accurate and systematic information that elucidates the earth environment change process and supports our lives by continuous earth observation using satellites.
http://global.jaxa.jp/

Synspective Inc.
Synspective is a Japanese startup company that will establish a synthetic aperture radar (SAR) satellite constellation of about 25 satellites and provide geospatial solutions. Synspective gathers broad and high-frequency monitoring data from our own SAR satellite constellation and extracts information using statistical and machine learning techniques to better enable decision-making and action by companies and governments. The information has multiple benefits such as visualization and prediction of economic activity, monitoring of terrain and structures, and immediate understanding of disaster situations. Exhibit contents: Full-sized mock-up model of Synspective’s small SAR satellite; Solution samples
https://synspective.com/

Harris Geospatial Solutions
Harris provides ENVI and SARScape, our mission is to empower people to easily extract useful information from Remote sensing data.
https://www.harrisgeospatial.com/

MITSUBISHI ELECTRIC CORPORATION
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http://www.mitsubishielectric.com/bu/space/index.html
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<th>Company</th>
<th>Description</th>
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<tr>
<td>NEC Corporation</td>
<td>NEC is leading ICT Company. We provides solutions for a better society in a wide range of fields as a pioneering ICT integrator of computing, software, networks, and space systems. For space systems, NEC has integrated around 70 satellites and has provided 7000 units for more than 250 satellites worldwide. <a href="https://www.nec.com/">https://www.nec.com/</a></td>
</tr>
<tr>
<td>Antenna Giken Co., Ltd.</td>
<td>Antenna Giken, located in the north-east of the Tokyo metropolitan area, provides wide variety of antennas and communication devices for professional and industrial use. Our products contribute to the disaster counter community wireless systems, fire-fighting radio systems, broadcasting, and public transportation networks as well as satellites and defense applications. In the IGARSS 2019, we are demonstrating our expertise by showing corner reflectors to be used in the calibration process of earth observatory satellites and a millimeter wave parabolic antenna developed for broadcasting systems. And a GPS antenna is introduced as our contribution to the ocean-floor observation AUV (Autonomous Underwater Vehicle). <a href="http://www.antenna-giken.co.jp/">http://www.antenna-giken.co.jp/</a></td>
</tr>
<tr>
<td>AW3D</td>
<td>AW3D is the world’s most precise pre-produced global 3D map covering all global land spaces with 5 meter resolution, developed jointly by Japanese Aerospace Exploration Agency (JAXA), the Remote Sensing Technology Center of Japan (RESTEC), and NTT DATA Corporation. AW3D has been used in 380 projects, over 100 countries across the globe, to contribute to measures for infrastructure, disaster prevention and much more. AW3D Suites also offers higher resolution 3D map up to half-meter-resolution, including 3D building vector datasets, telecom datasets, and airport datasets. <a href="https://www.aw3d.jp/">https://www.aw3d.jp/</a></td>
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<tr>
<td>Headwall Photonics</td>
<td>Headwall Photonics is a leading designer and manufacturer of hyperspectral instrumentation for remote sensing, advanced machine vision, medical/biotech, and government/defense markets. The company offers complete integrated solutions that include drones with imaging sensors and other instruments for remote-sensing missions such as crop disease detection, mining, environmental monitoring, and even imaging from manned and spaceborne platforms. Headwall enjoys a market leadership position by designing and manufacturing spectral solutions that are customized for specific application-specific performance for end-users and OEM customers. Headwall is based in Massachusetts where it has two facilities (Bolton and Fitchburg). European operations (Headwall BVBA) are located in Belgium. <a href="http://www.headwallphotonics.com/">http://www.headwallphotonics.com/</a></td>
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<tr>
<td>HySpex - Norsk Elektro Optikk AS</td>
<td>We produce, in all fairness, the best hyperspectral cameras in the world for lab, field, airborne and UAV applications. <a href="https://www.hyspex.no/">https://www.hyspex.no/</a></td>
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<tr>
<td>PIESAT Information Technology Co., Ltd.</td>
<td>Beijing PIESAT Information Technology Co., Ltd. (PIESAT for short) is a Chinese high-tech enterprise specializing in research and application of satellite technology (Remote sensing satellite and Navigation satellite). Founded in 2008, PIESAT keeps on providing professional services and applications of domestic satellites as its mission. PIESAT has independently developed software Pixel Information Expert (PIE), offering its clients integrated solution of geospatial information application. PIESAT locates in Beijing and has branches and representative offices in 32 cities nationwide. PIESAT has more than 1000 employees, and has a strong R&amp;D team of which over 80% are geomatics experts. <a href="http://www.piesat.cn/">http://www.piesat.cn/</a></td>
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<td>FUJITSU LIMITED</td>
<td>Fujitsu is Japanese leading ICT Company, offering various technology products, solutions and services. Technical computing unit in Fujitsu provides wide range of technologies and services for aerospace, meteorology and Astronomy projects, and also build 30 years of experience in the development of supercomputers. The business platform “SORAplats” enables to acquire target data converting to support customer’s decision making and problem solution from remote sensing data provided by satellites. It is a cloud service, providing statistical and time series data from “Remote”, “Wide-aria” and “Periodic” data. <a href="https://www.fujitsu.com/">https://www.fujitsu.com/</a></td>
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<tr>
<td>Japan EO-Satellite Service, Ltd. (JE OSS)</td>
<td>Japan EO Satellite Service Ltd. (JE OSS) is a company with mission to contribute to safe and secure society by providing very-high-resolution (VHR) remote sensing data and services. Our product ASARO-2 image is taken with the very high resolution radar satellite launched in January 2018. (AS-2) is the small but very high resolution EO satellite with X-band radar manufactured by NEC.) JE OSS operates AS-2 and has been selling images since September 2018. We would like to introduce our current image analysis products with our sales partner JSI at the exhibition booth! <a href="https://jeoss.ca.jp/">https://jeoss.ca.jp/</a></td>
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Korea Aerospace Research Institute, KARI
Korea Aerospace Research Institute (KARI) is a specialized institution founded for national development through the research and development of aerospace scientific technologies. National Satellite Operation & Application Center of KARI is dedicated to the operation of government satellites and the systematic and efficient utilization of satellite data. It manages the satellite data generated by government satellites and conducts the development of cutting-edge satellite operations technology and R&D utilizing satellite data. In IGARSS 2019, we will exhibit simple application examples of KOMPSAT series satellite images including disaster monitoring, generation of SAR interferogram. [http://www.kari.re.kr/eng.do](http://www.kari.re.kr/eng.do)

MDPI
Remote Sensing (ISSN 2072-4292, IF: 4.118, [http://www.mdpi.com/journal/remotesensing](http://www.mdpi.com/journal/remotesensing)) is an open access peer-reviewed journal, published by MDPI. It publishes regular research papers, reviews, letters and communications covering all aspects of remote sensing science, from sensor design, validation / calibration, to its application in geosciences, environmental sciences, ecology and civil engineering. Our aim is to publish novel/ improved methods/approaches and/or algorithms of remote sensing to benefit the community. Remote Sensing is indexed in the Science Citation Index Expanded (Web of Science).

[https://www.mdpi.com/](https://www.mdpi.com/)

National Institute of Environmental Research (NIER)
National Institute of Environmental Research has been consolidating its position as a leading government-run research institute dedicated to environmental studies by streamlining its organization and reinforcing its research capacity. NIER remain committed to better fulfilling its role as a government-run environmental research institute whose work is vital to the development and implementation of Korea’s environmental policies and pollution prevention programs. NIER has been developing Geostationary Environment Monitoring Spectrometer to improve capabilities to monitor and forecast climate change and air quality in East Asia. GEMS is loaded aboard GEO-KOMPSAT2B, a follow-up complex satellite to Cheollian Satellite, which is planned to be launched in 2019.


Norderelbe GmbH
You are looking for a trustworthy partner for state of the art, powerful, precise and low cost HF remote sensing solutions? Norderelbe is right address! Norderelbe: The transmitter sweeps part of the HF frequency range, transmitting short pulses. Pulses are reflected at various layers of the ionosphere, and echoes are received and analyzed by the control system. The result is displayed in ionogram. Oceanography: Our HF radar is a noninvasive system that measure and map near-surface ocean currents in coastal waters. Moreover it is possible to measure waves heights and it provides an indirect estimate of local wind direction.


PCI Geomatics
PCI Geomatics, founded in 1982, is the world leader in geo-imaging products and solutions. PCI Geomatics has set the standard in remote sensing and image processing tools offering customized solutions to the geomatics community in over 135 countries. PCI Geomatics is the developer of Geomatics® - a complete and integrated desktop software that features tools for remote sensing, digital photogrammetry, geospatial analysis, map production, mosaicking and more. Geomatics® software enables users to apply imagery in support of a wide range of applications such as the environment, agriculture, security and intelligence, defense, as well as in the oil and gas industries.


SI Imaging Services
SI Imaging Services(SIIS) is the exclusive worldwide marketing and sales representative of KOMPSAT series KOMPSAT-2, KOMPSAT-3, KOMPSAT-3A, and KOMPSAT-5. SIIS contributes remote sensing and earth observation industries by providing very high resolution optical and SAR images through over 110 sales partners worldwide. Customers from industries as well as government and international agencies are using KOMPSAT imagery for their mission and researches. They achieve excellent results in several remote sensing applications such as mapping, agriculture, disaster management, and so on. SIIS started its business as a satellite image and service provider and extended its business to KOMPSAT operation.


Space Shift, Inc.
Space Shift Inc. is a Japanese SAR (Synthetic Aperture Radar) data analysis software development company. We are very focused on core software components for SAR data analysis like change detection, feature extraction, subsidence analysis with InSAR. Our customers are Marketing, Insurance, Finance, Media and so on different from traditional customers like government. Please come by our booth 17 to see demonstration of our software.

[https://www.spcsft.com/](https://www.spcsft.com/)

Geoscience and Remote Sensing Society (GRSS)
The GRSS is the organizer of the IGARSS conference. It is a technical society of the IEEE.[http://www.grss-ieee.org/](http://www.grss-ieee.org/)

IGARSS 2020 Waikoloa, Hawaii
This booth will represent IGARSS 2020 which will be held at the Hilton Hotel in Waikoloa, Hawaii. We will a continuous video loop showing sights to see on the island and some of the interesting history of the Hawaiian Islands. The booth will be decorated with balloons with the logo of IGARSS 2020 and will be manned by members of the 2020 team. Call for the 2020 event will be passed out and question will be answered.


NASCAR
Please visit the NASA exhibit at IGARSS 2019! NASA’s exhibit will feature the Hyperwall—a video wall capable of simultaneously displaying multiple, high-definition, science data visualizations, which are produced by NASA’s Scientific Visualization Studio (svs.gsfc.nasa.gov). Representatives from different NASA Science programs will make presentations on the Hyperwall to highlight NASA’s latest Earth science developments. Staff from NASA also will be available to provide information about NASA Science programs and answer questions. Two student-focused Hyperwall presentations on Monday, July 29 will offer Japanese remote sensing students an opportunity to see the latest results from NASA’s Earth science missions.

[http://www.nasa.gov/](http://www.nasa.gov/)
Monday, July 29, 09:00 – 12:30, Main Hall, PACIFICO Yokohama

OPENING AND AWARDS SESSION

09:00 - 09:02  Welcome to IGARSS 2019 Yokohama  
by Prof. Akira Hirose as IGARSS 2019 General Chair

09:02 - 09:07  Welcome from IEEE President  
by Prof. Toshio Fukuda, as IEEE President Elect

09:07 - 09:12  Welcome from IEEE GRSS President  
by Prof. Paolo Gamba, as IEEE GRSS President

10:40 - 11:10  Coffee Break

PLENARY SESSION

09:12 - 09:32  “Space Technology for New Era”  
Dr. Hiroshi Yamakawa, President of JAXA

09:32 - 09:52  “NASA Earth Science Overview”  
Mrs. Sandra Cauffman, Acting Director of the Earth Science Division, NASA

09:52 - 10:12  “Crossing the Valley of Death: how can Earth Observation be relevant to sustainable development?”  
Prof. Dr. Gilberto Câmara, Secretariat Director, GEO - Group on Earth Observations

10:12 - 10:32  “Sentinel Asia - Evolution and Current Status”  
Dr. Franz Ming-Chih Cheng, Director of International Affairs Office, National Applied Research Laboratories (NARL)

AWARDS SESSION

10:32 - 10:35  Short notes for opening address

10:35 - 11:15  Awards Ceremony  
Master of Ceremony: Alberto Moreira
- 2019 IEEE Fellows
- 2019 IEEE GRSS Education Award
- 2019 IEEE GRSS Outstanding Service Award
- 2019 IEEE GRSS Industry Leader Award
- 2019 IEEE GRSS Distinguished Achievement Award

Coffee Break

SYMPOSIUM INTRODUCTION

11:15 - 11:25  TPC Report  
Prof. Hiroyoshi Yamada, Prof. Akira Iwasaki, Prof. Irena Hajnsek, IGARSS 2019 Technical Program Committee Co-Chairs

11:25 - 11:30  Notes for opening address

11:30  Door Close  
Note: For the operational reasons, it is NOT ALLOWED to enter nor leave the Main Hall after 11:30

OPENING CEREMONY

12:00-12:30  Note: Please REFRAIN from taking photos or videos during the opening ceremony.
Plenary Speakers

Dr. Hiroshi Yamakawa  
President of JAXA

Dr. Hiroshi Yamakawa is the President of the Japan Aerospace Exploration Agency (JAXA). His previous work experience includes Member of Committee on National Space Policy, Cabinet Office; Secretary General, Secretariat of Strategic Headquarters for Space Policy, Cabinet Secretariat; Professor, Research Institute for Sustainable Humanosphere, Kyoto University; JAXA Project Manager, Mercury Exploration Mission “BepiColombo”; Visiting Scientist of the European Space Research and Technology Centre, European Space Agency (ESA); Visiting Scientist of Jet Propulsion Laboratory, National Aeronautics and Space Administration (NASA); and Associate Professor, Institute of Space and Astronautical Science (ISAS). He earned his Ph.D (Engineering) from the Department of Aeronautics, School of Engineering at the University of Tokyo.

Mrs. Sandra Cauffman  
Acting Director of the Earth Science Division, NASA

Sandra Cauffman currently serves as the Acting Director of the Earth Science Division, in the Science Mission Directorate at the National Aeronautics and Space Administration (NASA) Headquarters. She provides executive leadership, strategic direction, and overall management for the entire agency’s Earth Science ~$2B portfolio, from technology development, applied science, research, mission implementation and operation. She served as the Deputy Director of the Earth Science Division from May 2016 – February 2019.

Prior to joining NASA HQ, Ms. Cauffman worked at the Goddard Space Flight Center (GSFC) for 25 years serving on a variety of roles. She served as the Deputy Systems Program Director for the Geostationary Operational Environmental Satellite (GOES):R Series, a multi-billion-dollar operational geostationary weather satellite program developed in partnership with the National Oceanic and Atmospheric Administration (NOAA). Before returning to the GOES program for the third time in her career, Ms. Cauffman was the Deputy Project Manager for the Mars Atmosphere and Volatile Evolution (MAVEN) Mission, a NASA mission to the red planet, which launched on November 18, 2013, which is providing a comprehensive picture of the present state of the upper atmosphere and ionosphere of Mars and the processes controlling them to determine how loss of volatiles to outer space in the present epoch varies with changing solar conditions.

Ms. Cauffman has been awarded the NASA Exceptional Achievement Medal and she is a two-time recipient of the NASA Outstanding Leadership Medal. She is also a four times recipient of the NASA Acquisition Improvement Award, and numerous GSFC and HQ awards. She is a Senior Fellow on the Council for Excellence in Government. She is an Honorary Member of the National Academy of Sciences, Costa Rica. She received a B.S. in Physics, a B.S in Electrical Engineering and a M.S in Electrical Engineering, all from George Mason University. Ms. Cauffman was born in Costa Rica and is fluent in Spanish.

Prof. Dr. Gilberto Câmara  
Secretariat Director, GEO - Group on Earth Observations

Prof. Dr. Gilberto Câmara is a Brazilian researcher in Geoinformatics, Spatial Analysis, Land Use Change, and Nature-Society Interactions, from Brazil’s National Institute for Space Research (INPE). He is internationally recognized for promoting free access for geospatial data and for setting up an efficient satellite monitoring of the Brazilian Amazon forest. Gilberto has advised 25 PhD dissertations and 31 Master thesis and published more than 230 scholarly papers that have been cited more than 11,000 times (Google Scholar, May 2019). Gilberto was INPE’s assistant director for Earth Observation (2001-2005), and INPE’s director general (2005-2012). He is currently Secretariat Director for the Group on Earth Observations (GEO). As recognition for his work, he was inducted as a Doctor honoris causa from the University of Münster (Germany) and as a Chevalier (Knight) of the Ordre National du Mérite of France. He received the William T. Pecora award from NASA and USGS for “leadership to the broad and open access to remote sensing data”.

Dr. Franz Ming-Chih Cheng  
Director of International Affairs Office, National Applied Research Laboratories, Taiwan

Dr. Ming-Chih Cheng is Director of International Affairs Office, National Applied Research Laboratories (NARLabs) located in Taipei, Taiwan. He earned his Ph.D. degree at University of Washington in Seattle, USA, with major in Aeronautics and Astronautics. He has a Master degree at National Cheng-Kung University, Taiwan, with major in Civil Engineering. He started his professional career in the National Space Organization (NSPO) in Taiwan as a lead engineer since 1992. He joined Taiwan’s pioneering team developing Formosat-1, 2, 3 satellites under international collaborations with the US and France. He took responsibilities in establishing comprehensive capabilities in spacecraft systems in Taiwan. After over 15-years experience in space technology development and program management with major contributions, in 2007, he worked in Business Development Office and International Affairs Office of NARLabs. NARLabs is the major Research and Innovation organization of advanced S&T in Taiwan. Its umbrella covered 10 national laboratories in fields of Earth & Environment, ICT, and Bio-medical Technologies. Since then, he has been actively involved in strategy and promotion of global partnership building. Dr. Cheng advocates universal values of societal benefits through international cooperation in Global Earth Observation System of Systems (GEOSS), Asia-Pacific Regional Space Agency Forum (APRS AF). His major endeavor and achievement was focused on synergizing capabilities in Earth Observations and their applications. He is a Steering Committee member to the Sentinel Asia. He is also leading a team building Taiwan Open DataCube (TWDC).
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<th>Organizing Committee</th>
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<td>General Chair</td>
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<td>Technical Program Co-Chairs</td>
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<td>Finance Chair</td>
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<td>Local Arrangements Chair</td>
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<td>Publications Co-Chairs</td>
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<td><strong>Student Activity Co-Chairs</strong></td>
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<th><strong>Education Co-Chairs</strong></th>
<th>Chinatsu Yonezawa (Tohoku University)</th>
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<td>Aya Yamamoto (RESTEC)</td>
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</table>

| **Social Events Chair**        | Yu Okada (Mitsubishi Electric Co.)         |

| **Technical Tour Co-Chairs**   | Kazunori Takahashi (Oyo Corporation)       |
|                                | Shoichiro Kojima (NICT; National Institute of Information and Communications Technology) |

| **Outreach Chair**             | Fang Shang (Univ. Electro-Commun.)         |

| **International Liaison Chair** | Josaphat Tetuko Sri Sumantyo (Chiba University) |

| **TIE event Co-Chairs**        | Naoto Yokoya (RIKEN)                       |
|                                | Fang Shang (University Electro-Communications) |

| **Photos & on-site publicity chair** | Manabu Watanabe (Tokyo Denki University) |
# Committee Members

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<th>Event</th>
<th>Masanobu Shibata (Mitsubishi Electric Co.)</th>
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<td>Yasumasa Ashida (Mitsubishi Electric Co.)</td>
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<td>Shohei Ohno (NEC Corp.)</td>
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<td>Daichi Tanaka (NEC Corp.)</td>
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<td>Exhibition</td>
<td>Masato Ohki (JAXA)</td>
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<td>Daisuke Ikefuji (NEC Corp.)</td>
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<td>General Secretary</td>
<td>Seiko Kitazawa (The University of Tokyo)</td>
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<td>Kazutaka Kikuta (Tohoku University)</td>
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<td>Kenichi Sato (JTB Communication Design)</td>
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# Advisory

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<th>Yoshihisa Hara (Mitsubishi Electric Co.)</th>
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<td>Tetsuo Kirimoto (Univ. Electro-Commun.)</td>
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<td>Motoyuki Sato (Tohoku University)</td>
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<td>Masanobu Shimada (Tokyo Denki University)</td>
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<td>Yasushi Yamaguchi (Nagoya University)</td>
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<td>Yoshio Yamaguchi (Niigata University)</td>
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<td>Technical Program Committee</td>
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<td>Theme Coordinators</td>
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### Data Analysis Methods (Optical, Multispectral, Hyperspectral, SAR)

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<th>Joel Johnson</th>
<th>A.1 - Electromagnetic Modelling</th>
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<td>Irena Hajnsek</td>
<td>A.2 - SAR Interferometry: Along and Across</td>
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<td>Jocelyn Chanussot</td>
<td>A.9 - Feature Extraction and Reduction</td>
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<td>A.11 - Object Detection and Recognition</td>
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<td>A.12 - Classification and Clustering</td>
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<td>Lorenzo Bruzzone</td>
<td>A.13 - Estimation and Regression</td>
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<td>A.17 - Geographic Information Science</td>
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### Cryosphere

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<th>Jiancheng Shi</th>
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### Data Management and Education

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<th>Josée Lévesque</th>
<th>D.1 - Data Management and Systems</th>
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<td>Irena Hajnsek</td>
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<td>L.3 - Forest and Vegetation: Application and Modelling</td>
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<tr>
<td>Tom Jackson</td>
<td>L.4 - Forest and Vegetation: Biomass and Carbon Cycle</td>
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### Land Applications

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<tr>
<th>Irena Hajnsek</th>
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<td>Tom Jackson</td>
<td>M.4 - Aerosols and Atmospheric Chemistry</td>
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### Atmosphere Applications

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<th>Al Gasiewski</th>
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### Oceans

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<th>Simon Yueh</th>
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<td>S.5 - Microwave Radiometer Instruments and Calibration</td>
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<td>S.9 - UAV and Airborne Platforms</td>
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### Mission, Sensors and Calibration

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<td>ST.4 - Identification of remote sensing indicators for climate change</td>
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<td>ST.5 - GRSS Student Grand Challenge</td>
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### Special Theme: International Cooperation for Global Awareness

| ST.1 - Monitoring of natural disasters and hazards |
| ST.2 - NewSpace initiatives in remote sensing    |
| ST.3 - Big data and machine learning             |
| ST.4 - Identification of remote sensing indicators for climate change |
| ST.5 - GRSS Student Grand Challenge             |

### Invited Sessions

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<th>Bertrand Le Saux</th>
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### Student Paper Competition

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<th>Xiuping Jia</th>
<th>All</th>
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SESSION ORGANIZERS
Tom Ainsworth
William J. Blackwell
Francesca Bovolo
Maria Fabrizia Buongiorno
Mariko Burgin
Chandra V Chandrasekar
Paul Chang
Bruce Chapman
Lance Cotton (Admin)
Curt Davis
Paolo de Matthaes
Fabio Dell’Acqua
Qian Du
Surya Durbha
Michael Eineder
Mathieu Fauvel
Gianfranco Fornaro
Andrea Garzelli
Irena Hajnsek
Martti Hallikainen
Uta Heiden
Scott Hensley
Akira Hirose
Jasmeet Judge
John Kerekes
Yann Kerr
Duk-jin Kim
David Kunkee
Bertrand Le Saux
David M. Le Vine
Josée Lévesque
Jun Li
Peijun Li
Shutao Li
Xiaofeng Li
Nathan Longbotham
Tom Lukowski
Animesh Maitra
Francesco Mattia
Farid Melgani
Sidharth Misra
Gabriele Moser
Ferdinando Nunziata
Roger Oliva
Cindy Ong
Fabio Pacifici
Mario Parente
Nazzareno Pierdicca
Antonio Plaza
Hampapuram Ramapriyan
Steven C. Reising
Paul Rosen
Helmut Rott
Christopher Ruf
Sassan Saatchi
Kamal Sarabandi
Motoyuki Sato
Masanobu Shimada
Michal Shimoni
Andrew Skidmore
Gail Skofronick-Jackson
Salvatore Stramondo
Ridha Touzi
Emmanuel Trouvé
Leung Tsang
Devis Tuia
Jeffrey Walker
Haipeng Wang
Marwan Younis
Simon Yueh

INVITED SESSION ORGANIZERS
Tom Ainsworth
Sachidananda Babu
Peter Baumann
Nicolas Brodú
Estel Cardellach
Chandra V Chandrasekar
Marge Cole
Daniel De Lisle
Paolo de Matthaes
Carlos Roberto de Souza
Filho
Begüm Demir
Nibir K. Dhar
Katrina Doctor
Dominique Dubucq
Dara Entekhabi
Hongliang Fang
Giampaolo Ferraioli
Friedrich Fraundorfer
Paolo Gamba
Dirk Geudtner
Mitchell Goldberg
Philippe Goryl
Irena Hajnsek
Ronny Hänsch
Uta Heiden
Kei Hiroi
Yoshiaki Honda
Brian Hornbuckle
Toshio Iguchi
Steve Iris
Xiuping Jia
Joel Johnson
Zhizhong Kang
John Kerekes
Siri Khalsa
Toshiyoshi Kimura
George Komar
Alexandra Konings
Shyunichi Koshimura
David Kunkee
Young-Joo Kwak
Jennifer Lacey
Marine Larrey
Jacqueline Le Moigne
Bertrand Le Saux
Jong-Sen Lee
Michael Little
Carlos Lopez Martinez
Kari Luojus
Andrea Marinoni
Gary McWilliams
Matthieu Molinier
Alberto Moreira
Claudia Notarnicola
Roger Oliva
Cindy Ong
Mario Parente
Ramona Pelich
George Percivall
William Perrie
Pierre Potin
Rahul Ramachandran
Steven C. Reising
Motoyuki Sato
Rashmi Shah
Jiancheng Shi
Masanobu Shimada
Haruhisa Shimoda
Dharmendra Singh
Upendra Singh
Andrea Siqueira
Shinichi Sobue
Yan Soldo
Gordon Staples
Ramón Torres
Ridha Touzi
Devis Tuia
Florence Tupin
Georgios Tzeremes
Manabu Watanabe
Xiaoxiong Xiong
Yoshiki Yamagata
Yasushi Yamaguchi
Naoto Yokoya
Simon Yueh
Biao Zhang
Xiangrong Zhang
Xiaoxiang Zhu
Symposium Information

Conference Venue
Pacific Convention Plaza Yokohama (PACIFICO Yokohama)
1-1-1, Minato Mirai, Nishi-ku,
Yokohama 220-0012, JAPAN

Symposium Registration
IGARSS 2019 Registration will open Sunday, July 28 at the
2nd Floor at PACIFICO Yokohama Conference Center and
will continue throughout the duration of the symposium.

Operating hours are:
Sunday, July 28 13:00 – 18:00
Monday, July 29 08:30 – 18:00
Tuesday, July 30 07:30 – 18:00
Wednesday, July 31 07:30 – 18:00
Thursday, August 1 07:30 – 18:00
Friday, August 2 07:30 – 16:00

Name Badges
All delegates will receive a name badge upon registration.
Name badges must be worn at all times for identification
purposes and admission to symposium technical sessions,
exhibitions and catering breaks. In case of loss, replacement
badges can be obtained at the registration desk.

Receipt and Proof of Attendance
Registration receipt will be included in the participant kit.

Language
The official language of IGARSS 2019 is English and all
presentations must be given in English. No simultaneous
interpretation service will be provided.

Wireless Internet Access
Complimentary wireless internet access is available for
IGARSS 2019 attendees. Following is the login information:
SSID: FREE-PACIFICO
*No password needed

Twitter
#igarss19
https://twitter.com/IEEE_GRSS

Mobile App
The IGARSS 2019 mobile app is a native application for
tablets and smartphones, a hybrid web-based app for
Blackberry. There is also a web-based version of the application for all other
web browser-enabled phones. View the
complete symposium schedule, view speaker details, and more.

Downloading the app is easy. Simply:
• Scan the QR Code (all device types)
• Search for IGARSS in the app store (Android and iOS)
• Type the following URL into your device’s mobile
browser: http://m.core-apps.com/igarss2019

Mobile Phones
Delegates are kindly requested to set their mobile phones on
silent mode in the rooms where scientific sessions are running.

Emergency Phone Numbers
112 – If you require urgent police attention, ambulance, fire
brigade etc.

Tickets for Social Events
You have been issued a package containing your name
badge and the tickets you ordered for social events when
you checked in at the Registration Desk. Please bring the
appropriate ticket(s) to all social events. Additional tickets
will be available for purchase at the Registration Desk, based
on space availability.

Speakers’ Preview Room
On the 3rd floor there will be a room to check presentation
materials. There will be 12 computers to check and modify
the presentations if needed.

The Speakers’ preview area opening hours:
Sunday, July 28 ......................... 16:00 – 19:00
Monday, July 29 ....................... 08:00 – 18:30
Tuesday, July 30 ....................... 08:00 – 18:30
Wednesday, July 31 ................. 08:00 – 18:30
Thursday, August 1 ................. 08:00 – 18:30
Friday, August 2 ...................... 08:00 – 16:00

Presenters should locate their session room in due time and be
in the room 20 minutes before the session begins and should
meet the session chair(s), who should be near the stage/lectern. Presentations should be uploaded to the computer
in the session room via USB flash memory stick during the
break before the session. The USB port is Type A. Presenters
are advised, when uploading their presentations, to check if
formulas/animations are shown correctly.

At the Speakers’ Preview Area, experienced technicians will
assist speakers in transferring slides and making changes if
needed.

Recording Policy
Tutorials, oral sessions, and poster sessions: For copyright
reasons, recordings of any kind (audio, video, pictures, etc.)
are prohibited without prior written consent of the presenter
or instructor. Attendees may not capture or use the materials
presented in any room or in notes on display without written
permission. Individuals not complying with this policy will
be asked to stop their recording media and delete recorded
material.

Coffee/Tea Breaks
Morning and afternoon Coffee/Tea breaks will be served in
the exhibition area.
RESTAURANTS
In the PACIFICO Yokohama Conference Center, there is the Bay Bridge Cafeteria on the 6th floor. Note: On July 30 and August 1, this restaurant is reserved for IGARSS registered events and will be unavailable for general use. There are also some restaurants in the Exhibition Hall.

PERSONAL PROPERTY
Please take good care of your personal belongings and do not leave them unattended. The organizers and the symposium secretariat cannot be held responsible for any loss or damage to your personal property.

DISCLAIMER
The 2019 IEEE International Geoscience and Remote Sensing Symposium (IGARSS 2019), including the organizing committee and the secretariat, and all suppliers to the symposium and their servants, agents, contractors and consultants, will not accept liability for damages of any nature sustained by participants or their accompanying persons or loss or damage to their personal property as a result of attending the IGARSS 2019 or related events.

Social Events

Sunday, July 28
WELCOME RECEPTION
Please join us for our customary welcome reception.
Location: PACIFICO Yokohama Conference Center 5F, 501+503
Date / Time: Sunday, July 28, 18:00-20:00
Cost: Included with Registration

Monday, July 29
WALKING TOUR 1
Yokohama is known as a port city. You can enjoy the sight from sea and famous park.
Location: Yamashita Park, Minato-no-Mieru-Oka Park
Date / Time: Monday, July 29, 10:25 - 13:00
Meeting Point: PACIFICO Yokohama 2nd floor (Conference venue) at 10:10. Tour starts at 10:25.
(Transportation ticket, English guide included. Lunch is NOT included.)
Itinerary: Venue --- (Sea Bus) ---Yamashita Park---Harbor View Park---Venue
Cost: US $25 (JCT included)

NOGE EVENING (JAPANESE CASUAL FOOD WALK IN NOGE AREA) 1
NoGE is one of the nostalgic shopping & entertainment street in Yokohama. There are many “Izakaya (Japanese style pub)” in narrow area, and please enjoy Japanese old culture.
Location: NoGE
Date / Time: Monday, July 29, 19:00 - 21:00
Meeting Point: Sakuragicho Station Exit North 1 at 19:00.
(Transportation is NOT included)
Cost: US $38 (JCT included)

Tuesday, July 30
KAMAKURA TOUR
Kamakura is one of the most historical towns in Japan. You can enjoy temples and shrines.
Location: Kamakura (Please check the “Literary” below)
Date / Time: Tuesday, July 30, 8:00 - 17:00
Meeting Point: PACIFICO Yokohama 1st floor (Conference venue) at 08:00. (Transportation and tour guide included)
Itinerary: Venue---Hasedera Temple---Kotoku-in Temple---Tsurugaoka Hachimangu Shrine---Venue
Cost: US $120 (JCT included)

NOGE EVENING (JAPANESE CASUAL FOOD WALK IN NOGE AREA) 2
NoGE is one of the nostalgic shopping & entertainment street in Yokohama. There are many “Izakaya (Japanese style pub)” in narrow area, and please enjoy Japanese old culture.
Location: NoGE
Date / Time: Monday, July 29, 19:00 - 21:00
Meeting Point: Sakuragicho Station Exit North 1 at 19:00.
(Transportation is NOT included)
Cost: US $38 (JCT included)
**Japanese Style Cruise (Yakata-fune) Dinner**

Yakata-fune is a traditional Japanese houseboat. You can enjoy Japanese style dinner and night view of Yokohama.

- **Location:** Yakata-fune (Japanese style cruise) at Yokohama
- **Date / Time:** Tuesday, July 30, 18:00 - 21:00
- **Meeting Point:** PACIFICO Yokohama 2nd floor (Conference venue) at 18:00. (Transportation and tour guide included)
- **Cost:** US $120 (JCT included)

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**Wednesday, July 31**

**Technical Tour 1 (NICT)**

The tour will bring you through ICT research facilities at NICT. Guided tours will include their Exhibition Hall to see the overview of the institute, Space Communications laboratory, Japan Standard Time, Remote Sensing laboratories and Space Weather Forecast.

The National Institute of Information and Communications Technology (NICT) is a Japan’s sole National Research and Development Agency specializing in the field of information and communications technology. NICT is charged with promoting ICT sector as well as research and development in ICT, which drives economic growth and creates an affluent, safe and secure society. More about NICT, visit: https://www.nict.go.jp/en/

- **Date / Time:** Wednesday, July 31, 12:00-19:00
- **Meeting Point:** PACIFICO Yokohama 1st floor (Conference venue) at 12:00
- **Cost:** US $40, Lunch (light meal), transportation and JCT included

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**IGARSS World Cup**

Just before the Rugby World Cup in Japan, don’t forget the IGARSS World Cup! Fees cover the cost of t-shirt, drinks, first aid support, referees, and health insurance for the Participation to the game. There will be four teams, and each team with a maximum of 8 players plays two games, one for semifinal and another for final or third place.

- **Location:** Higashi-Totsuka Football Park
- **Date / Time:** Wednesday, July 31, 18:20-22:00
- **Meeting Point:** PACIFICO Yokohama 1st floor (Conference venue) at 18:20 (load bus). The game starts from 19:30.
- **Participants:** US $30
- **Spectator:** US $15 (including transportation only)

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**Thursday, August 1**

**Walking Tour 2 (Half day with Chinese Lunch)**

Yokohama has a opened port history. You can enjoy historical place and the biggest China town in Japan.

- **Location:** Yokohama Red Brick Warehouse, Yamashita Park, Chinese town
- **Date / Time:** Thursday, August 1, 10:25-13:45
- **Meeting Point:** PACIFICO Yokohama 2nd floor (Conference venue) at 10:10. Tour starts at 10:25. (Transportation ticket, English guide, lunch included.)
- **Itinerary:** Venue --- (Sea Bus) --- Yokohama Red Brick Warehouse ---Chinese Town--- Venue
- **Cost:** US $60 (JCT included)

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**IGARSS 2019 Awards Banquet**

The IGARSS 2019 Awards Banquet will be held at Osanbashi hall, Osanbashi Yokohama International Passenger Terminal. Please enjoy the beautiful scenery with sunset.

- **Location:** Osanbashi Hall, Osanbashi Yokohama
- **Date / Time:** Thursday, August 1, 19:00 - 21:00
- **Meeting Point:** Osanbashi Yokohama (Transportation NOT incl.)
- **Access to the Osanbashi Yokohama will be announced for the participants before the conference.
- **Cost:** US $80 (JCT included)

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**Friday, August 2**

**Technical Tour 2 (JAMSTEC and JAXA Sagamihara Campus)**

The full-day tour will take you through two key national institutes for geosciences and remote sensing in Japan: JAMSTEC and JAXA. The guided tour at JAMSTEC will include “Earth Simulator” which is a massive super computer used for various fields such as global-warming projection and solid earth interior dynamics. At ISAS/JAXA, the tour plans to include an asteroid explorer “Hayabusa 2”, which
recently succeeded to touchdown the target asteroid Ryugu for sample retrieval.

Japan Agency for Marine-Earth Science and Technology (JAMSTEC) is a national institute that works towards the advancement of academic research in addition to the improvement of marine science and technology by proceeding the fundamental research and development on marine, and the cooperative activities on the academic research related to the Ocean for the benefit of the peace and human welfare. More about JAMSTEC, visit: http://www.jamstec.go.jp/e/

The Japan Aerospace Exploration Agency (JAXA) is a core performance agency to support the Japanese government's overall aerospace development and utilization. JAXA conducts integrated operations from basic research and development. The Institute of Space and Astronautical Science (ISAS) is the core of Japan's space science research. ISAS also actively promotes public awareness of and interest in space science. More about ISAS, visit: http://www.isas.jaxa.jp/en/

**TIE Events**

The third annual Technology, Industry, and Education (TIE) forum will host professionals from around the world, in a variety of engagement formats, to discuss and explore the state of the art in geospatial technology and its rapid evolution. This year’s new content includes an industry workshop that will bring an opportunity to learn about the latest geospatial platforms directly from the people creating these software offerings, a workshop on marketing geospatial products and services, and a one-on-one resume workshop hosted by an industry recruiting professional. Come and explore this and other expanded TIE content alongside the world-class academic presentations of IGARSS 2019.

**INDUSTRY WORKSHOP**

Session Chair: Nathan Longbotham  
Location: PACIFICO Yokohama 511/512  
Date / Time: Sunday, July 28, 09:30 - 17:00  
Cost: Free [Lunch not provided]

The TIE forum industry workshop is designed as an opportunity for conference participants to learn about platform software capabilities available to remote sensing professionals. In this workshop, industry representatives will provide a hands-on introduction to the modern, large-scale compute capabilities that are available to the remote sensing professional. This year’s lineup includes presentations from Development Seed, Descartes Labs, Tellus xData Platform, and Google Earth Engine.

**TIE Industry Forum**

Session Chair: Kevin Corbley  
Location: PACIFICO Yokohama 213  
Date / Time: Tuesday, July 30, 13:40 - 15:20

The third annual Remote Sensing Industry Forum will host professionals from around the world to discuss the industry’s perspective of geospatial technology and its rapid evolution. This year’s forum theme is “Remote Sensing for the Private Sector: Challenges and Solutions” and will explore the complex difficulties that we face moving remote sensing science into commercial applications. Moderated by Kevin Corbley, this year’s forum will feature:

- Joerg Herrmann - Senior Vice President, Capella Space  
- Shuji Fujimaru - senior radar engineer, Synspective  
- Julie Baker - co-founder and COO, Ursa Space  
- Kimberly Scott - co-founder and VP of Data Science, Astrea

**Saturday, August 3**

**Sendai Tour [Post Conference Tour] [Memorial of 2011 East Japan Great Earthquake and Tsunami]**

Organizer: Motoyuki Sato, Shunichi Koshimura (Tohoku University, Japan)

After IGARSS 2011, originally planned to be held in Sendai, was moved to Vancouver due to 2011 East Japan earthquake and tsunami occurred on March 11, 2011. Our tutorial on remote sensing data used for observation of 2011 tsunami site, we will visit Tsunami affected areas around Sendai. We will learn how remote sensing can contribute to disaster mitigation.

Note: All attendees must arrange their trip to Sendai by themselves.

Location: International Research Institute of Disaster Sciences, Tohoku University, Tsunami affected areas

Date / Time: Saturday, August 3, 09:00-18:00  
Meeting Point: International Research Institute of Disaster Sciences, Tohoku University  
We strongly recommend participants to stay at hotel near by Sendai station

Cost: US $40, Lunch at a restaurant and JCT included
**Code Workshop**

Session Chair: Drew Bollinger  
Location: PACIFICO Yokohama 211+212  
Date / Time: Thursday, August 1, 08:00 - 18:00

The purpose of the TIE Forum is to cross the bridge between the research efforts of academia and the technology industry. In this spirit, the code workshop is designed to build hands-on experience with software tools and data. New this year, the code workshop is running in collaboration with the Machine Learning in Remote Sensing tutorial (FD-3). If you were able to attend the tutorial, come and practice the material! If you were not able to attend the tutorial, see an introduction to some of the core concepts from the tutorial and dive into demonstration problems. Either way, bring your laptop and join in on projects suitable to many experience levels. We will also have developers available throughout the day for questions and coding assistance.

**Marketing Geospatial Products and Services Seminar**

Session Chair: Kevin Corbley  
Location: PACIFICO Yokohama 421  
Date / Time: Friday, August 2, 13:40 - 15:20

Thirty years ago, Kevin Corbley worked on the first team ever tasked with marketing satellite imagery to commercial clients. In the years since, he has devised and implemented marketing communications strategies for products and services in every sector of the geospatial industry. In this one-hour session, Kevin will discuss the importance of succinct messaging to position geospatial offerings in a competitive global market. He will then describe the three most effective marketing activities to deliver your messaging and promote your products and services. The second half of the class will focus on the six critical social media channels your organization must leverage to reach decision makers worldwide.

**Women in GRSS Forum**

Session Chairs: Kevin Corbley & Keely Roth  
Location: PACIFICO Yokohama 213  
Date / Time: Tuesday, July 30, 10:40 - 12:20

The third annual Women in GRSS Forum will host a diverse panel of women STEM professionals from academia and industry. Organized by the GRSS IDEA committee, whose mission it is to “inspire, develop, empower, and advance” diverse communities in GRSS, this year’s forum theme is “Building a Successful Career in STEM”. Our panelists will share their perspectives on a range of topics from networking to leadership to pursuing new opportunities. We welcome you to this open session to learn, be inspired, and join the conversation. Moderated by Kevin Corbley, this year’s forum will feature:

- Julie Baker - co-founder and COO, Ursa Space  
- Kimberly Scott - co-founder and VP of Data Science, Astrea  
- Erin Hestir - Associate Professor, University of California, Merced  
- Marta Yebra - Senior Scientist and Mission Specialist, Australian National University  
- Sarah Graves - Program Coordinator, University of Wisconsin-Madison

**Women in GRSS Luncheon**

Location: Bay Bridge Cafeteria  
Date / Time: Tuesday, July 30, 12:20 - 13:40  
Cost: US$ 25

This Women in GRSS luncheon is a great opportunity for attendees to interact and network with senior members and the Women in GRSS Forum speakers. We will have a short, informal program and share a delicious meal together in our 8th consecutive year! All are welcome.

**Three Minute Thesis®**

Session Chair: Subit Chakrabarti  
Location: PACIFICO Yokohama 211+212  
Date / Time: Thursday, August 1, 12:20 - 13:40

3MT®, founded by the University of Queensland in 2008, is an academic competition that cultivates students’ presentation and research communication skills and challenges them to describe their research within three minutes to a general audience with one static slide. The competition is open to all students attending IGARSS 2019. Students will be able to submit videos to a video platform of their choice and the 10 best presenters will be selected to present to a panel of judges at IGARSS 2019. Prizes will be awarded to top 3 presenters.

**TIE Education Forum: Education in Action**

Session Chair: Josée Lévesque  
Location: PACIFICO Yokohama 418  
Date / Time: Monday, July 29, 13:40 - 15:20

So you got your Geoscience and Remote Sensing degree? Now what? How to translate your skills to the real world? Speakers from industry, government, and academia will discuss future trends in remote sensing and the skills they are looking for.

**TIE Global Exploration Workshop: The Global Exploration Roadmap**

Session Chair: George Komar  
Location: PACIFICO Yokohama 313+314  
Date / Time: Thursday, August 1, 16:20 - 18:00

The International Space Exploration Coordination Group (ISECG) is a multinational activity set up by 14 space agencies to advance the Global Exploration Strategy through coordination of their mutual efforts in space exploration. They have published the “Global Exploration Roadmap”. The discussions in this workshop will center around several space agencies and their plans to implement this strategy.
**Group on Earth Observations in Asia-Oceania (AO-GEO): Sustainable Development in Changing Environments**

**Location:** PACIFICO Yokohama 422  
**Date / Time:** Friday, August 2, 10:40 - 12:20

The Asia-Oceania GEOSS (AO-GEOSS) is a GEO Initiative approved and launched in November 2016. The aim of this Session is to introduce and highlight the work of AO-GEOSS in sustainable development and disaster monitoring within the Asia-Oceania region with the anticipation that geoscience related researchers and scientists will be encouraged to work more closely with GEO to promote earth observation capacity of Asia-Oceania countries to confront the challenges which pose a risk to the attainment of sustainable development and to limiting climate change. Presentations will be on Biodiversity, Sustainable Development Goals (SDG’s) and Disaster Response.

**INTRODUCTION TO GEO – GROUP ON EARTH OBSERVATIONS**  
Anthony Milne, University of New South Wales, Australia, GEO Programme Board

**ASIA-OCEANIA GEO: INTRODUCTION, ITS VISION AND ACTIVITIES**  
Hiroyuki Muraoka, Gifu University, Japan, AO-GEO Coordination Board, GEO Programme Board

**GLOBAL TERRESTRIAL ECOLOGICAL ENVIRONMENT MONITORING AND ASSESSMENT FOR SUSTAINABLE DEVELOPMENT GOALS (SDG’s)**  
Qinhuo Liu, State Key Laboratory of Remote Sensing Science, Institute of Remote Sensing and Digital Earth, CAS, China

**Biodiversity Observations from Space and in the Field for Asia Pacific Biodiversity Region**  
Hiroyuki Muraoka, Gifu University, Japan, AO-GEO Coordination Board, GEO Programme Board

**The Challenge of Quick Disaster Response: Solutions and Practices from AO-GEO**  
Guoqing Li, Institute of Remote Sensing and Digital Earth, CAS, China

**Young Professionals’ Mixer**

**Location:** Ristorante Attimo  
**Date / Time:** Monday, July 29, 19:00 - 21:00  
**Cost:** IEEE members: US$ 10, non-members: US$ 35

The young professionals (YP) mixer is a chance for GRSS YPs to have an informal meet and greet and to network with accomplished professionals from industry and academia. Senior GRSS members will be available to share stories about their careers and offer advice to the YPs.

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**GRSS Events**

**Tuesday, July 30**

**Student Prize Committee Lunch**

**Location:** PACIFICO Yokohama Room 422  
**Date / Time:** Tuesday, July 30, 12:20-13:40  
**Cost:** By Invitation Only

**Wednesday, July 31**

**Author Education and Editors Meet-Up**

**Location:** PACIFICO Yokohama, Room 421  
**Date / Time:** Wednesday, 31 July 12:20 - 13:20  
**Cost:** Free [Lunch not provided]

**Organizers:**  
Bill Emery, VP Publications GRSS; Simon Yueh (EiC TGRS); Jenny Du (EiC JSTARS); Avik Battacharya (EiC, GRSL); and Jim Garrison (EiC, GRSM)

Come and learn about IEEE publication procedures and practices. Hear what the editors in chief have to say about their journals. Ask questions about any aspect of GRSS publications that have been bothering you.

Lunch is not provided for this event.

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**Technical Committees & Chapter Chairs Dinner**

**Location:** Restaurant Danzero  
**Date / Time:** Wednesday, July 31, 19:00 - 22:00  
**Cost:** US $50

**Thursday, August 1**

**Editors Lunch Meeting**

**Location:** PACIFICO Yokohama Bay Bridge Cafeteria (6F)  
**Date / Time:** Thursday, August 1, 12:20-13:40  
**Cost:** By Invitation Only

**Friday, August 2**

**TC Chairs Luncheon**

**Location:** PACIFICO Yokohama Room 422  
**Date / Time:** Friday, August 2, 12:20-13:40  
**Cost:** By Invitation Only
Student Paper Competition

All IEEE student members were invited and encouraged to enter the IGARSS Student Paper Competition. Ten finalists have been selected by a committee to present their papers during a special session at the symposium in Yokohama, on Tuesday morning, July 30, in room Room 4C. Three prizes will be presented: First Prize (Mikio Takagi Student Prize) endowed with US$1000.00, Second Prize endowed with US$750.00, Third Prize endowed with US$500.00, plus certificates for each. Following the special session at IGARSS, a complimentary ticket to the GRSS Annual Awards Banquet has been offered to the 10 finalists. The ten finalists are listed below.

TU1.R4.1: ROBUST LOW-RANK CHANGE DETECTION FOR SAR IMAGE TIME SERIES
   Ammar Mian, CentraleSupélec, France; Arnaud Brelot, Université Paris Nanterre, France; Guillaume Ginolhac, Université Savoie Mont-Blanc, France; Jean-Philippe Ovarlez, ONERA, France

TU1.R4.2: MULTIMODAL-TEMPORAL FUSION: BLENDING MULTIMODAL REMOTE SENSING IMAGES TO GENERATE IMAGE SERIES WITH HIGH TEMPORAL RESOLUTION
   Xun Liu, Chenwei Deng, Baojun Zhao, Beijing Institute of Technology, China; Jocelyn Chanussot, University of Grenoble Alpes, CNRS, Grenoble INP, France

TU1.R4.3: FULLY ADAPTIVE CLOUD PROFILING RADAR SIMULATION
   Jakob DeLong, Mohammad Shattal, Andrew O’Brien, Christopher Ball, Joel Johnson, Graeme Smith, Ohio State University, United States

TU1.R4.4: TWO DIMENSIONAL IMAGE FORMATION WITH PASSIVE RADAR USING THE SUN FOR ECHO DETECTION
   Sean Peters, Dustin Schroeder, Davide Castelletti, Stanford University, United States; Mark Haynes, Andrew Romero-Wolf, California Institute of Technology, NASA Jet Propulsion Laboratory, United States

TU1.R4.5: MODELING AND RETRIEVING SOIL MOISTURE AND ORGANIC MATTER PROFILES IN THE ACTIVE LAYER OF PERMAFROST SOILS FROM P-BAND RADAR OBSERVATIONS
   Richard Chen, Kazem Bakian-Dogaheh, Alireza Tabatabaeenejad, Mahta Moghaddam, University of Southern California, United States

TU2.R4.1: USING DEEP LEARNING TO COUNT ALBATROSSES FROM SPACE
   Ellen Bowler, University of East Anglia, United Kingdom; Peter Fretwell, British Antarctic Survey, United Kingdom; Geoffrey French, Michal Mackiewicz, University of East Anglia, United Kingdom

TU2.R4.2: NOISY SUPERVISION FOR CORRECTING MISALIGNED CADASTER MAPS WITHOUT PERFECT GROUND TRUTH DATA
   Nicolas Girard, Inria, France; Guillaume Charpiat, Inria Saclay, France; Yuliya Tarabalka, Inria, France

TU2.R4.3: QUANTIFYING THE CONTRIBUTION OF TROPICAL CYCLONES TO THE EARTH’S OUTGOING RADIATION
   Kien Th. Nguyen, Andrey S. Alenin, Elizabeth A. Ritchie, J. Scott Tyo, University of New South Wales, Canberra, Australia

TU2.R4.4: UNSUPERVISED TEMPORAL-ADAPTATION WITH MULTIPLE GEODESIC FLOW KERNELS FOR HYPSERSPECTRAL IMAGE CLASSIFICATION
   Tianzhu Liu, Yanfeng Gu, Harbin Institute of Technology, China

TU2.R4.5: APPLICATION OF ULTRA-WIDEBAND SYNTHESIS IN SOFTWARE DEFINED RADAR FOR UAV-BASED LANDMINE DETECTION
   Samuel Prager, Mahta Moghaddam, University of Southern California, United States
GRSS Technical Committees

The Geoscience and Remote Sensing Society has established a number of Technical Committees to actively promote discussion and advances in areas of member technical interests. Activities of the Technical Committees include the organization of special sessions at IGARSS along with hosting a committee meeting open to all IGARSS participants. The following is a list of current technical committees, brief statement of interest, special sessions and meetings at IGARSS 2019.

Frequency Allocation in Remote Sensing (FARS)

The Frequency Allocations in Remote Sensing Technical Committee (FARS TC) mission is to serve as interface between the GRSS community and the radio-frequency regulatory world. This includes providing guidance and recommendations on matters relevant to spectrum management, promoting the development of radio-frequency, and educating the remote sensing community on relevant spectrum management processes and current issues.

Invited Sessions:
  - Monday, July 29, 13:40-15:20, Room 313-314
- MO4.R4: Radio Frequency Interference (RFI) and Spectrum Management
  - Monday, July 29, 16:20-18:00, Room 313-314
- WE3.R7: Radio Frequency Interference (RFI) in Active Remote Sensing and GNSS Reflectometry
  - Wednesday, July 31, 13:40 - 15:20, Room 413

TC Meeting:
- Monday, July 29, 18:00-19:00, Room 313-314

Geoscience Spaceborne Imaging Spectroscopy (GSIS)

The Geoscience Spaceborne Imaging Spectroscopy Technical Committee (GSIS TC) provides a community of practice for all stakeholders engaged in spaceborne imaging spectroscopy with an emphasis on geoscientific applications. The mission of the GSIS TC is to share information on future spaceborne imaging spectroscopy (“hyperspectral”) missions, to provide opportunities for new partnerships between national space agencies, commercial spaceborne imaging spectroscopy data providers, research institutions and user community, and, to build a knowledge base on underpinning capabilities required for imaging spectroscopy missions to enable uptake of spaceborne imaging spectroscopy by the geoscientific community.

Invited Sessions:
  - Monday, July 29, 13:40-15:20, Room 511-512
  - Monday, July 29, 16:20-18:00, Room 511-512

TC Meeting:
- Monday, July 29, 18:00-19:00, Room 511-512

GRSS Standards for Earth Observation (GSEO)

The mission of the GRSS Standards for Earth Observation (GSEO) is to advance the usability and uptake of remote sensing products by convening experts from academia, industry and government to create and promote standards and best practices. Working groups identify where standardization can improve the generation, distribution and utilization of interoperable data products from remote sensing systems and then work with existing Standards Development Organizations such as IEEE, OGC and ISO to publish standards that will be widely adopted.

Invited Sessions:
- MO3.R3: Advancing Remote Sensing in the Geosciences through Standardization I
  - Monday, July 29, 13:40-15:20, Room 311-312
- MO4.R3: Advancing Remote Sensing in the Geosciences through Standardization II
  - Monday, July 29, 16:20-18:00, Room 311-312

TC Meeting:
- Monday, July 29, 18:00-19:00, Room 311-312

Earth Science Informatics (ESI)

The mission of the Earth Science Informatics Technical Committee (ESI TC) is to advance the application of informatics to the geosciences and remote sensing, to provide a venue for ESI professionals to exchange information and knowledge, and to give technology advice to major national and international ESI initiatives.

Invited Sessions:
- TU3.R7: Analytics on Datacubes & Analysis Ready Earth Data I - supported by GRSS ESI, OGC, ISO, INSPIRE
  - Tuesday, July 30, 16:20-18:00, Room 413
  - Friday, August 2, 08:00 - 09:40, Room 313-314
- FR2.R4: Earth Observation Science and Exploitation using Common Standards and Platforms II
  - Friday, August 2, 10:40 - 12:20, Room 313-314

TC Meeting:
- Tuesday, July 30, 18:00-19:00, Room 413
Image Analysis and Data Fusion (IADF)
The Image Analysis and Data Fusion Technical Committee (IADFTC) mission is to serve as a global, multi-disciplinary, network for geospatial data fusion, with the aim of connecting people and resources, educating students and professionals, and promoting the best practices in data fusion applications.

Invited Sessions:
TU3.R10: Data Fusion: The AI Era I
   Tuesday, July 30, 13:40-15:20, Room 418
TU4.R10: Data Fusion: The AI Era II
   Tuesday, July 30, 16:20-18:00, Room 418
WE1.R7: IEEE GRSS Data Fusion Contest I
   Wednesday, July 31, 08:00-09:40, Room 413
WE2.R7: IEEE GRSS Data Fusion Contest II
   Wednesday, July 31, 10:40-12:20, Room 413
TC Meeting:
   Tuesday, July 30, 18:00-19:00, Room 418

Instrumentation and Future Technologies (IFT)
The Instrumentation and Future Technologies Technical Committee’s (IFT TC) mission is to facilitate, engage and coordinate GRSS members and the communities-at-large to: assess the current state-of-the-art in remote sensing instruments and technology, identify new instrument concepts and relevant technology trends, and recognize enabling technologies for future instruments. The committee actively promotes and provides insight to institutions and industry on remote sensing instrument and technology development.

Invited Sessions:
TU3.R4: Space Lidar: Missions, Technologies and Observations I
   Tuesday, July 30, 13:40-15:20, Room 313-314
TU4.R4: Space Lidar: Missions, Technologies and Observations II
   Tuesday, July 30, 16:20-18:00, Room 313-314
TC Meeting:
   Tuesday, July 30, 18:00-19:00, Room 313-314

Modelling in Remote Sensing (MIRS)
The mission of the Modeling in Remote Sensing Technical Committee (MIRS TC) is to serve as a technical and professional forum for advancing the science of predicting remotely sensed observations from first principles theory. The MIRS TC addresses the technical space between basic electromagnetic theory and data collected by remote sensing instruments. It focuses on models and techniques used to take geometric, volumetric and material composition descriptions of a scene along with their EM (e.g., scattering, absorption, emission, optical BRDF, dielectric properties, etc.) attributes and then predict for a given remote sensing instrument the resulting observation.

Invited Sessions:
   Tuesday, July 30, 13:40-15:20, Room 511-512
   Tuesday, July 30, 16:20-18:00, Room 511-512
TC Meeting:
   Tuesday, July 30, 18:00-19:00, Room 511-512

Technical Committee Chair Meetings
The GRSS Technical Committees will have a short display of their activities during the Welcome Reception 
   Sunday, July 28, 18:00-20:00, PACIFICO
   Yokohama Conference Center 5F, 501+503
The GRSS Technical Committees will be available at the GRSS Booth providing information about their activities and have some surprises for you available! 
   Monday to Friday at the GRSS Booth, Exhibition Hall
   Friday, August 2, 12:20-13:40, Room 422 (for Technical Committee Chairs only)

In addition, IGARSS participants are invited to attend the Technical Committee and Chapter Chairs Dinner (Wednesday, July 31, 19:00-22:00) at which there will be brief presentations by the Chairs of the Technical Committees. Pre-registration is required.
Tutorials

**Full-Day, Sunday, July 28, 09:30 - 17:30**

**FD-1: From SAR Polarimetry to Polarimetric SAR Interferometry and Polarimetric SAR Tomography**
Giuseppe Parrella, Konstantinos Papathanassiou and Matteo Pardini (DLR)
Location: Room 315

James L Garrison (Purdue University), Estel Cardellach (Institute of Space Sciences, ICE-CSIC, IEEC), Adriano Camps (Universitat Politècnica de Catalunya -BarcelonaTech, UPC)
Location: Room 411-412

**FD-3: Machine Learning in Remote Sensing - Best Practices and Recent Solutions**
Ronny Hänsch (Technische Universität Berlin), Yuliya Tarabalka (LuxCarta Technology, France), Devis Tuia (Wageningen University and Research), Bertrand Le Saux (ONERA)
Location: Room 413

**FD-4: Earth Observation Big Data Intelligence: Theory and Practice of Deep Learning and Big Data Mining**
Mihai Datcu (DLR), Feng Xu (Fudan University), Akira Hirose (The University of Tokyo)
Location: Room 416-417

**FD-5: Deep Learning with the Orfeo ToolBox**
Rémi CRESSON (IRSTEA), Kenji OSE (UMR TETIS)
Location: Room 418

**FD-6: Natural Disasters and Hazards Monitoring using Earth Observation Data**
Ramona Pelich, Marco Chini (Luxembourg Institute of Science and Technology), Wataru Takeuchi (University of Tokyo), Young-Joo Kwak (NILIM, Ministry of Land, Infrastructure, Transport and Tourism Japan), Vitaliy Yurchenko (iGeo AS)
Location: Room 419

**Morning, Sunday, July 28, 09:30 - 12:45**

**HD-1: Bridge 3D Radiative Transfer Simulations from Optical, Thermal, Lidar to Microwave**
Huaguo Huang (Beijing Forestry University)
Location: Room 311

**HD-2: Pansharpening: From Classical Techniques to Recent Advances**
Mauro Dalla Mura (GIPS-lab Grenoble Institute of Technology), Andrea Garzelli (University of Siena), Gemine Vivone (University of Salerno)
Location: Room 312

**HD-4: Near Range and Ground Penetrating Radar (GPR) / UWB radar: Fundamentals to applications**
Motoyuki Sato (Tohoku University)
Location: Room 313

**Afternoon, Sunday, July 28, 14:15 - 17:30**

**HD-5: Spectrum Management and Radio Frequency Interference (RFI) in Microwave Remote Sensing**
Paolo de Matthaeis (NASA Goddard Space Flight Center, USA), Yan Soldo (NASA Goddard Space Flight Center, USA), Mingliang Tao (Northwestern Polytechnical University, China)
Location: Room 311

**HD-6: Random Forest Classification: Guidelines on Model Optimization, Variable and Training Selection**
Koreen Millard, Sarah Banks, Amir Behnamian (Environment and Climate Change Canada)
Location: Room 312

**HD-7: Analysis of SAR Amplitude and Phase Time Series for Land Applications**
Paolo Pasquali (sarmap s.a.)
Location: Room 313

**HD-8: 3D/4D SAR Tomography: Principles and Applications**
Fabrizio Lombardini (University of Pisa)
Location: Room 314
**2019 Geoscience and Remote Sensing Summer School**

Dates: Tuesday, July 23 - Friday, July 26, 2019  
Venue: Tokyo Institute of Technology  
2-12-1 Ookayama, Meguro-ku,  
Tokyo 152-8550  
Japan  

GRSS Summer School (GR4S) will be held in conjunction with IGARSS 2019. The main venue is Tokyo Institute of Technology, located approximately 30 minutes away from the IGARSS 2019 venue by train. GR4S will be a four-day course that offers three-day seminar lectures and hands-on lab works, with one-day technical tour. Distinguished speakers will give lectures on SAR remote sensing, optical remote sensing and remote sensing for disaster damage mapping, which are followed by hands-on training. On the second day (Wednesday, July 24), a technical tour is planned to NIED and JAXA, Tsukuba, Japan.

Co-chairs: Hiroaki Kuze (Chiba University), Kuniaki Uto (Tokyo Institute of Technology), Naoto Yokoya (RIKEN Center for Advanced Intelligence Project)

**Contact information**

2019 Geoscience and Remote Sensing Summer School Committee  

email: gr4s@igarss2019.org

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**Education Program**

Earth Observation Using Remote Sensing: Investigation from Space

Special education program for 10-15 years old local students will be held during IGARSS 2019. The program includes a lecture on earth observation from satellite including hands-on activities, and a hyper-wall show on current remote sensing examples. This education program is supported by culture and tourism bureau, City of Yokohama.

**Contents**

- **LECTURE** organized by Remote Sensing Technology Center of Japan (RESTEC)  
  - Satellite for earth observation  
  - Japan and overseas seen from space  
  - Introduction of remote sensing technique  
  - Paper craft globe making  
- **HYPER-WALL SHOW** given by Dr. Gail Skofronick-Jackson, NASA  
  - NASA Remote Sensing Examples  

Location: PACIFICO Yokohama 301-304  
Date/Time: Monday, July 29, 13:30-15:00, 15:30-17:00  
Language: Japanese (lecture) / English with Japanese translation (Hyper-wall show)
Presentation Instructions

Guidelines for Speakers and Oral Presenters
The official language of the Symposium is English. Each oral presentation time is allocated 20 minutes. We recommend that presentation of your slides should take about 15-16 minutes, leaving 4-5 minutes for introduction, summary, and questions from the audience. To achieve appropriate timing, organize your slides or viewgraphs around the points you intend to make, using no more than one slide per minute. A reasonable strategy is to allocate about 2 minutes per slide when there are equations or important key points to make, and one minute per slide when the content is less complex. Slides attract and hold attention, and reinforce what you say - provided you keep them simple and easy to read. Plan on covering at most 6 points per slide, covered by 6 to 12 spoken sentences and no more than about two spoken minutes.

Make sure each of your key points is easy to explain with aid of the material on your slides. Do not read directly from the slide during your presentation. You shouldn’t need to prepare a written speech, although it is often a good idea to prepare the opening and closing sentences in advance. It is very important that you rehearse your presentation in front of an audience before you give your presentation at IGARSS. Surrogate presenters must be sufficiently familiar with the material being presented to answer detailed questions from the audience. In addition, the surrogate presenter must contact the Session Chair in advance of the presenter’s session.

Pre-recorded presentations are NOT ALLOWED, and the person giving the presentation MUST be able to take and answer questions regarding the content of the paper and associated research. The presenter must be present in the room, remote virtual presenters are NOT allowed.

A computer-driven slideshow for use with a data projector is recommended for your talk at IGARSS. All presentation rooms will be equipped with a computer, a data projector, a microphone (for large rooms), a lectern, and a pointing device. An overhead projector will be provided upon request.

It is important that the sessions remain on time. The session chair(s) are responsible for keeping presentations on schedule. Any setup time you use is part of your overall 20 minute presentation time, so it is a good idea to check your visual aids before the session begins.

Presenters should locate their session room in due time and be in the room 20 minutes before the session room begins to meet with the session chair, who should be near the stage/lectern. Presentation shall be uploaded to the computer in the session room via USB flash memory stick during the break before the session (USB Port is Type A). Presenters are advised when uploading their presentations to check if formulas/animations are shown correctly. Presenters can check their presentations also in the Speakers’ Preview Area on the 3rd floor.

Please do not attempt to use your own computer to connect to the projector. For speed and efficiency, use only the conference-provided computer for displaying your presentation visual aids.

Technical Specifications in the session room:
• All rooms will be fitted with a lectern, laptop, projector, screen and laser pointer. There are staffs in each room, and they will help you to when there’s any trouble during the presentation.
• A Windows PC (with Windows 10, PowerPoint 2010~2019) is set up. Sound function will be available. Video files must be produced to be playable with the codec included in the Windows Media Player 11 initial state.
• We recommend you make your slides with aspect ratio of 16:9 (If you make them with aspect ratio of 4:3, the reduced-size slides are projected onto a screen.)

Speakers’ Preview Room
On the 3rd floor there will be a room to check presentation materials. There will be 12 computers for the speakers to check and modify the presentations if needed.

The Speakers’ preview area opening hours:
• Sunday, July 28 ........................ 16:00 – 19:00
• Monday, July 29......................... 08:00 – 18:30
• Tuesday, July 30 ....................... 08:00 – 18:30
• Wednesday, July 31 .......... 08:00 – 18:30
• Thursday, August 1 .............. 08:00 – 18:30
• Friday, August 2 ..................... 08:00 – 16:00

Guidelines for Poster Presenters
Poster sessions are a good medium for authors to present papers and meet with interested attendees for in-depth technical discussions. In addition, attendees find the poster sessions a good way to sample many papers in parallel sessions. It is important that you display your message clearly and noticeably to attract people who might have an interest in your paper.

Your poster should cover the key points of your work. It need not, and should not, attempt to include all the details; you can describe them in person to people who are interested. The ideal poster is designed to attract attention, provide a brief overview of your work, and initiate discussion. Carefully and completely prepare your poster well in advance of the conference. Try tacking up the poster before you leave for the conference to see what it will look like and to make sure that you have all of the necessary pieces.

For each paper accepted within a poster session, one board is reserved for your use. Each board has a width of 120 cm (47.2 inches) and a height of 210cm (87.2 inches). You will be able to use the full width of one board. The poster is not required to fill this entire space, but it cannot be any larger.
than the board size. It is recommended to use A0 Portrait for your poster size.

The boards will be arranged in rows. Each reserved paper space will be assigned a number. Every paper being presented at the same time will also be assigned a number. The number, called the Board Number, will identify the place to post your poster.

Authors for the morning poster session should have their posters in place by 8:30, stand by their poster during the 9:40-10:40 morning poster session, and remove their poster by 13:00. Authors for the afternoon poster session should have their posters in place by 14:00, stand by their poster during the 15:20-16:20 afternoon poster session, and remove their poster by 18:30.

IMPORTANT: There MUST be a presenter standing at the poster during the entire scheduled poster time. A poster that is mounted to the board, but without any person presenting it will be considered a no-show!

Posters shall be on display during the day dedicated to the specific poster session. Authors are invited to be on stand-by near their posters during the session breaks and must be near their poster during the dedicated poster session time.

The title of your poster should appear at the top in CAPITAL letters about 25mm high. Below the title put the author(s)' name(s) and affiliation(s). The flow of your poster should be from the top left to the bottom right. Use arrows to lead your viewer through the poster. Use color for highlighting and to make your poster more attractive. Use pictures, diagrams, cartoons, figures, etc., rather than text wherever possible.

Try to state your main result in 6 lines or less, in lettering about 15mm high so that people can read the poster from a distance. The smallest text on your poster should be at least 9mm high, and the important points should be in a larger size. Use a sans-serif font (such as “cmss” in the Computer Modern family or the “Helvetica” PostScript font) to make the print easier to read from a distance.

Make your poster as self-explanatory as possible. This will save your efforts for technical discussions. There will not be any summaries given at the beginning of the poster sessions at IGARSS 2019, so authors need not prepare any overhead slides for their poster presentations. You may bring additional battery-operated audio or visual aids to enhance your presentation.

Prepare a short presentation of about 5 minutes that you can periodically give to those assembled around your poster throughout the 2 hour poster session. If possible, more than one author should attend the session to aid in presentations and discussions, and to provide the presenters with the chance to rest or briefly view other posters.

SPRINT Presentation Guidelines

Shortly Presenting Interactive Content

SPRINT is short and scientific that combines the advantage of both oral and poster presentation. It provides the opportunity to interact with the audience. Every SPRINT author first presents his/her work orally and has afterwards the opportunities to discuss the topic during the interactive session at his/her poster display.

SPRINT Session Organization

SPRINT presentations are organized in sessions scheduled at a specific SPRINT spot in Room 503, indicated in the program together with the time of presentation of each contribution. The SPRINT sessions are scheduled in 3-4 presentations during each interactive session in front of the audience.

Prepare your SPRINT presentation

A SPRINT presentation consists of a 4-minute oral slot followed by the presentation time at the interactive session with the poster. SPRINT authors are kindly asked to prepare one presentation file with 3 slides introducing their topic, presenting their results and inviting the audience to discuss and interact at the corresponding poster. Your presentation file must be PowerPoint or PDF and videos and animations can be embedded. We recommend producing your presentation with an 16:9 aspect ratio. However, you can also prepare your presentation in the classic 4:3 format. The authors should upload the presentation at the beginning of the interactive session. The SPRINT session starts 10 min after the interactive session starts.

SPRINT spot equipment

- PC, projector, and screen
- Speaker microphone
- Presentation timer and pointer
MONDAY
Session MO3.R3  Oral-Invited
Advancing Remote Sensing in the Geosciences through Standardization I
Session Co-Chairs: Siri Joarda Khalsa, Univ. of Colorado, Boulder; Christopher Dorell, Labaphere, Inc

MO3.R3.1 CREATING STANDARDS TO ADVANCE TECHNOLOGY ADOPTION AND ADDRESS SOCIETAL NEEDS
13:40 Siri Joarda Khalsa, University of Colorado, Boulder, United States

MO3.R3.2 IEEE P4001 HYPERSONIC STANDARD: PROGRESS AND COOPERATION
14:00 Christopher Dorell, Labaphere, Inc, United States

MO3.R3.3 PROGRESS IN SAR METADATA STANDARDS
14:20 Inland Pierce, University of Michigan, United States

MO3.R3.4 GENERIC PROCESSING OF SAR COMPLEX DATA USING THE SCID STANDARD IN MATLAB
14:40 Wade Schwartzkopf, National Geospatial Intelligence Agency, United States; Timothy Cox, U.S. Naval Research Laboratory, United States; Frederik Axenteln, National Geospatial Intelligence Agency, United States; Ralph Frieder, U.S. Naval Research Laboratory, United States

MO3.R3.5 STANDARDIZATION EFFORTS ACROSS SPACE AGENCIES: APPLICATIONS AND ANALYSIS READY DATA DISCOVERY IN THE CLOUD
15:00 Ingo Simonis, Open Geospatial Consortium, Germany

MONDAY
Session MO3.R4  Oral-Invited
Radio Frequency Interference (RFI) in Passive Instruments
Session Co-Chairs: Roger Oliver, European Space Agency; Yan Saldo, NASA Goddard Space Flight Center

MO3.R4.1 LESSONS LEARNED FROM SMOS RFI PROCESSING, PERSPECTIVES FOR FUTURE INTERFEROMETRY MISSIONS.
13:40 Francois Cabot, CNES / CESBIO, France; Eric Artzner, Philippe Richaume, Yann Kerr, Ali Khazad, Centre d'Etude Spatial de la Biosphère (CESBIO), France

MO3.R4.2 QUANTIZATION AND SAMPLING EFFECTS ON MICROWAVE RADIOMETRY RFI MITIGATION ALGORITHMS
14:00 Raul Díez-García, Adriano Camps, Universitat Politècnica de Catalunya - BarcelonaTech, Spain

MO3.R4.3 DEVELOPMENTS OF RFI DETECTION ALGORITHMS AND THEIR APPLICATION TO FUTURE EUROPEAN SPACEBORNE SYSTEMS
14:20 Sven Sandrup Kristensen, Niel Skov, Sten Schnit iP Saabyng, Jan E. Bulking, Technical University of Denmark, Denmark

MO3.R4.4 SMOS RFI EXPERIENCE IN THE 1400-1427 MHZ PASSIVE BAND: CASE OF EXTENDED INTERFERENCE CAUSED BY BROADCASTING SATELLITE HOME-TV RECEIVERS
14:40 Elena Deganza, Roger Oliver, European Space Agency (ESA), Netherlands; Philippe Richaume, Centre d’Etude Spatial de la Biosphère (CESBIO), France; Alvaro Turiel, BEC, Institute of Marine Sciences, Spain

MO3.R4.5 CHARACTERISTICS OF 18.7 GHZ REFLECTED RADIO FREQUENCY INTERFERENCE IN PASSIVE RADIOMETER DATA
15:00 David Draper, Ball Aerospace, United States; Paolo de Matthaeis, NASA Goddard Space Flight Center / Universities Space Research Association, United States

MONDAY
Session MO4.R3  Oral-Invited
Advancing Remote Sensing in the Geosciences through Standardization II
Session Chair: Derek Houtz, Swiss Federal Institute for Forest, Snow and Landscape Research

MO4.R3.1 GC STANDARDIZATION: FROM EARLY IDEAS TO ADOPTED STANDARDS
16:20 Ingo Simonis, Open Geospatial Consortium, Germany

MO4.R3.2 REMOTE SENSING ANALYTICS IN DATABASES WITH ISO SQL/MDA
16:40 Dimitar Misev, Peter Baumann, Jacobs University Bremen, Germany

MO4.R3.3 COMPENSATED PHD – A SENSOR-INDEPENDENT PRODUCT FOR SAR PHD
17:00 Robert Johnston, Valkyries Systems Corporation, United States; Wade Schwartzkopf, National Geospatial Intelligence Agency, United States

MO4.R3.4 TOWARDS BUILDING A SAR ONTOLOGY: SOME ONGOING STANDARDIZATION AND RESEARCH EFFORTS IN PROGRESS
17:20 Navesh Kumar Mallenahalli, Hari Priya Sarkerpattan, National Remote Sensing Centre, India

MO4.R3.5 DEVELOPMENT OF AN IEEE STANDARD FOR CALIBRATION OF MICROWAVE RADIOMETERS
17:40 Derek Houtz, Swiss Federal Institute for Forest, Snow and Landscape Research, Switzerland; William Blackwell, Massachusetts Institute of Technology, Lincoln Laboratory, United States; Adriano Camps, Universitat Politècnica de Catalunya (UPC), Spain; William Emery, Albin Gnizowski, University of Colorado Boulder, United States; Axel Monk, University of Bern, Switzerland

MONDAY
Session MO4.R4  Oral-Invited
Radio Frequency Interference (RFI) and Spectrum Management Issues
Session Co-Chairs: Paolo de Matthaeis, NASA Goddard Space Flight Center; Roger Oliver, European Space Agency

MO4.R4.1 RADIO FREQUENCY INTERFERENCE DEVICES: THE SMOS EXPERIENCE
16:20 Ekki Usongo, Alvaro Turiel, European Space Agency ESA-ESAC, Spain; Antonio de la Fuente, European Space Agency ESA-ESRIN, Italy; Elena Deganza, European Space Agency ESA-ESTRACK, Netherlands; Roger Oliver, European Space Agency ESA-ESAC, Spain; Yann Kerr, Centre d’Etude Spatial de la Biosphère (CESBIO) / CNES/CNRS/IRD/UPS, France

MO4.R4.2 CURRENT THREATS TO PASSIVE MICROWAVE REMOTE SENSING AND THE ROLE OF THE COMMITTEE ON RADIO FREQUENCIES (CORF)
16:40 William Emery, University of Colorado, United States

MO4.R4.3 RFI EXCISION IN RADIOMETERS: A RADIO ASTRONOMY PERSPECTIVE
17:00 Koushal Bhat, Giant Metrewave Radio Telescope, MCO4-IFFR, India

MO4.R4.4 CHARACTERISTICS OF RADIO FREQUENCY INTERFERENCE IN THE PROTECTED PORTION OF L-BAND
17:20 Mustafa Alpay, Hamid Reza, University at Albany, State University of New York, United States

MO4.R4.5 ASSESSMENT OF SMOs RFI MITIGATION BY MEANS OF A TRIPLE COLLOCATION TECHNIQUE
17:40 Roger Oliver, ZentriX Blue Technologies, Spain; Veronica Gonzalez-Gambau, Antonia Tuell, BERC Institute of Marine Sciences, Spain
MONDAY ORAL

Monday, July 29 13:40 - 15:20 Room 315

Object Detection in SAR Imaging I
Session Co-Chairs: Tan Du, National Laboratory of Radar Signal Processing, Xidian University; Giorgio Gombo, German Aerospace Center (DLR)

M03.R5.1 SCALE-TRANSFERRABLE PYRAMID NETWORK FOR MULTI-SCALE SHIP DETECTION IN SAR IMAGES
Mengyuan Liu, Zongyang Cui, Zongjie Cao, Yiming Pi, Hai Lu, University of Electronic Science and Technology of China, China

M03.R5.2 MULTISCALE SHIP DETECTION BASED ON DENSE ATTENTION PYRAMID NETWORK IN SAR IMAGES
Qi Li, Rui Ma, Zongyang Cui, Yiming Pi, Zhengyou Xu, University of Electronic Science and Technology of China, China

M03.R5.3 WEIGHT OPTIMIZATION FOR MULTI-TASK SPARSE REPRESENTATION IN SAR IMAGE TARGET RECOGNITION
Zhi Zhou, Zongjie Cao, Yalan Zhang, Yiming Pi, Mengyuan Liu, University of Electronic Science and Technology of China, China

M03.R5.4 A HIERARCHICAL SALIENCY BASED TARGET DETECTION METHOD FOR HIGH-RESOLUTION SAR IMAGES
Lan Du, Li Li, Zhaocheng Wang, National Laboratory of Radar Signal Processing, Xidian University, China

M03.R5.5 SAR TARGET DETECTION BASED ON PSIFT FEATURE CLUSTERING
Lina Zeng, Deyun Zhou, Qian Pan, Chao Lu, Ying Zhou, Northwestern Polytechnical University, China

Monday, July 29 16:20 - 18:00 Room 315

Object Detection in Urban Areas II
Session Co-Chairs: Rony Hänch, Technische Universität Berlin; Andrea Marinni, University of Tromsø

M04.R5.1 EXPERIMENT ON THE IMPACT OF SPATIAL RESOLUTION ON BUILDING EXTRACTION ACCURACY
Jean-Samuel Pralong-Baqué, Lucie Mathieu, Charles Papasotiriou, Daniel Pillon, Nouri Saho, Mathieu Tardiegu-Pelletier, Natural Resources Canada, Canada

M04.R5.2 AUTOMATIC VECTORIZATION EXTRACTION OF FLAT-ROOFED HOUSES USING HIGH-RESOLUTION REMOTE SENSING IMAGES
Guowei Ma, Guoju Hu, Xiaodan Shi, Xiaojie Pan, Wuhan University, China

M04.R5.3 BUILDING EXTRACTION FROM REMOTE SENSING IMAGE WITH PRIVILEGED INFORMATION
Xue Li, Bo Du, Longzhi Zhang, Wuhan University, China

M04.R5.4 IMPROVED DEEP FULLY CONVOLUTIONAL NETWORK WITH SUPERPIXEL-BASED CONDITIONAL RANDOM FIELDS FOR BUILDING EXTRACTION
Wenqiang Feng, Haoping Sui, Wuhan University, China; Li Hua, Huazhong Agricultural University, China; Chuan Xu, Wuhan University, China

M04.R5.5 ASPHALT POTHOLE DETECTION IN UAV IMAGES USING CONVOLUTIONAL NEURAL NETWORKS
Yan Becker, Henrique Siqueira, Edson Matsubara, Wesley Gonçalves, Josué Marçato Jr., Universidade Federal de Mato Grosso do Sul, Brazil

Urban Land Use and Land Cover Change
Session Co-Chairs: Patrick Helber, German Research Center for Artificial Intelligence (DFKI); Changlin Xiao, ETH Zürich

M03.R6.1 TOWARDS A SENTINEL-2 BASED HUMAN SETTLEMENT LAYER
Patrick Helber, Benjamin Bischke, Jörn Hees, Andreas Dengel, German Research Center for Artificial Intelligence (DFKI), Germany

M03.R6.2 A MODIFIED STARMF METHOD FOR HETEROGENEOUS AREA BASED ON MULTI-SPECTRAL DATA
Yunshan Meng, National Marine Data and Information Service, China; Bo Ping, Tianjin University, China

M03.R6.3 URBAN LAND-COVER CLASSIFICATION WITH FAÇADE FEATURE FROM OBLOQUE IMAGES
Changlin Xiao, ETH Zürich, Singapore; Rangan Qin, Ohio State University, United States; Xiao Ling, ETH Zürich, Singapore; Huang Yuan, Beijing Institute of Technology, China

M03.R6.4 CHARACTERIZING URBAN EXPANSION OF SMALL CITIES IN NIGERIA AND DEMOCRATIC REPUBLIC OF THE CONGO USING LANDSAT TIME SERIES
Bashir Chai, Peijun Li, Peking University, China; Karen Seto, Yale University, United States

M03.R6.5 ANALYSIS OF IMPERVIOUS SURFACE CHANGE AND ECONOMY IN TJANJIN, CHINA USING LANDSAT TIME SERIES DATA
Yiran Zhao, Bozhen Hu, Xiangqiu Liu, Mingyang Zhao, Wenhong Xiong, Senli Feng, University of Electronic Science and Technology of China, China

Land Use and Land Cover Change in Vegetated Terrains
Session Co-Chairs: Alejandro Monsiváis Huertero, Instituto Politécnico Nacional, ESIME Ticoman; Subiti Chakrabarti, Indigo

M04.R6.1 MAPPING SPATIO-TEMPORAL VARIATIONS OF CONVERTING FARMLAND TO FOREST/GRASSLAND ON THE LOESS PLATEAU USING ALL AVAILABLE LANDSAT TIME-SERIES IMAGES
Zhixing Wang, Peijun Li, Pan Zhang, Weiyi Sun, Li Li, Feiwei Dong, Xinxin Hou, Li Mo, Chengguan Jin, Yellow River Institute of Hydraulic Research, Yellow River Conservancy Commission, China

M04.R6.2 MONITORING OF INDONESIA TROPICAL RAINFORESTS AND LAND COVER CHANGE USING HYBRID APPROACH OF TIME SERIES LANDSAT DATA
Arif Wiyaya, Ricky Firmanto, Zorahmah Said, Benita Nathana, WRI Indonesia, Indonesia

M04.R6.3 MONITORING THE HISTORICAL DEVELOPMENT OF OIL PALM PLANTATIONS WITH COMBINED USE OF LANDSAT TIME SERIES, MULTITEMPORAL GOOGLE EARTH IMAGES AND ALS-O2/PALSAR-2
Arash Tavakkol, Baruch College, The City University of New York, United States

M04.R6.4 COMPARISON OF PASTURE AREAS OVER BRAZIL BIOMES USING GLOBAL AND NATIONAL LAND COVER MAPS
Joãoesr Oliveira, Rubens Lamparelli, Globo Espaço, University of Campinas, Brazil; Eleanor Chakrabarti, University of New Hampshire, United States; Johny Souza, Leonardo Montaño, Maxio Viana, University of Campinas, Brazil; John Sheehan, Colorado State University, United States; Lee Lynd, Dartmouth College, United States

M04.R6.5 DERIVATION OF GLOBAL SURFACE TYPE PRODUCTS FROM VIIRS
Chengquan Huang, Rui Zhang, University of Maryland, United States; Xiaowei Zhao, Ivan Csiszar, NASA/NSDI Center for Satellite Applications and Research, United States
Monday, July 29 13:40 - 15:20 Room 413
Session MO3.R7 Oral-Invited
Global Precipitation Measurement Mission I
Session Co-Chairs: V Chandrasekar, Colorado State University; David Kunkee, The Aerospace Corporation

MO3.R7.1 PRECIPITATION EXTREMES MONITORING USING GLOBAL SATELLITE MAPPING OF PRECIPITATION (GSMAP) PRODUCTS
13:40
Takuma Tashima, Takuji Kubota, Riku Oki, Japan Aerospace Exploration Agency (JAXA), Japan

MO3.R7.2 FEASIBILITY STUDY OF GPM/DPR WIDE SWATH OBSERVATION
14:00
Kazuaki Yamanouchi, Kei Funakawa, Japan Aerospace Exploration Agency (JAXA), Japan; Masahiro Takahashi, Nagoya University, Japan; Takuji Kubota, Japan Aerospace Exploration Agency (JAXA), Japan

MO3.R7.3 IMPROVEMENTS OF GPM DPR RAIN TYPE CLASSIFICATION ALGORITHM
14:20
Jun Awaka, Takai University, Japan; Stacy Rodak, University of Washington, United States

MO3.R7.4 EVALUATION OF INSTANTANEOUS RAIN RATE ESTIMATES IN DPR VERSION-06 PRODUCTS WITH RAIN GAUGE DATASET OVER JAPAN
14:40
Shinta Seto, Nagasaki University, Japan

MO3.R7.5 OBSERVATION PLATFORM
15:00
Hairong Wang, Qing Guo, An Li, Guang Liu, Huadong Guo, Jing Huang, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China

Monday, July 29 16:20 - 18:00 Room 413
Session MO4.R7 Oral-Invited
Global Precipitation Measurement Mission II
Session Co-Chairs: V Chandrasekar, Colorado State University; Ian Adams, NASA Goddard Space Flight Center

MO4.R7.1 HIGH RESOLUTION GSMAP WITH HIMAWARI 8
16:20
Tomoo Ushio, Tomoaki Mega, Tokyo Metropolitan University, Japan

MO4.R7.2 DETECTION OF VEGETATION DYNAMICS USING SPACEBORNE PRECIPITATION RADARS
16:40
Kento Nashimoto, University of Tsukuba, Japan; Takuji Kubota, Japan Aerospace Exploration Agency (JAXA), Japan; Takashi Maekawa, Remote Sensing Technology Center of Japan, Japan

MO4.R7.3 ACTIVE AND PASSIVE RADIATIVE TRANSFER SIMULATIONS FOR GPM-RELATED FIELD CAMPAIGNS
17:00
Ian C. Adams, S. Joseph Monstein, Hwee-Sun Koo, Craig Poliessie, Thomas Clune, Rachel Kowaden, Adrian Leuth, Xiaowen Li, NASA Goddard Space Flight Center, United States

MO4.R7.4 STUDY OF VERTICAL FEATURES OF SNOW, GRAUPEL AND HAIL ON A GLOBAL SCALE USING GPM PRODUCTS
17:20
Minda Le, V Chandrasekar, Colorado State University, United States

MO4.R7.5 SNOWFALL OBSERVATIONS DURING THE WINTER OLYMPICS OF 2018
17:40
Campaign using the D3R RADAR
V Chandrasekar, Shashank S Joshi, Mohit Kumar, Colorado State University, United States; Manuel A Vega, David Wolff, Wolter Peterson, National Aeronautics and Space Administration (NASA), United States

Monday, July 29 13:40 - 15:20 Room 503
Session MO3.R8 Oral
NewSpace Initiatives in Remote Sensing
Session Co-Chairs: George Kumar, NASA Retired; Marco Lavalle, NASA Jet Propulsion Laboratory

MO3.R8.1 THE CAPELLA X-BAND SAR CONSTELLATION FOR RAPID IMAGING
13:40
Craig Stringham, Gordon Panguharand, David Castelletti, Eric Quist, Lucas Rigg, Duncan Eddy, Scott Soonen, Capella Space Corporation, United States

MO3.R8.2 A NOVEL APPROACH AUTOMATIC DESIGNATION OF PRE-DEFINED CENSUS ENUMERATION AREAS AND POPULATION SAMPLING FRAMES BASED ON REMOTE SENSING DATA: A CASE STUDY IN SOMALIA
14:00
Sarah Qadir, University of Southampton, United Kingdom; Yorovange Lethembe, Flowminder, United Kingdom; Andy T CM, University of Southampton, United Kingdom; Utz Pape, World Bank, United States; Tomas Bird, Flowminder, United Kingdom

MO3.R8.3 SATELLITE PRECIPITATION ESTIMATES (SPEs) AND THEIR VALIDATION USING GROUND-BASED MEASUREMENTS: A CASE STUDY IN UTTARAKHAND STATE, INDIA
14:20
Anoop Kumar Shukla, C. S. P. Ojha, Indian Institute of Technology Roorkee, India; Sathyam Parkash, Indian Institute of Technology Roorkee, India

MO3.R8.4 IMPACT OF LUNAR TERRAIN ON MOON-BASED EARTH OBSERVATION
14:40
Hanrui Wang, Geng Guo, An Li, Geng Liu, Huadong Guo, Jing Huang, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China

MO3.R8.5 OBSERVATION ANGULAR ANALYSIS FROM A MOON-BASED EARTH OBSERVATION PLATFORM
15:00
Hanlin Ye, Huadong Guo, Geng Liu, Geng Guo, Guozheng Shen, Hanrui Wang, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China

Monday, July 29 16:20 - 18:00 Room 503
Session MO4.R8 Oral
Identification of Remote Sensing Indicators for Climate Change II
Session Chair: Tomoo Ushio, Tomoaki Mega, Tokyo Metropolitan University, Japan

MO4.R8.1 ERA5: STATE-OF-THE-ART GLOBAL ATMOSPHERIC REANALYSIS AT ECMWF
16:20
Hans Herbold, Bjarne Bell, Paul Berit, Alf Olaer, Rusaara Bregman, Andranas Honka, Julian Nicolas, Joaquim Menezes, Conrado, Carla Peeters, Rolcuu Bodu, Dina Schepers, Adrian Simmons, Cornell Sue, Arne Roel, Theopat, European Centre for Medium Range Weather Forecasts (ECMWF), United Kingdom

MO4.R8.2 ESTIMATING AGRICULTURAL CROP TYPES AND FALLOW LANDS USING MULTI TEMPORAL SENTINEL-2A IMAGERIES
16:40
Sakshi Saraf, Indian Agricultural Research Institute, India; Sujit Ghosh, Mukund Behera, IIT Kharagpur, India

MO4.R8.3 ENSEMBLE SATELLITE LAND PRODUCTS DEEPEN THE INTERPRETATION OF DROUGHT IMPACTS ON TERRESTRIAL CARBON CYCLE IN EUROPE OVER 2001–2015
17:00
Wei He, Fei Jiang, Weimin Ju, Nanjing University, China; Tu Ngoc Nguyen, Hohai University, China; Meihong Fang, Qiaoning He, Nanjing University, China; Chunhua Zhang, Ludong University, China

MO4.R8.4 MONITORING VEGETATION DYNAMICS IN JAPAN USING HIMAWARI GEOSTATIONARY SATELLITE
17:20
Tomoaki Miura, University of Hawaii at Manoa, United States; Shin Nagai, Japan Agency for Marine-Earth Science and Technology (JAMSTEC), Japan; Kazuhito Ichii, Chiba University, Japan; Naoki Honda, Akita Prefectural University, Japan

MO4.R8.5 EARTH REFLECTOR TYPE CLASSIFICATION BASED ON MULTISPECTRAL REMOTE SENSING IMAGE
17:40
Wenjuan Song, Beijing Normal University, China; Yuri Koyzak, Bukon University, United States; Matti Aittus, VTT Technical Research Centre of Finland, Finland; Xihan Mu, Guangjian Yan, Beijing Normal University, China
MONDAY ORAL

Session MO3.R9  Oral-Invited

TanDEM-X and Innovative Applications I

Session Co-Chairs: Alberto Moreira, German Aerospace Center (DLR); Irena Hajnsek, ETH/DLR

MO3.R9.1 TANDEM-X: MISSION STATUS AND SCIENCE ACTIVITIES
13:40
Irena Hajnsek, German Aerospace Center (DLR) / ETH Zürich, Switzerland; Alberto Moreira, Manfred Zink, Stefan Buckreuss, Thomas Kraus, Markus Buchmann, Thomas Busche, German Aerospace Center (DLR), Germany

14:00
Maria Lacko, Markus Barthmann, Thomas Fritz, Martin Huber, Barbara Schweisshelm, Birgit Wessel, German Aerospace Center (DLR), Germany

MO3.R9.3 USING THE TWO-LEVEL MODEL WITH TANDEM-X FOR LARGE-SCALE FOREST MAPPING
14:20
Henrik J. Persson, Swedish University of Agricultural Sciences, Sweden; Maciej J. Soja, MU Soja Consulting, Australia; Johan E.S. Fransson, Swedish University of Agricultural Sciences, Sweden; Lars M.H. Ulander, Chalmers University of Technology, Sweden

MO3.R9.4 A STRUCTURE-BASED FRAMEWORK FOR THE COMBINATION OF GEDI AND TANDEM-X MEASUREMENTS OVER FOREST SCENARIOS
14:40
Changhyun Choi, Matteo Pardini, Konstantinos Papathanassiou, German Aerospace Center (DLR), Germany

MO3.R9.5 SPACEBORNE DATA FUSION FOR LARGE-SCALE FOREST PARAMETER ESTIMATION: GEDI LIDAR & TANDEM-X INSAR MISSIONS
15:00
Seung-Kuk Lee, Temilola Fatoyinbo, NASA Goddard Space Flight Center, United States; Suzanne Marselle, Wenlu Qi, University of Maryland, United States; Steven Hancock, University of Edinburgh, United Kingdom; John Armstrong, Ralph Dubayah, University of Maryland, United States

Session MO3.R9  Oral-Invited

TanDEM-X and Innovative Applications II

Session Co-Chairs: Irena Hajnsek, ETH/DLR; Alberto Moreira, German Aerospace Center (DLR)

MO4.R9.1 GLACIER DETACHMENT HAZARD ANALYSIS IN THE WEST KUNLUN SHAN MOUNTAINS
16:20
Silvan Leiss, Cyril Willm, Irena Hajnsek, ETH Zürich, Switzerland

MO4.R9.2 CALVING DYNAMICS OF TWO OUTLET GLACIERS OF THE SOUTH PATAGONIAN ICEFIELD DERIVED FROM TERRASAR-X AND TANDEM-X
16:40
Erling Johnsen, Dana Florianova, German Aerospace Center (DLR), Germany

MO4.R9.3 SEA ICE TOPOGRAPHIC HEIGHT RETRIEVAL FROM TANDEM-X INTERFEROMETRIC SAR DATA
17:00
Karen Hana, Norve Mikkelsen, Johan G. Paske, Norwegian Research Centre, Norway; Wolfgang Berckling, Alfred Wegener Institute (AWI), Germany; Dmitry V. Divine, Norwegian Polar Institute, Norway; Tadg Tran, Carl G. Berry, University of Alaska, USA

MO4.R9.4 DETECTING RETROGRESSIVE THAW SLUMPS USING SINGLE-PASS BISTATIC TANDEM-X OBSERVATIONS
17:20
Phillip Bernhard, ETH Zürich, Switzerland; Simon Zwieback, University of Guelph, Canada; Irena Hajnsek, ETH Zurich / German Aerospace Center (DLR), Germany

MO4.R9.5 COMBINING TANDEM-X WITH MULTI-TEMPORAL, MULTI-SOURCE SATELLITE DATA FOR THE RECONSTRUCTION OF THE ARCTIC LANDSCAPES OF THE INDUS CIVILISATION
17:40
Hector A. Orengo, Catalan Institute of Classical Archaeology, Spain; Francesc C. Conesa, Adam S. Green, University of Cambridge, United Kingdom; Ravindra K. Singh, Banaras Hindu University, India; Cameron A. Petrie, University of Cambridge, United Kingdom

Session MO4.R10  Oral

SAR Instruments and Calibration III

Session Chair: Marwan Younis, German Aerospace Center (DLR)

MO4.R10.1 THE COST OF OPPORTUNITY FOR GAPLESS IMAGING
16:20
Marwan Younis, Felipe Quinte de Almeida, Sigurd Huber, Manolis Kornilios, Marc Rodriguez-Cassola, German Aerospace Center (DLR), Germany; Scott Hessung, California Institute of Technology, NASA Jet Propulsion Laboratory, Germany; Gerhard Krieger, German Aerospace Center (DLR), Germany

MO4.R10.2 THE SPACE EXPLORATION SYNTHETIC APERTURE RADAR
16:40
Rafael Rimar, National Aeronautics and Space Administration (NASA), United States; Lynn Carter, University of Arizona, United States; Daniel Lu, Carnegie Do Tai; Martin Parsons, David Hollibaugh-Baker, National Aeronautics and Space Administration (NASA), United States; Catherine Nesb, University of Western Ontario, United States

MO4.R10.3 UNDER SAMPLING TECHNIQUE FOR DOWNSIZING IN ALOS-4
17:00
Akira Kurashima, Yuya Yokota, Masanobu Shibata, Makoto Matsuki, Hiroki Fujihara, Shohei Nakamura, Mitsubishi Electric Corporation, Japan; Yukiko Kanaike, Takeshi Matsukawa, Shinsuke Suzuki, Japan Aerospace Exploration Agency (JAXA), Japan

MO4.R10.4 PHASE SPOILING TECHNIQUE FOR HIGH POWER AND WIDE BEAM IN ALOS-4
17:20
Makoto Matsuki, Yuya Yokota, Masanobu Shibata, Akiva Kurashima, Hiroki Fujihara, Shohei Nakamura, Mitsubishi Electric Corporation, Japan; Yukiko Kanaike, Takeshi Matsukawa, Shinsuke Suzuki, Japan Aerospace Exploration Agency (JAXA), Japan

MO4.R10.5 PALSAR CALIBRATION WITH DISTRIBUTED TARGETS
17:40
Alexandre Zilberman, Ludmila Zilberman, Kotel Research Institute of Radioengineering and Electronics, Russia
Monday, July 29
13:40 - 15:20 Room 419
Session MO3.R11 Oral
Change Detection Techniques in Multitemporal SAR Images I
Session Chair: Florence Tupin, Télécom ParisTech
MO3.R11.1 BITEMPORAL FULLY POLARIMETRIC SAR IMAGES CHANGE DETECTION VIA NEAREST REGULARIZED JOINT SPARSE AND TRANSFER MATRIX LEARNING
Yao Sun, Jianbo Li, Peiyang Zhang, Shouping Gou, Peng Wang, Xidian University, China; Xunbo Chen, Beijing Huaxiang Radio Measurement and Research Institute, China; Jiao-Wu Xie, Xidian University, China; Changyun Sun, Beijing Huaxiang Radio Measurement and Research Institute, China

MO3.R11.2 GEOMETRICALLY ACCURATE CHANGE DETECTION FROM VH/V SAR IMAGES
Andrea Ganzelli, Claudia Zoppe, University of Siena, Italy

MO3.R11.3 MULTIVARIATE AND MULTIMODALITY SAR DATA FUSION BASED ON MARKOV AND CONDITIONAL RANDOM FIELDS FOR UNSUPERVISED CHANGE DETECTION
David Solarna, Gabriele Moser, Sebastiano Serpico, University of Genoa, Italy

MO3.R11.4 SUBSIDENCE MONITORING WITH INSAR TECHNIQUES AIDED BY LASER SCANNING DATA AND TOPOGRAPHIC MAP: A CASE STUDY OF ROTTERDAM RECLAIMED AREA
Ling Chang, University of Twente, Netherlands

MO3.R11.5 STABILITY IN SAR CHANGE DETECTION RESULTS USING BIVARIATE RAYLEIGH DISTRIBUTION FOR STATISTICAL HYPOTHESIS TEST
Viet Thuy Vu, Mats Pettersson, Blekinge Institute of Technology, Sweden; Natanael Rodrigues Gomes, Federal University of Santa Maria, Brazil

Monday, July 29
13:40 - 15:20 Room 421
Session MO3.R12 Oral
Land Use Applications I
Session Co-Chairs: Naoto Yokoya, RIKEN; Xavier Pons, Autonomous University of Barcelona
MO3.R12.1 LAND COVER MAPPING WITHOUT HUMAN ANNOTATION
Tatsuya Yamada, University of Tokyo, Japan; Naoto Yokoya, RIKEN Center for Advanced Intelligence Project, Japan; Takanori Toda, Japan Aerospace Exploration Agency (JAXA), Japan; Akira Iwasaki, University of Tokyo, Japan

MO3.R12.2 AN OPERATIONAL PIPELINE FOR GENERATING DIGITAL SURFACE MODELS FROM MULTI-SATellite IMAGES FOR REMOTE SENSING APPLICATIONS
Rongjun Qin, Ohio State University, United States

MO3.R12.3 BISTATIC SCATTERING FORWARD MODEL VALIDATION USING GNSS-R OBSERVATIONS
Arne Azematt, Paul-Hugues Dard, University of Southern California, United States; Arvind Bhat, Intelligent Automation INC. (IAI), United States

MO3.R12.4 THE USE OF HYPER SPECTRAL REMOTE SENSING TO DETECT PCB CONTAMINATED SOILS IN THE 0.35 TO 12 MICRON SPECTRAL RANGE
José Lévesque, Eldon Puckrin, DRDC Valcartier Research Center, Canada; Luc Lavert, Centre d’expertise en analyse environnementale du Québec, Canada; Guillaume Bourque, Centre d’Expertise en Analyse Environnementale du Québec, Canada

MO3.R12.5 SOIL MOISTURE EVALUATION USING MACHINE LEARNING TECHNIQUES ON SYNTHETIC APERTURE RADAR (SAR) AND LAND SURFACE MODEL
Kulayn Dargagli, Kamal Dar, Mainkanadan Padmanaban, IBM Research, India

Monday, July 29
16:20 - 18:00 Room 419
Session MO4.R11 Oral
Analysis of Multitemporal Optical Images
Session Chair: Francesco Bovolo, Fondazione Bruno Kessler
MO4.R11.1 AGGREGATED PRIMARY DETECTORS FOR GENERIC CHANGE DETECTION IN SATELLITE IMAGES
Vincent Védé, MAP5, Université Paris Descartes, France; Matthieu Limbert, Toulouse University, France; Lionel Meunier, MAP5, Université Paris Descartes, France

MO4.R11.2 SURFACE-BASED REGISTRATION FOR HYPERSPECTRAL IMAGES
Ahmed Gouda, Dana B. Mera, Francesco Argiellae, Universidade de Santiago de Compostela, Spain

MO4.R11.3 ATTENTION-BASED DOMAIN ADAPTATION FOR HYPERSPECTRAL IMAGE CLASSIFICATION
Rahul Hossain Md. Rafi, Bo Tang, Qian Du, Nicolas Younan, Mississippi State University, United States

MO4.R11.4 AN ADAPTABLE APPROACH FOR PIXEL-BASED COMPOSITING AND CROP TYPE/TREE SPECIES MAPPING
Sebastian Frödl, Maxar Technologies, Daniel Doktor, Heinikelzentrum for Environmental Research GmbH - UFZ, Germany

MO4.R11.5 SEMI-SUPERVISED CHANGE DETECTION BASED ON GRAPHS WITH GENERATIVE ADVERSARIAL NETWORKS
Jens Liu, Kening Chen, Guanliang Xu, Hua Li, Mengqiao Yan, Wenjie Dai, Xian Sun, Institute of Electronics, Chinese Academy of Sciences, China

Monday, July 29
16:20 - 18:00 Room 421
Session MO4.R12 Oral-Invited
Recent Developments in LAI and FAPAR Estimation and Validation
Session Co-Chairs: Hongliang Fang, Chinese Academy of Sciences; Marie Weiss, Research Scientist/Université d’Avignon et des Pays du Vaucluse
MO4.R12.1 IMPROVING SEASONAL VARIATION OF LAI RETRIEVAL OF CONIFER FORESTS BY CONSIDERING NEEDLE LIFE SPAN AND CHLOROPHYLL CONTENT
Jing Chen, Rong Wang, Alemu Gonsamo, Holy Craft, University of Toronto, Canada; Mingshu Xu, Nanjing University, China; Rongjiao Liu, Chinese Academy of Sciences, China; Yang Liu, Institute of Geographical Sciences and Natural Resources Research, Chinese Academy of Sciences, China

MO4.R12.2 THE P252 VALIDATION DATABASE FOR DECAMETER RESOLUTION CROP PRODUCTS: GREEN AREA INDEX, FRACTION OF INTERCEPTED LIGHT, GREEN FRACTION AND CHLOROPHYLL CONTENT
Maria Weiss, Kamran Irfan, Simon Modis, Institut National de la Recherche Agronomique (INRA), France; François Clarion, Dominique de Mere, France; Jean-François Goupie, Valérie Demarest, Néreol Gilot, Centre d’Étude Spatiale de la Biodiversité (CESBIO), France; Benoît de Solan, Antoine Brelet, Stéphane Pave, ARCIUS Institut du végétal, France; Jean-Pierre Guillet, Vincent Panchon, Yannick Carmel, Centre wallon de Recherches agronomiques, Belgium; Frédéric Baret, Institut National de la Recherche Agronomique (INRA), France

MO4.R12.3 GBEV (GROUND-BASED OBSERVATION FOR VALIDATION): A COPERNICUS SERVICE FOR VALIDATION OF VEGETATION LAND PRODUCTS
Gabriele Ba, ACR-ST, France; Joda Dash, Luke Brown, University of Southampton, United Kingdom; Courtney Meier, Battelle Memorial Institute, United States; Christoph Leibundgut, Erwin Rancio, Nicolas Lampa, Henrique Bruniquel, ACR-ST, France; Marco Dellini, Madine Gabon, European Commission Joint Research Centre, Italy

MO4.R12.4 VALIDATION AND COMPARISON OF CROPLAND LEAF AREA INDEX REFRENCIES FROM SENTINEL-3/MSI DATA USING SLIP PROCESOR AND VEGETATION INDEX MODELS
NaQi Djama, Raimond Fernández, Natural Resources Canada, Canada; Marie Weiss, Université d’Avignon et des Pays du Vaucluse, France; Heather McMahan, Agriculture and Agri-Food Canada, Canada; Kafita Goh, Université de Sherbrooke, Canada

MO4.R12.5 VALIDATION OF MODIS AND GEOV2 LEAF AREA INDEX (LAI) PRODUCTS OVER CROPLANDS IN NORTHEASTERN CHINA
Hongliang Fang, Yinghui Zhang, Shanshan Wei, Wenjuan Li, Yongchang Ye, Tao Sun, Weike Liu, Chinese Academy of Sciences, China
<table>
<thead>
<tr>
<th>Session</th>
<th>Title</th>
<th>Time</th>
<th>Room</th>
<th>Chair(s)</th>
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<tr>
<td>MO4.R13.1</td>
<td><strong>THE FLUORESCENCE EXPLORER (FLEX) MISSION: FROM SCIENCE OBJECTIVES TO DATA PRODUCTS</strong></td>
<td>16:20</td>
<td>Room 511-512</td>
<td>Jose Moreno, University of Valencia, Spain</td>
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<td>MO4.R13.2</td>
<td><strong>THE EARTH SURFACE MINERAL DUST SOURCE INVESTIGATION (EMIT) USING NEW IMAGING SPECTROSCOPY MEASUREMENTS FROM SPACE</strong></td>
<td>16:40</td>
<td>Room 511-512</td>
<td>Robert Green, California Institute of Technology, NASA Jet Propulsion Laboratory, United States</td>
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<td>MO4.R13.3</td>
<td><strong>STATUS: COPERNICUS HYPERSPECTRAL IMAGING MISSION FOR THE ENVIRONMENT (CHIME)</strong></td>
<td>17:00</td>
<td>Room 511-512</td>
<td>Jens Nieke, European Space Agency ESA-ESTEC, Netherlands; Mike Rast, European Space Agency ESA-ESRIN, Italy</td>
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<td>MO4.R13.4</td>
<td><strong>THE EVOLUTION OF THE HYPERSCOUT PLATFORM FOR SMART EO APPLICATIONS</strong></td>
<td>17:20</td>
<td>Room 511-512</td>
<td>Marco Esposito, Cosine Measurement Systems, Netherlands</td>
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<td>MO4.R13.5</td>
<td><strong>CSIMBA: TOWARDS A SMART-SPECTRAL CUBESAT CONSTELLATION</strong></td>
<td>17:40</td>
<td>Room 511-512</td>
<td>Joris Blommaert, Bavo Delaere, Stefan Livens, Flemish Institute for Technological Research (VITO), Belgium; Klas Tack, Andre Lambrecht, imec, Belgium; Roberto Di Paola, Vincent Maresca, AMOS, Belgium; Eric Collet, Gerard Nebay, Deltares, Belgium; Luca Marso, Helene Stosa, Alessandro Zuccaro Marchi, European Space Agency (ESA), Netherlands; Benoit Deper, Mikk Vitanõo, Aeraspacek, Belgium</td>
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Tuesday, July 30  08:00 - 09:40  Room 211-212  Oral-Invited

**Session TU1.R1**

**New Developments in Monitoring of Ocean Surface Features with Polarimetric SAR I**

Session Co-Chairs: William Perrie, Bedford Institute of Oceanography; Biao Zhang, Nanjing University of Information Science and Technology

**TU1.R1.1**  08:00  
**SYNERGISTIC MEASUREMENTS OF HURRICANE WIND SPEEDS AND DIRECTIONS FROM C-BAND DUAL-POLARIZATION SYNTHETIC APERTURE RADAR**  
Guosheng Zhang, Nanjing University of Information Science and Technology; Shengren Fan, Nanjing University of Information Science and Technology; William Perrie, Bedford Institute of Oceanography; Canada

**TU1.R1.2**  08:20  
**RECENT DEVELOPMENT OF DRAG COEFFICIENT, FOAM, AND SURFACE ROUGHNESS FOR HIGH WIND EMISSION AND SCATTERING COMPUTATION**  
Paul Aung, U.S. Naval Research Laboratory, United States

**TU1.R1.3**  08:40  
**MULTI-SCALE, MULTI-FREQUENCY, AND QUAD-POLARIZED MICROWAVE SCATTERING FROM SEA SURFACE NUMERICAL SIMULATION**  
Xiaolu Zhao, Biao Zhang, Nanjing University of Information Science and Technology, China; William Perrie, Bedford Institute of Oceanography, Canada

**TU1.R1.4**  09:00  
**OCEAN WAVE OBSERVATIONS WITH HYBRID POLARIZATION COMPACT POLARIMETRY SYNTHETIC APERTURE RADAR**  
Huayan Li, University of Chinese Academy of Sciences, China; William Perrie, Bedford Institute of Oceanography, Canada; Jin Wu, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, China

**TU1.R1.5**  09:20  
**C-BAND COMPACT-POLARIMETRIC SAR MONITORING OF OCEAN WINDS**  
Guosheng Zhang, Nanjing University of Information Science and Technology, China; Biao Zhang, Yijun He, Nanjing University of Information Science and Technology, China

Tuesday, July 30  13:40 - 15:20  Room 211-212  Oral-Invited

**Session TU3.R1**

**The 2011 Eastern Japan Great Earthquake Disaster I**

Session Co-Chairs: Shunichi Kashimura, Tokohu University; Si-Wai Chen, National University of Defense Technology

**TU3.R1.1**  13:40  
**DISASTER MONITORING BY SAR, GB-SAR AND GPR**  
Matuyoshi Sato, Tokohu University, Japan

**TU3.R1.2**  14:20  
**ACTIVITIES OF THE ADVANCED LAND OBSERVING SATELLITE (ALOS) FOR THE 2011 GREAT EAST JAPAN EARTHQUAKE**  
Masato Okai, Japan Aerospace Exploration Agency (JAXA), Japan

**TU3.R1.3**  14:40  
**OBSERVATION OF THE EASTERN JAPAN GREAT EARTHQUAKE DISASTER WITH THE X-BAND AIRBORNE SAR SYSTEM (P-5 SAR2) OF NICT**  
Tatsuharu Kuboyoshi, Shinoaki Hikuma, Apanpei Uemoto, Akira Sugihara, Makoto Satake, Takeshi Matsueke, National Institute of Information and Communications Technology (NICT), Japan

**TU3.R1.4**  15:00  
**URBAN DAMAGE LEVEL MAPPING USING RADAR POLARIMETRIC TECHNIQUES**  
Si-Wai Chen, Chen-Song Yang, Xin-Xiong Wang, Shun-Ping Xiao, National University of Defense Technology, China

Tuesday, July 30  10:40 - 12:20  Room 211-212  Oral-Invited

**Session TU2.R1**

**New Developments in Monitoring of Ocean Surface Features with Polarimetric SAR II**

Session Co-Chairs: Biao Zhang, Nanjing University of Information Science and Technology; William Perrie, Bedford Institute of Oceanography

**TU2.R1.1**  10:40  
**CO-CROSS POLARIZATION COHERENCE OVER SEA SURFACE FROM SENTINEL-1 DATA: PERSPECTIVES FOR MISSION CALIBRATION AND WIND FIELD RETRIEVAL**  
Hidamiko Langlotz, GS; France; Alexis Mauche, IFREMER, France; Guosheng Zhang, Nanjing University of Information Science and Technology, China; William Perrie, Bedford Institute of Oceanography, Canada

**TU2.R1.2**  11:00  
**CONTRIBUTION OF WAVE BREAKING TO QUAD-POLARIZATION SYNTHETIC APERTURE RADAR**  
Vladimir Kudryavtsev, Russian State Hydrometeorological University, Russia; Shengren Fan, Biao Zhang, Nanjing University of Information Science and Technology, China; Bertrand Chapron, Institute Français de Recherche pour l'Exploitation de la Mer, France

**TU2.R1.3**  11:20  
**INTERPRETING SURFACE OCEAN PHENOMENA THROUGH QUAD-POLARIZED SAR MEASUREMENTS**  
Shengren Fan, Nanjing University of Information Science and Technology, China; Vladimir Kudryavtsev, Russian State Hydrometeorological University, China; Biao Zhang, Nanjing University of Information Science and Technology, China; Bertrand Chapron, Russian State Hydrometeorological University, France

**TU2.R1.4**  11:40  
**TOWARDS THE GMF FOR WIND SPEED AND SURFACE STRESS RETRIEVAL IN HURRICANES BASED ON THE COLLOCATED DROPSONDE DATA AND CROSS-POLARIZATION SAR IMAGES**  
Yuko Tottokaya, Olga Ermakova, Nikita Ruzhnikov, Evgeny Poplavsky, Daniil Sergeev, Gulina Balandina, Institute of Applied Physics, Russia

**TU2.R1.5**  12:00  
**BACKSCATTER FEATURES OF OCEANIC EDDIES FROM C-BAND MULTI-POLARIZED SAR IMAGES**  
William Perrie, Bedford Institute of Oceanography, China; Guosheng Zhang, Nanjing University of Information Science and Technology, China

Tuesday, July 30  16:20 - 18:00  Room 211-212  Oral-Invited

**Session TU4.R1**

**The 2011 Eastern Japan Great Earthquake Disaster II**

Session Co-Chairs: Si-Wai Chen, National University of Defense Technology; Shunichi Kashimura, Tokohu University

**TU4.R1.1**  16:20  
**REMOTE SENSING APPROACH FOR MAPPING AND MONITORING TSUNAMI DEBRIS**  
Shunichi Kashimura, Tokohu University, Japan; Tokumi Fukusaka, MIT Data Corporation, Japan

**TU4.R1.2**  16:40  
**BRIDGE DAMAGE ASSESSMENT USING SINGLE POST-EVENT TERRASAR-X IMAGE**  
Wen Liu, Fumio Yamazaki, Chiba University, Japan

**TU4.R1.3**  17:00  
**ADVANCED POLARIMETRIC STEREO-SAR FOR TSUNAMI DEBRIS ESTIMATION AND DISASTER MITIGATION**  
Christian Koyama, Tokyo Denki University, Japan; Shunichi Koshimura, Motoyuki Sato, Tohoku University

**TU4.R1.4**  17:20  
**BUILDING DAMAGE MAPPING VIA TRANSFER LEARNING**  
Junichi Tse, Bruno Adriano, Gerald Rainey, Naoto Yokoya, Geoinformatics Unit, RIKEN Center for Advanced Intelligence Project (AIP), Japan

**TU4.R1.5**  17:40  
**ESTIMATING TSUNAMI INUNDATION DEPTH USING TERRASAR-X DATA**  
Hidamiko Gokon, Japan Advanced Institute of Science and Technology (JAIST), Japan; Shunichi Kashimura, International Research Institute of Disaster Science, Tokohu University, Japan; Kimito Meguro, Institute of Industrial Science, University of Tokyo, Japan
## Numerical Weather Prediction and Data Assimilation I

Session Co-Chairs: Y Chandrasekar, Colorado State University; Fuzhong Weng, State Key Laboratory of Severe Weather

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<td>Spaceborne L-Band Radiometry in Environment and Climate Change Canada (ECCC)'s Numerical Analysis and Prediction Systems</td>
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<td>Stéphane Belair, Marco Carrera, Maris Abramowicz, Nasim Alavi, Bakr Badawy, Maziar Banifetab, Bernard Bilodeau, Danielle Carpenter, Doreen Deavos, Dorothy Dumford, Etienne Gaborit, Nicolas Gassot, Environment and Climate Change Canada, Canada</td>
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<td>Determining Tropical Cyclone Center Location with CYGNSS Wind Speed Measurements</td>
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<td>Bachir Annane, Cooperative Institute for Marine and Atmospheric Studies, United States; Mark Landsea, Atmospheric and Environmental Research, United States; Brian McNoldy, University of Miami, United States; Robert Atlas, National Oceanic and Atmospheric Administration, United States; Sharanya Maqvarid, University of Miami, United States; Russ Hoffman, Atmospheric and Environmental Research, United States</td>
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<td>Data Assimilation Using MWHTS Onboard FY-3C Satellite for Typhoon Case</td>
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<td>Evaluation of All-Sky GPM/GMI Radiance for Varadah Cyclone Event in Regional Data Assimilation System</td>
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<td>Rahul Manglik, I I I, Indian Institute of Technology Bombay, India</td>
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## Atmospheric Sounding III

Session Chair: Ian Adams, NASA Goddard Space Flight Center

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<td>Bjorn Lambriegg, California Institute of Technology, NASA Jet Propulsion Laboratory, United States</td>
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<td>TU4.R2</td>
<td>Observations and Forecasting Analysis of Hurricane Sandy Using Satellite Microwave Remote Sensing</td>
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<td>Jingye He, National Space Science Center, Chinese Academy of Sciences, China; Haonan Chen, NOAA Earth System Research Laboratory, United States; Shengwen Zhang, Li Ji, National Space Science Center, Chinese Academy of Sciences, China</td>
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<td>Philippe Bason, Satoshi Ochiai, National Institute of Information and Communications Technology (NICT), Japan; Donal Murtagh, Chalmers University of Technology, Sweden; Hiro Sagawa, Kyoto Sangyo University, Japan; Akira Saito, Mie University, Japan; Akira Sawada, Japan Aerospace Exploration Agency (JAXA), Japan</td>
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Session TU1.R3  Oral-Invited
Advanced Flood Monitoring and Prediction for Global Disaster Risk Reduction I
Session Co-Chairs: Young-Joo Kwak, PWR-HCHARM-UNESCO; Romana Pelich, Luxembourg Institute of Science and Technology

TU1.R3.1  THE USE OF REMOTELY SENSED INFORMATION WITHIN A FLOOD RISK MANAGEMENT AND ANALYSIS TOOL (GARI)
08:00  Karen Chalmers, Khalid Ouannes, Marian Tangy, Jeremy Poole, Yair Gauthier, Romain Latrape, Musaene Bwete, WRS - Centre Eco Tree Environment, Canada

TU1.R3.2  FLOOD DETECTION IN BUILT-UP AREA USING INTERFEROMETRIC SAR DATA BY PASSAR-2
08:20  Masato Ohki, Japan Aerospace Exploration Agency (JAXA), Japan; Masanobu Shimada, Tokyo Denki University, Japan

TU1.R3.3  PROBABILISTIC URBAN FLOOD MAPPING USING SAR DATA
08:40  Marco Chiari, Rennard Huse, Damiana Paloni, Donegal Institute of Science and Technology, Luxembourg; Lutz Kohlen, Curlock Research Foundation, Italy; Nazzarone Pinchera, University of Rome, Italy

TU1.R3.4  FLOOD EXTENT FORECASTING USING SYNCHRONIZED FLOODWATER INDEX COUPLING WITH IN-SITU DATA
09:00  Young-Joo Kwak, National Institute for Land and Infrastructure Management, Ministry of Land, Infrastructure, Transport and Tourism (NLI-MIIT), Japan; Jong-Geol Park, Tokyo University of Information Sciences, Japan; Wataru Takahashi, University of Tokyo, Japan

TU1.R3.5  APPLICATIONS OF A SAR-BASED FLOOD MONITORING SERVICE DURING DISASTER RESPONSE AND RECOVERY
09:20  Franz J Meyer, Glarner A, A, University of Alaska Fairbanks, United States; Lari Schulte, Jordan Bell, University of Alabama Huntsville, United States; Kenneth Arnould, Rodger Gry, University of Alaska Fairbanks, United States; Andrew L Matson, NASA Marshall Space Flight Center, United States; Jeremy B Nied, Kirk A Hugosson, University of Alaska Fairbanks, United States

Tuesday, July 30 10:40 - 12:20  Room 311-312  Session TU2.R3  Oral-Invited
Advanced Flood Monitoring and Prediction for Global Disaster Risk Reduction II
Session Co-Chairs: Romana Pelich, Luxembourg Institute of Science and Technology; Young-Joo Kwak, PWR-HCHARM-UNESCO

TU2.R3.1  DETECTION OF FLOOD AREA USING L-BAND SYNTHETIC APERTURE RADAR DATA APPLIED ON A CASE OF HURRICANE IRMA, 2017
10:40  Hirata Nagas, Waseda University, Japan; Masato Ohki, Takahiko Akiyama, Japan Aerospace Exploration Agency (JAXA), Japan

TU2.R3.2  FLOODPLAIN INUNDATION MAPPING USING SAR SCATTERING COEFFICIENT THRESHOLDING AND OBSERVED DISCHARGE DATA
11:00  Tomasz Benowsk, Tomasz Bieliinski, Jakarta Osowski, Eridac University of Technology, Poland

TU2.R3.3  IMPROVING FLOOD DETECTION IN VEGETATED AREAS THROUGH MULTIFREQUENCY, POLARIMETRIC AND INTERFEROMETRIC SAR DATA
11:20  Alberto Refice, Consiglio Nazionale delle Ricerche (CNR), Italy; Maura Chiari, Luxembourg Institute of Science and Technology (LIST), Luxembourg; Mario Zingaro, University of Bari, Italy; Annarita D’Addabbo, Consiglio Nazionale delle Ricerche (CNR), Italy

TU2.R3.4  DEVELOPMENT OF PROTOTYPE FOR WATER HAZARD INFORMATION PLATFORM USING VARIOUS OBSERVATION SYSTEMS
11:40  Eui Yeong Hyeong, Heo Suk Chee, Woon Sa By, Doo Sun Kin, Guang Poh Ng, Kwatra Institute / Kwatra, Korea (South)

TU2.R3.5  MIGRATION OF INDIGENOUS COASTAL COMMUNITIES DUE TO COASTAL FLOODING IN INDUS DELTA AFTER NANUK TROPICAL CYCLONE
12:00  Sumayra Zehir, Asian Institute of Technology, Thailand; Wassim Masmoud, Saad UI Haque, Mohammad Arifani, Institute of Space Technology, Pakistan; Ibrahim Zia, National Institute of Oceanography, Pakistan

Tuesday, July 30 16:20 - 18:00  Room 311-312  Session TU4.R3  Oral
Satellite Missions II
Session Chair: Yann Kerr, CIESBIO

TU4.R3.1  THE LAST ADVANCED VERY HIGH RESOLUTION RADIOMETER
16:20  Satya Kalluri, Changyong Cao, Andrew Heidinger, Alexander Ignatov, Jeffrey Key, NOAA/ NESDIS/STAR, United States

TU4.R3.2  SMOS-HR: A HIGH RESOLUTION L-BAND PASSIVE RADIOMETER FOR EARTH SCIENCE AND APPLICATIONS
16:40  Nemesio Rodriguez-Fernandez, Eric Arrieche, Bernard Roven, Centre d’Etude Spatiale de la Biosphere (CESBIO), France; Jacqueline Bourl, LOCEAN, France; Glédson Picard, Thierry Pollard, Institut de Geosciences de l’Environnement, France; Mona José Escacheville, Hardel, France; Ahmad Al Bata, Philippe Richard, Arnaud Mialon, Olivier Merlin, Christophe Sverre, François Chabot, Al Khalid, Centre d’Etude Spatiale de la Biosphere (CESBIO), France; Susanne Carneros, Baptiste Paquin, Raquel Rodrigo-Suquet, ONES, France; Thierry Toumi, Thibaut Demongamp, Arthus Defence and Space, France; Miguel Calo, Jean-Michel Morel, CNAL, France, Yann Kerr, Centre d’Etude Spatiale de la Biosphere (CESBIO), France

TU4.R3.3  THE NOAVUS UK BACKGROUND MISSION
17:00  Cristian Rossi, Satellite Applications Catapult, United Kingdom; Morup Boyars, Satellite Applications Catapult, United Kingdom; Thomas Jones, Satellite Applications Catapult, United Kingdom; Andrea Mistretta, Airbus, United Kingdom; Simon Agate, UK Space Agency, United Kingdom

TU4.R3.4  THE EUROPEAN COPERNICUS ANTHROPOGENIC CO2 MONITORING MISSION
17:20  Jean-Leop Bens, Beryl Smk, Armin Loescher, Valeria Meier, Herbert Nett, Valerie Fernandez, European Space Agency (ESA), Netherlands

TU4.R3.5  DEVELOPMENT OF OPERATIONAL APPLICATIONS OF TERRASAR-X PAZ CONSTELLATION
17:40  Pavithra Lomond, Michael Beindom, Wolfgang Kuppe, Jürgen Janoth, Hanjo Kohstahl, Airbus Defence and Space GmbH, Germany; Victor Del Estel Fernandez, Juan Ignacio Couceiro Pérez, Hidrata Servicios Estratégicos, Spain
### Student Paper Competition I

**TU1.R4.1** ROBUST LOW-RANK CHANGE DETECTION FOR SAR IMAGE TIME SERIES  
08:00  
Ammar Mian, ControlloSpaziale, France; Aronndh Bekey, Université Paris Nanterre, France; Guillaume Gnaulat, Université Savoie Mont Blanc, France; Jean-Philippe Overez, OHRA, France

**TU1.R4.2** MULTIMODAL-TEMPORAL FUSION: BLENDING MULTIMODAL REMOTE SENSING IMAGES TO GENERATE IMAGE SERIES WITH HIGH TEMPORAL RESOLUTION  
08:20  
Xun Liu, Chuanwei Dong, Baqian Zhao, Beijing Institute of Technology, China; Jozelynn Chanussot, University of Grenoble Alpes, CNRS, Grenoble INP, France

**TU1.R4.3** FULLY ADAPTIVE CLOUD PROFILING RADAR SIMULATION  
08:40  
Jakub Dolej, Mohammad Shahab, Andrew D’Oino, Christopher Ball, Joel Johnston, Greene Smith, Ohio State University, United States

**TU1.R4.4** TWO DIMENSIONAL IMAGE FORMATION WITH PASSIVE RADAR USING THE SUN FOR ECHO DETECTION  
09:00  
Sven Peters, Dustin Schwenzer, Daniel Costallach, Stanford University, United States; Mark Haynes, Andrew Ramirez-Wolf, California Institute of Technology, USA; Gepp Marson, National Aeronautics and Space Administration (NASA), United States

**TU1.R4.5** MODELING AND RETRIEVING SOIL MOISTURE AND ORGANIC MATTER PROFILES IN THE ACTIVE LAYER OF PERMAFROST SOILS FROM P-BAND RADAR OBSERVATIONS  
09:20  
Richard Chen, Azam Baksan-Dogaleh, Almaz Tabatabaehnejad, Maha Moghaddam, University of Southern California, United States

### Student Paper Competition II

**TU2.R4.1** USING DEEP LEARNING TO COUNT ALBATROSSES FROM SPACE  
10:40  
Ellen Bowler, University of East Anglia, United Kingdom; Peter Freeth, British Antarctic Survey, United Kingdom; Geoffrey French, Michael Mackenzie, University of East Anglia, United Kingdom

**TU2.R4.2** NOISY SUPERVISION FOR CORRECTING MISALIGNED CADASTER MAPS WITHOUT PERFECT GROUND TRUTH DATA  
11:00  
Nicolas Giraud, Irene, France; Guillaume Chappet, Irene, Silicon, France; Yulya Tarabulda, Irene, France

**TU2.R4.3** QUANTIFYING THE CONTRIBUTION OF TROPICAL CYCLONES TO THE EARTH’S OUTGOING RADIATION  
11:20  
Kien Th Nguyen, Andrzej S. Alewis, Elizabeth A. Ritchie, J. Scott Yeo, University of New South Wales, Canberra, Australia

**TU2.R4.4** UNSUPERVISED TEMPORAL-ADAPTATION WITH MULTIPLE GEODESIC FLOW KERNELS FOR HYPERSPECTRAL IMAGE CLASSIFICATION  
11:40  
Tianzi Liu, Yufang Gu, Harbin Institute of Technology, China

**TU2.R4.5** APPLICATION OF ULTRA-WIDEBAND SYNTHESIS IN SOFTWARE DEFINED RADAR FOR UAV-BASED LANDMINE DETECTION  
12:00  
Samuel Prager, Maha Moghaddam, University of Southern California, United States

### Space Lidar: Missions, Technologies and Observations I

**TU3.R4.1** PRELIMINARY RESULTS FROM THE ICE, CLOUD AND LAND ELEVATION SATELLITE-2 (ICESAT-2)  
13:40  
Richard Sloanor, Michael Frich, Eric Jenson, Sandra Griffohn, Steve Wond, Thomas Wagner, NASA Headquarters, United States; Douglas McIlraine, John Leon, Mark Small, Mark Flanagan, Thorton Marcus, Thomas Newman, Danu Bohl-Domhlon, Cathy Richardson, Anthony Martinez, Jan Adams, NASA Goddard Space Flight Center, United States

**TU3.R4.2** AEOLUS - 1 YEAR AFTER LAUNCH  
14:20  
Thomas Renz, Olivier Greco Straume, European Space Agency (ESA), Netherlands; Jonathan Marshall, Olivier Lecoeu, Valentin Sarabia, Oliver Kinarch, Michael Rennie, Danny Wernham, Airbus Stevenhoff, Netherlands

**TU3.R4.3** ACTIVE OPTICAL REMOTE SENSING SENSORS AND INSTRUMENTATION FOR NASA’S FUTURE EARTH AND SPACE SCIENCE MEASUREMENTS/Missions  
14:40  
Upendra Singh, NASA Langley Research Center, United States

**TU3.R4.4** ALTIMETRY, IMAGING AND LANDING LOCATION SELECTION LIDARS FOR ESA SPACE APPLICATIONS  
15:00  
Georgios D. Tzeremes, European Space Agency ESA-ESTEC, Netherlands; David Jones, Mattia Hernandez, MDA, United Kingdom; Tiago Saussa, EFACEC, Portugal; Alexandre Pullin, Christophe Pachon, Jacques Hourlier, CSEM, Switzerland; Ivan Carnelli, European Space Agency ESA-ESTEC, Netherlands

### Space Lidar: Missions, Technologies and Observations II

**TU4.R4.1** RESULTS OF VIBRATIONAL AND THERMAL TEST FOR MOLI LASER TRANSMITTER  
16:20  
Daisuke Sakazaw, Rui Mitsuhashi, Junpei Minowa, Tadashi Ima, Toshihisa Kuma, Japan Aerospace Exploration Agency (JAXA), Japan

**TU4.R4.2** RECENT RESEARCH AND DEVELOPMENT OF 2-µM LASER FOR FUTURE SPACE-BASED DOPPLER WIND LIDAR IN JAPAN  
16:40  
Shoken Ishii, National Institute of Information and Communications Technology / Tokyo Metropolitan University, Japan; Akihiro Sat, Takah Institute of Technology / National Institute of Information and Communications Technology, Japan; Makoto Akki, Katsuhiko Nakagawa, Shigenori Nagano, National Institute of Information and Communications Technology (NICT), Japan

**TU4.R4.3** INTEGRATED MICRO-PHOTONICS FOR REMOTE EARTH SCIENCE SENSING (IMPRESS) LIDAR  
17:00  
Mark Stephen, National Aeronautics and Space Administration (NASA), United States; Jonathan Klimas, Larry Cadyn, Joseph Flinn, Victor Rassorong, Fergana Sang, University of California, Santa Barbara, United States; Jeffrey Chen, Kenji Noma, Randy Kow, National Aeronautics and Space Administration (NASA), United States

**TU4.R4.4** FREQUENCY CONTROL OF MULTI-PULSE 2-MICRON LASER TRANSMITTER FOR ATMOSPHERIC CARBON DIOXIDE MEASUREMENT  
17:20  
Manuel Petros, Stanislaw Jank, University of Southern California, United States

**TU4.R4.5** GROUND TESTING OF 2-UM TRIPLE-PULSE IPDA LIDAR FOR CARBON DIOXIDE AND WATER VAPOR MEASUREMENTS  
17:40  
Tamer Refaat, Makguteo Petro, Upendra Singh, Charles Antill, Roben Remus, Syed Ismail, NASA Langley Research Center, United States
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<td>David Williams, NATO STO, Italy</td>
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<td><strong>RECOGNIZING SUBMERGED MATERIALS WITH FLUORESCENCE LIDAR WITHOUT KNOWLEDGE OF ENVIRONMENTAL CONDITIONS</strong></td>
<td>Stefania Matteoli, National Research Council of Italy, Italy; Giovanni Corsetti, University of Pisa, Italy; Marco Diani, Italian Naval Academy, Italy</td>
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<td><strong>DEEP-LEARNING FOR LOD1 BUILDING RECONSTRUCTION FROM AIRBORNE LIDAR DATA</strong></td>
<td>Tee-Aun Teo, National Chiao Tung University, Taiwan</td>
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<td>Ashok Sood, John Zeller, Magnolia Optical Technologies Inc., United States; Parminder Ghuman, Secholakanda Babu, NASA Earth Sciences Technology, United States; Nike Dhar, U.S. Army Night Vision &amp; Electronic Sensors Directorate, United States</td>
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<td><strong>AN AUTOMATIC TECHNIQUE FOR DECIDUOUS TREES DETECTION IN HIGH DENSITY LIDAR DATA BASED ON DELAUNAY TRIANGULATION</strong></td>
<td>Daniele Massonelli, Claudia Paris, Lorenzo Biasizzo, University of Trieste, Italy</td>
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<td>Zeyu Cao, Xiaorun Li, Zhejiang University, China; Liaoying Zhao, HangZhou Dianzi University, China; Jinsheng Ji, Tao Zhang, Shanghai Jiao Tong University, China; Zhen Yang, Jiangxi Science and Technology Normal University, China</td>
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<td>Wentao Zhang, Lifeng Jiao, Jia Liu, Xidian University, China; Jia Liu, Nanjing University of Science and Technology, China</td>
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<td><strong>MULTI-SCALE OBJECT DETECTION IN VH-R IMAGE USING TRANSFER LEARNING WITH DEFORMABLE CONVOLUTION</strong></td>
<td>Zeyu Cao, Xiaorun Li, Zhejiang University, China; Lifeng Jiao, Xidian University, China; Lingxiang Zou, HangZhou Dianzi University, China</td>
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<td><strong>TU3.R5.1</strong></td>
<td><strong>MERGENET: FEATURE-MERGED NETWORK FOR MULTI-SCALE OBJECT DETECTION IN REMOTE SENSING IMAGES</strong></td>
<td>Pujin Wang, Xian Sun, Wenhua Diao, Kun Fu, Institute of Electronics, Chinese Academy of Sciences, China</td>
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<td><strong>TU3.R5.2</strong></td>
<td><strong>QUANTIZED CONVOLUTIONAL NEURAL NETWORK BASED OPTICAL REMOTE SENSING IMAGE OBJECT DETECTION MODEL</strong></td>
<td>Weichao Liu, Xin Wei, Beijing Institute of Technology, China; Long Ma, Zhengzhou University, China; He Chen, Liang Chen, Liu Chen, Beijing Institute of Technology, China</td>
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<td><strong>TU3.R5.3</strong></td>
<td><strong>MULTI-SCALE SHIPS DETECTION IN HIGH-RESOLUTION OPTICAL REMOTE SENSING IMAGE VIA SALIENCY-BASED REGION CONVOLUTIONAL NEURAL NETWORK</strong></td>
<td>Zecheng Li, Yanan Xu, Fang Liu, Beijing University of Posts and Telecommunications, China</td>
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<td><strong>TU3.R5.4</strong></td>
<td><strong>DEEP LEARNING MODEL FOR TARGET DETECTION IN REMOTE SENSING IMAGES FUSING MULTILEVEL FEATURES</strong></td>
<td>JiLi Wang, Yue Ran, Shantou Normal University, China; Huimin Guo, NanYang Technological University, Singapore; Ling Yang, Shantou Normal University, China</td>
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<td><strong>TU3.R5.5</strong></td>
<td><strong>EVALUATING DEEP CONTEXTUAL DESCRIPTION OF SUPERPIXELS FOR DETECTION IN AERIAL IMAGES</strong></td>
<td>Eduarda Tavares, Universidade Federal do Minas Gerais, Brazil; Ricardo dos S. Torres, University of Campinas, Brazil; Adhemar dos Santos, Universidade Federal do Minas Gerais, Brazil</td>
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<td><strong>TU4.R5</strong></td>
<td><strong>ORAL</strong></td>
<td><strong>Session Chair:</strong> Marco Chini, LIST-Luxemburg</td>
<td>16:20 - 18:00</td>
<td>Room 315</td>
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<tr>
<td><strong>TU4.R5.1</strong></td>
<td><strong>SPACE ENHANCED-SSD FOR MULTICLASS OBJECT DETECTION IN REMOTE SENSING IMAGES BASED ON A WEAKLY SUPERVISED ATTENTION MODEL</strong></td>
<td>Xue Jia, Zhao Zhang, Shanghai Jiao Tong University, China; Zhen Yang, Jiangxi Science and Technology Normal University, China; Lifeng Jiao, Weilin Zhang, Huili Xiang, Shanghai Jiao Tong University, China</td>
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<tr>
<td><strong>TU4.R5.2</strong></td>
<td><strong>OBJECT DETECTION IN VHR IMAGE USING TRANSFER LEARNING WITH DEFORMABLE CONVOLUTION</strong></td>
<td>Zeyu Cao, Xiaorun Li, Zhejiang University, China; Lifeng Jiao, Xidian University, China; Lingxiang Zou, HangZhou Dianzi University, China</td>
<td>17:00</td>
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<tr>
<td><strong>TU4.R5.3</strong></td>
<td><strong>MULTI-SCALE CONVOLUTIONAL FEATURES NETWORK FOR OBJECT DETECTION IN VHR OPTICAL REMOTE SENSING IMAGES</strong></td>
<td>Wentao Zhang, Lifeng Jiao, Jia Liu, Xidian University, China; Jia Liu, Nanjing University of Science and Technology, China</td>
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<td><strong>TU4.R5.4</strong></td>
<td><strong>MULTI-SCALE CONVOLUTIONAL FEATURES NETWORK FOR OBJECT DETECTION IN VHR OPTICAL REMOTE SENSING IMAGES</strong></td>
<td>Wentao Zhang, Lifeng Jiao, Jia Liu, Xidian University, China; Jia Liu, Nanjing University of Science and Technology, China</td>
<td>17:40</td>
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## Tuesday, July 30
### Session TU1.R6  Oral

**Session Chair:** Mahito Moghaddam, University of Southern California

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<td>14:40</td>
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### Session TU3.R6  Oral

**Session Chair:** Francesca Bovolo, Fondazione Bruno Kessler

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<td>13:40</td>
<td>AN EFFECTIVE APPROACH TO 3D STEM MODELING AND BRANCH-KNOT LOCALIZATION IN MULTISCALA TDCS</td>
<td>Arwind Hankumar, Francesca Bovolo, Fondazione Bruno Kessler, Italy, Xiran Liang, Finnish Geospatial Research Institute, Finland</td>
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<td>14:00</td>
<td>ESTIMATION OF FOREST STRUCTURE AND BIOMASS FROM AIRBORNE P-BAND BACKSCATTER AND TODOMASER MEASUREMENTS</td>
<td>Sasan Safari, California Institute of Technology, United States; Rezaei Abalak, Massachusetts Institute of Technology, United States; Mahito Moghaddam, University of Southern California, United States</td>
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<td>14:20</td>
<td>WATER CLOUD MODEL FOR ABOVE GROUND BIOMASS RETRIEVAL IN SAVANNA WOODLANDS</td>
<td>Yang Gou, Centre for Landscape and Climate Research, United Kingdom; Casey Ryan, University of Edinburgh, United Kingdom; Nori Balter, Centre for Landscape and Climate Research, United Kingdom</td>
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<td>14:40</td>
<td>TREE SKELETON EXTRACTION FROM LASER SCANNED POINTS</td>
<td>Zhanghua Su, Chengu University of Technology / University of Electronic Science and Technology of China, China; Shuhua Li, University of Electronic Science and Technology of China, China; Nanhu Liu, Chengu University of Technology, China; Zhe He, University of Electronic Science and Technology of China, China</td>
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### Tuesday, July 30 08:00 - 09:40 Room 413
**Session TU1.R7**
**Oral-Invited**

#### SAR Applications using International Virtual SAR Constellation I

**Session Co-Chairs:** Shinichi Sabue, Japan Aerospace Exploration Agency; Daniel De Lisle, Canadian Space Agency

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<td>JAPANESE ALOS L-SAR MISSIONS</td>
<td>Shinichi Sabue, Takao Fukuda, Haruchika Kamimura, Osamu Ochiai, Akiko Noda, Tomoki Misonou, Japan Aerospace Exploration Agency (JAXA), Japan</td>
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<tr>
<td>TU1.R7.3 08:40</td>
<td>RADARSAT CONSTELLATION MISSION FOR DISASTER MANAGEMENT</td>
<td>Daniel De Lisle, Shane Gage, Guennadi Kroupnik, Canadian Space Agency, Canada</td>
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<td>TU1.R7.4 09:00</td>
<td>COSMO SKY-MED - SECOND GENERATION</td>
<td>Luigi Dini, Italian Space Agency (ASI), Japan</td>
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<td>TU1.R7.5 09:20</td>
<td>INVESTIGATION OF COMPACT SAR L AND C BAND COMPLEMENTARITY FOR PERMARFOST CHARACTERIZATION IN ARCTIC REGIONS</td>
<td>Rahul Touzi, G. Hing, Canada Centre for Remote Sensing, Canada; T. Matsuki, S. Shinichi, Japan Aerospace Exploration Agency (JAXA), Japan; D. De Lisle, Canadian Space Agency, Canada</td>
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### Tuesday, July 30 10:40 - 12:20 Room 413
**Session TU2.R7**
**Oral-Invited**

#### SAR Applications using International Virtual SAR Constellation II

**Session Co-Chairs:** Daniel De Lisle, Canadian Space Agency; Shinichi Sabue, Japan Aerospace Exploration Agency

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<td>ALOS AND RADARSAT SYNERGIES IN GEOLOGICAL INVESTIGATIONS</td>
<td>Vern Singhroy, Aushu Li, Mary-Anne Fabert, Canada Centre for Remote Sensing, Canada</td>
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<td>TU2.R7.3 11:20</td>
<td>DEMONSTRATION OF INSAR-BASED THREE DIMENSIONAL CONTINUOUS DEFORMATION MONITORING</td>
<td>Ryo Natsuaki, University of Tokyo, Japan; Akiko Noda, Japan Aerospace Exploration Agency (JAXA), Japan</td>
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<td>TU2.R7.4 11:40</td>
<td>EFFECTIVITY OF COMBINATION USE OF MULTIPLE SAR SATELLITES FOR VOLCANO MONITORING – A PRACTICAL LESSON FOR SAR CONSTELLATION</td>
<td>Tomokazu Kobayashi, Geospatial Information Authority of Japan, Japan</td>
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<tr>
<td>TU2.R7.5 12:00</td>
<td>SHIP MONITORING IN JAPAN USING SAR, AIS AND EARTH OBSERVATION SATELLITES</td>
<td>Shuji Shimizu, Anichito Ishizawa, Hiroyuki Sakamoto, Kazuyoshi Nakamura, Japan Aerospace Exploration Agency (JAXA), Japan</td>
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### Tuesday, July 30 13:40 - 15:20 Room 413
**Session TU3.R7**
**Oral-Invited**

#### Analytics on Datacubes & Analysis Ready Earth Data - supported by GRSS ESI, OGC, ISO, INSPIRE I

**Session Co-Chairs:** Peter Baumann, Jacobs University; Rahul Ramachandran, NASA

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<td>TU3.R7.1 13:40</td>
<td>FROM SENSOR-CENTRIC TO USER-CENTRIC - WHEN ARE DATA ANALYSIS-READY?</td>
<td>Peter Baumann, Jacobs University, Germany</td>
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<td>TU3.R7.2 14:00</td>
<td>FROM ARDS TO AODS: FUTURE OF ANALYTICS FOR EARTH OBSERVATIONS</td>
<td>Rahul Ramachandran, National Aeronautics and Space Administration (NASA), United States; Kaylin Buggah, University of Alabama Huntsville, United States; Mel Meckley, National Aeronautics and Space Administration (NASA), United States; Chris Lynnes, NASA Goddard Space Flight Center, United States</td>
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<tr>
<td>TU3.R7.3 14:20</td>
<td>MASSIVELY DISTRIBUTED DATACUBE PROCESSING</td>
<td>Vlad Merticariu, Peter Baumann, Jacobs University, Germany</td>
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<td>TU3.R7.4 14:40</td>
<td>SPATIOTEMPORAL DATA CUBE MODELING FOR INTEGRATED ANALYSIS OF MULTI-SOURCE SENSING DATA</td>
<td>Jing Zhao, Peng Yue, Wuhan University, China</td>
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<td>TU3.R7.5 15:00</td>
<td>COMPUTATIONAL DOMAIN DECOMPOSITION IN PARALLEL GEOPROCESSING – THE CASE ON GENERATING DEM FROM LIDAR POINT CLOUD</td>
<td>Peng Yue, Fan Guo, Zheren Yan, Wuhan University, China</td>
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<td>Session TU1.R8</td>
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<tr>
<td><strong>TU1.R8.1</strong></td>
<td>WHAT CAN TERRESTRIAL SAND-TEXTURED SOILS REVEAL ABOUT THE COMPOSITION OF CORE MATERIALS FORMING MARTIAN REGOLITH?</td>
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<td><strong>TU1.R8.2</strong></td>
<td>HIDDEN TERRAINS IN WESTERN LUNAR FAR SIDE DISCOVERED BY CE-2 CELMS DATA</td>
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<td><strong>TU1.R8.4</strong></td>
<td>THE POTENTIAL OF MULTI-SENSOR REMOTE SENSING MINERAL EXPLORATION: EXAMPLES FROM SOUTHERN AFRICA</td>
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<td><strong>TU1.R8.5</strong></td>
<td>IDENTIFICATION AND MAPPING OFREE ABSORPTIONS IN IMAGING SPECTROMETER DATA</td>
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<td><strong>Remote Sensing of Wetlands I</strong></td>
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<tr>
<td><strong>TU3.R8.1</strong></td>
<td>DEVELOPING A TOOL FOR WETLAND CHARACTERIZATION USING FRACTIONAL COVER, TASSELED CAP WETNESS AND WATER OBSERVATIONS FROM SPACE</td>
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<td>ESTIMATING THE CARBON CONTENT OF COASTAL WETLAND VEGETATION WITH VISIBLE AND NEAR-INFRARED REFLECTANCE SPECTROSCOPY</td>
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<td><strong>TU3.R8.3</strong></td>
<td>MANGROVE SPECIES MAPPING USING SENTINEL-1 AND SENTINEL-2 DATA IN NORTH VIETNAM</td>
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<td><strong>TU3.R8.4</strong></td>
<td>FULL CONVOLUTATIONAL NEURAL NETWORK FOR LAND COVER MAPPING IN A COASTAL WETLAND WITH HYPERSPECTRAL UAV IMAGERY</td>
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<tr>
<td><strong>TU4.R8.4</strong></td>
<td>AN AUTOMATIC SAR-BASED CHANGE DETECTION METHOD FOR GENERATING LARGE-SCALE FLOOD DATA RECORDS: THE UK AS A TEST CASE</td>
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<td><strong>Topography, Geology and Geomorphology IV</strong></td>
<td>Session TU2.R8</td>
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<td>RHYTHMICITY IN ELEVATED COASTAL LANDFORMS: TIME SERIES ANALYSIS OF LIDAR-DATA ELEVATION DATA</td>
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<td><strong>TU2.R8.2</strong></td>
<td>ANALYSIS OF TOPOGRAPHIC EFFECTS ON VEGETATION INDICES</td>
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<td><strong>TU2.R8.3</strong></td>
<td>TERRAIN MAPPING OF A TROPICAL RAINFOREST USING DUAL-POLARIMETRIC P-BAND INSAR BACKSCATTER-PHASE HISTOGRAMS</td>
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<td><strong>TU2.R8.4</strong></td>
<td>FUSION OF DPCA AND ICA ALGORITHMS FOR MINERAL DETECTION USING LANDSAT-SPECTRAL BANDS</td>
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<td><strong>TU2.R8.5</strong></td>
<td>A PRELIMINARY INVESTIGATION OF MOBILE MAPPING TECHNOLOGY FOR UNDERGROUND MINING</td>
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<td>A MULTI-SENSOR TECHNIQUE FOR MONITORING CYANOBACTERIAL HARMFUL ALGAL BLOOMS IN FRESWATER LAKE AND BRACKISH WATER LAGOON</td>
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<td>AN AUTOMATIC SAR-BASED CHANGE DETECTION METHOD FOR GENERATING LARGE-SCALE FLOOD DATA RECORDS: THE UK AS A TEST CASE</td>
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<td>APPLICATION POTENTIAL OF G+4 SATELLITE IMAGES FOR WATER BODY EXTRACTION</td>
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<td>DYNAMICS AND DRIVING FORCES OF SURFACE WATER EXTENT IN RESERVOIRS OF YONGDING RIVER BASIN, CHINA FROM 1985 TO 2016 BASED ON TIME-SERIES LANDSAT SATELLITE DATA</td>
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<td>Tuesday, July 30 08:00 - 09:40</td>
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<td>SAR Interferometry: Along and Across I</td>
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<td>OCEAN SURFACE CURRENT MEASUREMENT WITH AN INTERFEROMETRIC UHF SAR</td>
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<td>CAR-BORNE AND UAV-BORNE MOBILE MAPPING OF SURFACE DISPLACEMENTS WITH A COMPACT REPEAT-PASS INTERFEROMETRIC SAR SYSTEM AT L-BAND</td>
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<td>ANSWERS TO QUESTIONS ABOUT USER-FRIENDLY INSAR DATA PRODUCTS</td>
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TUESDAY ORAL

Tuesday, July 30 08:00 - 09:40 Room 418
Session TU1.R10

Scatterometers and Rain Radars
Session Co-Chairs: Friedhelm Rastan, Airbus Defence and Space GmbH; V Chandrashekar, Colorado State University; Friedhelm Rastan, Airbus Defence and Space GmbH; Charles Werner, Gamma Remote Sensing AG

TU1.R10.1 THE METOP-SG SCA WIND SCATTEROMETER: CDIR DEVELOPMENT STATUS AND PERFORMANCE OVERVIEW
08:00
Friedhelm Rastan, Dieter Urlrich, Christian Hee, Airbus Defence and Space GmbH, Germany; Allan Onghenaard, European Space Agency ESA-ESTEC, Netherlands

TU1.R10.2 PHASECODING FOR MITIGATING SECOND-TRIP ECHOES IN D3R WEATHER RADAR
08:20
Shashank S Joshi, V Chandrashekar, Colorado State University, United States

TU1.R10.3 THE ESA WIDEBAND MICROWAVE SCATTEROMETER (WBSCAT): DESIGN AND IMPLEMENTATION
08:40
Charles Werner, Gamma Remote Sensing AG, Switzerland; Martin Suarez, European Space Agency ESA-ESTEC, Netherlands; Uli Wegmüller, Olmar Frey, Andreas Wiesmann, Gamma Remote Sensing AG, Switzerland

TU1.R10.4 ON THE QUALITY OF Cfosat Scatterometer Winds
09:00
Wenming Liu, Nanjing University of Information Science and Technology, China; Marcus Portalebre, Institute of Marine Sciences (ICM-CSIC), Spain; Shuyan Lang, National Satellite Ocean Application Service, China; Xiaohong Dong, Xinguo Xu, National Space Science Center, Chinese Academy of Sciences, China; Zhiqiang Wang, Yijun He, Nanjing University of Information Science and Technology, China

TU1.R10.5 PRELIMINARY CALIBRATIONS OF THE Cfosat Scatterometer
09:20
Dr Zhu, National Space Science Center, Chinese Academy of Sciences, China; Li Zhang, DFH Satellite Co., Ltd, China; Xiaohong Dong, Xinguo Xu, National Academy of Sciences, China; Wenming Liu, Nanjing University of Information Science and Technology, China; Shuyan Lang, National Satellite Ocean Application Service, China

Tuesday, July 30 10:40 - 12:20 Room 418
Session TU2.R10

GNSS-R Sensors, Techniques and Applications III
Session Co-Chairs: Estel Cardellach, Institut de Ciencies de l’Espai (IEEC) Institut d’Estudis Espacials de Catalunya (IEEC); Nazzareno Pircida, Sapienza University of Rome

TU2.R10.1 INTEGRATION OF CYGNSS WIND AND WAVE OBSERVATIONS WITH THE WAVEMATCH III NUMERICAL MODEL
10:40
Tianlin Wang, University of Michigan, United States; Valery Zavorotny, University of Colorado, United States; Joel Johnson, Youhan Yi, Ohio State University, United States; Christopher Ruf, University of Michigan, United States

TU2.R10.2 FIRST EVIDENCES OF SPACEBORNE CARRIER PHASE ALTITUDE USING GNSS REFLCCTED SIGNALS AT GRAZING ANGLES OF OBSERVATION OVER OPEN SEA WATER
11:00
Estel Cardellach, Weiping Li, Antonio Rus, Institut de Ciencies de l’Espai (IEEC) Institut d’Estudis Espacials de Catalunya (IEEC), Spain; Maximilian Simmeling, Jan Wikert, Florian Zin, GeodäsieZentrum (GZG), Germany; Chris Ruf, University of Michigan, United States

TU2.R10.3 SENSITIVITY TO SOIL MOISTURE AND OBSERVATION GEOMETRY OF SPACEBORNE GNSS-R DELAY-DOPPLER MAPS
11:20
Hyuk Park, Adriano Campos, Universitat Politècnica de Catalunya (UPC), Spain; Jordi Castellvi, Universitat Politècnica de Catalunya (UPC), Spain; Maria Valdènse, General Pihl, Luciano Rousseau, Universitat Politècnica de Catalunya (UPC), Spain

TU2.R10.4 SIMULATIONS OF SPACEBORNE GNSS-R SIGNAL OVER MOUNTAIN AREAS
11:40
Lexia Guerrier, Laura Dente, Ter Vogt University, Italy; Davide Comite, Nazzareno Pircida, Sapienza University of Rome, Italy

TU2.R10.5 ANALYZING ANOMALOUS ARTEFACTS IN TDS-1 DELAY DOPPLER MAPS
12:00
Changjiang Hu, Craig Benson, University of New South Wales, Canberra, Australia; Hyuk Park, Adriano Campos, UPC, Spain; Li Oiao, University of New South Wales, Canberra, Australia; Chris Rino, University of New South Wales, Sydney, Australia

Tuesday, July 30 13:40 - 15:20 Room 418
Session TU3.R10

Data Fusion: The AI Era I
Session Co-Chairs: Rorony Hächs, Technische Universität Berlin; Bertrand Le Saux, ONERA

TU3.R10.1 MULTISOURCE LABELED DATA: AN OPPORTUNITY FOR TRAINING DEEP LEARNING NETWORKS
13:40
Lorenzo Bruzzone, University of Trento, Italy

TU3.R10.3 LEARNING TO MAP NEARLY ANYTHING
14:20
Tawfiq Salem, Connor Greenwell, Hunter Blanton, Nathan Jacobs, University of Kentucky, United States

TU3.R10.4 A COMPUTER VISION PERSPECTIVE ON ANALYZING AND SYNTHESIZING GEOSPATIAL DATA
14:40
Mike Demir, DeepScale, United States; Guan Pang, Jing Huang, Facebook, United States

TU3.R10.5 MULTISENSOR FEATURE FUSION USING LOW-RANK MODELING AND COMPONENT ANALYSIS
15:00
Behnood Rasti, University of Iceland, Iceland; Pedram Ghamisi, Richard Glaeser, Helmholtz-Zentrum Dresden-Rossendorf (HZDR), Germany

Tuesday, July 30 16:20 - 18:00 Room 418
Session TU4.R10

Data Fusion: The AI Era II
Session Co-Chairs: Ronny Hänsch, Technische Universität Berlin; Bertrand Le Saux, ONERA

TU4.R10.1 DIFFERENTIAL INFORMATION RESIDUAL CONVOLUTIONAL NEURAL NETWORK FOR PANSHARPENING
16:20
Menghui Jiang, School of Resource and Environmental Sciences, Wuhan University, China; Jie Li, Qiaoqiang Yuan, School of Geodesy and Geomatics, Wuhan University, China; Huating Shen, School of Resource and Environmental Sciences, Wuhan University, China; Alimith Liu, College of Electrical and Information Engineering, Hunan University, China; Mingming Xu, College of Geosciences and Technology, China University of Petroleum, China

TU4.R10.2 MULTI-TASK DEEP LEARNING FOR SATELLITE IMAGE PANSHARPENING AND SEGMENTATION
16:40
Andrew Khalel, Onur Tasar, Inria Sophia Antipolis, Egypt; Guillaume Charpiat, Inria Saclay, France; Tokyo Tandoka, Lucio Technology, France

TU4.R10.3 MULTI-SCALE MACHINE LEARNING FOR THE CLASSIFICATION OF BUILDING PROPERTY VALUES
17:00
Patrick Heler, Benjamin Bischke, Qiushi Guo, Jörn Hees, Andreas Dengel, German Research Center for Artificial Intelligence (DFKI), Germany

TU4.R10.4 DEEP LEARNING FOR SAR-OPTICAL IMAGE MATCHING
17:20
Lloyd Haydn Hughes, Technical University of Munich, Germany; Nina Merkle, German Aerospace Center (DLR), Germany; Tatjana Bürmann, Airbus Defence and Space GmbH, Germany; Stefan Auer, German Aerospace Center (DLR), Germany; Michael Schmitt, Technical University of Munich, Germany

TU4.R10.5 COMBINING SENTINEL-1 AND SENTINEL-2 TIME SERIES VIA RNN FOR OBJECT-BASED LAND COVER CLASSIFICATION
17:40
Dino innoc, IRSTEA, France; Raffaele Guarino, Roberto Ardeleanu, CRAL, France; Kenji Ose, Dinh Ho Tung Minh, IRSTEA, France
Tuesday, July 30 13:40 - 15:20 Room 419
Session TU3.R11 Oral

Unmixing Techniques for Hyperspectral Images I
Session Co-Chairs: Antonio Plaza, University of Extremadura; Paul Scheunders, University of Antwerp - Vision Lab

TU3.R11.1 LOCAL SPARSE REPRESENTATION BASED SPATIAL PREPROCESSING FOR ENDMEMBER EXTRACTION
Ge Zhang, Shaowei Wei, Northwestern Polytechnical University, China; Xin Tan, Northwestern Polytechnical University / Shansi Normal University, China; Yan Fang, Northwestern Polytechnical University, China; Qian Du, Mississippi State University, United States

TU3.R11.2 HYPERSONIC OCEANIC REMOTE SENSING WITH ADJACENCY EFFECTS: FROM SPECTRAL-VARIABILITY-BASED MODELING TO PERFORMANCE OF ASSOCIATED BLIND UNMIXING METHODS
Yannick Deville, Salah-Eddine Brahim, Fatima Zahra Bennoubache, Moscou Sofiane Karoui, University of Toulouse, France; Mirrelle Guillaume, Aix Marseille University, France; Xavier Lenat, Bruno Lathanne, C. S. Systèmes d’Information, France; Malik Charr, Seboune University, France; Sylvain Jay, Aix Marseille University, France; Audrey Manghell, Universite de Toulon, France; Xavier Briottet, ONERA, France; Marie-Véronique Serfaty, DGA, France

TU3.R11.3 A SPECTRAL MIXING MODEL ACCOUNTING FOR MULTIPLE REFLECTIONS AND SHADOW
Vera Andrenychanka, Zaher Zahiri, University of Antwerp - Vision Lab, Belgium; Rob Heylen, KU Leuven, Belgium; Paul Scheunders, University of Antwerp - Vision Lab, Belgium

TU3.R11.4 WEIGHTED BLIND LD HYPERSONIC UNMIXING
Jakob Sigurdsson, Magnus Ulfarsson, Johanneson Swinmum, University Of Iceland, Iceland

TU3.R11.5 GAUSSIAN MIXTURE MODEL FOR HYPERSONIC UNMIXING WITH LOW-RANK REPRESENTATION
Qwen Jin, Yang-Mei, Xiaoping Mei, Xiaohui Dai, Wuhan University, China; Hao Li, Wuhan Polytechnical University, China; Fan Fan, Jun Huang, Wuhan University, China

Tuesday, July 30 10:40 - 12:20 Room 419
Session TU2.R11 Oral

Deep Learning in Multitemporal Analysis
Session Co-Chairs: Lorenzo Bruzzone, University of Trento; Davis Tuia, Wageningen

TU2.R11.1 SCENE CHANGE DETECTION VIA DEEP CONVOLUTION CANONICAL CORRELATION ANALYSIS NEURAL NETWORK
Yong Wang, Bo Du, Liangxin Gu, Chen Wu, Wuhan University, China; Hui Luo, China University of Geosciences (Wuhan), China

TU2.R11.2 A DISTRIBUTED AND PARALLEL METHOD OF CHANGE DETECTION IN REMOTE SENSING IMAGE BASED ON FULLY CONNECTED CONDITIONAL RANDOM FIELD
Tianran Zhou, Zhen Wu, Jun Liu, Jie Su, Yi Zhang, Nanjing University of Science and Technology, China; Jiarong Yang, China Satellite Maritime Tracking and Control Department, China; Hongzi Liu, Zhiwei Wei, Nanjing University of Science and Technology, China

TU2.R11.3 HOMOGENEOUS TRANSFORMATION BASED ON DEEP-LEVEL FEATURES IN HETEROGENEOUS REMOTE SENSING IMAGES
Xiao Jiang, Gang Li, Fuzhou University, China; Yu Liu, Beihang University, China; Xiao-Ping Zhang, Rensselaer University, Canada; You He, Tsinghua University, China

TU2.R11.4 CONVOLUTIONAL LONG SHORT-TERM MEMORY NETWORK FOR MULTITEMPORAL CLOUD DETECTION OVER LANDMARKS
Gonzalo Mata-Soria, Jose E. Adrados, Adrian Perez-Sanchez, Luis Gomez-Chova, University of Valencia, Spain

TU2.R11.5 DETECTING URBAN CHANGES WITH RECURRENT NEURAL NETWORKS FROM MULTITEMPORAL SENTINEL-2 DATA
Maria Papadomanolaki, National Technical University of Athens, Greece; Sagar Verma, Maria Yokoyukilou, Central-Supplies, University Paris-Sorbon, France; Siddharth Gupta, Granular AI, United States; Konstantinos Karatzas, National Technical University of Athens, Greece
### Tuesday, July 30

#### Estimation and Retrieval of Land Parameters I

**Session Co-Chairs:** Luca Pulvirenti, CIMA Research Foundation; Claudia Notarnicola, EURAC

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<th>Time</th>
<th>Title</th>
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<tr>
<td>08:00</td>
<td>Retrieval of Multiple Land Surface and Atmospheric Parameters from the Himawari-8 AHI Top-of-Atmosphere Observations</td>
<td>Han Ma, Wuhan University, China; Shuxin Liang, University of Maryland, United States</td>
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<tr>
<td>08:20</td>
<td>A Parameterized Directional Thermal Radiance Model for Row Crops</td>
<td>Kun Li, Yang-Gang Qian, Ning Wang, Ling-Zhe Ma, Shi Gui, Chuan-Rong Li, Ling-Li Tang, Yong-Guang Zhao, Key Laboratory of Quantitative Remote Sensing Information Technology, Academy of Opto-Electronics, Chinese Academy of Sciences, China</td>
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<tr>
<td>08:40</td>
<td>Maize Leaf Area Index Retrieval Using FY-3B Satellite Data by Long Short-Term Memory Model</td>
<td>Mao Zhang, Xia Zhang, Changping Huang, Senlin Tang, Wenzhao Qi, Chinese Academy of Sciences, China</td>
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<td>09:00</td>
<td>An Overview of Land Surface Temperature Retrieval from Chinese Gaofen-5 Thermal Infrared Images</td>
<td>Huazhong Ren, Institute of Remote Sensing and Geographical Information System, School of Earth and Space Sciences, Peking University, China</td>
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<tr>
<td>09:20</td>
<td>A Combined Algorithm for Soil and Vegetation Temperatures With SLSTR Dual-Angle Data</td>
<td>Zunjian Ban, Biao Cao, Hua Li, Yongming Du, Qiong Xia, Qihuo Li, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China</td>
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#### Image Restoration and Radiometric Correction

**Session Chair:** Jocelyn Chamusset, Grenoble Institute of Technology

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<th>Time</th>
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<tr>
<td>10:40</td>
<td>Optical Image Gap Filling Using Deep Convolutional Autoencoder from Optical and Radar Images</td>
<td>Rimi Cassou, Dina Ienco, IRSIA, France; Katharina Gaetana, cnrs, France; Kenji Ose, Dinh Ho Tang Minh, IRSIA, France</td>
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<td>11:00</td>
<td>Hyperspectral Image Denoising Via Convex Low-Fibered-Rank Regularization</td>
<td>Yue-Rong Zhang, Ting-Chu Huang, Yiel Zhan, Tai-Xiang Jiang, Jin Huang, University of Electronic Science and Technology of China, China</td>
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<td>11:20</td>
<td>Remote Sensing Image Matching Using TPS Transformation and Local Geometrical Constraint</td>
<td>Jun Chen, Humin Lu, Linbo Luo, Weiping Gong, Xiaojun Li, China University of Geosciences, China</td>
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<td>11:40</td>
<td>Spectral-Spatial Joint Noise Estimation for Hyperspectral Images</td>
<td>Minshuo Ye, Hong Chen, Chenhui Ji, Ling Lei, China Jiliang University, China; Yuntao Qian, Zhejiang University, China</td>
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<tr>
<td>12:00</td>
<td>Weighted Group Sparsity Regularized Low-Rank Tensor Decomposition for Hyperspectral Image Restoration</td>
<td>Yong Chen, School of Mathematical Sciences, University of Electronic Science and Technology of China, China; Wei He, Naoto Yokoya, RIKEN Center for Advanced Intelligence Project (AIP), China; Ting-Jue Huang, School of Mathematical Sciences, University of Electronic Science and Technology of China, China</td>
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#### Estimation Methods for Ocean and Atmosphere

**Session Chair:** Flavio Iturbide-Sanchez, NOAA

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<th>Time</th>
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<tr>
<td>13:40</td>
<td>Downscaling Ocean Surface Net Radiation at Global Scales With Random Forest</td>
<td>Jianghui Xu, Ba Jiang, Beijing Normal University, China</td>
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<td>14:20</td>
<td>Spectral Monitoring of Algal Blooms in an Eutrophic Lake Using Sentinel-2</td>
<td>Alba German, Provincial Administration of Water Resources / National University of Córdoba, Argentina; Andelba Felel, Carlos Marcela Scavuzzo, Mario Gulich Institute, CONAE-UNC, Argentina; Andrea Guazzalla Acran, Instituto de Investigaciones Farmacéuticas y Biológicas, Universidad Mayor de San Andrés, Bolivia; Ivonne Trapp, Guillermo Barba, Sandra Toranzo, Comisión Nacional de Actividades Espaciales (CONAE), Argentina; Michel Shamoun, Belgian Royal Military Academy (SRIEIRA), Belgium</td>
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<td>14:40</td>
<td>Simultaneous Estimation of Multiple Ship Parameters From SAR Images Using a Forked Convolutional Neural Network</td>
<td>James Imber, Björn Tings, Domenico Velotto, German Aerospace Centre (DLR), Germany</td>
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<tr>
<td>15:00</td>
<td>A Novel Ionospheric TEC Estimation Method Based on L-Band ISAR Signal Processing</td>
<td>Yue Hu, Xiaodai Li, Harbin Institute of Technology, China</td>
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#### Signal Estimation Techniques I

**Session Chair:** Flavio Iturbide-Sanchez, NOAA

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<th>Time</th>
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<tr>
<td>16:20</td>
<td>Moving Target Velocity Estimation Using Multi-Azimuth Angle Mode</td>
<td>Yumin Wang, Jin Chen, Wei Yang, Zhiyang Men, Rui Zhang, Beihang University, China; Xiaokun Sun, Beijing Institute of Remote Sensing Information, China</td>
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<tr>
<td>16:40</td>
<td>Wrapped Interferometric Phase Registration Based on Positioning Method</td>
<td>Yuming Jiang, Jingwen Li, Bing Sun, Beihang University, China; Ran Li, Zhimin He, Beijing Institute of Remote Sensing Equipment, China</td>
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<tr>
<td>17:20</td>
<td>Single RFI Localization Based on Conjugate Cross-Correlation of Dual-Channel SAR Signals</td>
<td>Yue Hu, Jigong Li, Bing Sun, Beihang University, China; Wei Li, Lijing Xu, Shanghai Institute of Satellite Engineering, China</td>
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<tr>
<td>17:40</td>
<td>Assessing the Sharpness of Satellite Images: Study of the PlanetScope Constellation</td>
<td>Jérémy Anger, ENS Cachan, France; Carlo de Franchis, ENS Cachan/Kayrros, France; Gabriele Facciolo, ENS Cachan, France</td>
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<td>17:40</td>
<td>Hyperspectral Image Restoration Using Nonconvex Hybrid Regularization</td>
<td>Yue Hu, Xiaodai Li, Harbin Institute of Technology, China</td>
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Tuesday, July 30 08:00 - 09:40 Room 511-512
Session TU1.R13
Oral-Invited

GCOM & Himawari / LEO-GEO Synergy I - In memory of Prof. Haruhisa Shimoda

Session Co-Chairs: Naoto Ebuchi, Hokkaido University; Yoshiaki Honda, Chiba University

TU1.R13.1 STATUS OF HIMAWARI-8/9 AND THEIR SYNERGY WITH GCOM SERIES
08:00
Kotaro Bejsha, Japan Meteorological Agency, Japan

TU1.R13.3 POST- LAUNCH VALIDATION OF GCOM-C/SGLI GEOPHYSICAL PRODUCTS
08:40
Masahiko Hori, Hiroshi Murakami, Risa Miyazaki, Tatsuya Kuboyama, Takanori Ogata, Ryosuke Shimada, Japan Aerospace Exploration Agency (JAXA), Japan; Yoshiko Honda, Chiba University, Japan; Kinuko Kikuchi, Graduate School of Life and Environmental Science, University of Tsukuba, Japan; Koji Kajiwara, Chiba University, Japan; Takeshi Y. Nakajima, Tokai University, Japan; Hidetoshi Jie, Chiba University, Japan; Mitsuo Toratani, Tokai University, Japan; Tao Hironokwe, Hokkaido University, Japan; Tero Aski, Okyama University, Japan

TU1.R13.4 LONG-TERM OBSERVATIONS OF THE GLOBAL WATER CYCLE, AIR-SEA INTERACTIONS AND POLAR ENVIRONMENTS BY GCOM-W/AMSR2
09:00
Naoto Ebuchi, Hokkaido University, Japan; Misako Kachi, Hideyuki Fuji, Takashi Miado, Nodoka Ono, Manabito Kasahara, Japan Aerospace Exploration Agency (JAXA), Japan; Haruhisa Shimoda, Tokai University, Japan

TU1.R13.5 PRIMARY RESULT ON ABOVE GROUND BIOMASS PRODUCTS FROM GCOM-C / SGLI
09:20
Yoshikazu Honda, Koji Kajiwara, Ryota Ishida, Chiba University, Japan

Tuesday, July 30 13:40 - 15:20 Room 511-512
Session TU3.R13
Oral-Invited

Physical Modeling in Microwave and Optical Remote Sensing I

Session Co-Chairs: Joel Johnson, Ohio State University; John Kerekes, Rochester Institute of Technology

TU3.R13.2 PROGRESSES ON THERMAL RADIATION DIRECTIONALITY MODELING FOR VEGETATION CANOPY
14:00
Qinhua Liu, Biao Cao, Zunyuan Bian, Yongming Du, Hao Li, State Key Laboratory of Remote Sensing Science, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China

TU3.R13.3 MODELING THE COHERENCE OF SCATTERED SIGNALS OF OPPORTUNITY
14:20
Davide Carotti, Sapienza University of Rome, Italy; Laura Dente, Lisa Guerrieri, Ton Vergata University, Italy; Nezzano-Parmida, Sapienza University of Rome, Italy

TU3.R13.4 THEORETICAL MODELING OF MULTIFREQUENCY TOMOGRAPHY RADAR OBSERVATIONS OF SNOW STRATIGRAPHY
14:40
Xiaolan Xu, Simon Yueh, California Institute of Technology, NASA Jet Propulsion Laboratory, United States; Leung Tsang, University of Michigan, Ann Arbor, United States

TU3.R13.5 TWO-YEAR TIME SERIES GROUND-BASED SAR AND MICROWAVE RADIOMETER OBSERVATION OF SNOW AND ITS MODEL STUDY
15:00
Chuan Xiong, Jiancheng Shi, Jinmei Pan, Tao Chen, Weiyu Liu, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China

Tuesday, July 30 16:20 - 18:00 Room 511-512
Session TU4.R13
Oral-Invited

Physical Modeling in Microwave and Optical Remote Sensing II

Session Co-Chairs: Joel Johnson, Ohio State University; Jiancheng Shi, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences

TU4.R13.1 OCEAN SCATTERING AND EMISSION USING NYSSTROM/NIBC COMBINED WITH SMG
16:20
Yanlin Du, Ruiying Guo, Leung Tsang, University of Michigan, United States

TU4.R13.2 INTEGRATED MODELING OF ACTIVE AND PASSIVE MICROWAVES AND PASSIVE OPTICAL SIGNATURES
16:40
Ioan Buls, Thomas Jögnander, German Aerospace Center (DLR), Germany; Francez Jonard, Forschungszentrum Jülich GmbH, Germany; Jeanneet Judge, University of Florida, United States; Harold Anglberger, German Aerospace Center (DLR), Germany; Christiane Babus, Friedrich-Schiller University Jena, Germany; Arne Führer, German Aerospace Center (DLR), Germany

TU4.R13.3 LANDRS: A VIRTUAL CONSTELLATION SIMULATOR FOR INSAR, LIDAR WAVEFORM AND STEREO IMAGERY OVER MOUNTAINOUS FOREST LANDSCAPES
17:00
Wenjuan Ni, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China; Guangyang Sun, University of Maryland, United States; Kenneth Ranson, Paul Montanes, NASA Goddard Space Flight Center, United States; Qinhua Liu, Institute of Remote Sensing Applications, China; Zengyuan Li, Chinese Academy of Forestry, China; Vyacheslav Kharuk, Siberian Federal University, Russia; Ziyu Zhang, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China

TU4.R13.4 ABOVE SNOW VEGETATION EFFECTS ON WIDEBAND AUTOCORRELATION RADIODETECTOMETER
17:20
Shuran Tan, Zhejiang University, China; University of Illinois Urbana-Champaign Institute / The College of Information Science and Electronic Engineering, China; Maryam Salim, Leung Tsang, University of Michigan, United States; Joel F. Johnson, Ohio State University, United States; Roger D. De Ba, University of Michigan, United States

TU4.R13.5 ANALYSIS OF OIL PALMS WITH BASAL STEM ROT DISEASE WITH L BAND SAR DATA
17:40
Chia Ming Teh, Universiti Teknologi Abdul Rahman, Malaysia; Mohammad Anwar Izuddin, Malaysia; Hong Tat Ewe, Universiti Teknologi Abdul Rahman, Malaysia; Abul Saem Idris, Malaysia

Tuesday, July 30 10:40 - 12:20 Room 511-512
Session TU2.R13
Oral-Invited

GCOM & Himawari / LEO-GEO Synergy II - In memory of Prof. Haruhisa Shimoda

Session Co-Chairs: Misako Kachi, Japan Aerospace Exploration Agency; Mitsuhiro Toratani, Tokai University

TU2.R13.1 OVERVIEW OF JAPANESE LEO/GEO SYNERGY
10:40
Haruhisa Shimoda, Tokai University, Japan

TU2.R13.2 ASSIMILATION EXPERIMENTS OF MICROWAVE AND INFRARED RADIATION DATA IN JMA GLOBAL NUMERICAL WEATHER PREDICTION SYSTEM
11:00
Masahiko Hori, Japan Meteorological Agency, Japan

TU2.R13.3 GCOM-C/SGLI OCEAN STANDARD PRODUCTS AND EARLY VALIDATION RESULTS
11:20
Mitsuhiro Toratani, Tokai University, Japan; Kazunori Ogata, Japan Aerospace Exploration Agency (JAXA), Japan; Koji Suzuki, Hokkaido University, Japan; Jui-I Ichikawa, Nagoya University, Japan; Taro Hitomi, Takahashi Hishida, Tomonori Ikeda, Hokkaido University, Japan; Hiroto Higa, Yokohama National University, Japan; Victor Kawahara, Soka University, Japan; Stanford Hoefer, National Aeronautics and Space Administration (NASA), United States; Yoko Kiyomoto, Sekai Japan Fisheries Research and Education Agency, Japan; Hiroshi Murakami, Japan Aerospace Exploration Agency (JAXA), Japan; Yuji Koshino, Triple-i, Japan; Masahiko Hori, Japan Aerospace Exploration Agency (JAXA), Japan; Hitamatsu Waga, Yousif Yamashita, Hokkaido University, Japan; Akiko Tanaka, Tokai University, Japan

TU2.R13.4 JAXA HIMAWARI MONITOR AND ITS SYNERGIES WITH GLOBAL CHANGE OBSERVATION MISSION (GCOM)
11:40
Misako Kachi, Hiroshi Murakami, Masaki Kikuchi, Mayumi Yoshida, Takashii Mawo, Nodoka Ono, Japan Aerospace Exploration Agency (JAXA), Japan; Yukio Kurihara, Triple-i, Japan; Teruyuki Nakajima, Japan Aerospace Exploration Agency (JAXA), Japan

TU2.R13.5 STATUS OF GCOM-W AND THE FOLLOW-ON MISSION
12:00
Manabito Kasahara, Misako Kachi, Kazuyo Inoue, Japan Aerospace Exploration Agency (JAXA), Japan
Wednesday, July 31 08:00 - 09:40 Room 211-212

**Session WE1.R1**

**Oral-Invited**

**Mapping Planetary Bodies through Remote Sensing I**

 Session Co-Chairs: Zhichang Kang, China University of Geosciences Beijing; Maria Parente, University of Massachusetts

**WE1.R1.1**

**MORPHOMETRIC ANALYSIS OF LUNAR SINUOUS RILLES**

08:00

Marina Teresa Melis, University of Cagliari, Italy; Maria Teresa Brunetti, IRPI-CNRC, Italy; Claudia Gallo, Valentina Demontis, University of Cagliari, Italy; Sofia Fassini, IRPI-CNRC, Italy; Sabrina Pidda, University of Cagliari, Italy; Maria Scano, Politecnico di Milano, Italy; Angelo Zinzi, ASI Italy

**WE1.R1.2**

**DIVERSE SURFACE MINERALOGY OF MARS FROM HYPERSONAL SENSING**

08:20

James Wray, Georgia Institute of Technology, United States

**WE1.R1.3**

**NEW CRISM DATA PRODUCTS FOR IMPROVED CHARACTERIZATION AND ANALYSIS OF THE MARS2020 LANDING SITE**

08:40

Mario Parente, Yuki Itah, Arun Saranathan, University of Massachusetts Amherst, United States

**WE1.R1.4**

**HIGH-RESOLUTION GEOLOGICAL MAPPING AND AGE DETERMINATION FOR ILRS SITE CHARACTERIZATION**

09:00

Zhizhong Kang, Rong Hu, China University of Geosciences, China; Matteo Massironi, Università di Padova, Italy; Harold Hiesinger, University of Munster, Germany

**WE1.R1.5**

**MAPPING MINERAL ABUNDANCES ON THE MOON SURFACE USING CHANG’E-1 IIM DATA**

09:20

David Macri, University of Pavia, Italy; Andrea Mannoni, Arctic University of Norway, Norway; Paolo Gamba, University of Pavia, Italy

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**Wednesday, July 31 10:40 - 12:20 Room 211-212**

**Session WE2.R1**

**Oral-Invited**

**Mapping Planetary Bodies through Remote Sensing II**

 Session Co-Chairs: Maria Parente, University of Massachusetts; Zhichang Kang, China University of Geosciences Beijing

**WE2.R1.1**

**TACTICAL AND STRATEGIC DATA ANALYSIS METHODS FOR MULTISPECTRAL IMAGING DATA FROM LANDED MARS MISSIONS**

10:40

James Bell, Arizona State University, United States

**WE2.R1.2**

**TOPOGRAPHY AND ILLUMINATION CONDITIONS OF CHANG’E-4 LANDING AREA**

11:00

Xiaohua Tang, Shujie Liu, Hao Chen, Ming Hu, Qian Huang, Fan He, Yaopeng Wang, Tongji University, China

**WE2.R1.3**

**HIGH PRECISION MAPPING OF CHANG’E-4 AND CHANG’E-5 LANDING SITES**

11:20

Kaiyong Di, Bin Liu, Mengna Jin, Xin Xin, Shengli Niu, Zhaoyu Liu, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China

**WE2.R1.4**

**PHOTOCLINOMETRY AND PHOTOGRAMMETRY INTEGRATED APPROACH FOR PIXEL-RESOLUTION 3D MAPPING AND APPLICATIONS IN CHINA’S LUNAR LANDING MISSIONS**

11:40

Bo Wu, Wei Cheng Liu, Hong Kong Polytechnic University, China

**WE2.R1.5**

**MATISSE FOR MOON MAPPING: EXPLOITING ADVANCED ARCHIVING AND 3D VISUALIZATION SOLUTIONS FOR A JOINT INTERNATIONAL PROJECT**

12:00

Angelo Zinzi, Space Science Data Center - ASI, Italy; Maria Teresa Meli, University of Cagliari, Italy; Maria Teresa Brunetti, Istituto per la Ricerca e la Prevenzione Idrologica - CNR, Italy; Francesca Zucca, University of Pavia, Italy; Paolo Giommi, Italian Space Agency (ASI), Italy

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**Wednesday, July 31 13:40 - 15:20 Room 211-212**

**Session WE3.R1**

**Oral-Invited**

**Non Local SAR Paradigm: New Methods and Applications I**

 Session Co-Chairs: Giampaolo Ferraioli, Università di Napoli Parthenope; Florence Tupin, Télécom ParisTech

**WE3.R1.1**

**TEN YEARS OF PATCH-BASED APPROACHES FOR SAR IMAGING: A REVIEW**

13:40

Florencio Tupin, Télécom ParisTech, France; Luis Denis, Université de Lyon, France; Charles Deledalle, CNRS, France; Giampaolo Ferraioli, Parthenope University, Italy

**WE3.R1.3**

**THE INFLUENCE OF DISTANCES IN NLM POLSAR FILTERS**

14:20

Luis Gomez-Benitez, Universidad Las Palmas De Gran Canaria, Spain; Alejandro Fregy, Universidad Federal De Alagoas, Brazil

**WE3.R1.4**

**FROM PATCHES TO DEEP LEARNING: COMBINING SELF-SIMILARITY AND NEURAL NETWORKS FOR SAR IMAGE DESPECKLING**

14:40

Luis Denis, Université de Lyon, France; Charles-Alban Deledalle, CNRS, France; Florence Tupin, Télécom ParisTech, France

**WE3.R1.5**

**NONLOCAL SAR IMAGE DESPECKLING BY CONVOLUTIONAL NEURAL NETWORKS**

15:00

Davide Cazzullo, Luisa Verdoliva, Giuseppe Scarpe, Giovanni Poggio, Università Federica II of Naples, Italy

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**Wednesday, July 31 16:20 - 18:00 Room 211-212**

**Session WE4.R1**

**Oral-Invited**

**Non Local SAR Paradigm: New Methods and Applications II**

 Session Co-Chairs: Florence Tupin, Télécom ParisTech; Giampaolo Ferraioli, Università di Napoli Parthenope

**WE4.R1.1**

**THE USE OF NON LOCAL FILTERS IN POLSAR APPLICATIONS**

16:20

Ferdinando Muscato, Andrea Buono, Mauro Giolioglio, Università degli Studi di Napoli Parthenope, Italy

**WE4.R1.2**

**THE EXPLOITATION OF THE NON LOCAL PARADIGM FOR SAR 3D RECONSTRUCTION**

16:40

Giampaolo Ferraioli, Università di Napoli Parthenope, Italy; Luis Denis, CNRS / Université de Saint-Etienne, France; Charles-Alban Deledalle, CNRS / Université de Bordeaux, France; Florence Tupin, Télécom ParisTech, France

**WE4.R1.3**

**NON-LOCAL SAR TOMOGRAPHY FOR LARGE-SCALE URBAN MAPPING**

17:00

Yifei Shi, Technical University of Munich, Germany; Yanping Wang, Technical University of Munich (TUM), Germany; Xiao Xiang Zhu, Richard Bamler, German Aerospace Center (DLR) / Technical University of Munich (TUM), Germany

**WE4.R1.4**

**ANALYSIS OF OFFSET-COMPENSATED NONLOCAL FILTERING FOR INSAR DEM GENERATION**

17:20

Francesco Paolo Scio, Nicola Goll, German Aerospace Center (DLR), Germany

**WE4.R1.5**

**ROBUST NONLOCAL LOW-RANK SAR STACK DESPECKLING WITH APPLICATION TO CHANGE DETECTION**

17:40

Gerald Baier, Wei He, Biura Adriano, Junshi Xia, Naoto Yokoya, RIKEN, Japan
Wednesday, July 31 08:00 - 09:40 Room 213

Session WE1.R2  Oral

Clouds and Precipitation: Data Products and Retrievals I

Session Co-Chairs: David Kunkel, The Aerospace Corporation; Lin Lin, ESSIC/UMD-CICS; Stephen Frasier, University of Massachusetts

WE1.R2.1  08:00
A PRELIMINARY LAYER PERCEPTIBLE WATER VAPOR RETRIEVAL ALGORITHM FOR FENGYUN-4 ADVANCED GEOSYNCHRONOUS RADIATION IMAGER
Yang Zhang, Institute of Satellite Meteorology, China; Zhenglong Li, Jun Li, Space Science and Engineering Center, United States

WE1.R2.2  08:20
THE NOAA MICROWAVE INTEGRATED RETRIEVAL SYSTEM MULTIPLE SATELLITE RAIN RATE RETRIEVAL AND MONITORING
Shuyan Liu, Colorado State University, United States; Christopher Grassotti, University of Maryland, United States; Qiangfu Liu, NOAA, United States; Yong-Kun Lee, University of Maryland, United States; Ryan Honeycutter, I.M. Systems Group, United States

WE1.R2.3  08:40
COMPARISON OF THE WINTER PRECIPITATION PRODUCTS OVER THE TIBETAN PLATEAU
Jiarhao Zhou, Hai Li, Run Yang, Tsinghua University, China

WE1.R2.4  09:00
LIQUID WATER PATH (LWP) RETRIEVALS FROM REPROCESSED S-NPP ATMS THROUGH REMAPPING
Lin Lin, ESSIC/UMD-CICS, United States; Ulvang Zhou, NOAA/NESDIS/STAR, United States

WE1.R2.5  09:20
COMPARISON OF PHASED-ARRAY AND PARABOLIC ANTENNA POLARIMETRIC WEATHER RADAR VARIABLES AT X-BAND
William Hordering, Stephen Frasier, Casey Wolfeiever, Max Adam, University of Massachusetts, United States

Wednesday, July 31 13:40 - 15:20 Room 213

Session WE3.R2  Oral

Aerosols I

Session Co-Chairs: Fuzhong Weng, State Key Laboratory of Severe Weather; Yuen Wang, Wuxian University

WE3.R2.1  13:40
POLARIZED AEROSOL RETRIEVAL ALGORITHM OVER URBAN SURFACES - DUBAI MUNICIPALITY SATELLITE
Dana Aldingam, University of Dubai, United Arab Emirates; Saeed Al Mansoori, University of Dubai, United Arab Emirates; Alasa Adil, Mohammed Bin Rashid Space Centre (MBRSC), United Arab Emirates

WE3.R2.2  14:00
MAPPING DIURNAL AEROSOL PROPERTIES IN EAST ASIA FROM DEEP SPACE CLIMATE OBSERVATORY
Xianhao Liu, Lanzhou University, China; Zhaocheng Zeng, California Institute of Technology, United States

WE3.R2.3  14:20
VALIDATION OF MODIS 1-KM MAIAC AEROSOL PRODUCTS WITH AERONET IN CHINA DURING 2008-2016
Yuan Wang, Qiangfu Liu, Angels Wang, Yongfu Shen, Liangpei Zhang, Wuxian University, China

WE3.R2.4  14:40
EFFICIENT ALGORITHMS FOR AEROSOL RETRIEVAL FROM GCOM-C/SLI
Sanoyo Mukai, Kyoto College of Graduate Studies for Informatics, Japan; Shinya Ichikawa, Hokkaido University, Japan

WE3.R2.5  15:00
LONG TEMPORAL ANALYSIS OF NITROGEN DIOXIDE CONTENTS OVER CHINA USING SATELLITE AND GROUND OBSERVATIONS
Yingjie Li, Dingmiao Ma, Jing Chen, Xin Li, Xinyue Yang, Qianjie Wang, Jiangsu Normal University, China

Wednesday, July 31 16:20 - 18:00 Room 213

Session WE4.R2  Oral

Aerosols IV

Session Co-Chairs: Fuzhong Weng, State Key Laboratory of Severe Weather; Maria Fernanda Garcia Ferrerya, Comision Nacional de Actividades Espaciales

WE4.R2.1  16:20
ESTIMATING THE HIGH-SPATIAL-RESOLUTION DAILY PM2.5 CONCENTRATIONS USING MAIAC AOD PRODUCT OVER CHINA
Jing Wu, Beijing Normal University, China; Zhongping Li, University of Maryland, United States

WE4.R2.2  16:40
ESTIMATING PM2.5 EMISSION FROM BRICK KILN INDUSTRY OVER NORTHERN INDIA WITH NUMERICAL MODEL AND REMOTE SENSING OBSERVATION
Arushi Ashary Arun, Ryoichi Imasu, University of Tokyo, Japan

WE4.R2.3  17:00
MONITORING AIR POLLUTION FROM WILDFIRES USING GROUND DATA, SATELLITE PRODUCTS AND MODELING: THE AUSTRAL SUMMER 2016-2017 IN ARGENTINA
Maria Fernanda Garcia Ferrerya, Comision Nacional de Actividades Espaciales (CONAE), Argentina; Gabriela Card, Universidad de Buenos Aires, Argentina

WE4.R2.4  17:20
HYDROMETEOROLOGICAL DRIVERS OF PARTICULATE MATTER USING BAYESIAN MODEL AVERAGING
Seokjoo Lee, Jiwon Jeong, Minho Choi, Sungkyunkwan University, Korea (South)

WE4.R2.5  17:40
APPLICATION OF A PHYSICAL MODEL TO THE REMOTE SENSING OF PM2.5 OVER SINGAPORE
Li Tan, Daniel H. Kalbermatter, Santo V. Salinas, National University of Singapore, Singapore
**Wednesday, July 31**

**Session WE1.R3**

**SAR Polarimetry: Theory and Applications I**

**Session Co-Chairs:** Tom Ainsworth, NRL; Sang-Eun Park, Sejong University

**WE1.R3.1**

**THREE-DIMENSIONAL POLARIMETRIC COVARIANCE MATRIX VIA INSAR HISTOGRAMS: A CASE STUDY WITH L- AND P-BAND NASA ABOVE CAMPAIGN DATA**

Marc Lacaled, Gustavo H. X. Shiroma, California Institute of Technology, NASA Jet Propulsion Laboratory, United States

**WE1.R3.2**

**THREE-DIMENSIONAL URBAN CHARACTERIZATION USING POLARIMETRIC SAR CORRELATION TOMOGRAPHIC TECHNIQUES AND TSX/TDX IMAGES**

Xing Peng, Central South University, China; Yoo Hyung, Laurent Forc-Gual, University of Rennes 1, France; Jianjun Zhu, Central South University, China; Yanao Du, Guangzhou University, China; Haiping Fu, Central South University, China

**WE1.R3.3**

**INTERPRETATION OF POLARIMETRIC AND TOMOGRAPHIC SIGNATURES FROM GLACIER SUBSURFACE: THE K-TRANSECT CASE STUDY**

Giuseppe Parrella, Georg Fischer, Marta Pardini, Kostas Papathanassiou, Irena Hajnsek, German Aerospace Center (DLR), Germany

**WE1.R3.4**

**POLINSAR TWO LAYER MODEL GROUND AND VOLUME RESPONSE SEPARATION**

Alberto Alonso-Gonzalez, Emanuel Hecht, Kostas Papathanassiou, German Aerospace Center (DLR), Germany

**WE1.R3.5**

**ON THE GEOMETRICAL DEPENDENCY OF THE POLARIMETRIC BISTATIC SAR OBSERVATION**

Yanting Wang, Thomas Ainsworth, Jong-Sen Lee, U.S. Naval Research Laboratory, United States

**Session WE2.R3**

**SAR Polarimetry: Theory and Applications II**

**Session Co-Chairs:** Tom Ainsworth, NRL; Yue Huang, University of Rennes 1

**WE2.R3.1**

**ROLL-IN Variant FEATURES IN RADAR POLARIMETRY: A SURVEY**

Si-Wei Chen, Guo-Ding Wu, De-Hui Dai, Xue-Song Wang, Shun-Ping Xiao, National University of Defense Technology, China

**WE2.R3.2**

**ASSESSMENT OF MODEL-BASED POLSAR DECOMPOSITIONS**

Thomas Ainsworth, Naval Research Laboratory, United States; Jong-Sen Lee, Computational Physics, Inc., United States; Yanting Wang, Naval Research Laboratory, United States

**WE2.R3.3**

**THE IMPACT OF DIFFERENT POLARIMETRIC DISTANCE MEASURES FOR THE DESECKLING OF POLSAR DATA FOLLOWING THE BELTRAMI APPROACH**

Joel Amao-Olive, Marc Jäger, Andreas Neighger, Gustave Daniel Martin-del-Campo-Becerra, German Aerospace Center (DLR), Germany; Deni Torres-Román, Center for Research and Advanced Studies of the National Polytechnic Institute (CINVESTAV-IPN), Mexico

**WE2.R3.4**

**DETECTION OF EARTHQUAKE-INDUCED DAMAGES USING POLARIMETRIC SAR REMOTE SENSING**

Sang-Eun Park, Yeon-Taek Jung, Keunhoo Cho, Sejong University, Korea (South)

**WE2.R3.5**

**ADVANCEMENTS FOR SENTINEL-1 BASED VESSEL MONITORING: DUAL-POLARIZATION DETECTION AND SAR-BASED COASTLINE DETECTION**

Ramana Poorn, Marco Chi, Renaud Hostache, Patrick Matten, Carlos López-Martínez, Luxembourg Institute of Science and Technology (LIST), Luxembourg; Miguel Neece, Philippe Rie, Gerd Euler, Willibald Crai, LuxSpace Srl, Luxembourg

**Advanced Methods for Polarimetric SAR Information Extraction I**

**Session Co-Chairs:** Ridha Touzi, Canada Centre for Remote Sensing; Jong-Sen Lee, Naval Research Laboratory

**WE3.R3.1**

**DEVELOPMENTS OF SCATTERING POWER DECOMPOSITION FROM 3 TO 7 COMPONENTS**

Yoshio Yamaguchi, Niigata University, Japan; Guldip Singh, Indian Institute of Technology Bombay, India; Kanta Yamada, Maito Umemura, Hiroyoshi Yamada, Niigata University, Japan

**WE3.R3.2**

**A SCATTERING POWER FACTORIZATION FRAMEWORK USING A GEODESIC DISTANCE FOR MULTI-LOOKED POLSAR DATA**

Deshankha Ratnayake, Avik Bhattacharya, Indian Institute of Technology, Bombay, India; Alejandro Forn, Universidade Federal de Alagoas, Brazil; Eric Pottier, University of Rennes 1, France

**WE3.R3.3**

**ON ICA BASED ICTD CLASSIFICATION OF POLSAR DATA**

Gabriel Vasile, National Center for Scientific Research (CNRS), France

**WE3.R3.4**

**POLARIMETRIC L-BAND PALSAR2 FOR DISCONTINUOUS PERMAFROST MAPPING IN PEATLAND REGIONS**

Ridha Touzi, Canada Centre for Remote Sensing, Canada; S. Pawley, AGS-AER, Canada; M. Hossein, K. Jiao, Canada Centre for Remote Sensing, Canada

**Wednesday, July 31**

**Session WE3.R3**

**Wednesday, July 31**

**Session WE4.R3**

**Advanced Methods for Polarimetric SAR Information Extraction II**

**Session Co-Chairs:** Jong-Sen Lee, Naval Research Laboratory; Ridha Touzi, Canada Centre for Remote Sensing

**WE4.R3.1**

**POLARIS DATA COMPENSATION OF STEEP TERRAIN WITH APPLICATION TO SOIL MOISTURE RETRIEVAL**

Jong-Sen Lee, Thomas Ainsworth, Yanting Wang, Naval Research Laboratory, United States; Inna Hajnsek, Kostas Papathanassiou, German Aerospace Center (DLR), Germany

**WE4.R3.2**

**REVISITING AN ITERATIVE SPECKLE FILTERING TECHNIQUE**

Samuel Foucher, Mario Beaulieu, Computer Research Institute of Montreal (CRIM), Canada; François Courty, University of Montreal, Canada; Mohamed Dalimane, Computer Research Institute of Montreal (CRIM), Canada

**WE4.R3.3**

**ASSESSMENT OF POLARIMETRIC VARIABILITY BY DISTANCE GEOMETRY FOR ENHANCED CLASSIFICATION OF OIL SLICKS USING SAR ANDVIA Morin, Martine M. Espeseth, Arctic University of Norway, Norway; Paolo Gemba, University of Pavia, Italy; Camilla Brekke, Torbjørn Eltoft, Arctic University of Norway, Norway

**WE4.R3.4**

**COMPARATIVE ANALYSIS OF THE RELATIVE POLARIMETRIC RADAR SIGNATURE OF VEGETATION AND CITIES DISTRICTS**

Luehita Thirumal-Ethoven, Régis Guévremont, CentreSupérie, France; Elise Calon-Keniguer, ONERA, France

**WE4.R3.5**

**AIRBORNE-_SINGLE PASS X-BAND FMCS INSAR INSTRUMENT FOR THE ACCURATE DEM GENERATION**

Masanobu Shimada, Tokyo Denki University, Japan; Akira Nohmi, Hitoshi Nohmi, Allouette Defense Technology, Japan; Si-Wei Chen, Guo-Ding Wu, De-Hui Dai, Xue-Song Wang, Shun-Ping Xiao, National University of Defense Technology, China

**Wednesday, July 31**

**Session WE4.R3**

**Wednesday, July 31**
### Deep Learning for Multispectral Image Analysis I

**Session Co-Chairs:** Matthieu Molinier, VTT Technical Research Centre of Finland Ltd; Devis Tuia, Wageningen

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<th>Time</th>
<th>Title</th>
<th>Authors</th>
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<tr>
<td>08:00</td>
<td>IMAGE REGISTRATION OF SATELLITE IMAGERY WITH DEEP CONVOLUTIONAL NEURAL NETWORKS</td>
<td>Maria Vakalopoulou, Central-Skopje, France; Stelios Christodoulidis, University of Ben, Switzerland; Nikos Paragios, Thessaloniki, Greece</td>
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<tr>
<td>08:20</td>
<td>CONTINUOUS LEARNING FOR DENSE LABELING OF SATELLITE IMAGES</td>
<td>Enzo Tzes, Yukyu Terashima, Pierrick Allez, IRMA, France</td>
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<td>08:40</td>
<td>CROSS-DOMAIN-CLASSIFICATION OF TSUNAMI DAMAGE VIA DATA SIMULATION AND RESIDUAL-NETWORK-DERIVED FEATURES FROM MULTI-SOURCE IMAGES</td>
<td>Bruno Adriano, Naoto Yokoyama, Junichi Xia, Gerald Bauer, RIKEN Center for Advanced Intelligence Project, Japan; Moshim Kashiwana, International Research Institute of Disaster Science, Sophia University, Japan</td>
</tr>
<tr>
<td>09:00</td>
<td>VISUAL QUESTION ANSWERING FROM REMOTE SENSING IMAGES</td>
<td>Sylvain Lecuyer, Jesse Murrey, Diego Marcos, Devis Tuia, Wageningen University and Research, Netherlands</td>
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<tr>
<td>09:20</td>
<td>LARGE SCALE UNSUPERVISED DOMAIN ADAPTATION OF SEGMENTATION NETWORKS WITH ADVERSARIAL LEARNING</td>
<td>Xuexing Deng, University of California, Merced, United States; Xiuxian Luo, Institute of Technical Research, Institute of Technical Research, Georgia</td>
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### Deep Learning in Remote Sensing I

**Session Co-Chairs:** Xiaoxiang Zhu, German Aerospace Center / Technical University of Munich; Friedrich Fraundorfer, Graz University of Technology

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<tr>
<td>13:40</td>
<td>BUILDING FOOTPRINT EXTRACTION WITH GRAPH CONVOLUTIONAL NETWORK</td>
<td>Yufei Shi, Qingyu Li, Technical University of Munich, Germany; Xiaoxiang Zhu, German Aerospace Center (DLR) / Technical University of Munich (TUM)</td>
</tr>
<tr>
<td>14:00</td>
<td>REGULARIZATION OF BUILDING BOUNDARIES IN SATELLITE IMAGES USING ADVERSARIAL AND REGULARIZED LOSSES</td>
<td>Stefano Zotti, Friedrich Fraundorfer, Graz University of Technology, Austria</td>
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<tr>
<td>14:20</td>
<td>UNSUPERVISED SUPER-RESOLUTION OF SATELLITE IMAGERY FOR HIGH FIDELITY MATERIAL LABEL TRANSFER</td>
<td>Arthita Gouth, Max Ehlich, Larry Davis, Rama Chellappa, University of Maryland, United States</td>
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<tr>
<td>14:40</td>
<td>PRIMITIVE-BASED 3D BUILDING MODELING, SENSOR SIMULATION, AND ESTIMATION</td>
<td>Xia Li, YunLong Lin, James Miller, Alex Choo, GE Global Research, United States; Walt Dixon, GE Research, United States</td>
</tr>
<tr>
<td>15:00</td>
<td>REGISTRATION OF HIGH RESOLUTION SAR AND OPTICAL SATELLITE IMAGERY USING FULLY CONVOLUTIONAL NETWORKS</td>
<td>Stefan Hoffmann, Clemens-Alexander Brust, Malte Shadersdor, Joachim Denzler, Friedrich Schiller University Jena, Germany</td>
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### Deep Learning for Multispectral Image Analysis II

**Session Co-Chairs:** Devis Tuia, Wageningen; Matthieu Molinier, VTT Technical Research Centre of Finland Ltd

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<tr>
<td>10:40</td>
<td>UNSUPERVISED MULTIPLE-CHANGE DETECTION IN VH MULTISENSOR IMAGES VIA DEEP-LEARNING BASED ADAPTATION</td>
<td>Sudipan Saha, Francesca Bovolo, Fondazione Bruno Kessler, Italy; Lorenzo Bruzzone, University of Trento, Italy</td>
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<tr>
<td>11:00</td>
<td>FUSING MULTI-SEASONAL SENTINEL-2 IMAGES WITH RESIDUAL CONVOLUTIONAL NEURAL NETWORKS FOR LOCAL CLIMATE ZONE-DERIVED URBAN LAND COVER CLASSIFICATION</td>
<td>Chaoqi Qin, Michael Schmidt, Xiao Xiang Zhu, Technical University of Munich (TUM), Germany</td>
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<tr>
<td>11:20</td>
<td>ROAD MAPPING IN LIDAR IMAGES USING A JOINT-TASK DENSE DILATED CONVOLUTIONS Merging NETWORK</td>
<td>Qinghui Liu, Norwegian Computing Center, Norway; Michael Kampffmeyer, Robert Jussen, Arctic University of Norway, Norway; Arne-Børre Salberg, Norwegian Computing Center, Norway</td>
</tr>
<tr>
<td>11:40</td>
<td>SEMANTIC VEHICLE SEGMENTATION IN VERY HIGH RESOLUTION MULTISPECTRAL AERIAL IMAGES USING DEEP NEURAL NETWORKS</td>
<td>Nino Merkle, Seyd Majid Azimi, Sebastian Flis, Franz Kurs, German Aerospace Center (DLR), Germany</td>
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<tr>
<td>12:00</td>
<td>AVOIDING OVERFITTING WHEN APPLYING SPECTRAL-SPATIAL DEEP LEARNING METHODS ON HYPERSPECTRAL IMAGES WITH LIMITED LABELS</td>
<td>Matthias Molinier, Jorna Kipf, VTT Technical Research Centre of Finland Ltd, Finland</td>
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### Deep Learning in Remote Sensing II

**Session Co-Chairs:** Friedrich Fraundorfer, Graz University of Technology; Xiao Xiang Zhu, German Aerospace Center (DLR)

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<tr>
<td>16:20</td>
<td>A DEEP ARCHITECTURE BASED ON A TWO-STAGE LEARNING FOR SEMANTIC SEGMENTATION OF LARGE-SIZE REMOTE SENSING IMAGES</td>
<td>Lei Ding, Lorenzo Bruzzone, University of Trento, Italy</td>
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<td>16:40</td>
<td>SPATIAL RELATIONAL REASONING IN NETWORKS FOR IMPROVING SEMANTIC SEGMENTATION OF AERIAL IMAGES</td>
<td>Lichao Mou, Yuzheng Nao, Xiao Xiang Zhu, German Aerospace Center (DLR) / Technical University of Munich (TUM), Germany</td>
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<tr>
<td>17:00</td>
<td>EDGE-CONVOLUTION POINT NET FOR SEMANTIC SEGMENTATION OF LARGE-SCALE POINT CLOUDS</td>
<td>Mounaier Crettar, Joachim Denzler, Friedrich-Schiller University Jena, Germany</td>
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<tr>
<td>17:20</td>
<td>ZOOM IN, ZOOM OUT: INJECTING SCALE INVARiance INTO LANDUSE CLASSIFICATION CNNS</td>
<td>Jesse Murray, Diego Marcos, Devis Tuia, Wageningen University, Netherlands</td>
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<tr>
<td>17:40</td>
<td>LABEL RELATION INFERENCE FOR MULTI-LABEL AERIAL IMAGE CLASSIFICATION</td>
<td>Yoashin Nao, Lichao Mou, Xiaoxiang Zhu, German Aerospace Center (DLR), Germany</td>
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**Wednesday, July 31**

### Hyperspectral Image Classification I

**Session Chair:** Jocelyn Chanussot, Grenoble Institute of Technology

**WEI.R.5.1** Deep Feature Extraction Based on Siamese Network and Auto-Encoder for Hyperspectral Image Classification

- Jiaxin Mao, Bin Wang, Xiaoheng Wu, Liming Zhang, Bo Hu, Jian Qin Zhang, Fudan University, China

**WEI.R.5.2** Decision Fusion Based on Joint Low Rank and Sparse Component for Hyperspectral Image Classification

- Feiyao Li, People’s Public Security University of China, China; Wei Li, Beijing University of Chemical Technology, China; Hongtao Hao, People’s Public Security University of China, China; Qiang Ran, Beijing University of Chemical Technology, China

**WEI.R.5.3** Rolling Guidance Recursive Filtering-Based Multiple Kernel Learning for Hyperspectral Image Classification

- Bing Li, Liwei Zhang, Xiujuan Tian, Shandong University of Science and Technology, China

**WEI.R.5.4** Accessibility-Free Active Learning for Hyperspectral Image Classification

- Chenping Liu, Jun Li, Sun Yat-Sen University, China; Mercedes E. Paoletti, Juan M. Haut, Antonio Plaza, University of Extremadura, Spain; Qian Shi, Sun Yat-Sen University, China

**WEI.R.5.5** Spectral-Spatial Classification of Hyperspectral Image Based on a Joint Attention Network

- Erting Pan, Yong Ma, Xiaoqiang Mei, Xiaohang Dai, Fan Fan, Xin Tian, Jiayi Ma, Wuhan University, China

### Learning Scene Classification

**Session Chair:** Shuyan Li, Human University

**WE3.R.5.1** Hierarchical Deep Feature Representation for High-Resolution Scene Classification

- Xiangyang Bian, Chuchunfang Chen, Chunchun Deng, Ruiyao Liu, Wuhan University of Science and Technology, China; Qian Du, Mississippi State University, United States

**WE3.R.5.2** Scene Classification of High Resolution Remote Sensing Images via Self-Paced Deep Learning

- Xiuwen Yao, Liqing Yang, Yong Cheng, Jianwei Han, Lei Guo, Northwestern Polytechnical University, China

**WE3.R.5.3** Remote Sensing Scene Classification Based on Res-CapsNet

- Tian Tian, Xiyuan Liu, Lihu Wang, China University of Geosciences, China

**WE3.R.5.4** Learning Region Response Ranking Features for Remote Sensing Image Scene Classification

- Junyu Yang, Gong Cheng, Xiuwen Yao, Jianwei Han, Lei Guo, Northwestern Polytechnical University, China

**WE3.R.5.5** An Introspective Learning Strategy for Remote Sensing Scene Classification

- Jingran Su, Qi Wang, Northwestern Polytechnical University, China; Shangdong Chen, Northwest University, China; Xueqin Li, Northwestern Polytechnical University, China

### Analysis of Time Series

**Session Chair:** Lorenzo Bruzzone, University of Trento; Qian Du, Mississippi State University

**WE2.R.5.1** A Semi-Supervised Crop-Type Classification Based on Sentinel-2 NDVI Satellite Image Time Series and Phenological Parameters

- Yady Tafanie Sokano-Carne, Francesca Bovolo, Fondazione Bruno Kessler, Italy; Lorenzo Bruzzone, University of Trento, Italy

**WE2.R.5.2** Deep Learning for the Classification of Sentinel-2 Image Time Series

- Charlotte Pellerin, Geoffrey J. Webb, François Pettitjan, Monash University, Australia

**WE2.R.5.3** Improving Hyperspectral Image Classification by Combining Spectral and Multiband Compact Texture Features

- Khadija Djerdi, Centre des Technologies Spatiales, Algérie; Abdelmalekoui Safi, Centre d’applications et de Recherches en Télédétecton (CARTEL), Canada; Reda Adjoudj, Djillali Liabes University, Algérie; Musasa Sofiane Karoui, Centre des Technologies Spatiales, Algérie

**WE2.R.5.4** Comparing Phenometrics Extracted from Dense Landsat-Like Image Time Series for Crop Classification

- Hugo Bondini, Leif Frensøe, National Institute for Space Research (INPE), Brazil; Marcel Schwaer, Humboldt-Universität zu Berlin, Germany; Thade Köring, National Institute for Space Research (INPE), Brazil; Philippe Rufn, Humboldt-Universität zu Berlin, Germany; Indo Sanchez, National Institute for Space Research (INPE), Brazil; Pedro Leitão, Patrick Hoster, Humboldt-Universität zu Berlin, Germany

**WE2.R.5.5** Deep Recurrent Neural Networks for Land-Cover Classification Using Sentinel-1 InSAR Time Series

- Shanju Gu, Nanjing University of Science and Technology, China; Ohg Annapun, VIL Technical Research Centre of Finland, Finland; Weimin Su, Hong Gu, Nanjing University of Science and Technology, China; Joan Prats, Aalto University, Finland

### Hyperspectral Image Classification II

**Session Chair:** Paul Scheunders, University of Antwerp - Vision Lab

**WE4.R.5.1** Solving Deep Neural Networks with Ordinary Differential Equations for Remotely Sensed Hyperspectral Image Classification

- Mercedes E. Paoletti, Juan M. Haut, Antonio Plaza, University of Extremadura, Spain

**WE4.R.5.2** Discriminative CNN via Metric Learning for Hyperspectral Classification

- Zhengru Tian, Northwestern Polytechnical University, China; Zhi Zhang, Chinese Academy of Sciences, China; Shouhui Mei, Ruoqiao Jiang, Shuai Wan, Northwestern Polytechnical University, China; Qian Du, Mississippi State University, United States

**WE4.R.5.3** Hyperspectral Image Classification Based on Non-Local Neural Networks

- Chen Wang, Xiaoyang Mei, Xiaohang Dai, Fan Fan, Xin Tian, Jiayi Ma, Wuhan University, China

**WE4.R.5.4** Joint Multilayer Spatial-Spectral Classification of Hyperspectral Images Based on CNN and ConvLSTM

- Jie Feng, Kian Lee W, Juntong Chen, Xiangyang Zhang, Xu Tang, Di Li, Key Laboratory of Intelligent Perception and Image Understanding of Ministry of Education, Xidian University, China

**WE4.R.5.5** Semi-Supervised Learning with Graphs: Covariance Based Superpixels for Hyperspectral Image Classification

- Philip Sellars, Angelica Aviles-Rivero, University of Cambridge, United Kingdom; Nicolas Papadakis, Université Bordeaux, France; David Coomes, Anita Faul, Carola-Bibiane Schönlieb, University of Cambridge, United Kingdom
Spatial Resolution Enhancement of Soil Moisture and Related Applications
Session Co-Chairs: Jeffrey Walker, Monash University; Jiancheng Shi, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences

WEDNESDAY
77
WEDNESDAY
Wednesday, July 31

Session WE1.R7

IEEE GRSS Data Fusion Contest I

WE1.R7.1 08:00
2019 IEEE GRSS DATA FUSION CONTEST: LARGE-SCALE SEMANTIC 3D RECONSTRUCTION
Bertrand Le Sour, ONERA, France; Naoto Yokoya, RIKEN, Japan; Ronny Häsche, Technische Universität Berlin, Germany; Myron Brown, Johns Hopkins University, United States

WE1.R7.2 08:20
U-NET ENSEMBLE FOR SEMANTIC AND HEIGHT ESTIMATION USING COARSE-MAP INITIALIZATION
Suket Kumar, NIT, Nepal

WE1.R7.3 08:40
POP-Net: Encoder-Dual Decoder for Semantic Segmentation and Single-View Height Estimation
Zhuo Zheng, Yancui Zhang, Junjie Wang, Wuhan University, China

WE1.R7.4 09:00
MULTI-LEVEL FUSION OF THE MULTI-RECEPTIVE FIELDS CONTEXTUAL NETWORKS AND DISPARITY NETWORK FOR PAIRWISE SEMANTIC STEREO
Hongyu Chen, Manbai Liu, Hongyan Zhang, Guangyi Yang, Gui-Sang Xia, Xianwei Zheng, Liangnan Zhang, Wuhan University, China

WE1.R7.5 09:20
PAIRWISE STEREO IMAGE DISPARITY AND SEMANTICS ESTIMATION WITH THE COMBINATION OF U-NET AND PYRAMID STEREO MAPPING NETWORK
Ranguan Qin, Xu Huang, Wei Lu, Changli Xiao, Ohio State University, United States

Wednesday, July 31

Session WE2.R7

Small Satellite Technology I

Session Co-Chairs: Sharmila Padmanabhan, NASA Jet Propulsion Laboratory; William Blackwell, MIT Lincoln Laboratory, Adriano Camps, Universidad Politécnica de Catalunya

WE2.R7.1 10:40
DEMONSTRATING THE VIABILITY OF THE TEMPEST-D CUBESAT RADIOMETER FOR SCIENCE APPLICATIONS
Wesley Brey, Chris Kummerow, Steven Roesing, V Chandrasekar, Rick Schue, Yuri Garchevitski, Braxton Aliner, Colorado State University, United States; Shannon Brown, Brian Linn, Sharmila Padmanabhan, Todd Giese, California Institute of Technology, NASA Jet Propulsion Laboratory, United States

WE2.R7.2 11:00
CUBESAT CONSTELLATION CONCEPTS FOR SWATH ALTIMETRY
Christopher Buck, European Space Agency (ESA), Netherlands

WE2.R7.3 11:20
LUNAR MICROWAVE BRIGHTNESS TEMPERATURE SPECTRUM BETWEEN 23 TO 183GHZ FOR SMALL SATELLITE CALIBRATION
Hu Yang, Jun Zhou, University of Maryland, United States

WE2.R7.4 11:40
SWIRP (SURMB-WAVE AND LONG WAVE INFRARED POLARIMETER); A NEW TOOL FOR INVESTIGATIONS OF ICE DISTRIBUTION AND SIZE IN CIRRUS CLOUDS
Bing Wu, Manuel Vega, Mike Sally, Victor Marvin, NASA Goddard Space Flight Center, United States; Kais Hart, University of Arizona, United States; Sergio Gomez, NASA Goddard Space Flight Center, United States; William Gainey, Northrop Grumman Corp, United States; Ronald DeTul, Giovanni De Amici, NASA Goddard Space Flight Center, United States; William Deal, Northrop Grumman Corp, United States; Aaron Didamkou, Michael Coon, NASA Goddard Space Flight Center, United States; Russell Chapman, University of Arizona, United States

WE2.R7.5 12:00
DEVELOPMENT OF COMPACT SAR SYSTEMS FOR SMALL SATELLITE
Hirotomo Satou, Japan Aerospace Exploration Agency (JAXA), Japan; Jiro Inakawa, Takashi Tomura, Tokyo Institute of Technology, Japan; Praloudi Rishi Akbar, Keio University, Japan; Buddhendra Pyne, Koji Torokawa, Makoto Mito, Japan Aerospace Exploration Agency (JAXA), Japan; Tomoko Kaneko, University of Tokyo, Japan; Hiromi Watanabe, Keio University, Japan; Koushi Aoyagi, Japan Aerospace Exploration Agency (JAXA), Japan

Wednesday, July 31

Session WE3.R7

Radio Frequency Interference (RFI) in Active Remote Sensing and GNSS Reflectometry

Session Co-Chairs: Yan Soldo, NASA Goddard Space Flight Center; Paolo de Matthaeis, NASA Goddard Space Flight Center

WE3.R7.1 13:40
PULSE AND RANGE DEPENDENT RFI MITIGATION FOR SYNTHETIC APERTURE RADAR USING DIGITAL BEAMFORMING
Tobias Balken, USRA / NASA Goddard Space Flight Center, United States; Batuhan Osmanoglu, Rafael Riccioni, NASA Goddard Space Flight Center, United States; Seung-Kuk Lee, University of Maryland / NASA Goddard Space Flight Center, United States; Tomoko Takehara, NASA Goddard Space Flight Center, United States

WE3.R7.2 14:00
CHARACTERIZATION OF TERRAIN SCATTERED INTERFERENCE FROM SPACE-BORNE ACTIVE SENSOR: A CASE STUDY IN SENTINEL-1 IMAGE
Mingliang Tao, Jia Su, Ling Wang, Northwestern Polytechnical University, China; Guimei Zheng, Air Force Engineering University, China; Xinyu Zhang, Lanzhou University, China

WE3.R7.3 14:20
ON THE NEW ARCHITECTURE AND CAPABILITIES OF THE FRONT-END GNSS INTERFERENCE EXCISER (FENIX)
Adrian Perez, Adriano Camps, Universitat Politècnica de Catalunya Barcelona Tech and IEEC/CTE-UPC, Spain; Jorge Querol, University of Luxembourg, Luxembourg

WE3.R7.4 14:40
A SYSTEM DESIGN OF REAL-TIME NARROWBAND RFI DETECTION AND MITIGATION FOR GNSS R-E RECEIVER
Tongsheng Qiu, Xianyi Wang, Yusen Tian, Qifei Du, Yueqiang Sun, National Space Science Center, Chinese Academy of Sciences, China

Wednesday, July 31

Session WE4.R7

IEEE GRSS Data Fusion Contest II

WE4.R7.1 16:20
3D SEMANTIC SEGMENTATION FROM MULTI-VIEW OPTICAL SATELLITE IMAGES
Pablo d’Arago, Davide Corri, Senad Majed Azmi, Nino Merkle, Janjanan Tam, Stefan Aure, Miguel Pata, Raquel de los Reyes, Xiangyu Zhou, Konsta Bittner, Thomas Krauß, Peter Reinartz, German Aerospace Center (DLR), Germany

WE4.R7.2 16:40
SEMANTIC 3D RECONSTRUCTION USING MULTI-VIEW HIGH-RESOLUTION SATELLITE IMAGES BASED ON U-NET AND IMAGE-GUIDED DEPTH FUSION
Ranguan Qin, Xu Huang, Wei Lu, Changli Xiao, Ohio State University, United States

WE4.R7.3 17:00
A DENSE POINTNET++ ARCHITECTURE FOR 3D POINT CLOUD SEMANTIC SEGMENTATION
Yanchao Lian, Tao Feng, Jidong Zhu, Xidian University, China

WE4.R7.4 17:20
A GLOBAL POINT-SIFT ATTENTION NETWORK FOR 3D POINT CLOUD SEMANTIC SEGMENTATION
Munuo Xie, Aijun Li, Zhaoyang Wu, Xidian University, China
Wednesday, July 31 08:00 - 09:40 Room 414-415
Session WE1.R8  Oral

Monitoring and Damage Assessment of Earthquake (Unikape)
Session Co-Chairs: Manabu Hashimoto, Kyushu University; Admir Marques Junior, Universidade do Vale do Rio dos Sinos

WE1.R8.1 POSTSEISMIC DEFORMATION FOLLOWING THE APRIL 2016 KUMAMOTO, JAPAN, EARTHQUAKE SEQUENCE DETECTED WITH INSAR
Manabu Hashimoto, Kyushu University, Japan
08:00

WE1.R8.2 COMPLEMENTARY OCCURRENCE OF FAULT CREEP AND AN MW 6.5 EARTHQUAKE ALONG THE PHILIPPINE FAULT ON YEYE ISLAND REVEALED BY ALOS AND ALOS-2 SAR INTERFEROMETRY
Yu Fukushina, Tokohu University, Japan; Manabu Hashimoto, Kyushu University, Japan
08:20

WE1.R8.3 DISPLACEMENT LINEAR SURFACE RUPTURE OF THE 2018 PALU EARTHQUAKE DETECTED BY SENTINEL-1 SAR INTERFEROMETRY AND VERY HIGH-RESOLUTION IMAGERY OF PLANETSCAPE DATA
Fatwa Ramadani, Brawijaya University, Indonesia; Fajar Aminuddin, Naresmiti Fusyitha, Tokohu University, Japan
08:40

WE1.R8.4 A PROPOSED EARTHQUAKE WARNING SYSTEM BASED ON IONOSPHERIC ANOMALIES DERIVED FROM GNSS MEASUREMENTS AND ARTIFICIAL NEURAL NETWORKS
Diego Brun, Mauricio Roberto Veroneze, Enrie Monsean de Sousa, lsonel Érique Koch, Luiz Gonzaga Jr, Universidade do Vale do Rio das Sinos (UNISINOS), Brazil; lnavo Klein, Federal Institute of Science Caterina, Brazil; Marcelo Tomo Matsue, Víncico Francisco Raffo, Federal University of Uberlândia, Brazil; Ademir Marques Junior, Grezda Eliane dos Reis; Rosario, Fabiano Bernt, Eduardo Serelmao Nguyen, Universidade do Vale do Rio das Sinos (UNISINOS), Brazil
09:00

WE1.R8.5 ATTRIBUTE PROFILES IN EARTHQUAKE DAMAGE IDENTIFICATION FROM VERY HIGH RESOLUTION POST EVENT IMAGE
Enes Oğuzhan Alataş, Gülşen Taşkın, Istanbul Technical University, Turkey
09:20

Wednesday, July 31 13:40 - 15:20 Room 414-415
Session WE3.R8  Oral

Monitoring and Damage Assessment of Landslide and Surface Deformation
Session Chair: takehiro Abe, Japan Aerospace Exploration Agency

WE3.R8.1 LANDSLIDE IDENTIFICATION BASED ON HIERARCHICAL FUZZY MODEL CONTOUR MODEL CLUSTERING ALGORITHM USING POLSAR IMAGES
Gong Wang, Yan Chen, Min Du, University of Electronic Science and Technology of China, China; Lei Wu, Yuning Chen, Deep Blue Remote Sensing Technology Co, Ltd, China
13:40

WE3.R8.2 LANDSLIDE MAPPING AND ANALYSIS USING MULTI-SOURCE DATA AND ONE-CLASS RANDOM FOREST
Jiamo Liu, Peijun Li, Peking University, China
14:00

WE3.R8.3 A HYBRID DAMAGE DETECTION APPROACH BASED ON MULTI-TEMPORAL COHERENCE AND AMPLITUDE ANALYSIS FOR DISASTER RESPONSE
Junghyo Jung, Sang-Hee Yoo, California Institute of Technology, NASA Jet Propulsion Laboratory, United States
14:20

WE3.R8.4 SURFACE CHANGES DUE TO THE 2018 ERIUPTION OF SIERRA NEGRA VOLCANO IN GALÁPAGOS ISLAND REVEALED BY ALOS-2/PALSAR-2
Takahiro Abe, Masato Ohki, Takeo Tadono, Japan Aerospace Exploration Agency (JAXA), Japan
14:40

WE3.R8.5 MULTI-TEMPORAL DINSAR TECHNIQUES TO MONITOR THE ACTIVITY OF ASO AND Sakurajima VOLCANOES, JAPAN
Giulia Tesser, sampag SA, Switzerland; Silvia Polveri, Lisa Boccare, University of Padova, Italy; Andrea Giardino, sampag SA, Switzerland; Mario Fliris, Andrea Maccari, University of Padova, Italy; Fumikazu Urgui, Harris Japan, Japan; Paolo Pasquali, sampag SA, Switzerland
15:00

Wednesday, July 31 10:40 - 12:20 Room 414-415
Session WE2.R8  Oral

Monitoring and Damage Assessment of Volcanic Activity
Session Co-Chairs: Francesco Casu, IREA-CNR; Stefano Corradini, INGV

WE2.R8.1 MONITORING VOLCANIC DEFORMATION FROM SPACE WITH SENTINEL-1 DATA FOR CIVIL PROTECTION
Francesco Casu, IREA-CNR Institute for Remote Sensing of Environment (IREA), National Research Council (CNR), Italy; Giampaolo Dall'Agata, IREA-CNR, Italy; Raffaele Castaldo, Giuseppe Di Luca, Vincent Naudin de Revel, Fabian Laman, Mariannoua Mazes, Giovanni Onorato, Susi Pepe, Giuseppe Solana, Pietro Tizzani, IREA-CNR Institute for Remote Sensing of Environment (IREA), National Research Council (CNR), Italy; Emanuele Valenza, Università di Roma, Italy; Atanas Zouros, IREA-CNR Institute for Remote Sensing of Environment (IREA), National Research Council (CNR), Italy
10:40

Vasos Miranda, Pedro Pino, Sandra Helena, University of Lisbon, Portugal; Mathieu Gazier, University Clermont Auvergne, France; Stéphane Dumont, Universidade Beira Interior, Portugal
11:00

WE2.R8.3 THE CHRISTMAS 2018 ETNA ERUPTION: REAL TIME MONITORING USING GEOSTATIONARY AND POLAR ORBIT SATELLITE SYSTEMS AND PRODUCTS VALIDATION
Sofia Coradini, Lorenzo Guerrieri, Davio Slidigato, Luca Monica, Giuseppe Solara, Simona Scifo, INGV, Italy; Matteo Pichichi, EGED K.S.L, University of Rome For Vergata, Italy; Nicolas Thery, Belgia Institute for Space Aeronomy (BIRA-IASB), Belgium; Valeria Lombardo, Makina Silvestri, Massimo Moscatello, Tommaso Calabresi, Michele Perfittipillo, INGV
11:20

WE2.R8.4 MULTI-HAZARD ANALYSIS OF ETNA 2018 EROSION BY SAR IMAGING
Christian Bigagni, Matteo Altiani, Francesco Giuglielmino, Cristiana Tohomi, Simone Attardi, Elisa Testarri, Marco Pialli, Giuseppe Pagli, Salvatore Stramondo, Stefano Soa, Istituto Nazionale di Geofisica e Vulcanologia, Italy
11:40

WE2.R8.5 COMPARISON OF DIFFERENT MACHINE LEARNING MODELS FOR LANDSLIDE SUSCEPTIBILITY MAPPING
Yamin Yi, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China; Zhiye Zhang, University of Connecticut, United States; Wanchang Zhang, Xi Lu, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China
12:00

Wednesday, July 31 16:20 - 18:00 Room 414-415
Session WE4.R8  Oral

Monitoring and Damage Assessment of Tropical Storm
Session Chair: Clair Stark, University of New South Wales

WE4.R8.1 MODELLING TROPICAL CYCLONE WIND RADII IN THE AUSTRALIAN REGION USING THE DEVIATION ANGLE VARIANCE TECHNIQUE
Clair Stark, Elizabeth Ritchie, J. Scott Tyo, University of New South Wales, Australia
16:20

WE4.R8.2 MODELLING PARAMETERS AND IMPACTS OF FUTURE CYCLONES:
SOUTH-EAST ASIAN AND NORTHERN EUROPEAN CASE STUDIES
Martín Matt, Warsaw University, Japan; Ullo Soorvast, University of Tartu, Estonia; Ryota Nakamura, Nippon University, Japan; Klaudine Mosma Tahsin, Weathernews Inc., Japan; Tomoyo Shiyama, Wagasa University, Japan
16:40

WE4.R8.3 POLARIMETRIC RADAR-BASED QUANTITATIVE PRECIPITATION ESTIMATION DURING TYPHOON EVENTS OVER SOUTHERN CHINA
Qixu Xia, Chongpei University of Information Technology, China; Minnan Chen, Colorado State University / NGA Earth System Research Laboratory, United States; Wenjue Zhang, Chinese Academy of Meteorological Sciences, China; Sheng Shi, National Space Science Centre, Chinese Academy of Sciences, China; Qiongtao Yao, Chongpei University of Information Technology, China
17:00

WE4.R8.4 DEEP LEARNING-BASED MONITORING AND FORECAST OF THE INTENSITY OF TROPICAL CYCLONES
Junghyo Jung, Cheolhye Yoo, Donghyun Cho, Kyungmin Kim, Jiyun Lee, Dong-Young Cho, Jo-Chu Au, Ulm National Institute of Science and Technology, Korea (South)
17:20

WE4.R8.5 RECOVERY MONITORING IN HAITI AFTER HURRICANE MATTHEW THROUGH MARKOV RANDOM FIELDS AND A REGION-BASED APPROACH
Andrea De Giorgi, Gabriele Meier, Giacomo Banti, University of Genoa, Italy; Anna Rita Pirani, Università Politecnica delle Marche, Italy; Stefano Simoni, Italian Space Agency (ASI), Italy; Francesco Bruno Serpia, University of Genoa, Italy
17:40
Wednesday, July 31 08:00 - 09:40 Room 416-417  
Session WE1.R9  Oral  

Differential SAR Interferometry: Applications II  
Session Co-Chairs: Othmar Frey, ETH; Homa Ansari, German Aerospace Center (DLR)  

WE1.R9.1  EVALUATION OF ENSEMBLE COHERENCE AS A MEASURE FOR STOCHASTIC AND SYSTEMATIC PHASE INCONSISTENCIES  
Homa Ansari, Fernando Rodriguez Guevara, Ramon Brck, Francesc De Zan, German Aerospace Center (DLR), Germany  
08:00  

WE1.R9.2  INSAR REVEALS THE LONG TERM SUBSIDENCE AND POTENTIAL LANDDEGRADATION IN MEXICO CITY FROM 2004 TO 2018 WITH FIVE SAR SENSORS  
Zheyuan Du, Linlin Gu, Alex Huey-Man Ng, University of New South Wales, Australia  
08:20  

WE1.R9.3  POTENTIAL LANDSLIDE EARLY IDENTIFICATION ALONG NU RIVER WITH TIME SERIES INTERFEROMETRY  
Jing Wang, Chao Wang, Hong Zhang, Yuanzhang Tang, Wei Duan, Chinese Academy of Sciences, China  
08:40  

WE1.R9.4  INFRASTRUCTURE STABILITY ANALYSIS BY COSMO-SKYMED P-SAR INTERFEROMETRY: SPATIO-TEMPORAL ANALYSIS AND 3D MODELING  
Sabatino Felix, Federica Minotti, Francesco Vecchleho, Mario Costantini, e-GEOS - Italian Space Agency / Teleopis, Italy  
09:00  

WE1.R9.5  AUTOMATIC DETECTION OF INSAR DEFORMATION SIGNALS ASSOCIATED WITH HYDROCARBON PRODUCTION AND WASTEWATER INJECTION USING LAGRANGIAN OF GAUSSIAN FILTERING  
Sastri Stawieckz, Jingyi Chen, Ellen Rathke, Jan Olson, University of Texas at Austin, United States  
09:20  

WE2.R9.1  ANISOTROPIC SCATTERING ANALYSIS METHOD BASED ON LIKELIHOOD RATIO USING CIRCULAR SAR DATA  
Fei Tang, Wenhao Jiang, Institute of Electronics, Chinese Academy of Science, China; Yun Liu, North China University of Technology, China; Lai Han, Institute of Electronics, Chinese Academy of Sciences, China; Yangjie Wang, North China University of Technology, China; Wenjie Shen, Shanshan Peng, Institute of Electronics, Chinese Academy of Sciences, China  
10:40  

WE2.R9.2  IMPACTS OF THE ANISOTROPIC IRREGULAR IONOSPHERE ON SPACEBORNE P-BAND SYNTHETIC APERTURE RADAR IMAGING  
Yihui Ji, Zhen Dong, Qiong Zhang, Yanghong Zhang, Debin Li, Yi Su, National University of Defense Technology, China; Bauding Yao, East China Research Institute of Electronic Engineering, China  
11:00  

WE2.R9.3  COSMO-SKYMED FOR UNSUPERVISED URBAN CHANGE DETECTION USING RADAR BACKSCATTERING AND INTERFEROMETRIC COHERENCE  
Alessio Benedetti, University of Rome Tor Vergata, Italy; Matteo Pichano, Daniele Latino, GEOX s.r.l., Italy; Fabio Del Frate, Giovanni Schiavo, University of Rome Tor Vergata, Italy  
11:20  

WE2.R9.4  ASSESSMENT OF MULTI-FREQUENCY SAR FOR CROP TYPE CLASSIFICATION AND MAPPING  
Laura Dinelle Robertson, Andrew Downard, Heather McIntire, Agriculture and Agri-Food Canada; Mehdi Haouari, Scott Mitchell, Carleton University, Canada  
11:40  

WE2.R9.5  SOIL SALINITY MAPPING WITH POLARIMETRIC SAR IMAGES IN QINGHAI LAKE WERSHED  
Dianji Ju, Tingting Zhang, Yan Shao, Key Laboratory of Target Microwave Properties and Remote Sensing of Zhejiang Province, China  
12:00  

Wednesday, July 31 10:40 - 12:20 Room 416-417  
Session WE2.R9  Oral  

Earth Observation Applications  
Session Chair: Heather McIntire, Agriculture and Agri-Food Canada  

WE4.R9.1  AN IMPROVED PARAMETER ESTIMATION OF LFM SIGNAL BASED ON MCKF  
Tong Gu, Guisheng Liao, Xuchao Li, Yinfeng Gu, Yan Huan, Xidian University, China  
16:20  

WE4.R9.2  SIMULTANEOUS NARROWBAND AND WIDEBAND INTERFERENCE SUPPRESSION ON SINGLE-CHANNEL SAR SYSTEM VIA LOW-RANK RECOVERY  
Yue Huang, Southeast University, China; Lian Lou, Xidian University, China; Lei Zhang, Sun Yat-Sen University, China; Zhanyue Chen, Xidian University, China; Gang Xu, Southeast University, China  
16:40  

WE4.R9.3  COMPACT POLARIMETRIC SAR IMAGE SUPER-RESOLUTION THROUGH A MODIFIED NEURO TREE NETWORK  
Shenlong Lou, Qiancong Fan, Feng Chen, Xiamen University, China; Rulin Xiao, Satellite Environmental Center, China; Ming Chen, Yiping Chen, Cheng Wang, Jonathan Li, Xiamen University, China  
17:00  

WE4.R9.4  RESOLUTION-PRESERVING SPECKLE REDUCTION OF SAR IMAGES: THE BENEFITS OF SPECKLE DECORRELATION AND TARGETS EXTRACTION  
Rémy Abergel, Laboratoire MAPS (CNRS UMR 8145), Université Paris Descartes, Sorbonne Paris Cité, France; Loïc Denis, Institute d’Optique Graduate School, Laboratoire Hubert Curien CNRS UMR 5516, Saint-Etienne, France; Florence Tupin, Saïd Ladjal, LTCI, Télécom ParisTech, Université Paris Saclay, France; Charles-Alban Deledalle, Université de Bordeaux, France; Andrés Almansa, Université de Lille, France  
17:20  

WE4.R9.5  A NOVEL WAVEFORM OPTIMIZATION FRAMEWORK  
Guodong Jin, Yuntai Deng, Robert Wang, Pui Wang, Yaqiong Long, Wei Wang, Yanwei Zhang, Institute of Electronics, Chinese Academy of Sciences, China  
17:40
Wednesday, July 31  08:00 - 09:40  Room 418  Session WE1.R10  Oral-Invited

Technology Validation and Science using CubeSat Platforms I

WE1.R10.1  PROGRAMATIC OVERVIEW OF NASA SCIENCE WITH SMALL SPACECRAFT
08:00  Charles Norton, National Aeronautics and Space Administration (NASA), United States

WE1.R10.2  RADIOMETER ASSESSMENT USING VERTICALLY ALIGNED NANO TUBES (RAVAN)
08:20  William Swartz, Johns Hopkins University Applied Physics Laboratory, United States; Steven Lorenzen, U.S. Standards and Technology, United States; Philip Huang, Soon Ryu, Nolan Reilly, Srigovin Padakandi, Johns Hopkins University Applied Physics Laboratory, United States

WE1.R10.3  RAIN CUBE - A NEW PARADIGM TO OBSERVE WEATHER PROCESSES
08:40  Eva Paredes, Simona Tenelli, Shannon Stormth, Shvam Joshi, Osmany Sy, Tawain Timonn, Douglas Price, Jonathan Sauber, Xaver Chater, Eastwood Im, California Institute of Technology, NASA Jet Propulsion Laboratory, United States

Wednesday, July 31  09:40 - 11:20  Room 418  Session WE1.R10.4  Oral-Invited

WE1.R10.4  HYTI: THERMAL HYPERSONIC IMAGING FROM A CUBE SAT PLATFORM
09:00  Robert Wright, University of Hawaii at Manoa, United States; Miguel Nurmi, Hawaii Space Flight Laboratory, United States; Paul Loyey, Hawaii Institute of Geophysics and Planetary Laboratory, United States; Luke Flynn, Hawaii Space Flight Laboratory, United States; Thomas George, SarasatiSat Inc., United States; Sarah Gunnapala, David Ting, Sir Ralph, Alexander Szél, California Institute of Technology, NASA Jet Propulsion Laboratory, United States; Chuan Ferraro-Wang, Ali Alagöz Flaim, Hawaii Institute of Geophysics and Planetary Laboratory, United States; John Meckaklis, University of Alabama Huntsville, United States; Prasad Thanikabolu, United States Geological Survey, United States

WE1.R10.5  CUBERRR: FIRST EVER DEMONSTRATION OF SPACEBORNE ON-BOARD RADIO FREQUENCY INTERFERENCE FILTERING TECHNOLOGY
09:20  Suliben Nihal, California Institute of Technology, NASA Jet Propulsion Laboratory, United States; Joel Johnson, Mark Anderson, Christopher Bull, Ohio State University, United States; Mike Bushey, Shannon Shaw, California Institute of Technology, NASA Jet Propulsion Laboratory, United States; Question Board, NASA Goddard Space Flight Center, United States; Laura Barnes, California Institute of Technology, NASA Jet Propulsion Laboratory, United States; Chi-Chih Chu, Ohio State University, United States; Jordan Coopendar, California Institute of Technology, NASA Jet Propulsion Laboratory, United States; David Cowen-Asher, NASA Goddard Space Flight Center, United States; Carl Finley, California Institute of Technology, NASA Jet Propulsion Laboratory, United States; Matthew Frittet, NASA Goddard Space Flight Center, United States; Jason Gaido, Ohio State University, United States; Ryan Morgan, NASA Goddard Space Flight Center, United States; Robert Janzen, California Institute of Technology, NASA Jet Propulsion Laboratory, United States; Jonathan Kaz, California Institute of Technology, United States; Joseph Reinalde, NASA Goddard Space Flight Center, United States; Erin Kress, Doug Larkcom, Ian Copeland, California Institute of Technology, United States; Heather Lee, California Institute of Technology, NASA Jet Propulsion Laboratory, United States; Daniel Liu, A.K. Aeropane Technology Corporation / NASA Goddard Space Flight Center, United States; Jared Landry, NASA Goddard Space Flight Center, United States; Chris Willey, Ohio State University, United States; Shawn McIlwraith, A.S. & D Inc and NASA Goddard Space Flight Center, United States; Andrew O'Brien, Ohio State University, United States; Matthew Polles, Blue Canyon Technologies, United States; Prashant Pandian, California Institute of Technology, NASA Jet Propulsion Laboratory, United States; John Reinalde, NASA Goddard Space Flight Center, United States; Jeffery Yeaman, NASA Goddard Space Flight Center, United States; Rich Diwatch, Georgia Tech, United States; John Nellis, Ohio State University, United States; Michael Soffy, Charles Turner, NASA Goddard Space Flight Center, United States

Wednesday, July 31  13:40 - 15:20  Room 418  Session WE3.R10  Oral

Microwave Radiometer Instruments and Calibration I
Session Co-Chairs: David Le Vine, NASA Goddard Space Flight Center; Roger Oliver, European Space Agency; Javier Bosch-Urías, Jet Propulsion Laboratory

WE3.R10.1  SMAP OBSERVATIONS OF THE FOURTH STOKES PARAMETER AT L-BAND
13:40  Yan Sioda, NASA Goddard Space Flight Center / Chapman University / Universities Space Research Association, United States; David Le Vine, National Aeronautics and Space Administration (NASA), United States; Emmanuel Donnat, NASA Goddard Space Flight Center / Chapman University, United States

WE3.R10.2  FIRST RESULTS FROM THE TEMPEST-D IMAGING MICROWAVE RADIOMETER IN A 6U CUBE SAT
14:00  Shannon Brown, California Institute of Technology, NASA Jet Propulsion Laboratory, United States; Woe Bong, Colorado State University, United States; Todd Gaiser, Brown Lim, Sharmila Padmanabhan, California Institute of Technology, NASA Jet Propulsion Laboratory, United States; Steven Rixing, Chandrasekar Venkataramani, California State University, United States

WE3.R10.3  MIRAS TEMPORAL STABILITY
14:20  Ignacio Caballero, Françoise Terre, Núria Oliva, Israël Duran, Universitat Politècnica de Catalunya (UPC), Spain; Verónica González-Gambau, Instituto de Minas de Diminuir (ICM-CSIC), Spain; Roger Oliver, Manuel Martín-Neira, European Space Agency (ESA), Spain

WE3.R10.4  MULTI-COMMENT CORRELATOR ARRAY-FED MICROWAVE RADIOMETER
14:40  Jeffrey Pigneymer, NASA Goddard Space Flight Center, United States; All Mathew, Science Systems and Applications, Inc., United States; Giovanni De Amicis, NASA Goddard Space Flight Center, United States; Jacek Bron, University of Warsaw, United States; Joseph Jordan, Ken Vashville, Newtronic, Inc., United States; Thomas Holmes, Paul Knottte, NASA Goddard Space Flight Center, United States

WE3.R10.5  MULTIYEAR SEA ICE THICKNESS ESTIMATION USING WIDEBAND P/L-BAND RADIOMETRIC MEASUREMENTS
15:00  Xavier Bosch-Urías, Silberth Misse, Carl Felton, Mehmet Ogut, Jacob Pease-Rames, Brian Bartham, Simon Brown, California Institute of Technology, NASA Jet Propulsion Laboratory, United States

Wednesday, July 31  16:40 - 18:00  Room 418  Session WE4.R10  Oral

Microwave Radiometer Instruments and Calibration IV
Session Co-Chairs: Roger Oliver, European Space Agency; Javier Bosch-Urías, Jet Propulsion Laboratory

WE4.R10.1  CALIBRATION OF MULTI-COMMENT MILLIMETER-WAVE RADIOMETERS OF GEOSYNCHRONOUS FY-4A USING BRIGHTNESS TEMPERATURE OF THE LUNAR SURFACE AT MILLIMETER CHANNELS
16:20  Liu Xin, Jin Ya-Du, Fudan University, China

WE4.R10.2  REFINING THE METHODOLOGY TO CORRECT THE Faraday ROTATION ANGLE FROM SMOS MEASUREMENTS
16:40  Rosalba Rinaldi, Núria Oliva Ubeda, Universitat Politècnica de Catalunya (UPC), Spain; Verónica González-Gambau, Barcelona Expert Centre, Spain; Ignacio Caballero, Israël Duran, Francisco Torres, University Politecnica de Catalunya (UPC), Spain; Manuel Martín-Neira, European Space Agency (ESA), Netherlands

WE4.R10.3  PRELIMINARY SYSTEM STUDIES ON A HIGH-RESOLUTION SMOS FOLLOW-ON: SMOS-HR
17:00  Eric Antinori, Meneses Rodriguez-Fernandez, Bernard Roayl, François Cabot, Philippe Richarme, Ali Khazad, Yann Ker, Centre d’Etude Spatiale de la BéIgique (CESBIO), France; Jean-Michel Morel, Miguel Calera, CNES, France; Joëlle Gauguet, Baptiste Poulain, Royal Rodrigo Suquet, CNES, France; Thierry Touratier, Thibaut Decoupeau, Romain Cuqjoul, Nicolas Jeanoni, Laurent Cuvier, Fredéric Payet, Airbus Defence and Space, France

WE4.R10.4  COMPARISONS BETWEEN HY-2B SMR AND GMU BRIGHTNESS TEMPERATURE FROM 6 TO 37GHZ OVER THE OCEAN
17:20  Chaolin Hu, Wei Zhou, National Satellite Ocean Application Service, China; Xiaofan Yin, Beijing Peisat Information Technology Co. Ltd, China; Chu Rui Yu, Institute of Space Radio Technology, Chinese Academy of Space Technology, China; Lingliu Diao, National Satellite Ocean Application Service, China; Shishuai Wang, Beijing Peisat Information Technology Co. Ltd, China

WE4.R10.5  A NEXT GENERATION MICROWAVE RADIOMETER FOR COLD WATER SALINITY MEASUREMENT
17:40  Siddharth Misra, Javier Bosch-Urías, Carl Felton, Mehmet Ogut, Jacob Pease-Rames, Brian Bartham, Simon Brown, California Institute of Technology, NASA Jet Propulsion Laboratory, United States
Wednesday, July 31 08:00 - 09:40  Room 419
Session WE1.R11  Oral

Target and Anomaly Detection in Hyperspectral Images
Session Co-Chairs: Xudong Kang, Hunan University; Stefania Matteoli, National Research Council of Italy

WE1.R11.1 ISOLATION FOREST FOR ANOMALY DETECTION IN HYPERSPECTRAL IMAGES
08:00  Kunzhang Zhang, Xudong Kang, Shutoo Li, Hunan University, China

WE1.R11.2 A KERNEL BACKGROUND PURIFICATION BASED ANOMALY TARGET DETECTION ALGORITHM FOR HYPERSPECTRAL IMAGERY
08:20  Yan Zhang, Mengming Xu, Yonguo Fan, China University of Petroleum (East China), China; Yuxiang Zhang, Yuan Dong, China University of Geosciences, China

WE1.R11.3 PREDICTION AND ASSESSMENT COMPARISON FOR OPTIMIZING SPECTRAL IMAGING SYSTEM DESIGN
08:40  Sanghui Han, John Kerenken, Rochester Institute of Technology, United States; Shawn Higbee, Lawrence Siegel, Alex Portici, Lawrence Livermore National Laboratory, United States

WE1.R11.4 NONPARAMETRIC TARGET DETECTION WITH TARGET STRENGTH ESTIMATION FOR HYPERSPECTRAL IMAGES
09:00  Stefania Matteoli, National Research Council of Italy, Italy; Marco Diani, Italian Naval Academy, Italy; Giavanni Ceriani, University of Pisa, Italy

WE1.R11.5 CARBON MONOXIDE (CO) DETECTION IN SHIP GAS PLUME USING IMAGE BASED SIGNATURE EXTRACTION IN MWIR HYPERSPECTRAL IMAGERY
09:20  Safak Oztoprak, Yusuf Artan, Yunus Emre Esin, Omer Osull, Berkant Demir, HAVELSAN Inc., Turkey

Wednesday, July 31 10:40 - 12:20  Room 419
Session WE2.R11  Oral

Target Detection III
Session Chair: Richard Bamler, German Aerospace Center (DLR)

WE2.R11.1 PARAMETERS ESTIMATION OF HIGH SPEED MANEUVERING TARGET WITH MICRO MOTION IN GEOSAR
10:40  Jianzong Yu, Ze Yu, Chunheng Li, Beihang University, China

WE2.R11.2 MOVING TARGET TRACKING ON EFFICIENT CONVOLUTION OPERATORS FOR SAR
11:00  Zhan Lang, Harbin Institute of Technology, China; Yafei Lu, Beijing Institute of Spacecraft System Engineering, China; Pengfei Zhao, Yan Zhang, Huike Ma, Harbin Institute of Technology, China

WE2.R11.3 SAR SHIP DETECTION FOR ROUGH SEA CONDITIONS
11:20  Pasquale Iervolino, Raffaella Guidi, Donato Amatrano, University of Surrey, United Kingdom; Armandox Marin, University of Strirling, United Kingdom

WE2.R11.4 MOVING TARGET INDICATION IN MODERATE RESOLUTION, PASSIVE MISR SATELLITE IMAGERY
11:40  Michael Garay, Kiri Wagstaff, California Institute of Technology, NASA Jet Propulsion Laboratory, United States

WE2.R11.5 INTERMITTENT SAMPLING DECEPTIVE JAMMING SUPPRESSION FOR SAR BASED ON AZIMUTH PHASE CODING
12:00  Zhaoyang Yang, Yunka Deng, Robert Wang, Wuqiang Zheng, Institute of Electronics, Chinese Academy of Sciences, China

Wednesday, July 31 13:40 - 15:20  Room 419
Session WE3.R11  Oral

Unmixing and Target Detection in Hyperspectral and Multispectral Images
Session Chair: Yannick Deville, Institut de Recherche en Astrophysique et Planetologie (IRAP), Toulouse

WE3.R11.1 LOCAL BLOCK GROUPING WITH NAPCA SPATIAL PREPROCESSING FOR HYPERSPECTRAL REMOTE SENSING IMAGE SPARSE UNMIXING
13:40  Ruiyi Feng, Lizhe Wang, China University of Geosciences (Wuhan), China; Yanfei Zhong, Wuhan University, China

WE3.R11.2 FAST LINEAR UNMIXING OF HYPERSPECTRAL IMAGE BY SLOW FEATURE ANALYSIS AND SIMPLEX VOLUME RATIO APPROACH
14:00  Sumiran Das, Sohun Chakraborty, Anandanda Ruthr, Akhil Rani Ibb, IIT Kharagpur, India

WE3.R11.3 MULTITASK LEARNING FOR SPATIAL-HYPERSPECTRAL UNMIXING
14:20  Burak Palaci, Johannes R. Swinnea, Magnus O. Ulfarsson, University of Iceland, Iceland

WE3.R11.4 BACKGROUND GUIDED TARGET DETECTION FOR HYPERSPECTRAL IMAGE
14:40  Changsuei Zhang, Jianping Zhang, Harbin Institute of Technology, China

WE3.R11.5 A SUB PIXEL MAPPING METHOD BASED ON LOGISTIC REGRESSION AND PIXEL SWAPPING MODEL
15:00  Lijuan Su, Yue Xu, Yan Yuan, Jingyi Yang, Beihang University, China

Wednesday, July 31 16:20 - 18:00  Room 419
Session WE4.R11  Oral

Super-resolution and Multiresolution Fusion Techniques II
Session Chair: Pedram Ghamisi, German Aerospace Center (DLR) and Technical University of Munich (TUM)

WE4.R11.1 HYPER SPECTRAL PANSHARPENING BASED ON GUIDED FILTER AND DEEP RESIDUAL LEARNING
16:20  Yuxiang Zhang, Yanni Dong, China University of Geosciences, China

WE4.R11.2 PATCH BASED PANSHARPENING USING WEIGHTED NUCLEAR NORM MINIMIZATION
16:40  Kai Zhang, Feng Zhang, School of Information Science and Engineering, Shandong Normal University, China

WE4.R11.3 DEEP SPECTRAL SUPER-RESOLUTION WITH NOISY INPUT
17:00  Zhiquan Qu, Northwestern Polytechnical University, China; Lin Zhang, University of Adelaide, Australia; Wei Wei, Jianghua Wu, Northwestern Polytechnical University, China; Chunchun Tian, School of Electronic and Engineering, Xi’an University, China; Yanning Zhang, Northwestern Polytechnical University, China

WE4.R11.4 SUPER-RESOLUTION OF SENTINEL-2 IMAGES BASED ON DEEP CHANNEL-ATTENTION RESIDUAL NETWORK
17:20  Xi Zhu, Yang Xu, Zhihui Wei, Harbin University of Science and Technology, China

WE4.R11.5 HYPER SPECTRAL AND PANCHROMATIC IMAGE FUSION BASED ON WEIGHTED TENSOR MATRIX
17:40  Zhishuang Du, State Key Lab. of Integrated Service Networks, Xi’an University, China; Qian Du, Mississippi State University, United States; Yunsong Li, Wenshan Dong, State Key Lab. of Integrated Service Networks, Xi’an University, China
Wednesday, July 31 08:00 - 09:40  Room 511-512  Session WE1.R13  Oral-Invited

How Advanced Satellite Capabilities Improve Operational Forecasts for Natural Disasters I

Session Co-Chairs: Bill Sjoberg, Global Science and Technology (GST) Contractor supporting NOAA

WE1.R13.1 THE JOINT POLAR SOLAR SYSTEM OVERVIEW 08:00  Mitch Goldberg, NOAA/NESDIS, United States; Bill Sjoberg, Global Science and Technology (GST) Contractor supporting NOAA, United States

WE1.R13.3 JPSS CAPABILITIES PROVIDING CRITICAL SUPPORT TO RECENT STORMS 08:40  Bill Sjoberg, Global Science and Technology (GST) Contractor supporting NOAA, United States; Mitch Goldberg, NOAA JPSS Program Office, United States; William Straub, University of Wisconsin – Madison; Space Science and Engineering Center (SSEC), Cooperative Institute for Meteorological Satellite Studies (CIMSS), United States

WE1.R13.4 JOINT POLAR SOLAR SYSTEM (JPSS) CALIBRATION AND VALIDATION 09:00  Liang Zhou, NOAA/NESDIS/STAR, United States; Mitch Goldberg, NOAA/JPSS, United States


Advances in Reflectometry with GNSS and Signals of Opportunity (GNSS+R) I

Session Co-Chairs: Estel Cardellach, Institut de Ciencies de l’Espai (CSIC/IEEC); Rashmi Shah, NASA Jet Propulsion Laboratory

WE3.R13.1 THE GNSS-R CYGNSS MISSION: AN UPDATE 13:40  Christopher Ralt, Daren McGough, University of Michigan, United States; Mary Morris, Eric Posseth, California Institute of Technology, NASA Jet Propulsion Laboratory, United States; Roderick Moseley, University of Southern California, United States

WE3.R13.2 THE ESA PASSIVE REFLECTOMETRY AND DOSSIMETRY (PRETTY) MISSION 14:00  Andreas Skrivander, Heniz Frisera, KNMI Space GmbH, Austria; Olga Noodle, Koga University, Austria; Arjen Wikler, German Research Centre for Geosciences GFZ, Germany; Estel Cardellach, Institut d’Estudis Espacials de Catalunya, Spain; Per Høeg, University of Oslo, Norway

WE3.R13.3 FORMOSAT-7R MISSION FOR GNSS REFLECTOMETRY 14:20  Jyh-Ching Juang, National Cheng Kung University, Taiwan; Yung-Fu Tsai, Chen-Tsung Lin, Mitch Goldberg, NOAA/NESDIS, United States; Bill Sjoberg, Global Science and Technology (GST) Contractor supporting NOAA, United States

WE3.R13.4 THE STATUS AND PROGRESS OF FENGYUN-3E GNSS II MISSION FOR GNSS REMOTE SENSING 14:40  Yuepeng Sun, Keani Wang, Géosciences Paris, France; Wuhan Xie, Jieping Liu, Xinrong Cui, Daping Wei, Wang, Chunjie Wu, Jiaxing Cui, Jiajun Liu, Yuchen Li, Hao Li, Yanjun Zhao, Fa Li, Tao Gao, Beijing Key Laboratory of Space Environment Exploration, National Space Science Centre, Chinese Academy of Sciences / Joint Laboratory on Occultations for Atmosphere and Climate (GEOCSA) of NSFC/CAST and University of Graz, China

WE3.R13.5 THE FLEXIBLE MICROWAVE PAYLOAD-2: ARCHITECTURE AND TESTING OF A COMBINED GNSS-R AND L-BAND RADIOMETER WITH RFI MITIGATION PAYLOAD FOR CUBESAT-BASED EARTH OBSERVATION MISSIONS 15:00  Joan Francesc Munoz-Martín, Laura Fernández, Joan Ruiz-de-Asua, Adriano José Camps Carmona, Universitat Politècnica de Catalunya (UPC), Spain
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<td>TH1.R2.2</td>
<td>Thursday, Aug 1</td>
<td>14:00 - 15:20</td>
<td>Room 213</td>
<td>A CNN-BASED METHOD FOR SAR IMAGE DESPECKLING</td>
<td>Xiaoqiang Ma, Xudong Zhang, Xinan Tang, Jing Ming, Jun Shi, University of Electronic Science and Technology, China</td>
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<td>TH1.R2.3</td>
<td>Thursday, Aug 1</td>
<td>15:40 - 17:00</td>
<td>Room 213</td>
<td>UNDERGRADUATE EDUCATION OF REMOTE SENSING SCIENCE AND TECHNOLOGY IN CHINA</td>
<td>Chengyi Wang, Beijing Institute of Technology, China; Jianjun Qi, Beijing Normal University, China</td>
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<td>TH1.R2.4</td>
<td>Thursday, Aug 1</td>
<td>17:00 - 18:00</td>
<td>Room 213</td>
<td>USING ISS EARTH OBSERVATION IN AUGMENTED AND VIRTUAL REALITY TO REACH THE NEXT GENERATION OF THE STEM WORKFORCE</td>
<td>Claudia Lindner, Anna Kehm, Mikko Hildan, Carsten Jorgensen, Johannes Schultz, Fabian Solg, Andreas Rixenow, Ruhr-University Bochum, Germany</td>
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<td>TH1.R2.5</td>
<td>Thursday, Aug 1</td>
<td>18:00 - 19:00</td>
<td>Room 213</td>
<td>GEOGRAPHIC INFORMATION SYSTEM AND REMOTE SENSING EDUCATION IN INDIA – ISSUES &amp; SOLUTIONS</td>
<td>Varsha Tarkar, Don Bosco College of Engineering, India; Sangita Choudhary, Ramco Adik Institute of Technology, India; Avila Ndek, Don Bosco College of Engineering, India</td>
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## Thursday, August 1 13:40 - 15:20 Room 313-314

### Session TH3.R4

**End-to-End New Observing Strategies for Disaster and Environment III**

**Session Chair:** Jacqueline Le Moigne, NASA Goddard Space Flight Center

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<td>13:40</td>
<td>TH3.R4.1 NEW OBSERVING STRATEGY (NOS) FOR FUTURE EARTH SCIENCE MISSIONS</td>
<td>Jacqueline Le Moigne, Mike Little, National Aeronautics and Space Administration (NASA), United States; Marjorie Cole, SGT, Inc., United States</td>
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<td>14:00</td>
<td>TH3.R4.2 PERSPECTIVES FOR VHR BIG DATA IMAGE PROCESSING AND VISUALIZATION</td>
<td>Simon Ballarino, Claire Tinel, Pierre Lassalle, Olivier Melet, David Youssfi, Peter Kettig, Victor Poughon, CNRS, France; Vincent Gaudissart, C.S., France</td>
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<td>14:20</td>
<td>TH3.R4.3 VISAGE - A VISUALIZATION AND EXPLORATION FRAMEWORK FOR ENVIRONMENTAL DATA</td>
<td>Helen Canon, Todd Benveniste, University of Alabama Huntsville, United States; Patrick Garth, Mano Macaya, National Aeronautics and Space Administration (NASA), United States; Aaron Nauge, University of Alabama Huntsville, United States; Stephanie Wing, University of Alabama Huntsville, United States; Simon Ballarino, Claire Tinel, Olivier Melet, David Youssfi, Peter Kettig, Victor Poughon, CNRS, France; Vincent Gaudissart, C.S., France</td>
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<td>14:40</td>
<td>TH3.R4.4 ON THE USE OF CLOUD, ALGORITHM CATALOGS, AND MACHINE LEARNING FOR SAR-BASED HAZARDS MONITORING</td>
<td>Hoa Xu, Susan Owen, Sang-Noe Yun, Eric Fielkow, Gerald Mongjon, Justin Lench, Mohammed Karim, Brian Bui, Gian Francesca Sara, Nanrata Medovrat, David Behrens, Priscah Agraw, Marjorie Laran, Lan Dang, California Institute of Technology, NASA Jet Propulsion Laboratory, United States</td>
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<td>15:00</td>
<td>TH3.R4.5 AN EYE ON THE STORM: UNCOVERING MULTI-VARIATE RELATIONSHIPS WITH A SCIENCE-DRIVEN SYSTEM FOR INTERACTIVE ANALYSIS AND VISUALIZATION: MOTIVATING MACHINE-LEARNING DISCOVERIES FOR HURRICANE RAPID INTENSITY CHANGES</td>
<td>Sweta Himona-Helvila, P. Peggy Li, Brian Knap, F. Joseph Turk, William L. Poulsen, Quoc Vu, Ziad Haddad, Tsu-Peng Shen, Bryan Stiles, Brian Lambright, Hui Su, California Institute of Technology, NASA Jet Propulsion Laboratory, United States; Jeffrey Reed, Naval Research Laboratory, United States; Juanasari Bhaktharandra, Purdue University, United States; Hua Lu, Li, NOAA/AOML/RDR/RSMAS, United States; Sunanaram Gopalekritisam, NOAA/AOML/RDR, United States; Andres Navarro, Francisco Tapia, Universidad de Castilla-La Mancha, Spain</td>
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**Session TH2.R4**

**End-to-End New Observing Strategies for Disaster and Environment II**

**Session Co-Chairs:** Mike Little, Jacqueline Le Moigne, NASA Goddard Space Flight Center

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<td>TH2.R4.1 TESTBED REQUIREMENTS TO ENABLE NEW OBSERVING STRATEGIES</td>
<td>Michael Little, Jacqueline Le Moigne, National Aeronautics and Space Administration (NASA), United States; Marye Cole, KBR-Wyle, United States</td>
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<td>11:00</td>
<td>TH2.R4.2 THE QUAKES CONCEPT FOR OBSERVING AND MITIGATING NATURAL DISASTERS</td>
<td>Andrea Denolin, Yanling Lui, Curtis Podgrett, Jay Parker, Brian Hawkins, Robert Greane, Margaret Glossec, California Institute of Technology, NASA Jet Propulsion Laboratory, United States; John Boul, Lisa Grant Ludwig, University of California, United States; Michael Pierce, Jun Wang, Indiana University, United States; Yehuda Ben-Zion, University of Southern California, United States</td>
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<td>11:20</td>
<td>TH2.R4.3 CONSEQUENCES OF THE CLOUD: VISUALIZING REMOTE SENSING SYSTEMS</td>
<td>Andrew Schmidt, Viva Stavropopoul, Mara Pauli, Matthew French, University of Southern California, United States</td>
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<td>11:40</td>
<td>TH2.R4.4 ANALYTICS CENTER FRAMEWORK FOR ESTIMATING THE CIRCULATION AND CLIMATE OF THE OCEAN</td>
<td>Thomas Huang, Maya DeBols, Ian Fenty, California Institute of Technology, NASA Jet Propulsion Laboratory, United States; Patrick Hennes, University of Texas Austin, United States; Joseph Jacob, Do Wang, Elizabeth Yam, California Institute of Technology, NASA Jet Propulsion Laboratory, United States</td>
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<td>12:00</td>
<td>TH2.R4.5 EARTH OBSERVATION DATA MINING: A USE CASE FOR FOREST MONITORING</td>
<td>Corneliu Octavian Dumitr, Gertfried Schwarz, German Aerospace Center (DLR), Germany; Anna Pulskewik, Bartosz Kolwiek, WSN, Poland; Jose Latorre, Ato Spain SA, Spain; Mikio Date, German Aerospace Center (DLR), Germany</td>
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<td>08:00</td>
<td>Session TH1.R5</td>
<td>Multi-Modal / Multi-Scale: Transfer Learning</td>
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<td>Session TH2.R5</td>
<td>Domain adaptation</td>
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<td>Hyperspectral Image Classification III</td>
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<td>10:40</td>
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<td>Deep Learning</td>
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Session TH1.R6
REMOTE SENSING FOR CROP CLASSIFICATION, MAPPING AND MONITORING I

TH1.R6.1 USING DENSE TIME- SERIES OF CBAND SAR IMAGERY FOR CLASSIFICATION OF DIVERSE, WORLDWIDE AGRICULTURAL SYSTEMS
Laure Dingle Robertson, Andrew Davidson, Heathen McNaught, Agriculture and Agri-Food Canada, Canada; Mehdi Hosseini, Scott Mitchell, Carleton University, Canada; Diego de Almeida, Santiago Verón, Instituto de Clima y Agua, Argentina; Dimitris Kasapalis, Maria Clara Karydas, Stefgis Karis, Ioannis Pyrklou, Dimitris Mousav, Aristotle University of Thessaloniki, Greece; Ioannis Bousios, Ioannis Gkantsou, Center of Spatial Studies of the Biosphere (CESBIO), France; Krishna Mallik, UST, Luxembourg; Thibaut Beclin, INRA, France; Salah El-Raki, UCAm, Morocco; Olivier Merlin, Centre d’Etude Spatial de la Biosphère (CESBIO), France; Vivien Sainte Fare Garnot, Loïc Landrieu, Sébastien Giordano, Université Paris-Est, France; Laura Dingle Robertson, Agriculture and Agri-Food Canada, Canada; Silvia Valera, Centre d’Etude Spatial de la Biosphère (CESBIO), France.

TH1.R6.2 CROP MAPPING AND MONITORING USING MULTITEMPORAL COMPACT POLSAR DATA: PREPARATION FOR THE RADARSAT-CONSTELLATION MISSION (R-CM)
Soand Hamazyan, University of Ottawa, Canada; Heathen McNaught, Agriculture and Agri-Food Canada, Canada; Mehdi Hosseini, Carleton University, Canada; Mahdi Khodakarami, Fariba Mohammadinasab, Memorial University, Canada; Mohammad Rezaee, University of New Brunswick, Canada.

TH1.R6.3 EARLY SEASON WINTER WHEAT IDENTIFICATION USING SENTINEL-1 SYNTHETIC APERTURE RADAR (SAR) AND OPTICAL DATA
Claire Boryan, Zhengqun Yang, Patrick Willis, Avery Sandlund, National Agricultural Statistics Service, United States

TH1.R6.4 SENTINEL’S CLASSIFIER FUSION SYSTEM FOR SEASONAL CROP MAPPING
Shihe Valera, Ludovic Arnaud, Monika Plesan, Eric Cecchi, Gerard Dedieu, Centre d’Etude Spatial de la Biosphère (CESBIO), France.

TH1.R6.5 TIME-SPACE TRADEOFF IN DEEP LEARNING MODELS FOR CROP CLASSIFICATION ON SATELLITE MULTITEMPORAL-SPECTRAL IMAGE SERIES
Vivien Sainte Fare Garnot, Loïc Landrieu, Sébastien Giordano, Université Paris-Est, France; Nescine Chhateka, Université Bordeaux Montaigu, France.

Session TH3.R6
REMOTE SENSING FOR CROP AGRICULTURAL HYDROLOGY

TH3.R6.1 CROP DROUGHT AREA EXTRACTION BASED ON REMOTE SENSING TIME SERIES TEMPORAL-FUSION VEGETATION INDEX
Shao Liu, Institute of Remote Sensing and Digital Earth, Chinese Academy of Science, China; Jingqing Tian, Henan Modern Agriculture Big Data Technology Research Co., Ltd., China; Shiqiong Wang, Deyoung Wang, Tiewen Chu, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China; Yang Zheng, Henan Modern Agriculture Big Data Technology Research Co., Ltd., China.

TH3.R6.2 ANALYSIS OF SENTINEL-1 DERIVED SOIL MOISTURE MAPS OVER OCCITANIE, SOUTH FRANCE
Nicolas Baghdadi, Hassen Bazzi, Mohammad El Hafi, IRSEA, France; Mohamed Zibi, CNRS, France

TH3.R6.3 ESTIMATING VEGETATION WATER CONTENT AND SOIL SURFACE ROUGHNESS USING PHYSICAL MODELS OF RADAR SCATTERING AND SAR DATA
Seungbum Kim, California Institute of Technology, NASA Jet Propulsion Laboratory, United States; Huanting Huang, University of Michigan, United States; Tienhao Liao, California Institute of Technology, United States; Saeid Homayouni, University of Ottawa, Canada; Heather McNairn, Agriculture and Agri-Food Canada, Canada; Mohammad Rezaee, University of New Brunswick, Canada; Mehdi Hosseini, Carleton University, Canada; Andrew Davidson, Laura Dingle Robertson, Agricultural and Agri-Food Canada, Canada.

TH3.R6.4 EVAPOTRANSPIRATION AND EVAPORATION/TRANSPIRATION RETRIEVAL USING DUAL-SOURCE SURFACE ENERGY BALANCE MODELS INTEGRATING VHS/IR/TIR DATA WITH SATELLITE SURFACE SOIL MOISTURE INFORMATION
Gilles Boulet, Centre d’Etude Spatial de la Biosphère (CESBIO) / Université de Toulouse/INRA/CNRS/UMRE/IRAN, France; Jihad El Raki, UCAm, Morocco; Vivien Sainte Fare Garnot, Loïc Landrieu, Sébastien Giordano, Université Paris-Est, France; Vivien Sainte Fare Garnot, Loïc Landrieu, Sébastien Giordano, Université Paris-Est, France; Krishna Mallik, UST, Luxembourg; Albert Oliva, IMDEA-MAP, Spain; Salah El-Raki, UCAm, Morocco; Olivier Merlin, Centre d’Etude Spatial de la Biosphère (CESBIO), France; Vivien Sainte Fare Garnot, Loïc Landrieu, Sébastien Giordano, Université Paris-Est, France.

TH3.R6.5 ENHANCING FOOD SECURITY THROUGH THE AGRICULTURAL PROJECTS: DESIGN OF CROP, WATER AND DROUGHT SERVICES
Thomas Alexandridis, Aristotle University of Thessaloniki, Greece; Giovanna Lavenne, Sapienza University of Rome, Italy; Claudio Arantes Silva, Universidade de Brasilia, Brazil.

Session TH2.R6
REMOTE SENSING FOR CROP PARAMETERS AND PHENOLOGY

TH2.R6.1 COTTON LEAF AREA INDEX ESTIMATION USING UNMANNED AERIAL VEHICLE MULTI-SPECTRAL IMAGES
Pei-Wei Chen, Chinese Academy of Sciences, China

TH2.R6.2 A NOVEL DEEP LEARNING BASED COTTON GENOTYPE SELECTION FRAMEWORK USING MULTITEMPORAL UAV DATA
Akash Ashapure, Jinha Jung, Texas A&M University Corpus Christi, United States; Murilo Maeda, Texas A&M AgriLife Extension, Lubbock, United States; Juan Landivar, Texas A&M AgriLife Research at Corpus Christi, United States; Aylin Chang, Texas A&M University Corpus Christi, United States; Junho Yeom, Kyungpook National University, Korea (South); Steve Hague, Wayne Smith, Texas A&M University, United States

TH2.R6.3 ESTIMATION OF INDIVIDUAL POTATO PLANTS AREA AND VOLUME FROM UAV-BASED MULTISPECTRAL IMAGES
Víctor Angulo Morales, Universidad Distrital Francisco José de Caldas, Colombia; Jorge Rodríguez Gámez, Universidad Nacional de Colombia, Colombia; Eris Gana García, Universidad Distrital Francisco José de Caldas, Colombia; Ivan Lizarazo Salcedo, Universidad Nacional de Colombia, Colombia

TH2.R6.4 ESTIMATION OF DIFFUSE COMPONENT OF GLOBAL RADIATION BASED ON LEAF-SCALE CROP IMAGES
Kuniaki Uto, Tokyo Institute of Technology, Japan; Masao Dalla Mura, Josép Climent, Université Grenoble Alpes, CNRS, Grenoble INP, PGEPA-Leb, France; Kachi Shinoda, Tokyo Institute of Technology, Japan.

TH2.R6.5 COMPARISON OF MACHINE LEARNING ALGORITHMS AND WATER CLOUD MODEL FOR LEAF AREA INDEX ESTIMATION OVER CORN FIELDS
Mehdi Hosseini, Carleton University, Canada; Heathen McNaught, Agriculture and Agri-Food Canada, Canada; Scott Mitchell, Carleton University, Canada; Andrew Davidson, Laura Dingle Robertson, Agriculture and Agri-Food Canada, Canada.
Thursday, August 1 08:00 - 09:40  Room 413  Oral

**Session TH1.R7**

**Electromagnetic Modeling of the Sea Surface**

Session Co-Chairs: Joel Johnson, Ohio State University; Steve Reising, Colorado State University

**TH1.R7.1**  FULL-POLARIZATION BISTATIC WAVE SCATTERING FROM A SPATIALLY ANISOTROPIC ROUGH SURFACE WITH INHOMOGENEOUS DIELECTRIC PROFILE

Yang Yang, University of Chinese Academy of Sciences, China; Kun-Shan Chen, Chinese Academy of Sciences, China

**TH1.R7.2**  INVESTIGATION ON ELECTROMAGNETIC SCATTERING FROM TIME EVOLVING ROUGH SEA SURFACE CONTAMINATED BY NATURAL SEA SLICKS

Peng-Ju Yang, Rui Wu, Xin-Cheng Ren, Yu-Qiang Zhang, Yu-Qing Wang, Yanan University, China

**TH1.R7.3**  NUMERICAL EVALUATION OF WAVE WAVE SPECTRA ON RADAR BACKSCATTERING FROM OCEAN SURFACE

Dongdong Xie, Institute of Remote Sensing and Digital Earth, Chinese Academy of Science / University of Chinese Academy of Sciences, China; Kun-Shan Chen, Xinhua Yang, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China

**TH1.R7.4**  VALIDITY OF THE KIRCHHOFF-GEOMETRIC OPTICS APPROACH FOR MODELING OF OCEAN BISTATIC RADAR SCATTERING

Vladimir Zavorotny, CIES/NOAA Earth System Research Laboratory, United States; Alexander Yurkov, NOAA Earth System Research Laboratory, United States

**TH1.R7.5**  SWELL EFFECTS ON NEAR-COASTAL SMAP L-BAND HIGH-RESOLUTION NRCS DATA

Shanka Wijesundara, Joel Johnson, Ohio State University, United States

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Thursday, August 1 13:40 - 15:20  Room 413  Oral

**Session TH3.R7**

**Advanced Machine Learning for Time Series Remote Sensing Data Analysis I**

Session Co-Chairs: Xiangrong Zhang, Xidian University, China; Xiaping Jia, University of New South Wales

**TH3.R7.1**  REPRESENTATION LEARNING VIA VARIATIONAL BAYES NETWORK WITH GD DISTRIBUTION FOR SAR IMAGE SEGMENTATION

Fang Liu, Xiaowei Qian, Licheng Jiao, Zanghao Sun, Biao Hou, Ronghao Shang, Key Laboratory of Intelligent Perception and Image Understanding of Ministry of Education, School of Artificial Intelligence, Xidian University, China

**TH3.R7.2**  IMPROVED LOW RANK PLUS STRUCTURED SPARSITY AND UNSTRUCTURED SPARSITY DECOMPOSITION FOR MOVING OBJECT DETECTION IN SATELLITE VIDEOS

Jianping Zhang, Xiaping Jia, University of New South Wales, Australia

**TH3.R7.3**  A STEPWISE METHOD FOR CHANGE DETECTION IN LARGE-SCALE POLARIMETRIC SAR IMAGES

Fang Liu, Qingyang University of Science and Technology, China; Xu Tang, Xidian University, China

**TH3.R7.4**  FORECASTING POLLEN AEROBIOLOGY WITH MODIS EVI, LAND COVER, AND PHENOLOGY USING MACHINE LEARNING TOOLS

Alfredo Hurtu, Ngoc Nguyen Tran, Ho Nguyen, Quyen Vu, University of Technology Sydney, Australia; Casandra Keinath, Western Sydney University, Australia

**TH3.R7.5**  OBJECT DETECTION AND TRACKING BASED ON CONVOLUTIONAL NEURAL NETWORKS FOR HIGH-RESOLUTION OPTICAL REMOTE SENSING VIDEO

Biao Hou, Jingliang Li, Xiangrong Zhang, Shuang Wang, Licheng Jiao, Key Laboratory of Intelligent Perception and Image Understanding of Ministry of Education of China, Xidian University, China

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Thursday, August 1 16:20 - 18:00  Room 413  Oral

**Session TH4.R7**

**Advanced Machine Learning for Time Series Remote Sensing Data Analysis II**

Session Co-Chairs: Xiaping Jia, University of New South Wales; Xiangrong Zhang, Xidian University, China

**TH4.R7.1**  WEAK MOVING OBJECT DETECTION IN OPTICAL REMOTE SENSING VIDEO WITH MOTION-DRIVE FUSION NETWORK

Yaowen Li, Liangpei Zhang, Xidian University, China; Li Yao, State Key Laboratory of Geo-Information Engineering, China

**TH4.R7.2**  AN AUTOMATIC APPROACH FOR CHANGE DETECTION IN LARGE-SCALE REMOTE SENSING IMAGES

Sheng Liu, Zhen Ye, JinHua Tang, Tongji University, China

**TH4.R7.3**  A NOVEL DEEP FEATURE FUSION NETWORK FOR REMOTE SENSING SCENE CLASSIFICATION

Yangyang Li, Qi Wang, Xiaoxu Liang, Licheng Jiao, Xidian University, China

**TH4.R7.4**  A SPARSE AUTOENCODER BASED HYPERSONAL ANOMALY DETECTION ALGORITHM USING RESIDUAL OF RECONSTRUCTION ERROR

Shuowe Zhang, Remote Sensing Group, State Key Laboratory of Information Engineering in Surveying, Mapping, and Remote Sensing, Wuhan University, China; Bo Du, School of Computer Science, Wuhan University, China; Guowei Zhang, Remote Sensing Group, State Key Laboratory of Information Engineering in Surveying, Mapping, and Remote Sensing, Wuhan University, China

**TH4.R7.5**  MOVING TARGETS DETECTION FOR SATELLITE-BASED SURVEILLANCE VIDEO

Xiaoyang Wang, Laboratory of Spatial Data Processing Technology of Henan University, China; Feng Li, Lei Xin, Qian Xu, Laboratory of Space Technology, Chinese Academy of Space Technology, China; Jie Ma, Laboratory of Spatial Data Processing Technology of Henan University, China; Xue Yang, Qian Xu, Laboratory of Space Technology, Chinese Academy of Space Technology, China; Xing Chang, Lanzhou Jiaotong University, China

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2019 IEEE International Geoscience and Remote Sensing Symposium · Yokohama, Japan
Thursday, August 1 08:00 - 09:40 Room 414-415
Session TH1.R8 Oral

Monitoring and Damage Assessment of Flood III
Session Co-Chairs: Yunling Lou, Jet Propulsion Laboratory, California Institute of Technology; Desheng Liu, Ohio State University

TH1.R8.1 FLOOD MAPPING AND IMPACT ASSESSMENT IN AGUSAN RIVER BASIN, PHILIPPINES USING SENTINEL-1 SAR IMAGES
Monalisse Berny, Nerrian Santillan, Jayne Santillan, Arthur Amor, Joy Casingina, Janie Bong, Cagayan State University, Philippines

TH1.R8.2 AN UNSUPERVISED SURFACE WATER UN-MIXING METHOD USING LANDSAT AND MODIS IMAGES FOR RAPID INUNDATION OBSERVATION
Jiapeng Liang, Desheng Liu, Ohio State University, United States

TH1.R8.3 RECENT AIRBORNE SAR DEMONSTRATIONS FOR MONITORING AND ASSESSMENT OF VOLCANIC LAVA FLOW AND SEVERE FLOODING
Yunling Lou, Scott Hensley, Bruce Chapman, Brian Hawkins, Cathleen Jones, Paul Lundgren, Thierry Michel, Ron Muehlersohnen, Naora Pinto, Yang Zheng, California Institute of Technology, NASA Jet Propulsion Laboratory, United States

TH1.R8.4 DETECTION OF WATER LEAKAGE FROM CANALS USING SENTINEL-1 SAR DATA
Seunghyun Kim, California Institute of Technology, NASA Jet Propulsion Laboratory, United States

Thursday, August 1 13:40 - 15:20 Room 414-415
Session TH3.R8 Oral

Monitoring and Damage Assessment of Land Surface
Session Co-Chairs: Patricia Oliva, Universidad Mayor; Elena Dubovyk, University of Bonn

TH3.R8.1 STUDY ON LOCUST DISASTER MONITORING BASED ON SMOS L2 SOIL MOISTURE DATA
Ya Yang, Xiaolin Zhu, Hong Kong Polytechnic University, China

TH3.R8.2 EVALUATING THE SENTINEL-2A SATELLITE DATA FOR FUEL MOISTURE CONTENT RETRIEVAL
Qidi Shu, Xiaolin Zhu, Hong Kong Polytechnic University, China; Na Zhen, Geological Environment Monitoring Institute of Henan Province, China

TH3.R8.3 SPATIALLY REFINED BIOMASS AND COMBUSTION EFFICIENCY QUANTIFICATION IN SUPPORT OF FOREST FIRES EMISSIONS
Patricia Oliva, Leonardo Duran, Alejandro Venegas, Paulina Vidal, Claudia Montoya, Universidad Mayor, Chile

TH3.R8.4 SPATIAL ASSESSMENT OF DROUGHT HAZARD IN KAZAKHSTAN: TOWARDS A COUNTRYWIDE DROUGHT MONITORING SYSTEM
Elena Dubovyk, Gohar Ghazaryan, Javier González, Valerie Graw, University of Bonn, Germany; Fabian Liu, Jonas Schreier, MapTailor Geospatial Consulting GbR, Germany

TH3.R8.5 RESEARCH ON DROUGHT MONITORING IN SHANDONG PROVINCE BASED ON MULTI-SOURCE REMOTE SENSING DATA
Hong Wang, Peng Gao, Zhenglong Wang, College of Information Science and Engineering, Shandong Agricultural University, China; Yijie Zhao, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China; Chuncheng Meng, Gaofang Xu, College of Information Science and Engineering, Shandong Agricultural University, China

Thursday, August 1 10:40 - 12:20 Room 414-415
Session TH2.R8 Oral

Monitoring and Damage Assessment of Urban and Buildings
Session Co-Chairs: Magaly Koch, Boston University; Ferdaous Chaabane, Higher School of Communication of Tunis SUPCOM

TH2.R8.1 DETECTING COLLAPSED BUILDINGS AFTER A NATURAL HAZARD ON VHR OPTICAL SATELLITE IMAGERY USING U-NET CONVOLUTIONAL NEURAL NETWORKS
Habid Rashidhah, Louie Baixe, Tufts University, United States; Magaly Koch, Boston University, United States

TH2.R8.2 VHR SATELLITE IMAGE TIME SERIES ANALYSIS FOR ILLEGAL BUILDING MONITORING USING MULTI-DIMENSIONAL HISTOGRAM EARTH MOVER’S DISTANCE
Ferdaous Chaabane, Safa Râjîch, Higher School of Communication of Tunis SUPCOM, Tunisia; Chayma Kefi, Haythem Ismail, CRCT (Centre National de la Cartographie et de la Télédétectioin), Tunisia; Florence Tupin, Télécom ParisTech, France

TH2.R8.3 BUILDING DAMAGE ASSESSMENT FROM POST-EVENT POLSAR IMAGE BASED ON OPCE AND TEMPLATE MATCHING
Yulong Nie, Qiming Zeng, Jian Jiao, Peking University, China

TH2.R8.4 WEB CAMERA SENSOR COUPLED WITH LIDAR DATA FLOOD MAP FOR FLOOD WARNING SYSTEM
Indra Riyanto, Universitas Indonesia, Indonesia; Lestari Mangkatan, Anggo Ariawan, Luhur Bayouaji, Universitas Budi Luhur, Indonesia; Mas Kikimaa, Budi Sudarso, Harry Sudibyo, Universitas Indonesia, Indonesia; Josephat Itbaha Sri Sumantri, Chiba University, Japan

TH2.R8.5 INVESTIGATING EFFECTS OF TYPHOON MANGKHUT ON URBAN VEGETATION USING SENTINEL-2 IMAGES
Shuai Ju, Binlin Zhu, Hang Kong Polytechnic University, China; Eleven H. Helmer, US Forest Service (USDA), United States; Tao Wei, Shenzhen University, China

Thursday, August 1 16:20 - 18:00 Room 414-415
Session TH4.R8 Oral

Data Analysis Methods in Monitoring and Damage Assessment
Session Co-Chairs: Shohei Kidera, University of Electro-Communications; Motofumi Arii, Mitsubishi Space Software Corporation

TH4.R8.1 PROPOSAL OF ADAPTIVE SEARCH-AND-REScue RADAR SYSTEM WITH ONLINE COMPLEX-VALUED FREQUENCY-DOMAIN INDEPENDENT COMPONENT ANALYSIS
Takahiro Nakashita, Akira Hirose, University of Tokyo, Japan

TH4.R8.2 OBJECT-ORIENTED OPEN PIT EXTRACTION BASED ON CONVOLUTIONAL NEURAL NETWORK, A CASE STUDY IN YUZHOU, CHINA
Nakan Xi, Tao Chen, Ruong Xue, Institute of Geophysics & Geomatics, China University of Geosciences, China; No Zhun, Geological Environment Monitoring Institute of Henan Province, China

TH4.R8.3 A STUDY ON FEATURES EXTRACTION FOR HMM BASED ANOMALOUS SIGNAL DETECTION FROM WAVEFORM IMAGES OF ELF MAGNETIC SIGNALS
Matsumi Mouri, Aichi Prefectural University, Japan; Akitoshi Itai, Chubu University, Japan; Hiroshi Yasukawa, Aichi Prefectural University, Japan; Ichi Takumi, Nagoya Institute of Technology, Japan

TH4.R8.4 HAS GOVERNMENT WATER PROTECTION POLICY TAKEN EFFECT ON PREVENTING HARMFUL ALGAL BLOOMS IN ERHAI LAKE?
Zhan Zhang, Jianya Gong, Jialin Wang, Xiaoling Chen, Liqiong Chen, Wuhan University, China; Yuyao Guo, Shandong Agriculture University, China; Tianjie Zhao, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China; Chuncheng Meng, Gaofang Xu, College of Information Science and Engineering, Shandong Agricultural University, China; Jiaou Liang, Desheng Liu, Ohio State University
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<td>TH1.R9</td>
<td>Ambiguity Reduction</td>
<td>Noboru Oishi, Kei Sawa, Mitsubishi Electric Corporation, Japan</td>
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<td>TH1.R9</td>
<td>09:00 MODULATION CHIRP CORRECTION BASED ON NUFFT-3</td>
<td>Lin Chen, Xue Jiang, Penghui Huang, Ye Zhang, Xingzhao Liu, Shanghai Jiao Tong University, China</td>
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<td>TH1.R9</td>
<td>08:40 CURVILINEAR VIDEO-SAR PERSISTENT IMAGING WITH DISTORTION</td>
<td>Mingqian Liu, Zhilin Xu, Zhongqiu Xu, Zhonghao Wei, Bingchen Zhang, Yirong Wu, Institute of Electronics and Optoelectronic Engineering, Xidian University, China</td>
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<td>TH1.R9</td>
<td>08:20 THE RANGE AMBIGUITY SUPPRESSION BASED ON AMPLITUDE MODULATION CHIRP</td>
<td>Haiguang Yang, Jianyu Yang, University of Electronic Science and Technology of China, China; Zhongyu Li, Junjie Wu, Yulin Huang, Nanjing Research Institute of Electronics Technology, China; Mengdao Xing, National Satellite Ocean Application Service, China</td>
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<td>TH1.R9</td>
<td>08:00 ENHANCEMENT OF REAL BEAM SCANNING RADAR</td>
<td>Noboru Oishi, Kei Sawa, Mitsubishi Electric Corporation, Japan</td>
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<td>TH3.R9</td>
<td>Efficient Nonconvex Regularization for Azimuth Resolution</td>
<td>Da Liang, Wenchang Yu, Hong Zhang, Lei Zhang, Naihua Fan, Robert Wang, Institute of Electronics, Chinese Academy of Sciences, China</td>
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<td>TH4.R9</td>
<td>14:40 DISCUSSION ON THE ROTATION TRANSFORMATION IN FULLY CURVED ORBIT</td>
<td>Ryoichi Sato, Kentaro Sasaki, Yoshio Yamaguchi, Hiroyoshi Yamada, Niigata University, Japan</td>
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<td>TH4.R9</td>
<td>14:20 POLARIMETRIC SYNTHETIC APERTURE RADA DARA INTERPRETATION</td>
<td>Fang Shang, University of Electro-Communications, Japan, Japan</td>
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<td>TH4.R9</td>
<td>14:00 POLARIMETRIC SYNTHETIC APERTURE RADA DARA INTERPRETATION</td>
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<td>TH4.R9</td>
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<td>Fang Shang, University of Electro-Communications, Japan, Japan</td>
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<td>TH4.R9</td>
<td>12:20 CURVED ORBIT</td>
<td>Da Liang, Wenchang Yu, Hong Zhang, Lei Zhang, Naihua Fan, Robert Wang, Institute of Electronics, Chinese Academy of Sciences, China</td>
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<td>TH2.R9</td>
<td>SAR Focusing</td>
<td>Alberto Moreira, German Aerospace Center (DLR)</td>
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<td>TH2.R9</td>
<td>10:40 ON THE USE OF TIME-DOMAIN SAR FOCUSING IN SPACEBORNE SAR MISSIONS</td>
<td>Marc Rodriguez-Cassela, Pan Prat-Aruela, Gerhard Krieger, Alberto Moreira, German Aerospace Center (DLR), Germany</td>
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<td>TH2.R9</td>
<td>11:00 A NOVEL IMAGING MODE FOR SIMULTANEOUS SINGLE-/DUAL- AND QUAD-POL SAR ACQUISITION OVER SWATHS OF DIFFERENT WIDTHS</td>
<td>Michalangelo Villa, Ulrich Staerk, Gerhard Krieger, Alberto Moreira, German Aerospace Center (DLR), Germany</td>
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<td>TH2.R9</td>
<td>11:20 CHALLENGES OF SHIP FOCUSING WITH LONG COHERENCE PROCESSING INTERVAL</td>
<td>Wenzhou Liu, Mengdao Xing, Guang-Cai Sun, Xidian University, China</td>
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<td>TH2.R9</td>
<td>11:40 SPARSE RECONSTRUCTION FOR SYNTHETIC APERTURE RADAR VIA GENERALIZED SPARSE COVARIANCE FITTING</td>
<td>Xingping Yang, Yongchao Zhang, Dengping Mao, Yuananyun Bi, Haiguang Yang, Jun Shi, University of Electronic Science and Technology of China, China</td>
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<td>TH2.R9</td>
<td>12:00 PROCESSING OF SPACEBORNE HIGH-RESOLUTION SAR DATA WITH CURVED ORBIT</td>
<td>De Liang, Wenchang Yu, Hong Zhang, Lei Zhang, Naihua Fan, Robert Wang, Institute of Electronics, Chinese Academy of Sciences, China</td>
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<td>TH3.R9</td>
<td>SAR Imaging Techniques</td>
<td>Paul Rosen, Jet Propulsion Laboratory / Caltech; Takehiro Hashina, Mitsubishi Electric Corporation</td>
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<td>TH3.R9</td>
<td>13:40 INTERPOLATION ADAPTIVE PARAMETERS ESTIMATION FOR SPARSE SAR IMAGE ENHANCEMENT</td>
<td>Ruokang Dong, Min Liu, China Academy of Space Technology, China; Wei Gui, Hong Kong Polytechnic University, China; Jindong Yu, Beihang University, China</td>
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<td>TH3.R9</td>
<td>14:00 IMPROVED ADAPTIVE PARAMETER ESTIMATION FOR SPARSE SAR IMAGES BASED ON COMPLEX IMAGE AND AZIMUTH-ANGLE DECOUPLING</td>
<td>Haiguang Yang, Jianyu Yang, University of Electronic Science and Technology of China, China; Zhongyu Li, Junjie Wu, Yulin Huang, Nanjing Research Institute of Electronics Technology, China; Mengdao Xing, National Satellite Ocean Application Service, China</td>
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<td>TH3.R9</td>
<td>14:20 A REAL-TIME IMAGING ALGORITHM FOR SPACEBORNE SAR VIA SUB-APERTURE COMPLEX IMAGES COMBINING</td>
<td>Guang-ai Sun, National Laboratory of Radar Signal Processing, Xiian University, China; Yandin Liu, School of Physics and Optoelectronic Engineering, Xiian University, China; Mengzhong Xiong, National Laboratory of Radar Signal Processing, Xiian University, China; Liang Guo, School of Physics and Optoelectronic Engineering, Xiian University, China; Zhang Bao, National Laboratory of Radar Signal Processing, Xiian University, China</td>
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<td>TH3.R9</td>
<td>14:40 BISTATIC FORWARD-LOOKING SAR MOTION ERROR COMPENSATION METHOD BASED ON KEYSTONE TRANSFORM AND MODIFIED AUTOCORRELATION BACK-PROJECTION</td>
<td>Qing Yang, University of Electronic Science and Technology of China, China; Deming Gao, Nanjing Research Institute of Electronics Technology, China; Zhongyu Li, Junjie Wu, Yule Huang, Haiguang Yang, Jianyu Yang, University of Electronic Science and Technology of China, China</td>
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<td>TH3.R9</td>
<td>15:00 EXPERIMENTAL STUDY OF COMPRESSIVE SENSING FOR SYNTHETIC APERTURE RADA ON SUB-NYQUIST LINEARLY DECIMATED ARRAY</td>
<td>Takehiro Hashina, Aki Sowa, Yuya Yokota, Tenryuki Hara, Mitsubishi Electric Corporation, Japan</td>
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<td>TH4.R9</td>
<td>16:20 A REFLECTION SYMMETRY APPROXIMATION FOR FREEMAN-DURDEN DECOMPOSITION OF POLSAR DATA</td>
<td>Wentao An, Mingsen Lin, Yongjun Jia, Xingqiu Lu, National Satellite Ocean Application Service, China</td>
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<td>TH4.R9</td>
<td>16:40 MULTI-TEMPORAL SPECKLE REDUCTION OF POLARIMETRIC SAR IMAGES: A RATIO-BASED APPROACH</td>
<td>Charles-Alban Deledalle, CNRS, France; Loïc Denis, Université Rennes 1, France; Jean-Marie Nicolas, Florence Polytech, France</td>
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<td>TH4.R9</td>
<td>17:00 SENSITIVITY STUDY OF X-BAND MIMP SAR DATA FROM VEGETABLES</td>
<td>Miadelli Atei, Mitsubishi Electric Co., Ltd., Japan; Hiroshi Sakamoto, Mitsubishi Space Software Co., Ltd., Japan; Hironobu Yamada, Nippon University, Japan; Shoichiro Kojima, National Institute of Information and Communications Technology (NICT), Japan</td>
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<td>TH4.R9</td>
<td>17:20 ANALYSIS OF POLARIMETRIC SCATTERING FROM DIHEDRAL STRUCTURE FOR DETECTING BUILDING DAMAGED BY MUDFLOW</td>
<td>Ryoshi Sato, Kenjiro Satomi, Yudho Yamaguchi, Hironobu Yamada, Nippon University, Japan</td>
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<td>TH4.R9</td>
<td>17:40 DISCUSSION ON THE ROTATION TRANSFORMATION IN FULLY POLARIMETRIC SYNTHETIC APERTURE RADAR DARA INTERPRETATION</td>
<td>Fang Shang, University of Electro-Communications, Japan</td>
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Passive Sensors and Calibration

Session Chair: Tomoyuki Urabe, Japan Aerospace Exploration Agency

**TH2.R10.1 LUNAR CALIBRATION INTER-COMPARISON OF SGLI, MODIS AND VIIRS**

10:40

Tomoyuki Urabe, Japan Aerospace Exploration Agency (JAXA), Japan; Xiaoxiong Xiong, National Aeronautics and Space Administration (NASA), United States; Tadahiro Hashiguchi, Remote Sensing Technology Center of Japan, Japan; Shipei Zou, Tsukuba University, Japan; Atsushi Oikawa, National Institute of Information and Communications Technology (NICT), Japan

**TH2.R10.2 NOAA-20 VIIRS SENSOR DATA RECORDS GEOMETRIC AND RADIOMETRIC CALIBRATION PERFORMANCE ONE YEAR IN-ORBIT**

11:00

Wenhui Wang, Global Science & Technology Inc, United States; Changyong Cao, NOAA, United States

**TH2.R10.3 INTEGRATED INDEPENDENT GEOMETRIC CALIBRATION OF SATELLE CAMERAS ABOARD AN OPTICAL SATELLE**

11:20

Yingdong Pi, Bo Yang, Ru Chen, Xin Li, Wuhan University, China

**TH2.R10.4 ACIX – ATMOSPHERIC ATMOSPHERIC CORRECTION INTER-COMPARISON EXERCISE**

11:40

Eric Vernotte, NASA Goddard Space Flight Center, United States; Georgette Dauzain, SERCO SpA for European Space Agency ESA-ESRIN, United States; Ferran Gosac, European Space Agency ESA-ESRIN, United States; Jean-Claude Roger, University of Maryland, College Park, United States

**TH2.R10.5 FULL SPECTRUM SIMULATION OF PARTLY CLOUDY SCENES**

12:00

Robert Sundberg, Steven Richtermeier, Spectral Sciences, United States

BRDF, Geometric and Radiometric Calibration

Session Co-Chairs: Zhuzhou Wang, University of Maryland; Aaron Pearlman, GeoThinkTank LLC

**TH4.R10.1 EVALUATION OF LUNAR BRDF CORRECTION FOR THE RETRIEVAL OF DAILY VIIRS BLACK MARBLE NIGHTLIGHT IMAGES**

16:20

Zhuzhou Wang, University of Maryland, United States; Miguel Raman, University of South Florida Research Associates, United States; Virginia Kulp, NASA Goddard Space Flight Center, United States; Randi Shrestha, Science Systems and Applications, Inc. / NASA Goddard Space Flight Center, United States; Dennis Stokes, University of Maryland, United States

**TH4.R10.2 SENTINEL-2 GLOBAL SURFACE REFLECTANCE LEVEL-2A PRODUCT GENERATED WITH SEN2COR**

16:40

Jérôme Leu, Telespazio, France; Britfried Pflug, Megadosa Mann-Kroos, German Aerospace Center (DLR), Germany; Caroline Birmenstock Gajardo, Servicio Aerofotogrametria del Gral. Juan Salazar Manfredini, Fuerza Aérea de Chile, Chile; Jeff BlakeMyers, University of Arizona, United States; Peter Heers, Ian Lau, Timothy Mathius, CSIRO, Australia; Kurtis Thorne, Brian Weng, National Aeronautics and Space Administration (NASA), United States

**TH4.R10.3 A ROGUS ON-ORBIT GEOMETRIC CALIBRATION METHOD FOR HIGH-RESOLUTION OPTICAL SENSORS OF CHINESE MAPPING SATELLITE**

17:00

Kun Hu, Institute of Electronics, Chinese Academy of Sciences, China; Xiangxiang Zhang, Wuhan University, China; Xu Huang, Ohio State University, United States

**TH4.R10.4 RADIOMETRIC CALIBRATION STATUS AND RECALIBRATION OF ASTER THERMAL INFRARED IMAGES**

17:20

Hidetoshi Tonooka, Tsukuba University, Japan; Fumihiko Sakuma, Tetsushi Tachikawa, Masakuni Tomaka, Japan Aerospace Exploration Agency (JAXA), Japan

**TH4.R10.5 LANDSAT 9 THERMAL INFRARED SENSOR 2 SPECTRAL RESPONSE TEST: UPDATES AND PERSPECTIVE**

17:40

Aaron Pearlman, Boryana Eftimova, GeoThinkTank LLC, United States; Allen Lunardi, Catholic University of America, United States; Joel McCorkle, Amy Simon, Dennis Reuter, National Aeronautics and Space Administration (NASA), United States
THURSDAY ORAL

Multisensor and Multisource Classification Techniques
Session Chair: Lorenzo Bruzzone, University of Trento

TH4.R11.1 ROBUST MUTUAL INFORMATION-BASED MULTI-IMAGE REGISTRATION
16:20
Debang Liu, Hassan Mansour, Petros Boufounos, Mitsubishi Electric Research Laboratories, United States

TH4.R11.2 A NOVEL ROBUST FEATURE DESCRIPTOR FOR MULTI-SOURCE REMOTE SENSING IMAGE REGISTRATION
16:40
Sung Cui, Yanfei Zhong, Ailong Ma, Liangpei Zhang, Wuhan University, China

TH4.R11.3 SAR2OPT: IMAGE ALIGNMENT BETWEEN MULTI-MODAL IMAGES USING GENERATIVE ADVERSARIAL NETWORKS
17:00
Hisatoshi Toriya, University of Tsukuba, Japan; Kitahara, University of Tsukuba, Japan

Registration on Multisensor and Multisource Images
Session Co-Chairs: Jacqueline Le Maigne, NASA Goddard Space Flight Center; Mihai Datcu, German Aerospace Center (DLR)

TH4.R11.1 ROBUST MUTUAL INFORMATION-BASED MULTIIMAGE REGISTRATION
16:20
Debang Liu, Hassan Mansour, Petros Boufounos, Mitsubishi Electric Research Laboratories, United States

TH4.R11.2 A NOVEL ROBUST FEATURE DESCRIPTOR FOR MULTI-SOURCE REMOTE SENSING IMAGE REGISTRATION
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THURSDAY ORAL

Super-resolution and Multiresolution Fusion Techniques V
Session Chair: Andrea Garzelli, University of Siena

TH3.R11.1 A NEW SPATIO-TEMPORAL FUSION METHOD FOR REMOTELY SENDED DATA BASED ON CONVOLUTIONAL NEURAL NETWORKS
13:40
Yanfei Li, Chening Liu, Lin Yan, Jun Li, Guangdong Provincial Key Laboratory of Urbanization and Geo-simulation, School of Geographic and planning, Sun Yat-Sen University, China; Antonio Plaza, Hyperspectral Computing Laboratory, Avenue de la Universidad s/n, Spain; Bo Li, School of Computer Science and Engineering, Beihang University, China

TH3.R11.2 REPRODUCIBILITY OF SPECTRAL AND RADIOMETRIC NORMALIZED SIMILARITY INDICES FOR MULTIBAND IMAGES
14:00
Alberto Arizona, National Research Council of Italy, Italy; Luciana Aliprandi, University of Florence, Italy; Bruno Aiazzi, Stefano Baronti, National Research Council of Italy, Italy; Andrea Garzelli, University of Siena, Italy

TH3.R11.3 A SPECTRAL MAPPING BASED INTENSITY MODULATION FOR PAN-SHARPENING
14:20
Xiaohui Zhao, Nongyi Liu, Jun Zhang, Zehui Wu, Nanjing University, China; Lihua Huang, Jiangsu University, China

TH3.R11.4 ROBUST DEEP HYPER SPECTRAL IMAGERY SUPER-RESOLUTION
14:40
Jianhao Wu, Northwestern Polytechnical University, China; Lei Zhong, Inception Institute of Artificial Intelligence (IIAI), United Arab Emirates; Cong Wang, Wei Wei, Yanning Zhang, Nanjing University, China

TH3.R11.5 SPECTRAL SUPER-RESOLUTION FOR MULTISPECTRAL IMAGE BASED ON SPECTRAL AND SPATIAL STRATEGIES
15:00
Chen Yi, Nongqiang Zhao, Northwestern Polytechnical University, China; Jonathan Cheung-Wai Chan, Vrije Universiteit Brussel, Belgium

Data Fusion with Deep Learning Techniques
Session Co-Chairs: Lorenzo Bruzzone, University of Trento; Qian Du, Mississippi State University

TH2.R11.1 CLOUD AND SHADOW REMOVAL FOR SENTINEL-2 BY PROGRESSIVELY SPATIOTEMPORAL PATCH GROUP LEARNING
10:40
Qiang Zhang, Qiangyang Yan, Jie Li, Huanfeng Shen, Liangzhi Zhang, Wuhan University, China

TH2.R11.2 RECONSTRUCTING GEOSTATIONARY SATELLITE LST BASED ON MULTISCALE FEATURE CONNECTED CONVOLUTIONAL NEURAL NETWORK
11:00
Zhaoxiang Yin, Penghui Wu, Hai Yang, Xiaohuang Ma, Yanba Wu, Anhui University, China

TH2.R11.3 DSM BUILDING SHAPE REFINEMENT FROM COMBINED REMOTE SENSING IMAGES BASED ON WHIT-CGANS
11:20
Kianoo Bittner, German Aerospace Center (DLR), Germany; Marco Römer, Technical University of Munich (TUM), Germany; Peter Reineartz, German Aerospace Center (DLR), Germany

TH2.R11.4 COLOR ADAPTATION AND CLOUD REMOVAL BETWEEN SATELLITE IMAGES VIA OPTIMAL TRANSPORT
11:40
Zhang Zhang, Changming Hu, Pong Ting, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China; Thomas Carritt, CNRS - UMR 6554 LE0-RENNES COSTEL, France

TH2.R11.5 REMOTE ESTIMATION OF FREE-FLOW SPEEDS
12:00
Wenlan Song, Tawfiq Salem, Hunter Blanton, Nathan Jacobs, University of Kentucky, United States

Super-resolution and Multiresolution Fusion Techniques V
Session Chair: Andrea Garzelli, University of Siena

TH3.R11.1 A NEW SPATIO-TEMPORAL FUSION METHOD FOR REMOTELY SENDED DATA BASED ON CONVOLUTIONAL NEURAL NETWORKS
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Yanfei Li, Chening Liu, Lin Yan, Jun Li, Guangdong Provincial Key Laboratory of Urbanization and Geo-simulation, School of Geographic and planning, Sun Yat-Sen University, China; Antonio Plaza, Hyperspectral Computing Laboratory, Avenue de la Universidad s/n, Spain; Bo Li, School of Computer Science and Engineering, Beihang University, China

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TH2.R11.5 REMOTE ESTIMATION OF FREE-FLOW SPEEDS
12:00
Wenlan Song, Tawfiq Salem, Hunter Blanton, Nathan Jacobs, University of Kentucky, United States
Coastal Zones I
Session Chair: Duk-jin Kim, Seoul National University

TH1.R12.1 "AI-BASED REMOTE SENSING OCEANOGRAPHY – IMAGE CLASSIFICATION, DATA FUSION, ALGORITHM DEVELOPMENT AND PHENOMENON FORECAST"
08:00
Gang Zheng, Second Institute of Oceanography, Ministry of Natural Resources, China; Xiaofeng Li, Institute of Geology, Chinese Academy of Sciences, China; Bing Liu, Shanghai Ocean University, China

TH1.R12.2 "RADON-AUGMENTATION OF SENTINEL-1 Imagery to Enhance Resolution and Visibility of (Nearshore) Ocean-Wave Patterns"
08:20
Erwin W.J. Bergsma, CNES, France; Rafael Alvaro, IRS, France; Philippe Maissangrande, CNES, France

TH1.R12.3 "BATHYMETRIC EXTRACTION USING OVERLAPPING ORTHOIMAGES"
08:40
Zhenling Ma, Xiao Xu, Yanwen Chen, Weijie Wang, Shanghai Ocean University, China

TH1.R12.4 "LONGTERM RELEASE OF OIL FROM A WRECK IN THE BLACK SEA MONITORED BY SPACEBORNE SAR"
09:00
Martin Gade, Universität Hamburg, Germany

TH1.R12.5 "EXPLORING THE RELATIONSHIP BETWEEN SAR-DERIVED WIND SPEEDS AND SURFACE ROUGHNESS LENGTH OVER THE OCEAN THROUGH WAVELET ANALYSIS"
09:20
Samantha Ballard, Hans Graber, Michael Ceresa, Ronald Rennie, University of Miami, United States

Thursday, August 1 10:40 - 12:20 Room 421
Session TH2.R12 Oral

Ocean Altimetry II
Session Co-Chairs: Bertrand Chapron, IFREMER; Xiaofeng Li, NOAA

TH2.R12.1 "ON THE ASSIMILATION OF CFSAT WAVE DATA IN THE WAVE MODEL MFWM: VERIFICATION PHASE"
10:40
Le Thi An, Alisa Delphinet, Meteo-France, France; Danièle Hauzer, Lauriane Delphy, CNES, France; Céline Thies, CNES, France; Bertrand Chapron, IFREMER, France; Laura Hermance, Cedric Tourain, CNES, France

TH2.R12.2 "TOWARDS AN OCEAN ALTIMETRY PRODUCT USING CYGNSS"
11:00
Eric Lutz, Ohio State University, United States; Jake Mahon, University of Colorado Boulder, United States; Andrew O'Brien, Ohio State University, United States; Penina Awanhi, University of Colorado Boulder, United States; Cezar Zuffada, Zheng Ji, California Institute of Technology, NASA Jet Propulsion Laboratory, United States

TH2.R12.3 "OCEAN WAVE MEASUREMENT USING SAR CROSS-TRACK INTERFEROMETRY"
11:20
Akiruga Noda, National Institute of Information and Communications Technology (NICT), Japan

TH2.R12.4 "SEA LEVEL PERIODIC CHANGE OVER THE CHINA SEA AND ITS VICINITY BASED ON ALTIMETER DATA"
11:40
Xingyin Sun, Junbao Wen, Shanwei Liu, China University of Petroleum (East China), China

TH2.R12.5 "ASSESSMENT OF REPROCESSED SEA SURFACE HEIGHT MEASUREMENTS DERIVED FROM HY-2A/GM ALTIMETER DATA"
12:00
Maofei Zhang, Ke Xu, Qiankun Liu, National Space Science Center, Chinese Academy of Sciences, China

Geographic Information Science I
Session Co-Chairs: Peter Baumann, Jacobs University; Xiao Xiang Zhu, German Aerospace Center (DLR)

TH3.R12.1 "CALCULATING OPENSTREETMAP BUILDING HEIGHTS FROM SINGLE USER-GENERATED PHOTOGRAPHS"
13:40
Eliane Bshouty, Sagi Dalyot, Technion, Israel

TH3.R12.2 "MUTUAL INFORMATION ANALYSIS OF SOCIAL MEDIA IMAGES AND BUILDING FUNCTIONS"
14:00
Eike Jens Hoffmann, Technical University of Munich (TUM), Germany; Martin Wiemer, Xiao Xiang Zhu, German Aerospace Center (DLR), Germany

TH3.R12.3 "A WORDNET-BASED GEOSPATIAL WEB SERVICES SEARCH METHOD SUPPORTING QUALITY OF SERVICE CONSTRAINTS"
14:20
Long Jiang, Xia Li, University of Electronic Science and Technology of China, China; Desheng Liu, Ohio State University, United States; Yan Zhou, Jiecheng Zhang, Feng Huang, University of Electronic Science and Technology of China, China

TH3.R12.4 "ASSESSMENT OF FUEL AND WIND DRIVERS OF FIRE RISK IN PROTECTED MOUNTAINOUS GRASSLAND OF SOUTH AFRICA"
14:40
Rajesh Adhikari, Sunil Adhikari, Indian Institute of Technology Bombay, India

TH3.R12.5 "SECURE OUTSOURCING OF GEOSPATIAL VECTOR DATA"
15:00
Sangita Chaudhari, Ramrao Adik Institute of Technology, India; Purnamani Verkadulchandra, Krishnamohan Buddhiraju, Indian Institute of Technology Bombay, India

Geographic Information Science IV
Session Chair: Xudong Kang, Hunan University

TH4.R12.1 "URBAN LAND PRICE ASSESSMENT BASED ON GIS AND DEEP LEARNING"
16:20
Hungsi Li, Xiaohua Huang, Xia Li, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China

TH4.R12.2 "LANDSLIDE INVENTORY USING INSAR AND ANCILLARY DATASETS FOR SUSCEPTIBILITY IN WESTERN AREA, SIERRA LEONE"
16:40
Xiaofeng Li, Ohio State University, United States; Andrew O’Brien, Ohio State University, United States; Penina Awanhi, University of Colorado Boulder, United States; Cezar Zuffada, Zheng Ji, California Institute of Technology, NASA Jet Propulsion Laboratory, United States

TH4.R12.3 "ANALYZING THE EFFECTS OF RAINFALL ON THE URBAN TRAFFIC CONGESTION BOTTLENECKS BY USING FLOATING CAR DATA"
17:00
Chengtao Xu, Xiaohan Luo, Huayuang Yao, Xiaoming Deng, Xiaowang Chen, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, China

TH4.R12.4 "3-D PATH-SEARCHING FOR UAVS USING GEOSPATIAL SPATIAL INFORMATION"
17:20
Chaochen Xu, Xiaohan Luo, Huayuang Yao, Xiaoming Deng, Xiaowang Chen, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, China

TH4.R12.5 "PHOTOGRAMMETRIC TECHNIQUES AND UAV FOR DRAINAGE PATTERN AND OVERFLOW ASSESSMENT IN MOUNTAINOUS TERRAINS – HATTA/uae"
17:40
Saeed Al Mansoori, Mohammed Bin Rashid Space Centre (MBRSC), United Arab Emirates; Rami Al-Ruzzouq, University of Sharjah, United Arab Emirates; Dino Al Dogan, University of Dubai, United Arab Emirates; Meera Al Shamsi, Alya Al Maazmi, Mohammed Bin Rashid Space Centre (MBRSC), United Arab Emirates; Nour Al Shamsi, University of Dubai, United Arab Emirates
THURSDAY
Session TH1.R13
Oral-Invited

NASA Soil Moisture Active Passive Mission Observations and Results I
Session Co-Chairs: Dara Entekhabi, Massachusetts Institute of Technology; Simon Yueh, NASA Jet Propulsion Laboratory

TH1.R13.1 SMAP MISSION STATUS AND PLAN
08:00
Simon Yueh, California Institute of Technology, NASA Jet Propulsion Laboratory, United States
Dara Entekhabi, Massachusetts Institute of Technology, United States; Peggy O’Neill, NASA Goddard Space Flight Center, United States; Javid Rezende, NASA Headquarters, United States;
Tung-Han You, California Institute of Technology, NASA Jet Propulsion Laboratory, United States

TH1.R13.2 THE SMAP AND COPERNICUS SENTINEL 1/A MICROWAVE ACTIVE-PASSIVE HIGH RESOLUTION SURFACE SOIL MOISTURE PRODUCT AND ITS APPLICATIONS
08:20
Nennadra Das, California Institute of Technology, NASA Jet Propulsion Laboratory, United States
Dara Entekhabi, Massachusetts Institute of Technology, United States; Scott Dvorak, Maria Choudhuri, California Institute of Technology, NASA Jet Propulsion Laboratory, United States; Thomas Jagdhuber, German Aerospace Centre (DLR), Germany; Andreas Callander, Simon Yueh, California Institute of Technology, NASA Jet Propulsion Laboratory, United States; Peggy O’Neill, NASA Goddard Space Flight Center, Germany

TH1.R13.3 SMAP REGULARIZED DUAL-CHANNEL ALGORITHM FOR THE RETRIEVAL OF SOIL MOISTURE AND VEGETATION OPTICAL DEPTH
08:40
Julian Chauflot, Simon Yueh, Steven Chen, Scott Dvorak, Andreas Callander, California Institute of Technology, NASA Jet Propulsion Laboratory, United States
Dara Entekhabi, Massachusetts Institute of Technology, United States; Bas K. Chan, USDA Agricultural Research Service, United States

TH1.R13.4 RETRIEVAL OF VEGETATION WATER CONTENT USING BRIGHTNESS TEMPERATURES FROM THE SOIL MOISTURE ACTIVE PASSIVE (SMAP) MISSION
09:00
Steven K. Chan, California Institute of Technology, NASA Jet Propulsion Laboratory, United States
Rajarshi Bandick, NASA Goddard Space Flight Center, United States

TH1.R13.5 SEASONAL DEPENDENCE OF SMAX RADIOMETER-BASED SOIL MOISTURE PERFORMANCE AS OBSERVED OVER CORE VALIDATION SITES
09:20
Andreas Callander, California Institute of Technology, NASA Jet Propulsion Laboratory, United States
Thomas Jackson, USDA Agricultural Research Service, United States
Steven Chen, California Institute of Technology, NASA Jet Propulsion Laboratory, United States; Peggy O’Neill, Rajarshi Bandick, NASA Goddard Space Flight Center, United States
Michael Chang, USDA Agricultural Research Service, United States; Todd Caldwell, University of Texas at Austin, United States
Jeffrey Walker, Monash University, Australia; Aaron Berg, University of Gothenburg, Canada; Heather Monnier, Agriculture and Agri-Food Canada, Canada
Marc Thibodeau, Commission National de Actividades Espaciales (CONAE), Argentina; Jose Martinez-Fernandez, University of Salamanca, Spain
Karsten Jensen, University of Copenhagen, Denmark; Jun Anumama, University of Tokushima, Japan; Mark Seyfried, Patrick Bock, Christian Halfeld Gailers, John Prueger, USDA Agricultural Research Service, United States; Zengbo Su, University of Twente, Netherlands; Simon Yueh, California Institute of Technology, NASA Jet Propulsion Laboratory, United States

THURSDAY
Session August 1
13:40 - 15:20
Room 211-212

New Products and Results in Monitoring Biomass and Plant Water Stress with Microwave Radiometry I
Session Co-Chairs: Brian Hornbuckle, Iowa State University; Alexandra Konings, Stanford University

TH2.R13.1 SMAX VEGETATION OPTICAL DEPTH RETRIEVALS USING THE MULTI-TEMPORAL DUAL-CHANNEL ALGORITHM
13:40
Andrew Feldman, Dara Entekhabi, Massachusetts Institute of Technology, United States

TH2.R13.2 SATELLITE-BASED VEGETATION OPTICAL DEPTH AS AN INDICATOR OF DROUGHT-DRIVEN TREE MORTALITY
14:00
Krishna Rao, Stanford University, United States; William I. L. Andry, Brigham Young University, Utah
Anna Sala, University of Montana, United States
Jared Reisner, University of California, Berkeley

TH2.R13.3 SMAX VEGETATION OPTICAL DEPTH IS DIRECTLY PROPORTIONAL TO CROP WATER IN THE US CORN BELT
14:20
Karin Toglu, Theodore Hartman, Iowa State University, United States
Timothy Ackerman, Andrew Snyder, University of Nebraska Lincoln, United States
Andrew Vlasso, Brian Hornbuckle, Iowa State University, United States

TH2.R13.4 MAPPING CARBON STOCKS IN CENTRAL AND SOUTH AMERICA WITH SMAX VEGETATION OPTICAL DEPTH
14:40
David Chaparro, Universitat Politècnica de Catalunya (UPC), Spain
Guizhi Guo, Universitat Politècnica de Catalunya (UPC), Spain
Juan Jose Reina, Universidad de Guadalajara, Mexico

TH2.R13.5 ESTIMATION OF VOLUME FRACTION AND GRAVIMETRIC MOISTURE OF WINTER WHEAT BASED ON MICROWAVE ATTENUATION: A FIELD SCALE STUDY
15:00
Thomas Meyer, Forschungszentrum Jülich GmbH, Germany
Thomas Jagdhuber, German Aerospace Centre (DLR), Germany
Mario Piles, University of Valencia, Spain
Anke Fluhrer, Forschungszentrum Jülich GmbH, Germany

Thursday, August 1
10:40 - 12:20
Room 511-512

NASS Soil Moisture Active Passive Mission Observations and Results II
Session Co-Chairs: Dara Entekhabi, Massachusetts Institute of Technology; Simon Yueh, NASA Jet Propulsion Laboratory

TH2.R13.1 VERIFICATION OF THE SMAX LEVEL-4 SOIL MOISTURE ANALYSIS USING RAINFALL OBSERVATIONS IN AUSTRALIA
10:40
Ralf Reichle, Qing Liu, NASA Goddard Space Flight Center, United States
Gabrielle De Lannoy, KU Leuven, Belgium
Wade Crow, USDA Agricultural Research Service, United States
Lusia Jones, John Kimball, University of Montana, United States
Randal Koster, NASA Goddard Space Flight Center, United States

11:00
John S. Kimball, Lusia Jones, Kelsey Jones, Mingshu He, Marco Matsen, University of Montana, United States
Ralf Reichle, NASA Goddard Space Flight Center, United States

TH2.R13.3 INTEGRATED SMAX AND SMOS SOIL MOISTURE OBSERVATIONS
11:20
Rajarshi Bandick, NASA Goddard Space Flight Center, United States
Steven K. Chan, Andreas Callander, California Institute of Technology, NASA Jet Propulsion Laboratory, United States
Yann Kar, Centre d’Ecole Spatiale de la Béthynie (CESBIO), France
Thomas J. Jackson, Retired, United States

TH2.R13.4 EVALUATING BRIGHTNESS TEMPERATURE INFORMATION FOR ESTIMATING MICROWAVE LAND SURFACE AND VEGETATION PROPERTIES
11:40
Andreas Callander, Dara Entekhabi, California Institute of Technology, NASA Jet Propulsion Laboratory, United States

TH2.R13.5 SMAX MICROWAVE RADIOMETER CALIBRATION REVISIT
12:00
Jingzheng Peng, Universities Space Research Association / NASA Goddard Space Flight Center, United States
Sádhir Bork, California Institute of Technology, NASA Jet Propulsion Laboratory, United States
Jeffrey Pepeaner, NASA Goddard Space Flight Center, United States
Simon Yueh, California Institute of Technology, NASA Jet Propulsion Laboratory, United States
Emmanuel Dimart, NASA Goddard Space Flight Center / Chapman University, United States
David Le Vine, NASA Goddard Space Flight Center, United States
Thomas Meissner, Remote Sensing Systems, United States
Pricilla Mohammed, NASA Goddard Space Flight Center / Morgan State University, United States

THURSDAY
Session August 1
16:20 - 18:00
Room 511-512

New Products and Results in Monitoring Biomass and Plant Water Stress with Microwave Radiometry II
Session Co-Chairs: Alexandra Konings, Stanford University; Brian Hornbuckle, Iowa State University

TH4.R13.1 IS VEGETATION OPTICAL DEPTH NEEDED TO ESTIMATE BIOMASS FROM PASSIVE MICROWAVE RADIOMETERS? A STATISTICAL STUDY USING NEURAL NETWORKS
16:20
Nemesis Rodriguez-Fernandez, Philippe Ericksen, Emma Bourgouis, Arnaud Malen, Ahmed Al Bitar, Centre d’Ecole Spatiale de la Béthynie (CESBIO), France
Savas Satchi, National Aeronautics and Space Administration (NASA), United States
Yann Kar, Centre d’Ecole Spatiale de la Béthynie (CESBIO), France

TH4.R13.2 NOVEL LONG-TERM GLOBAL INDICATORS OF PLANT PRODUCTIVITY FROM MICROWAVE SATELLITES
16:40
Wouter Dorigo, Leonor Mecking, Irene Tedesco, Tracey Stanfill, Tu Wien - Vienna University of Technology, Austria
Rabin von der Schule, Richard de Jeu, Vanderelst B.V., Netherlands
Matthias Foels, Tu Wien - Vienna University of Technology, Austria

TH4.R13.3 REDUCED UNCERTAINTIES FROM MULTIFREQUENCY CONSTRAINTS ON TERRITORIAL CARBON AND WATER PROCESSES
17:00
Victoria Meyer, Anthony Bloom, Marka Bofin, John Thomas Reager, Rachel Shaik, California Institute of Technology, NASA Jet Propulsion Laboratory, United States
Alexandra Konings, Stanford University, United States

TH4.R13.4 COMBINING L-BAND RADIAR AND SMOS L-BAND VOD FOR HIGH RESOLUTION ESTIMATION OF BIOMASS
17:20
Emma Bourgouis, Arnaud Malen, Nemesis Rodriguez-Fernandez, Stefano Mettoni, Alexandre Bouvet, Olivier Merlin, Yann Kar, Centre d’Ecole Spatiale de la Béthynie (CESBIO), France

TH4.R13.5 VEGETATION OPTICAL DEPTH AND SENTINEL-1 BACKSCATTER DYNAMICS FOR PHENOLOGY MONITORING: SYNERGIES AND DISCORDANCES
17:40
Marie-Véronique Wegmüller, Wolfgang Wagner, Sebastian Hahn, Wouter Dorigo, TU Wien - Vienna University of Technology, Austria
Richard de Jeu, Vanderelst B.V., Netherlands
Susan Stroel-Vonne, TU Delft, Netherlands
Friday, August 2  08:00 - 09:40  Room 211-212
Session FR1.R1  Oral-Invited

Big Data and Machine Learning for Improving Urban Climate Resiliency I

Session Co-Chairs: Yoshiki Yamagata, National Institute for Environmental Studies; Kei Hiroi, Nagoya University

FR1.R1.1 SPATIOTEMPORAL HEATWAVE RISK MODELINGcombining multiple observations  
08:00  
Dasuke Murakami, Institute of Statistical Mathematics, Japan; Yoshiki Yamagata, Takahiro Yoshida, National Institute for Environmental Studies, Japan; Tomoko Matsui, Institute of Statistical Mathematics, Japan

FR1.R1.2 SPATIOTEMPORAL HEATWAVE RISK EVALUATION: CONSIDERING HAZARD, EXPOSURE, AND VULNERABILITY  
08:40  
Yoshiki Yamagata, National Institute for Environmental Studies, Japan; Dasuke Murakami, Institute of Statistical Mathematics, Japan

FR1.R1.3 DEVELOPMENT OF BUILDING MICRO GEODATA FOR EARTHQUAKE DAMAGE ESTIMATION  
09:00  
Yuki Akijama, Yoshihito Ogawa, University of Tokyo, Japan

FR1.R1.4 EARTHQUAKE DAMAGE ESTIMATION BY SPARSE MODELING USING GEOSPATIAL BIG DATA  
09:20  
Yoshihito Ogawa, Yuki Akijama, Yoshihide Sekimoto, Ryosuke Shiraishi, University of Tokyo, Japan

FR1.R1.5 RADARSAT-2 and RADARSAT Constellation Mission I  
13:40 - 15:20  Room 211-212  
Session Co-Chairs: Gordon Staples, MDA; Heather McNairn, Agriculture and Agri-Food Canada

FR3.R1.1 RADARSAT-2 and RADARSAT constellation mission  
12:40  
Steve Iris, Giovanni Conto, Daniel De Loof, Magdalene Wierus, Canadian Space Agency, Canada

FR3.R1.2 CALIBRATION OF RCM COMPACT MODES  
14:00  
Ritu Tewari, Canada Centre for Remote Sensing, Canada; Stephanie Gato, Canadian Space Agency, Canada

FR3.R1.3 THE IMPACT OF ADDITIVE NOISE ON POLARIMETRIC RADARSAT-2 DATA COVERING OIL SLICKS  
14:40  
Martine E. Espenseth, Sini Suominen, Camilla Brokko, Malin Johansson, Arctic University of Norway, Norway

FR3.R1.5 ON THE USE OF MACHINE LEARNING AND POLARIMETRY FOR ESTIMATING SOIL MOISTURE FROM RADARSAT IMAGERY OVER ITALIAN AND CANADIAN TEST SITES  
15:00  
Emanuele Sanit, Institute of Applied Physics - National Research Council (IFAC - CNR), Italy; Mohammed Dabboor, Environment and Climate Change Canada, Canada; Simone Pertinato, Simonetta Palascia, Institute of Applied Physics - National Research Council (IFAC - CNR), Italy; Claudia Natanacci, Felix Groeneweg, Giovanni Cuccu, Institute for Earth Observation - EURAC Research, Italy

Friday, August 2  15:40 - 17:20  Room 211-212
Session FR4.R1  Oral-Invited

RADARSAT-2 and RADARSAT Constellation Mission II  
Session Co-Chairs: Martin Gade, University of Hamburg; Steve Iris, Canadian Space Agency steve. ir@canada.ca

FR4.R1.1 ASSESSMENT OF COMPACT POLARIMETRIC SAR PARAMETERS FOR LAKE AND FAST SEA ICE CHARACTERIZATION  
15:40  
Mohammed Dabboor, Mohammed Shokr, Environment and Climate Change Canada, Canada; Steve Iris, Canadian Space Agency, Canada

FR4.R1.2 OIL SLICK CHARACTERIZATION USING RADARSAT Constellation SIMULATION DATA  
16:00  
Gordon Staples, MDA, Canada; Oscar Garcia, WaterMap, United States

FR4.R1.3 RETRIEVAL OF CROP BIOPHYSICAL PARAMETERS USING C-BAND: PREPARING FOR THE RADARSAT-Constellation  
16:20  
Heather McNairn, Agriculture and Agri-Food Canada, Canada; Mehdi Houssssini, Carleton University, Canada; Laura Dingle-Robertson, Andrew Davidson, Agriculture and Agri-Food Canada, Canada; Scott Mitchell, Carleton University, Canada; Katarzyna Dabrowska-Zielinska, Institute of Geodesy and Cartography, Poland

FR4.R1.4 COMPACT POLARIMETRY FOR AGRICULTURAL MAPPING AND INVENTORY: PREPARATION FOR RADARSAT Constellation Mission  
16:40  
Laura Dingle-Robertson, Andrew Davidson, Heather McNairn, Agriculture and Agri-Food Canada, Canada; Mehdi Houssssini, Scott Mitchell, Carleton University, Canada

FR4.R1.5 MONITORING POST LANDSLIDE ACTIVITY FROM RADARSAT Constellation Mission  
17:00  
Hiro Sugihraya, Joshua Liu, Mary-Anne Felver, Canada Centre for Remote Sensing, Canada; Chin-Feng Lee, Stattech Engineering Consultants, Inc., Taiwan; Minmaya Kumar Dua, Geological Survey of India, India
Friday, August 2 08:00 - 09:40 Room 213 Session FR1.R2 Oral
Seasonal Snow
Session Co-Chairs: Martti Hallikainen, Aalto University; Jiancheng Shi, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences
FR1.R2.1 AIRBORNE SNOW MEASUREMENTS OVER ALASKA MOUNTAINS AND GLACIERS WITH A COMPACT FMCW RADAR
Jiao Li, Fernando Rodriguez-Morales, Emily Arnold, Carl Leschehn, John Paden, Jiaxuan Shang, Daniel Gomar-Garcia, University of Kansas; United States; Chris Larsen, University of Alaska Fairbanks
FR1.R2.2 ESTIMATION SNOW PARAMETERS USING DIGITAL IMAGERY
Ali Naderi Archa, Cereal Math Sin, Finnish Meteorological Institute; Finland; Marco Bongini, Carla de Michele, Politecnica di Milano, Italy
FR1.R2.3 A PROTOTYPE ULTRA-WIDEBAND FMCW RADAR FOR SNOW AND SOIL-MOISTURE MEASUREMENTS
Ryan A. Taylor, Sagnamod Sigfusson, Sengi Gurub, Shrinesh Kolypka, Liefeng Li, Charles O’Neill, Jin-Bang Yao, University of Alabama; United States; Terry Aiken, James Garwood, Remote Sensing Solutions; United States; David Braunsten, University of Kansas; United States; Shou Tsutaki, A. Abe-Ouchi, University of Tokyo, Japan; Shoji Fujita, Kenji Kawamura, National Institute of Polar Research, Japan; Brice Van Leer-Konge, Kerishi Matsuzaka, Norwegian Polar Institute, Norway
FR1.R2.4 SNOW MICROWAVE COMPLEX PERMITTIVITY MEASURED WITH RESONATOR SENSORS
Razi Naderipour, Department of Environmental Systems Science, Switzerland; Mike Schwock, Derek Houtz, Swiss Federal Research Institute WSL, Switzerland
FR1.R2.5 ATMOSPHERIC CORRECTION OF PASSIVE MICROWAVE BRIGHTNESS TEMPERATURE ON THE ESTIMATION OF SNOW DEPTH
Lijuan Shi, Yubao Qiu, Laboratory of Digital Earth Science, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences; China; John Lemmetyinen, Arctic Research Center, Finnish Meteorological Institute, Finland; Jiancheng Shi, Key Laboratory of Digital Earth Science, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China
FR1.R2.6 OPERATIONAL LAKE MAPPING ON THE SOUTHERN TIBET USING SENTINEL-2 AND 3 HYBRID DATA
Yuanyuan Qin, Ping Lu, Tongji University, China; Zhongbin Li, South Dakota State University, United States; Xiaolan Xu, NASA Jet Propulsion Laboratory
Friday, August 2 13:40 - 15:20 Room 213 Session FR3.R2 Oral
Sea Ice
Session Chair: San V. Nghiem, NASA Jet Propulsion Laboratory
Cristina M. Sunters, New York University Abu Dhabi, United Arab Emirates; David M. Holland, New York University Abu Dhabi; New York University, United Arab Emirates
FR3.R2.2 AUTOMATED SEA ICE CLASSIFICATION USING SENTINEL-1 IMAGERY
Jeong-Won Park, Korea Polar Research Institute (KOPRI), South Korea; Anton Kasov, Mohamed Bakker, Hansen Environmental and Remote Sensing Center, Norway; Hyeon-Chul Kim, Korea Polar Research Institute (KOPRI), South Korea
FR3.R2.3 POLAR SEA ICE THICKNESS AND MELT POND FRACTION MEASUREMENTS WITH MULTI-FREQUENCY BISTATIC RADAR POLARIMETRIC AND INTERFEROMETRIC REFLECTOMETRY
San Nghiem, California Institute of Technology, NASA Jet Propulsion Laboratory, United States; Donald Pavolcik, Dartmouth College, United States; Christopher Polashenski, Cold Regions Research and Engineering Laboratory, United States; Stephen Lowe, Rashid Shaf, Anthony Mannucci, California Institute of Technology, NASA Jet Propulsion Laboratory, United States; Adriano Campi, Universidad Politècnica de Catalunya Barcelona, Spain; Estel Corralach, Instituto de Ciencias del Espacio, Spain; Leang Tang, Jiyao Zhu, Shunwei Tan, University of Michigan, United States
FR3.R2.4 SAR DOPPLER CALIBRATION AND APPLICATION FOR SEA ICE DRIFT ESTIMATION
Jeong-Won Park, Korea Polar Research Institute (KOPRI), South Korea; Morton Hanson, Anton Kasov, Hansen Environmental and Remote Sensing Center, Norway; Hyeon-Chul Kim, Korea Polar Research Institute (KOPRI), South Korea
FR3.R2.5 THE COUPLING CHARACTERISTICS OF ARCTIC SEA ICE CONCENTRATION AND SEA ICE MOTION IN WINTER
Jie Su, Quan Shi, Ping Chen, Huiyong Liang, Physical Oceanography Laboratory/CMST, Ocean University of China, China; Qingdao National Laboratory for Marine Science and Technology, China
FR3.R2.6 APPLICATIONS OF HISTORICAL OPTICAL DISP IMAGES IN ANTARCTICA
Yuqin Tian, Menglan Xia, South Dakota State University, United States; Gang Qiao, Rongxing Li, Tongji University, China
Friday, August 2 10:40 - 12:20 Room 213 Session FR2.R2 Oral
Ice Sheets and Glaciers III
Session Chair: Jean Tourdourel, IFREMER
FR2.R2.1 ICEBERG STUDIES USING SATELLITE ALTIMETER DATA
Jean Tourdourel, Anastasia Tarasenko, IFREMER, France
FR2.R2.2 RETRIEVALS OF SNOW PROPERTIES OVER GREENLAND FROM L-BAND RADIOMETRY
Derek Houtz, Razi Naderipour, Mike Schwock, Swiss Federal Research Institute for Forest, Snow and Landscape Research WSL, Switzerland
FR2.R2.3 APPLICATIONS OF HISTORICAL OPTICAL DISP IMAGES IN ANTARCTICA
Yuqin Tian, Menglan Xia, South Dakota State University, United States; Gang Qiao, Rongxing Li, Tongji University, China
FR2.R2.4 IMPROVED DELINEATION OF INDIVIDUAL OUTLET GLACIER DRAINAGE BASINS FROM TANDEM-X ELEVATIONS AND SENTINEL-1 VELOCITIES
Lukas Kringer, Dana Floricioiu, German Aerospace Center (DLR), Germany
FR2.R2.5 ICESAT-2 OVER THE POLAR REGIONS: INITIAL OBSERVATIONS OF LAND ICE FROM NASA’S NEWEST LASER ALTIMETRY MISSION
Catherine Walker, University of Maryland / NASA Goddard Space Flight Center, United States; Benjamin Smith, University of Washington, United States; Thomas Neumann, NASA Goddard Space Flight Center, United States; Abe Gardner, California Institute of Technology, NASA Jet Propulsion Laboratory, United States; Helen Fricker, Scripps Institution of Oceanography, University of California San Diego, United States; Nick Holubchuk, University of Washington, United States; Sueheidli Abrams, Scripps Institution of Oceanography, University of California San Diego, United States; Jelani Milsan, California Institute of Technology, NASA Jet Propulsion Laboratory, United States
FR2.R2.6 RETRIEVALS OF SNOW PROPERTIES OVER GREENLAND FROM L-BAND SENTINEL-3A DEOBSERVATIONS
Lukas Kringer, Dana Floricioiu, German Aerospace Center (DLR), Germany
FR2.R2.7 VALIDATION AND ANALYSIS OF THE SMAP AND AMSR2 FREEZE/THAW DATASET OVER CHINA
Jian Wang, Jingmei Jiang, Nuchun Cui, Jianwei Yang, Gangzhe Wang, Xiaojiong Liu, Xu Su, Beijing Normal University, China
FR2.R2.8 DEVELOPING A SOIL INVERSION MODEL FRAMEWORK FOR REGIONAL PERMETHROST MONITORING
Yongchun Yi, California Institute of Technology, NASA Jet Propulsion Laboratory, United States; Richard Chen, University of Southern California, United States; Dmitry Nickusky, University of Alaska Fairbanks, United States; Akiko Miyauchi, University of Southern California, United States; John Kimball, University of Montana, United States; Vladimir Ramanauskas, University of Alaska Fairbanks, United States; Charles Milner, California Institute of Technology, NASA Jet Propulsion Laboratory, United States
FR2.R2.9 SEMI-AUTOMATED DETECTION OF THAW LAKES IN PERMETHROST AREAS IN QINGHAI-TIBET PLATEAU FROM SENTINEL-2 IMAGES USING MARKOV RANDOM FIELD
Yanran Qin, Ping Lu, Tongji University, China; Chongzhi Gu, South Dakota State University, United States
FR2.R2.10 OPERATIONAL LAKE MAPPING ON THE SOUTHERN TIBET USING SENTINEL-1 DATA
Han Cao, Hong Zhang, Chao Wang, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China; Qiuyao Ye, Institute of Tibetan Plateau Research, Chinese Academy of Sciences, China; Xiong Bao, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China
Friday, August 2 08:00 - 09:40 Room 311-312
Session FR1.R3 Oral-Invited

Analysis Ready Data: Opportunities and Future Directions I
Session Co-Chairs: Brian Killough, NASA Langley Research Center; Pierre Patin, European Space Agency

FR1.R3.1
10:40
CEOS ANALYSIS READY DATA FOR LAND – AN OVERVIEW ON THE CURRENT AND FUTURE WORK
ANDREA SAVIOUX, ADAM LEWIS, MEDHARY THANAKKARPAN, GEOSCIENCE-AMERICA, AUSTRALIA; ZAFIRU SANTOS, JOSEPH RESEARCH CENTER, ITALY; PHILIPPE GYORL, EUROPEAN SPACE AGENCY (ESA), ITALY; STEWAN LADBROKE, US GEOLOGICAL SURVEY, UNITED STATES; JONATHAN RUS, GEOSCIENCE-AMERICA, AUSTRALIA; STEVEN HUSFORD, SUSANNE MECKELENBURG, EUROPEAN SPACE AGENCY (ESA), ITALY; TOKIO TADANO, JAPAN AEROSPACE EXPLORATION AGENCY (JAXA), JAPAN; MIKE ROSENBERG, SOLO EARTH OBSERVATION, JAPAN; JENNIFER LACEY, US GEOLOGICAL SURVEY, UNITED STATES

FR1.R3.2
10:50
ROLE OF CEOS WORKING GROUP ON CALIBRATION AND VALIDATION IN ANALYSIS READY DATA PRODUCTS
KURTIS THAME, NATIONAL AERONAUTICS AND SPACE ADMINISTRATION (NASA), UNITED STATES; CINDY ONG, CSIRO, AUSTRALIA; AKIKUKKO KUSU, JAPAN AEROSPACE EXPLORATION AGENCY (JAXA), JAPAN

FR1.R3.3
11:00
THE U.S. GEOLOGICAL SURVEY’S APPROACH TO ANALYSIS READY DATA
COBY ANDERSON, STEWAN LADBROKE, DEREK HEIDE, GREG STENASSA, CHRISTOPHER ENGELBERT, CHRISTOPHER CRAWFORD, US GEOLOGICAL SURVEY, UNITED STATES; CAIL JENKINS, CHRISTOPHER BARNES, KERNEY, UNITED STATES

FR1.R3.4
11:10
JAXA GLOBAL SAR MOSAICS – ASSESSING COMPLIANCE WITH CEOS ANALYSIS READY DATA FOR LAND (CARD4L) SPECIFICATIONS
MIKE ROSENBERG, SOLO EARTH OBSERVATION, JAPAN; TOKIO TADANO, JAPAN AEROSPACE EXPLORATION AGENCY (JAXA), JAPAN; MASAMURO SHIMADA, TOKYO DENKI UNIVERSITY, JAPAN; TAKUYA HAT, REMOTE SENSING TECHNOLOGY CENTER OF JAPAN, JAPAN

FR1.R3.5
11:20
CARD4L-ST SELF-ASSESSMENT: SENTINEL-3 LIST
BARRON GHENT, UNIVERSITY OF LEICESTER, UNITED KINGDOM

Friday, August 2 13:40 - 15:20 Room 311-312
Session FR3.R3 Oral-Invited

Remote Sensing for Oil & Gas Exploration and Environmental Monitoring I
Session Co-Chairs: Carlos Roberto de Souza Filho, University of Campinas; Dominique Dubucq, TOTAL S.A.

FR3.R3.1
13:40
PEERING AT THE TOP OF THE WORLD: SATELLITE REMOTE SENSING OF PETROLEUM HYDROCARBON RESERVORIES IN THE BARENTS AND KARA SEAS
IRE LEFEB, LEONIL YOUNGCHAI, BUBBLEOLOGY RESEARCH INTERNATIONAL, UNITED STATES; THOMAS MCCORMAN, SINTEF, NORWAY; FRANK WILKES-KARGER, UNIVERSITY OF SOUTHERN FLORIDA, UNITED STATES

FR3.R3.2
14:00
AUTOMATIC MAPPING OF HYDROCARBON POLLUTION BASED ON HYPERSONAL IMAGING
VANESSA ACHARD, CHRISTOPHER SIN, ONERA, FRANCE

FR3.R3.3
14:20
MULTI-BAND SUPERVISED CLASSIFICATION FOR POLARIMETRIC SAR
XIAO DENG, VICTORIO VALENCIA, ALEKSANDR AKBAN, ONERA, FRANCE; DOMINIQUE DUBUCQ, TOTAL, FRANCE

FR3.R3.4
14:40
OIL SLICK VOLUME ESTIMATION FROM COMBINED USE OF AIRBORNE HYPERSONAL AND POOL EXPERIMENT DATA
LAURE ROUPAUX, FRANCOISE VAUDEVANT-RABIN, ONERA, FRANCE; VENANCIE MANGEABLE, TOTAL, FRANCE

FR3.R3.5
15:00
DETECTION OF METHANE AND HEAVY HYDROCARBON GASES IN THE INFRARED RANGE USING HYPERSONAL AIRBORNE REMOTE SENSING: AN OVERVIEW
REBECCA SCAFUTTO, CARLOS ROBERTO DE SOUZA FILHO, UNIVERSITY OF CAMPINAS, BRAZIL

Friday, August 2 15:40 - 17:20 Room 311-312
Session FR4.R3 Oral-Invited

Remote Sensing for Oil & Gas Exploration and Environmental Monitoring II
Session Co-Chairs: Dominique Dubucq, bubbleology research international LLC

FR4.R3.1
15:40
REMEMBER PILOTTED AIRCRAFT SYSTEMS APPLIED TO THE PETROLEUM INDUSTRY: STATE OF THE ART AND FUTURE LIMITS
CARLOS ROBERTO DE SOUZA FILHO, WILSON OLIVEIRA, PETROLEO BRASILEIRO SA, BRAZIL

FR4.R3.2
16:00
CLASSIFICATION OF OIL SPILL THICKNESSES USING MULTISPECTRAL UAS AND SATELLITE REMOTE SENSING FOR OIL SPILL RESPONSE
OSCAR GARCIA, WATER MAPPING, LLC, UNITED STATES; ISAAC GARCIA, WATER MAPPING, LLC, UNITED STATES; JAY CHA, BUREAU OF SAFETY AND ENVIRONMENTAL ENFORCEMENT (BSEE), UNITED STATES; GEORGE GRENTZ, LISA DIPTO, ELLEN RAMIREZ, NATIONAL OCEANIC AND ATOMIC ADMINISTRATION (NOAA), UNITED STATES

FR4.R3.3
16:20
AIRBORNE HYPERSONAL ACQUISITIONS FOR MINERALOGICAL MAPPING AS A MARKER FOR FLUID CIRCULATION: EXAMPLE OF SOUTHEASTERN SPAIN
MARINA LANCERI, GET-DING, UNIVERSITY OF Toulouse, France; KARINE ADELIN, FRENCH AIRCRAFT LAB (ONERA), OPTICS AND ASSOCIATED TECHNIQUES DEPARTMENT (ODTA), France; VENANCIE MANGEABLE, TOTAL, France

FR4.R3.4
16:40
USE OF REMOTE SENSING RADAR IMAGES FOR OIL SLICK DETECTION IN OIL AND GAS DOMAIN: MANUAL AND AUTOMATIC INTERPRETATION
VENANCIE MANGEABLE, BENOIT CONCHE, TOTAL, France; ZHOUHAN HUANG, EUROPE POLYTECHNIC, France; PIERRE YAO, CLEMENT MILLOT, TOTAL, France

FR4.R3.5
17:00
DETECTION AND QUANTIFICATION OF TOTAL PETROLEUM HYDROCARBONS IN SOILS USING VEGETATION OPTICAL PROPERTIES
GUILLAUME LASSALLE, SOPHIE FABRE, OFFICE NATIONAL D’ETUDES ET DE RECHERCHES AEROSPATIALES (ONERA), FRANCE; ANTOINE CREDAZ, RENEE HEDACQ, TOTAL S.A., France; PIERRE BORLESKINE, OFFICE NATIONAL D’ETUDES ET DE RECHERCHES AEROSPATIALES (ONERA), France; GEORGES BERTRAND, INRA, France; DOMINIQUE DUBUCQ, TOTAL S.A., France; ARNAUD ZEMER, CNRS, France
Friday, August 2  08:00 - 09:40  Room 313-314  Oral-Invited

**Earth Observation Science and Exploitation using Common Standards and Platforms I**

*Session Chair: Peter Baumann, Jacobs University*

**FR1.R4.1**  **BIG EARTH DATACUBE SERVICES: CONCEPTS, STANDARDS, TOOLS**  
8:00  Peter Baumann, Jacobs University, Germany

**FR1.R4.2**  **INTERCONNECTING SENSOR DATA AND DATACUBES**  
8:20  Katharina Schlüchter, DataCube e.U., Austria; Peter Baumann, Jacobs University Bremen, Germany

**FR1.R4.3**  **EXTENDING OGC STANDARDS FOR SUPPORTING BIG-EARTH DATA RETRIEVAL AND ANALYTICS**  
8:40  Konstantinos Apostolopoulos, Georgios Kakaletris, Communication & Information Technologies Experts, Greece; Panagiotis Katsikis, National and Kapodistrian University of Athens, Greece

**FR1.R4.4**  **SMART HANDOFFS: PRESERVING USER CONTEXT BETWEEN TOOLS AND SERVICES RELATED TO NASA’S EOSDIS DATA ARCHIVE**  
9:00  Doug Newman, Raytheon, United States; Christopher Iymer, National Aeronautics and Space Administration (NASA), United States

**FR1.R4.5**  **APPLYING MACHINE LEARNING TO EARTH OBSERVATIONS IN A STANDARDS BASED WORKFLOW**  
9:20  Tom Landry, David Byrns, Francis Charette-Migneault, Mario Beaulieu, Pierre-Luc St-Charles, Konstantinos Apostolopoulos, Georgios Kakaletris, Justin Pedley, France; Akira Iwasaki, University of Tokyo, Japan

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Friday, August 2  10:40 - 12:20  Room 313-314  Oral-Invited

**Earth Observation Science and Exploitation using Common Standards and Platforms II**

*Session Chair: Peter Baumann, Jacobs University*

**FR2.R4.1**  **A CLOUD-ENABLED GEOSPATIAL BIG DATA PLATFORM FOR DISASTER INFORMATION SERVICES**  
10:40  Lielian Hsia, National University of Education, China; Peng Yue, Wuhan University, China

**FR2.R4.2**  **DATAcube MANIPULATION EXTENSIONS TO SQL LANGUAGE - ISO 9075:2018**  
11:00  Dimitar Misev, Peter Baumann, Jacobs University Bremen, Germany

**FR2.R4.3**  **COPERNICUS EO BIG DATA INTELLIGENT PROCESSING UNDER OGC DISCRETE GLOBAL GRID SYSTEM STANDARDS**  
11:20  Zehir Saber, Gianluca Cornella, Andrew Rowan, University of Southampton, United Kingdom

**FR2.R4.4**  **AN APPLICATION DEVELOPMENT FRAMEWORK FOR OPEN GEOSPATIAL CONSORTIUM DISCRETE GLOBAL GRID SYSTEM STANDARD**  
11:40  Perry Peterson, Camosun College / Global Grid Systems, Canada; Idan Shatz, Global Grid Systems, Canada

**FR2.R4.5**  **DESpite OPEN DATA: HOW TO SECURE PIXELS APPROPRIATELY?**  
12:00  Dimitar Misev, Peter Baumann, Jacobs University Bremen, Germany

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Friday, August 2  13:40 - 15:20  Room 313-314  Oral-Invited

**Future Programs, Missions and Instruments on GEO or LEO Orbits I**

*Session Co-Chairs: Xiaoxiong Xiong, NASA Goddard Space Flight Center; Toshiyoshi Kimura, Japan Aerospace Exploration Agency*

**FR3.R4.1**  **SENTINEL-3 A, B, C, D: DEVELOPMENT, COMMISSIONING AND OPERATIONS OF AN ENVIRONMENTAL AND CLIMATE MONITORING OBSERVATION SYSTEM**  
13:40  Jens Wieke, European Space Agency ESA-ESTRACK, Netherlands; Steffen Dransfeld, Craig Donlon, Konstantinos Apostolopoulos, Georgios Kakaletris, Andrew Pedley, The Aerospace Corporation, United States; Akihiko Kuze, Hiroshi Suto, Japan Aerospace Exploration Agency (JAXA), Japan

**FR3.R4.2**  **FUTURE NOAA LEO AND GEO SATELLITE OBSERVING SYSTEM ARCHITECTURE AND THE WAY-AHEAD**  
14:00  Kenku St. Germain, Frank Gallagher III, David Spencer, NOAA, United States; Mark Maier, Phillip Jasper, The Aerospace Corporation, United States

**FR3.R4.3**  **LANDSAT 9: MISSION STATUS AND PRELAUNCH INSTRUMENT PERFORMANCE CHARACTERIZATION AND CALIBRATION**  
14:20  Brian Markham, NASA Goddard Space Flight Center, United States; Julia Baru, Science Systems and Applications, Inc./NASA Goddard Space Flight Center, United States; Eric Donley, Ball Aerospace, United States; Boryana Ennenova, GeoThinkTank LLC, United States; Jason Hie, Del Jonesth, NASA Goddard Space Flight Center, United States; Edward Koiz, Science Systems and Applications, Inc./NASA Goddard Space Flight Center, United States; Edward Knight, Gaur Karam, Ball Aerospace, United States; Joel McCoral, NASA Goddard Space Flight Center, United States; Matthew Montauro, Rochester Institute of Technology, United States; Eric Markland, Ball Aerospace, United States; Aaron Pearlman, GeoThinkTank LLC, United States; Jeffrey Pedley, NASA Goddard Space Flight Center, United States; Brian Wenny, Science Systems and Applications, Inc./NASA Goddard Space Flight Center, United States

**FR3.R4.4**  **IN-ORBIT OBSERVATION OF THE SECOND GENERATION GLOBAL IMAGER (SGL) AND STUDY TOWARDS FOLLOW-ON IMAGING RADIOMETER**  
14:40  Yoshikiyo Kimura, Yoshikiyo Kojima, Tatsuyuki Urabe, Shigemasa Ando, Konan University, Japan

**FR3.R4.5**  **CHALLENGES AND APPROACHES FOR SENSOR REFLECTIVE SOLAR CALIBRATION**  
15:00  Xiaoxiong Xiong, Jim Butler, NASA Goddard Space Flight Center, United States

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Friday, August 2  15:40 - 17:20  Room 313-314  Oral-Invited

**Future Programs, Missions and Instruments on GEO or LEO Orbits II**

*Session Co-Chairs: Toshiyoshi Kimura, Japan Aerospace Exploration Agency; Xiaoxiong Xiong, NASA Goddard Space Flight Center*

**FR4.R4.1**  **DEVELOPMENT OF OPTICAL IMAGER FOR ADVANCED OPTICAL SATELLITE (ALOS-3)**  
15:40  Katsuke Wada, Satoru Sakamoto, Ate Tanaka, Mitsubishi Electric, Japan

**FR4.R4.2**  **MISSION OVERVIEW OF THE ADVANCED OPTICAL SATELLITE (ALOS-3)**  
16:00  Takao Tadano, Yasuo Mizukami, Ayane Oka, Hidenori Watanabe, Masakazu Sugasawa, Japan Aerospace Exploration Agency (JAXA), Japan

**FR4.R4.3**  **PRELAUNCH STATUS OF HYPERSONIC IMAGER SUITE (HISU)**  
16:20  Akira Hesaki, University of Tokyo, Japan; Jun Tam, Osamu Kshmachera, Japan Space Systems (J-space systems), Japan; Yoshihiko Hsia, NEC Corporation, Japan

**FR4.R4.4**  **IMAGING SPECTROMETER SUITE FOR MONITORING THE ANTHROPOCENE REMOTELY FROM SPACE**  
16:40  Akira Hesaki, Hesaki, Japan Aerospace Exploration Agency (JAXA), Japan

**FR4.R4.5**  **GEOSTATIONARY EARTH OBSERVATION SATELLITE WITH LARGE SEGMENTED TELESCOPE**  
17:00  Takayuki Kusuda, Hayashikawa, Japan Aerospace Exploration Agency (JAXA), Japan; Norichiro Miya, Meisei University, Japan; Akira Hesaki, University of Tokyo, Japan
FRIDAY
ORAL

Friday, August 2 08:00 - 09:40 Room 315
Session FR1.R5 Oral

**Hyperspectral Image Classification IV**

Session Chair: Leyuan Fang, Hunan University

**FR1.R5.1** MULTIPLE-FEATURE IDEAL REGULARIZED KERNEL FOR HYPERSPECTRAL IMAGE CLASSIFICATION  
Yan Xu, Mississippi State University, United States; Jianguo Feng, Hubei University, China; Qian Du, Nicolas Younan, Mississippi State University, United States

**FR1.R5.2** CONVOLUTIONAL NEURAL NETWORK WITH PCA AND BATCH NORMALIZATION FOR HYPERSPECTRAL IMAGE CLASSIFICATION  
Aamir Abbasi, Mengyi He, Northwestern Polytechnical University, China

**FR1.R5.3** SPNET: A SPECTRAL PATCHING NETWORK FOR END-TO-END HYPERSPECTRAL IMAGE CLASSIFICATION  
Xin Hu, Xianli Wang, Fanfei Zhang, Wuhan University, China; Xi Zuo, China University of Geosciences, China; Chang Luo, Wuhan University, China; Lizhi Wei, Hubei University, China

**FR1.R5.4** GRU WITH SPATIAL PRIOR FOR HYPERSPECTRAL IMAGE CLASSIFICATION  
Erting Pan, Jinyi Ma, Xiaodai Fan, Jun Huang, Xiaoyun Mei, Jiayi Ma, Wuhan University, China

**FR1.R5.5** ENSEMBLE MARGIN BASED SEMI-SUPERVISED RANDOM FOREST FOR THE CLASSIFICATION OF HYPERSPECTRAL IMAGE WITH LIMITED TRAINING DATA  
Wei Feng, Weijing Huang, Chinese Academy of Sciences, China; Guanli Dauglin, University Paris XII, France; Jumna Xu, RIKEN Center for Advanced Intelligence Project (AIP), Japan; Yanghui Quan, Xidian University, China; Huichun Ye, Tingyang Dang, Chinese Academy of Sciences, China

Friday, August 2 10:40 - 12:20 Room 315
Session FR2.R5 Oral

**Image Segmentation I**

Session Co-Chairs: Naoto Yokoya, RIKEN; Sebastiano Serpico, University of Genoa

**FR2.R5.1** OVER-SEGMENTATION OF VHR SATELLITE IMAGES USING NONPARAMETRIC BAYESIAN ITERATIVE CLUSTERING  
Wei Huang, Hong Tang, Xin Yang, Beijing Normal University, China

**FR2.R5.2** A MULTISCALE SUPERPIXEL-GUIDED FILTER APPROACH FOR VHR REMOTE SENSING IMAGE CLASSIFICATION  
Siyang Liu, Qing Hu, Tongji University, China; Ali Sam; Chinese Academy of Sciences, China; Xiaohua Tang, Tongji University, China

**FR2.R5.3** SEMANTIC LABELING FOR HIGH-RESOLUTION AERIAL IMAGES BASED ON THE DAFNET  
Zhiyang Cao, Wenpei Diao, Yi Zhang, Menglong Yan, Hongfeng Yu, Xian Sun, Ken Fu, Institute of Electronics, Chinese Academy of Sciences, China

**FR2.R5.4** SHIP INSTANCE SEGMENTATION FROM REMOTE SENSING IMAGES USING SEQUENCE LOCAL CONTEXT MODULE  
Yingchao Feng, Wenpei Diao, Yi Zhang, Hao Li, Zhonghan Chang, Menglong Yan, Xian Sun, Xin Gu, Institute of Electronics, Chinese Academy of Sciences, China

**FR2.R5.5** CLOUD-NET: AN END-TO-END CLOUD DETECTION ALGORITHM FOR LANDSAT & IMAGERY  
Soheir Makarem, Parvaneh Saeedi, Simon Fraser University, Canada

Friday, August 2 13:40 - 15:20 Room 315
Session FR3.R5 Oral

**Image Segmentation II**

Session Co-Chairs: Yang Xu, Nanjing University of Science and Technology; Regiam Demir, Technische Universität Berlin

**FR3.R5.1** DEEP LEARNING METHODS FOR CROP CLASSIFICATION MAPS  
Filtration  
Mykola Lavreniuk, Space Research Institute NASU-SSAU, Ukraine

**FR3.R5.2** A NOVEL STATISTICAL-BASED SCALE-INDEPENDENT APPROACH TO UNSUPERVISED WATER SEGMENTATION OF SAR IMAGES  
Francesco Asaro, Politecnico di Milano, Italy

**FR3.R5.3** UNSUPERVISED POLSAR IMAGE FACTORIZATION WITH DEEP CONVOLUTIONAL NETWORKS  
Ruijie Bi, University of Derby, United Kingdom; Feng Xu, Fudan University, China; Zhiqiang Wei, Xi’an Electronics and Engineering Institute, China; Tuo Hao, Nanjing Institute of Technology, China; Yaofeng Cui, Yong Xue, University of Derby, United Kingdom; Zhangxin Xu, Xi’an Jiaotong University, China

**FR3.R5.4** EFFICIENT MULTI-CLASS SEMANTIC SEGMENTATION OF HIGH RESOLUTION AERIAL IMAGERY WITH DILATED LINKNET  
Qinghan Zhu, Yumin Zheng, Yupei Jiang, Junchi Yang, Beijing University of Posts and Telecommunications, China

**FR3.R5.5** A MULTI-TASK DEEP LEARNING FRAMEWORK COUPLING SEMANTIC SEGMENTATION AND IMAGE RECONSTRUCTION FOR VERY HIGH RESOLUTION IMAGERY  
Maria Papadomanolaki, Konstantinos Konstantakis, National Technical University of Athens, Greece; Maria Yulkapoulos, CentraleSupélec, Université Paris-Saclay, France
FRIDAY ORAL

Forest: Biomass and Carbon Cycle
Session Chair: Johan E.S. Fransson, Swedish University of Agricultural Sciences

FR3.R6.1 UPDATED DATA-DRIVEN GPP AND NEE ESTIMATION WITH REMOTE SENSING AND MACHINE LEARNING ACROSS ASIA
Zhuyan Liu, Kazuhito Ikeda, Yosuke Hayashi, Riku Kawase, Kodai Hayashi, Chiba University, Japan; Masahito Ueyama, Okayama Prefecture University, Japan; Yoji Kanemitsu, Forestry and Forest Products Research Institute, Japan; Kewat Kumar, Sandipan Mukherjee, GBP National Institute of Himalayan Environment and Sustainable Development, India

FR3.R6.2 SOLAR-INDUCED CHLOROPHYLL FLUORESCENCE (SIF) ADVANCES IN TRACKING THE EFFECT ON THE CARBON CYCLE FROM HUMAN ACTIVITIES AND NATURE
Aiko Ienaga, Waseda University, China; Chongbi Yang, Nanjing University of Information Science and Technology, China

FR3.R6.3 ESTIMATION OF FOREST PARAMETERS COMBINING HIGH RESOLUTION RADAR AND OPTICAL SPACEBORNE SENSORS
David Marie, Milena Planelli, Gérard Delval, Centre d’Étude Spatiale de la Biodiversité (CESBIO), France

FR3.R6.4 INTEGRATING SAR BACKSCATTER, ICESAT GLAS METRICS AND ALLOMETRIC FUNCTIONS TOWARDS AN IMPROVED ESTIMATION OF FOREST BIOMASS
Maurizio Santoro, Gamma Remote Sensing AG, Switzerland; Johan E.S. Fransson, Swedish University of Agricultural Sciences, Sweden

FR3.R6.5 CHARACTERIZING TROPICAL SECONDARY FOREST WITH MULTIFREQUENCY SAR
Veraldo Linsenbeck, Santa Catarina State University (UNDESC), Brazil

FRIDAY ORAL

Urban Remote Sensing II
Session Chair: A.P. Prathiba, Indian Institute of Technology, Roorkee

FR2.R6.1 EXPLOITATION OF ESA AND NASA HERITAGE REMOTE SENSING DATA FOR MONITORING THE HEAT ISLAND EVOLUTION IN CHENNAI WITH THE GOOGLE EARTH ENGINE
Francisca Ceñalvi, University of Bath, United Kingdom; Donato Ambrosone, University of Surrey, United Kingdom; Lema Brenda Lezcano, Donia Waleganba, ruRural Research Placement, United Kingdom; Raffaella Guida, Pasquale Iervolino, University of Surrey, United Kingdom; Sukumar Natarajan, University of Bath, United Kingdom

FR2.R6.2 ASSESSMENTS OF DIFFERENT KERNEL-DRIVEN MODELS FOR MODELING URBAN DAYTIME THERMAL ANISOTROPY OVER SIMULATION AND SATELLITE DATA
Le Jiang, Wusheng Zhan, Nanjing University, China

FR2.R6.3 MAPPING URBAN IMPERVIOUS SURFACES BY FUSING OPTICAL AND SAR DATA AT DECISION LEVEL
Yanbin Bai, Guangmin Sun, Yi Ge, Beijing University of Technology, China; Yuanzhi Zhang, National Astronomical Observatories, China; Yu Li, Beijing University of Technology, China

FR2.R6.4 URBAN GREEN SPACES AND HEAT STRESS RISK PATTERNS IN TAIPEI CITY BY SENTINEL 2 IMAGERY
Yue-Ai Liu, Khi-Anh Nguyen, Le-Thu Ho, National Central University, Taiwan

FR2.R6.5 EMBRANCHMENT CNN BASED LOCAL CLIMATE ZONE CLASSIFICATION USING SAR AND MULTISPECTRAL REMOTE SENSING DATA
Pingping Feng, State Key Laboratory of Space-Ground Integrated Information Technology, China; Yuan Liu, Jian Guan, Harken Engineering University, China; Yan Dong, China Ship Research and Development Academy, China; Guangxin Hu, Zhenghuan Xie, Huilong Shi, State Key Laboratory of Space-Ground Integrated Information Technology, China

FRIDAY ORAL

Urban Remote Sensing IV
Session Co-Chairs: Demetris Stathakis, University of Thessaly; Masahiko Nishimoto, Kumamoto University

FR4.R6.1 UNDERSTANDING INSAR MEASUREMENT THROUGH COMPARISON WITH TRADITIONAL STRUCTURAL MONITORING - WATERLOO BRIDGE, LONDON
Sivasakthy Selvakumaran, University of Cambridge, United Kingdom; Graham Webb, John Bennett, WSP, United Kingdom; Chrisno Riusi, Satellites Applications Catapult, United Kingdom; Elena Bartes, National Physical Laboratory, United Kingdom; Campbell Middleton, University of Cambridge, United Kingdom

FR4.R6.2 A NEW NIGHTTIME LIGHT IMAGERY-LUOJIA 1-01 TO INVESTIGATE ARTIFICIAL LIGHT
Wu Jiang, Guojin He, Weifeng Long, Hangdong Gao, Wanchun Long, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China

FR4.R6.3 CONCRETE DIELECTRIC CONSTANT ESTIMATION BASED ON ANALYTIC SIGNAL PEAK RATIO OF GPR RESPONSE FOR NON-DESTRUCTIVE INSPECTION
Badman P.A. Rahman, Masahiko Nishimoto, Kumamoto University, Japan

FR4.R6.4 VIIRS LUNAR RADIANCE REMOVAL BY DARK OBJECT SUBTRACTION
Demetris Stathakis, Leonidas Liakos, University of Thessaly, Greece

FR4.R6.5 THE DESIGN OF AN INFORMAL CADASTRE FOR DISASTER RISK MANAGEMENT BASED ON SATELLITE IMAGERY
Edward Kurwakumire, Emy Blanchard Kikub, Tshwane University of Technology, South Africa; Shelter Kuzhazha, Monash University South Africa, South Africa
Friday, August 2 15:40 - 17:20 Room 413
Session FR4.R7  Oral-Invited

Advances on Analysis of Big Data in Remote Sensing II

Session Co-Chairs: Begüm Demir, Technische Universität Berlin; Andrea Marini, University of Tromsø

FR4.R7.1 ACCESS CONTROL ON BIG DATA AND SMALL PIXELS: HOW TO ACHIEVE PRIVACY AND SECURITY
15:40
Peter Baumann, Dimitre Moray, Jacobs University, Germany

FR4.R7.2 BIGEARTHNET: A LARGE-SCALE BENCHMARK ARCHIVE FOR REMOTE SENSING IMAGE UNDERSTANDING
16:00
Göran Sundblad, Technische Universität Berlin, Germany; Marcela Charlova, DLR, Germany; Begüm Demir, Volker Markl, Technische Universität Berlin, Germany

FR4.R7.3 SCALABLE WORKFLOWS FOR REMOTE SENSING DATA PROCESSING WITH THE DEEPEST MODULAR SUPERCOMPUTING ARCHITECTURE
16:20
Ernst Erdmann, University of Iceland, Iceland; Gabriele Cavallaro, Forschungszentrum Jülich GmbH, Germany; Helmut Neukirchen, University of Iceland, Iceland; Morris Riedel, Forschungszentrum Jülich GmbH, Germany

FR4.R7.4 IMPROVED EARTH OBSERVATION DATA RETRIEVAL THROUGH HASHING ALGORITHMS
16:40
Alecsandru-Cosmin Grivei, Cristian Găvina, University Politehnica of Bucharest, Romania; Mihai Datcu, German Aerospace Center (DLR), Germany

FR4.R7.5 A FAST AND PRECISE METHOD FOR LARGE-SCALE LAND-USE MAPPING BASED ON DEEP LEARNING
17:00
Xuan Yang, Zhengchao Chen, Baipeng Li, Dailiang Peng, Pan Chen, Bing Zhang, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China
FRIDAY
ORAL
FRIDAY, AUGUST 2
08:00 - 09:40  Room 414-415
Session FR1.R8

Big Data and Machine Learning · Neural Network in Remote Sensing II
Session Co-Chairs: Ronan Fablet, IMT-Atlantique/LAB-STICC; Maryam Rahamannfar, Texas A&M University-Corpus Christi

FR1.R8.1  DEEP ORDINAL CLASSIFICATION FOR AUTOMATIC CLOUD COVER ASSESSMENT
08:00
Qiuwen Liu, East China Normal University, China; Jinrong Fan, Wuhan University, China; Chaoxuan Shao, East China Normal University, China; Yaqin Peng, Shanghai University, China; Wei Peng, East China Normal University, China

FR1.R8.2  LEARNING DYNAMICAL PRIORS FROM NOISY DATA USING ASSIMILATION-DERIVED NEURAL NETS
08:20
Said Ouda, Duong Nguyen, IMT-Atlantique/LAB-STICC, France; Cédric Herzet, IMT-Atlantique/LAB-STICC/IPRRA Bretagne-Atlantique, France; Lucas Dummet, IMT-Atlantique/LAB-STICC, France; Bertrand Chapron, Rimmi, France; Andrea Pescador, WIDEA, France; Fabrice Gallard, Lucile Guézou,Owen Datta, France; Ronan Fablet, IMT-Atlantique/LAB-STICC, France

FR1.R8.3  SEMANTIC SEGMENTATION OF UNDERWATER SONAR IMAGERY WITH DEEP LEARNING
08:40
Maryam Rahamannfar, Duygan Doburokku, Texas A&M University Corpus Christi, United States

FR1.R8.4  GENERATIVE ADVERSARIAL NETWORKS TO AUGMENT MICRO-DOPPLER SIGNATURES FOR THE CLASSIFICATION OF HUMAN ACTIVITY
09:00
Barnabé Alquier, University of California Santa Barbara, United States; Danguo Li, Daoyu Gao, Waseda University, Japan; Joop Smulders, University of Technology, Eindhoven, the Netherlands; Yaqin Peng, East China Normal University, China

FR1.R8.5  URBAN FUNCTIONAL REGIONS DISCOVERING BASED ON DEEP LEARNING
09:20
Fan Mou, Rui Kang, Kai Li, Zhaohong Zheng, University of Electronic Science and Technology of China, China; Jun Xie, Wuhan University, China; Yong He, Schau Research Institute for Ecosystem Restoration & Geohazard Prevention, China; Mingang Zhu, Department of Natural Resources of Sichuan Province, China

FRIDAY, AUGUST 2
13:40 - 15:20  Room 414-415
Session FR3.R8

Big Data and Machine Learning · Machine Learning for SAR
Session Co-Chairs: Qian Song, Feng Xu, Ya-Qiu Jin, Fudan University, China

FR3.R8.1  A SEMI-SUPERVISED METHOD FOR SAR TARGET DISCRIMINATION BASED ON CO-TRAINING
13:40
Lan Du, Yan Wang, Weiteng Xie, Xidian University, China

FR3.R8.2  END-TO-END AUTOMATIC SHIP DETECTION AND RECOGNITION IN HIGH-RESOLUTION GAOFEN-3 SPACEBORNE SAR IMAGES
14:00
Xueyue Hou, Wei An, Feng Xu, Fudan University, China

FR3.R8.3  TRANSLATING SAR TO OPTICAL IMAGES FOR ASSISTED INTERPRETATION
14:20
Shiwei Fu, Feng Xu, Yu-Qiu Jin, Key Laboratory for Information Science of Electromagnetic Waves (Med), Fudan University, China

FR3.R8.4  A NEW RATIO IMAGE BASED CNN ALGORITHM FOR SAR DESPECKLING
14:40
Sergio Vitale, Giampaolo Ferraioli, Vito Pascazio, University of Naples, Italy

FR3.R8.5  SAR IMAGE REPRESENTATION LEARNING WITH ADVERSARIAL AUTOENCODER NETWORKS
15:00
Qian Song, Feng Xu, Yu-Qiu Jin, Fudan University, China

FRIDAY, AUGUST 2
15:40 - 17:20  Room 414-415
Session FR4.R8

Big Data and Machine Learning · New Trends in Remote Sensing II
Session Chair: Mesay Belete Bejiga, University of Trento

FR4.R8.1  TOWARDS GENERATING REMOTE SENSING IMAGES OF THE FAR PAST
15:40
Mesay Belete Bejiga, Farid Melgani, University of Trento, Italy

FR4.R8.2  A 10 M SENTINELS-DERIVED WETLAND EXTENT PRODUCT OF NEWFOUNDLAND ON THE GOOGLE EARTH ENGINE CLOUD COMPUTING PLATFORM
16:00
Masoud Mahdavipanah, L-SCORE and Memorial University, Canada; Bahram Salehi, State University of New York (SUNY), United States; Fariba MohamedDamouni, L-SCORE and Memorial University, Canada; Sandor Homayouni, University of Ottawa, Canada; Eric Gill, Memorial University of Newfoundland, Canada

FR4.R8.3  ALTERNATIVE DATASETS FOR IDENTIFICATION OF EARTH SCIENCE EVENTS AND DATA
16:20
Kaylen Burgess, Robert Griffin, Brian Freitag, Jeffrey Miller, University of Alabama Huntsville, United States; Rahul Ramachandran, NASA Marshall Space Flight Center, United States; Jia Zhang, Carnegie Mellon University, United States

FR4.R8.4  A PROTOTYPE SYSTEM USING LOCATION-BASED TWITTER DATA FOR DISASTER MANAGEMENT
16:40
Quan Zou, Southwest University, China

FR4.R8.5  AN INTERACTIVE VISUAL ANALYTICS TOOL FOR BIG EARTH OBSERVATION DATA CONTENT ESTIMATION
17:00
Davide Favi, Andrea Goriari, Politecnica University of Bucharest, Romania; Adrian Stoica, TERRASIGNA, Romania; Philippe Moussaid, European Space Agency (ESA), Italy; Mihai Datcu, German Aerospace Center (DLR) / Politehnica University of Bucharest, Romania
Friday, August 2 14:40 - 15:20 Room 416-417
Session FR3.R9  Oral

Tomography and 3D Mapping III

Session Chair: Matteo Pardini, German Aerospace Center (DLR); Giampaulo Ferrazzi, Università di Napoli Parthenope

FR3.R9.1  TOMOGRAPHY AND GROUND/VOLUME DECOMPOSITION FOR FOREST BIOMASS RETRIEVAL
Matteo Pardini, Konstantinos Papathanassiou, German Aerospace Center (DLR), Germany

FR3.R9.2  SUB-CANOPY GROUND LOCALIZATION FROM MULTI-BASELINE POLSAR DATA IN FOREST SCENARIOS
Matteo Pardini, Konstantinos Papathanassiou, German Aerospace Center (DLR), Germany

FR3.R9.3  THE IMPACT OF ORBITAL CONTROL ON THE QUALITY OF BIOMASS ESTIMATES THROUGH P-BAND SAR TOMOGRAPHY
Matteo Pardini, Konstantinos Papathanassiou, German Aerospace Center (DLR), Germany

FR3.R9.4  GENERALIZED-CAPON DIFF-TOMO FOR SENSING OF DECORRELATING SCATTERERS: INSIGHTS, CHARACTERIZATION, AND EXPERIMENTS
Fabio Lombardo, University of Pisa, Italy; Francesco Ca, Leonardo S.P.A., Italy

FR3.R9.5  3D MODELING OF EARTH’S SURFACE: STUDY OF THE ANTARCTICA
Philippe Charbon, Eric Manhardt-Liepe, CMLA, France; Carla De Franchis, CMLA and Kayrros, France; Gabriele Fascioli, CMLA, France
**FRIDAY, AUGUST 2**

**Session FR1.R10**  
**Oral**

**UAV/Airborne SAR**

**Session Co-Chairs:** Daniel Henke, University of Zurich; Antonio Natale, IREA-CNR Institute for Remote Sensing of Environment (IREA), National Research Council (CNR)

**FR1.R10.1 HINOTORI-C2 MISSION : CN235MPA AIRCRAFT ONBOARD CIRCULARLY POLARIZED SYNTHETIC APERTURE RADAR (CP-SAR)**  
**08:00**  
Joséphine Velaté Sr Saroyan, Christian-Ambroise Testelin, Eric Solary, Echanges, France; Sandrine Wetter, Max Zhang, Chao Zhang, Xiaowei Ji, Zhejiang University, China

**FR1.R10.2 MIRANDAS: EXPERIMENTS IN PREPARATION FOR SMALL UAV-BASED AIRBORNE SAR**  
**08:20**  
Daniel Henke, Max Frield, Julian Fager, University of Zurich, Switzerland; Sébastien Guillaume, Michael Meindl, Alain Goger, ETH Zurich, Switzerland; Stefan Sieger, Daniel Jassemc, Frank Allesgem, Michael Carls, Stephan Stanka, Fraunhofer Institute, Germany; Markus Reinecke, Peter Welling, armasuisse, Switzerland.

**FR1.R10.3 AXIS AIRBORNE SAR SYSTEM: FLIGHT-TEST RESULTS**  
**08:40**  
Carmen Españo, Antonio Natale, Paola Benedini, IREA-CNR Institute for Remote Sensing of Environment (IREA), National Research Council (CNR), Italy; Gianfranco Palmese, Elettra Microwave S.r.l., Italy; Riccardo Lunari, IREA-CNR Institute for Remote Sensing of Environment (IREA), National Research Council (CNR), Italy; Stefano Perna, Università degli Studi di Napoli “Parthenope”, Italy.

**FR1.R10.4 THE ASI P-BAND HELICOPTER-BORNE INTEGRATED SOUNDER-SAR CAMPAIGN**  
**09:00**  
Stefano Perna, Università degli Studi di Napoli “Parthenope”, Italy; Giovanni Alberti, C.R.I.S.T.A., Consortium of Research on Advanced Remote Sensing Systems, Italy; Stefano Perna, Università degli Studi di Napoli “Parthenope”, Italy; Ettore Castellani, Carlo A. Calabria, Università degli Studi di Napoli “Parthenope”, Italy; Carmen Españo, IREA-CNR Institute for Remote Sensing of Environment (IREA), National Research Council (CNR), Italy; Claudia Fattaccini, Roberto Pieraccini, Agostino Spagnoli, Italy; Giovanni Alberti, C.R.I.S.T.A., Consortium of Research on Advanced Remote Sensing Systems, Italy; Stefano Perna, Università degli Studi di Napoli “Parthenope”, Italy.

**FR1.R10.5 AN AIRBORNE MULTI-CHANNEL SAR IMAGING METHOD WITH MOTION COMPENSATION**  
**09:20**  
Jiayi Guo, Jie Chen, Chunsheng Li, Wei Yang, Beihang University, China

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**FRIDAY, AUGUST 2**

**Session FR2.R10**  
**Oral**

**Ground Based Systems II**

**Session Co-Chairs:** Massimiliana Pieraccini, University of Florence; Giovanni Nici, CNR

**FR2.R10.1 GROUND-BASED BISTATIC POLARIMETRIC INTERFEROMETRIC SYNTHETIC APERTURE RADAR SYSTEM**  
**10:40**  
Suyun Wang, Wenge Feng, Kazutaka Kikuta, Gregory Cheyns, Mototsugu Sato, Tohoku University, Japan

**FR2.R10.2 ONLINE HIGH RESOLUTION STOCHASTIC RADIATION RADAR IMAGING USING SPARSE COVERAGE FITTING**  
**11:00**  
Yaqing Zhang, Qingyu Mo, Yanzou Yan, Jinxia Wu, Yulin Huang, University of Electronic Science and Technology of China, China; Andreas Jakobsson, Lund University, Sweden

**FR2.R10.3 GROUND BASED RADIATION OBSERVATIONAL METHOD IN MOUNTAINOUS AREAS**  
**11:20**  
Qing Chu, Guangyao Tan, Beijing Normal University, China; Martin Wild, Eidgenössische Technische Hochschule Zürich (ETH), Switzerland; Yingli Zhou, Kai Hua, Linyuan Li, Yaxin Liu, Yifei Tang, Xihan Wu, Beijing Normal University, China

**FR2.R10.4 LARGE SCALE DIGITAL SURFACE MODEL PRODUCTION ON CLOUD USING BIG DATA TECHNOLOGIES FOR FUTURE EO MISSION**  
**11:40**  
Olivier Moret, David Youcef, Johan Michel, Michyline Combes, Flore Launay, Laurent Lebauge, CNES, France; Grégoire Buisson, Audrey Punzic, C.S., France.

**FR2.R10.5 PROVIDING REFERENCE FOREST BIOMASS DATA FOR EO IMAGERY : A COMPARISON OF FOUR IN-SITU RELASCO MEASURING DEVICES IN ASTURIAS, SPAIN**  
**12:00**  
Matthias Mahoney, Revere Toju, VTT Technical Research Centre of Finland Ltd, Finland; Timo Toivanen, CGI Group Inc., Finland; Tuomas Härme, VTT Technical Research Centre of Finland Ltd, Finland; Carlos López-Sánchez, Marcos Barrio Anta, ALS Nova-Feméndez, University of Oviedo, Spain

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**FRIDAY, AUGUST 2**

**Session FR3.R10**  
**Oral**

**Hyperspectral Data Analysis**

**Session Co-Chairs:** Hildre Deborah, Norwegian University of Science and Technology; Wolfgang Grass, Fraunhofer IOSB

**FR3.R10.1 FEATURE EXTRACTION OF HYPERSONTERAL IMAGERY BASED ON DEEP NMF**  
**13:40**  
Chenli Ji, Minchao Ye, Huijun Lu, Foton You, Chino Jiang University, China; Yuntou Qian, Zhejiang University, China

**FR3.R10.2 DUAL DICTIONARY LEARNING FOR MINING A unified FEATURE SUBSPACE BETWEEN DIFFERENT HYPERSONTERAL IMAGE SCENES**  
**14:00**  
Hao Chen, Minchao Ye, Huijun Lu, Long Li, Chino Jiang University, China; Yuntou Qian, Zhejiang University, China

**FR3.R10.3 APPLICATION OF NONLINEAR FEATURE NORMALIZATION ON COMBINED HYPERSONTERAL AND LIDAR DATA**  
**14:20**  
Wolfgang Gross, Dimitri Bulatov, Peter Solbrig, Fraunhofer IOSB, Germany.

**FR3.R10.4 A METROLOGICAL SPECTRAL DIFFERENCE SPACE FOR THE STATISTICAL MODELING OF HYPERSONTERAL IMAGES**  
**14:40**  
Hilda Deborah, Norwegian University of Science and Technology, Norway; Noel Richard, Laboratory LUMI, IMS CNRS 2752, France; Magnus Olsson, AIA Benediktsson, University of Iceland, Iceland; Ian Voge Hardenberg, Norwegian University of Science and Technology, Norway.

**FR3.R10.5 STATISTICAL FUSION-BASED TRANSFER LEARNING FOR HYPERSONTERAL IMAGE CLASSIFICATION**  
**15:00**  
Xiaowen Liu, San Jia, Meng Xu, Xiaogang Zhu, Shenzhen University, China

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**FRIDAY, AUGUST 2**

**Session FR4.R10**  
**Oral**

**Tenser Decomposition**

**Session Co-Chairs:** Yihua Tan, Huazhong University of Science and Technology; Xiyang Huang, Chinese Academy of Sciences

**FR4.R10.1 A NOVEL TENSOR-BASED FEATURE EXTRACTION METHOD FOR POLSAR IMAGE CLASSIFICATION**  
**15:40**  
Xiyang Huang, Xiangli Nie, Hong Gao, Bo Zhang, Chinese Academy of Sciences, China

**FR4.R10.3 HYPERSONTERAL IMAGE CLASSIFICATION VIA TENSOR RIGDE REGRESSION**  
**16:20**  
Jianjun Liu, Hao Chen, Jianjun University, China; Songyu Tang, Nanjing Forest Police College, China; Jiajia Yang, Jiangnan University, China; Hong Yan, City University of Hong Kong, China

**FR4.R10.4 INFRARED SMALL TARGET DETECTION ALGORITHM BASED ON ROBUST TENSOR DECOMPOSITION MODEL WITHIN BAYESIAN FRAMEWORK**  
**16:40**  
Yihua Tan, Zhe Li, Yuan Xiao, Na Liu, Huazhong University of Science and Technology, China

**FR4.R10.5 HYPERSONTERAL IMAGE CLASSIFICATION USING TENSOR CP DECOMPOSITION**  
**17:00**  
Muhammad Jawed, Mauro Dalla Mura, Pierre Comon, Grenoble Images Parole Signal Automatique, France.
Session FR3.R11  Oral

**Digital Agriculture with Machine Learning and Remote Sensing II**

Session Chair: Dharmendra Singh, Indian Institute of Technology, Roorkee

**FR3.R11.1** MAXIMUM MEMBERSHIP FRACTION BASED PURE PIXEL ASSESSMENT APPROACH FOR HYPERSPECTRAL DATA ANALYSIS USING DEEP LEARNING
S. N. Chaudhri, N. S. Rajput, K. P. Singh, Indian Institute of Technology BHU (Banaras Hindu University), India; D. Singh, Indian Institute of Technology Roorkee, India

**FR3.R11.2** IMPROVED UTILIZATION OF POLSAR POLARIZATION SIGNATURES USING CONVOLUTIONAL-DEEP NEURAL NETS FOR LAND COVER CLASSIFICATION
Gopal Phartiyal, Dharmendra Singh, Indian Institute of Technology Roorkee, India; Nicolas Brodu, Hussein Yahia, INRIA, France

**FR3.R11.3** A STEP TOWARDS DIGITAL AGRICULTURE FOR DEVELOPMENT OF OBJECT BASED PHENOLOGY APPROACH TO CLASSIFY SUGARCANE AND PADDY CROPS USING MULTISENSOR DATA
Deepak Murugan, Dharmendra Singh, IIT Roorkee, India

**FR3.R11.4** DEVELOPMENT OF MACHINE LEARNING BASED APPROACH FOR COMPUTING OPTIMAL VEGETATION INDEX WITH THE USE OF SENTINEL-2 AND DRONE DATA
Alokash Agrawal, Sandeep Kumar, Dharmendra Singh, IIT Roorkee, India

**FR3.R11.5** IN-SEASON PREDICTION OF CROP TYPES IN THE US GREAT PLAINS USING SEQUENCE BASED STOCHASTIC MODELS AND DEEP LEARNING
Sohaib Chahbar, Rob Brownell, Nick Malizia, Daniele Sotto-Morroni, Fede Garelli, Digital Agriculture, United States; Mark Friedl, Boston University, United States
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<tr>
<th>Time</th>
<th>Session/Title</th>
<th>Speaker(s)</th>
</tr>
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<tr>
<td>08:00</td>
<td><strong>FR1.R12.1</strong> WHERE DO LABELS COME FROM?</td>
<td>Jeff Byers, Katarina Doctor, Naval Research Laboratory, United States</td>
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<td>08:40</td>
<td><strong>FR1.R12.3</strong> THE TRUTH ABOUT GROUND TRUTH: LABEL NOISE IN HUMAN-GENERATED REFERENCE DATA</td>
<td>Ronny Hänsch, Olaf Hellwich, Technische Universität Berlin, Germany</td>
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<td>09:00</td>
<td><strong>FR1.R12.4</strong> BUILDING AN OPERATIONALLY RELEVANT DATASET FROM SATELLITE IMAGERY</td>
<td>Katie Rainey, Naval Information Warfare Center Pacific, United States</td>
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<td>09:20</td>
<td><strong>FR1.R12.5</strong> LEARNING TO UNDERSTAND EARTH OBSERVATION IMAGES WITH WEAK AND UNRELIABLE GROUND TRUTH</td>
<td>Rodrigo Caye Daudt, Adrien Chan-Ho-Tang, Bertrand Le Saux, Alexandre Boulch, ONERA, France</td>
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<tr>
<td>10:40</td>
<td><strong>FR2.R12.1</strong> THE CHALLENGE OF CREATING THE SARPTICAL DATASET</td>
<td>Yuanyuan Wang, Technical University of Munich, Germany; Xiao Xiang Zhu, German Aerospace Center (DLR) / Technical University of Munich (TU Munich), Germany</td>
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<tr>
<td>11:00</td>
<td><strong>FR2.R12.2</strong> INTERACTIVE COCONUT TREE ANNOTATION USING FEATURE SPACE PROJECTIONS</td>
<td>John Edgar Vargas-Muñoz, University of Campinas, Brazil; Ping Zhou, HERE Technologies, Netherlands; Alexandre Xavier Falcão, University of Campinas, Brazil; Devis Tuia, Wageningen University, Netherlands</td>
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<tr>
<td>11:20</td>
<td><strong>FR2.R12.3</strong> AUTOMATIC EXTRACTION OF WEAK LABELED SAMPLES FROM EXISTING THEMATIC PRODUCTS FOR TRAINING CONVOLUTIONAL NEURAL NETWORKS</td>
<td>Claudia Paris, Lorenzo Bruzzone, University of Trento, Italy</td>
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<td>11:40</td>
<td><strong>FR2.R12.4</strong> A NOVEL MULTI-ATTENTION DRIVEN SYSTEM FOR MULTI-LABEL REMOTE SENSING IMAGE CLASSIFICATION</td>
<td>Gencer Sumbul, Begüm Demir, Technische Universität Berlin, Germany</td>
</tr>
<tr>
<td>12:00</td>
<td><strong>FR2.R12.5</strong> AN OVERVIEW OF LABELS IN DEEP LEARNING</td>
<td>Katarina Doctor, Naval Research Laboratory, United States; Ronny Hänsch, Technische Universität Berlin, Germany</td>
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</tbody>
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### FRIDAY

#### ORAL

**Session FR1.R13**

**Monitoring and Understanding Cryosphere Dynamics at Different Scales I**

**Session Co-Chairs:** Claudia Notarnicola, EURAC; Kari Luojus, Finnish Meteorological Institute

**FRI.1.R13.1**  
**THE AMSR2 SATELLITE-BASED MICROWAVE SNOW ALGORITHM (SMSA): A NEW ALGORITHM FOR ESTIMATING GLOBAL SNOW ACCUMULATION**  
08:00  
Richard Kelly, Qingzhan Li, Nastaran Saberi, University of Waterloo, Canada

**FRI.1.R13.2**  
**DEVELOPMENT OF SWE RETRIEVAL METHODS IN THE ESA SNOW CCI PROJECT AND LONG TERM TRENDS IN SEASONAL SNOW MASS**  
08:40  
Kari Luojus, Jano Pellissier, Marius Takala, John Lemmens, Maxime Arnaud, Finnish Meteorological Institute, Finland; Chris Dickson, Lawrence Mudryk, Environment and Climate Change Canada, Canada; Thomas Nagler, Gabriele Schneider, ENVEO IT GmbH, Austria

**FRI.1.R13.3**  
**SPACE-TIME COVERAGE SCENARIOS FOR A GLOBAL SATELLITE CONSTELLATION**  
09:00  
Edward Kim, NASA Goddard Space Flight Center, United States; Burton Forman, Linhao Wang, University of Maryland, United States; Jacqueline Lemaigre-Swartz, Sajal Kap, Sajay Kumar, Carrie Yuyovich, Bryan Bly, NASA Goddard Space Flight Center, United States; Michelle Hufnagel, University of Maryland, United States

**FRI.1.R13.5**  
**EVALUATION OF SEASONAL WATER BUDGET COMPONENTS OVER THE MAJOR DRAINAGE BASINS OF NORTH AMERICA USING AN ENSEMBLE-BASED LAND SURFACE MODEL APPROACH**  
09:20  
Carrie Yuyovich, Sajay Kumar, NASA Goddard Space Flight Center, United States; Lawrence Mudryk, Environment and Climate Change Canada, United States; Ryou Song Kim, NASA Goddard Space Flight Center / Universities Space Research Association, United States; Jessica Lundquist, University of Washington, United States; Michael Durov, Ohio State University, United States; Chris Dickson, Ana Barros, Environment and Climate Change Canada, United States; Paul House, George Mason University, United States; Ed Kim, NASA Goddard Space Flight Center, United States

**Session FR2.R13**

**Monitoring and Understanding Cryosphere Dynamics at Different Scales II**

**Session Co-Chairs:** Kari Luojus, Finnish Meteorological Institute; Claudia Notarnicola, EURAC

**FRI.2.R13.1**  
**A NOVEL APPROACH TO SNOW COVERAGE RETRIEVAL UNDER CLOUD-OBSCURED PIXELS BASED ON MULTITEMPORAL CORRELATION**  
10:40  
Mildred NicouARENT-Sotigli, Fondazione Bruno Keiser, Italy; Massimo Santoni, Lorenza Bruszone, University of Trento, Italy; Francesca Bovolo, Fondazione Bruno Keiser, Italy

**FRI.2.R13.2**  
**USING OPTICAL AND THERMAL DATA FOR TRACKING SNOWMELT PROCESSES IN ALPINE AREA**  
11:00  
Roberto Colombo, Roberto Gazzano, Biagio Di Mauro, University of Milano Bicocca, Italy; Marie Dumont, François Tatz, Météo-France, CNRS, France; Sergio Gaglioti, Enrica Pennati, University of Milano Bicocca, Italy; Antonio Maltese, University of Palermo, Italy; Edoardo Cremonese, Environmental Protection Agency of Aosta Valley, Italy

**FRI.2.R13.3**  
**EXPLOITING THE SYNERGY BETWEEN SENTINEL-1 AND COSMO SKY-MED DATA FOR SNOW MONITORING IN ALPINE AREAS**  
11:20  
Simone Pertusati, Simona Palacin, Emanuele Santì, ISAC - CNR, Italy; Claudia Notarnicola, Mattia Collarini, Carlo Marin, Euros Research, Italy; Enrica Pichler, IsArc CNR, Italy

**FRI.2.R13.4**  
**A DUAL-FREQUENCY KU-BAND RADAR MISSION CONCEPT FOR SEASONAL SNOW**  
11:40  
Chris Dickson, Environment and Climate Change Canada, Canada; John Lemmens, Finnish Meteorological Institute, Finland; Jochen King, Stephanie Belois, Camille Guarnard, Environment and Climate Change Canada, Canada; Malene Lempert, Yasi Cerver, Canadian Space Agency, Canada; Geoff Budge, Airbus Defence and Space, United Kingdom; Paul Sieverink, University of Massachusetts, United States

**FRI.2.R13.5**  
**ESA SNOWLAB PROJECT: 4 YEARS OF WIDE BAND SCATTEROMETER MEASUREMENTS OF SEASONAL SNOW**  
12:00  
Andreas Wiesmann, Rafael Caduff, Charles Werner, Orhan P. Foy, Gamma Remote Sensing AG, Switzerland; Martin Schneebeli, Hannes Liner, Matthias Jaggi, WSL Institute for Snow and Avalanche Research DAV, Switzerland; Mikil Schwenk, Rino Hadiprana, WSL, Swiss Federal Institute for Forest, Snow and Landscape, Switzerland; Thorsten Fehr, European Space Agency ESA-ESTEC, Netherlands

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**Session FR3.R13**

**Bistatic and Digital Beamforming SAR II**

**Session Chair:** Marc Rodriguez-Cassola, German Aerospace Center (DLR)

**FRI.3.R13.1**  
**CHANNEL IMBALANCE COMPENSATION WITH IF SIGNAL FOR CHINA’S IDBSAR**  
13:40  
Qingzhao Zhao, Yi Zhang, Wei Wang, Pei Wang, Robert Wang, Yunkai Deng, Xuehong Zhang, Kai Ye, Yashi Zhou, Institute of Electronics, Chinese Academy of Sciences, China

**FRI.3.R13.2**  
**AN ADVANCED NON-INTERRUPTED SYNCHRONIZATION SCHEME FOR BISTATIC SYNTHETIC APERTURE RADAR**  
14:00  
Da Liang, Kaiyu Liu, Haixia Yue, Yafeng Chen, Yunkai Deng, Huachun Zhang, Jingchao Zhao, Yi Zhang, Wei Wang, Pei Wang, Robert Wang, Yunkai Deng, Huachun Zhang, Institute of Electronics, Chinese Academy of Sciences, China

**FRI.3.R13.3**  
**MULTI-APERTURE FOCUSING IN SPACEBORNE TRANSMITTER-STATIONARY RECEIVER BISTATIC SAR**  
14:20  
Andrei Anghel, University Politehnica of Bucharest, Romania; Andrei Angel, University Politehnica of Bucharest, Romania; Nourine Carovente, EOS Electronic Systems / University Politehnica of Bucharest, Romania; Bjorn Rammen, European Space Agency, Netherlands; Mihai Datcu, German Aerospace Center (DLR) / University Politehnica of Bucharest, Romania

**FRI.3.R13.4**  
**DOPPLER BASED AZIMUTH RECONSTRUCTION ALGORITHM FOR MULTISTATIC SAR FORMATIONS IN HIGH RESOLUTION WIDE SWATH MODE**  
14:40  
Miroslav Sotak, Marc Rodriguez-Cassola, Pau Prats-Iraola, Alberto Moreira, German Aerospace Center (DLR), Germany

**FRI.3.R13.5**  
**EXPERIMENTAL SAR PROCESSORS FOR BISTATIC CONCEPTS**  
15:00  
Andrey Giardino, Marco Delpilli, Paolo Pecquini, sarmap SA, Switzerland; Christopher Buck, European Space Agency ESA-ESTEC, Netherlands
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<td>15:30</td>
<td>MOP2.SPR.1</td>
<td>THE USE OF NEAR-REAL-TIME DATA AND HIGH-RESOLUTION SATELLITE IMAGES FOR AREA IDENTIFICATION OF ILLEGAL FOREST CLEARING</td>
<td>Zuraidah Said, Rizky Firmansyah, Bento Nathania, World Resources Institute, Indonesia</td>
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<td>15:35</td>
<td>MOP2.SPR.2</td>
<td>PRF SAMPLING STRATEGIES FOR SWARMSAR SYSTEMS</td>
<td>Lorenzo Iannini, Alessandro Mancinelli, Pazo Lopez, Peter Hoogeboom, Yuanhao Li, Faruk Uysal, Alexander Yarovoy, Delft University of Technology, Netherlands</td>
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<td>15:40</td>
<td>MOP2.SPR.3</td>
<td>EVALUATION OF GRIDDED CO2 EMISSIONS FROM NIGHT-TIME LIGHTS</td>
<td>Andrea Gaughan, University of Louisville, WorldPop, United States; Tomohiro Oda, University of Southhampton, United Kingdom; Alessandro Sorichetta, University of Louisville, WorldPop, United States; Forrest Stevens, University of Louisville, WorldPop, United States; Laura Krauser, University of Louisville, United States; Greg Yetman, Columbia University, United States; Rostyslav Bun, Lviv Polytechnical National University, Ukraine; Maksym Bondarenko, WorldPop, University of Southhampton, United Kingdom; Son Nghiem, California Institute of Technology, NASA Jet Propulsion Laboratory, United States</td>
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**Advanced Methods for Ship Detection**

**Session Chair:** Peng Liu, Fudan University

**Board PC.1**

**A NEW SHIP DETECTION ALGORITHM OF MULTIPLE-TARGET ENVIRONMENT BASED ON MULTI-LAYERED COVOLUTIONAL NEURAL NETWORK IN SAR IMAGERY**

Jiaqi Ai, Buxin Fan, Xiaochu Yang, Hefei University of Technology, China; Kai Jiang, 38th Institute, CETC, China; Qiuo Luo, Central South University, China

**Board PC.2**

**SHIP DETECTION USING THE SURFACE SCATTERING SIMILARITY AND SCATTERING POWER**

Tao Zhang, Shanghai Jiao Tong University, China; Zhan Yang, Jiangxi Science and Technology Normal University, China; Bo Mao, Nanjing University of Finance and Economics, China; Jian Yang, Guangzhou University, China; Yifang Ran, XTB Royal Institute of Technology, Sweden; Huilin Xiong, Shanghai Jiao Tong University, China

**Board PC.3**

**SMALL SAMPLE SET INSHORE SHIP DETECTION FROM OPTICAL REMOTE SENSING IMAGES BASED ON STRUCTURED SPARSE REPRESENTATION**

Yin Zhour, School of Electronic Engineering and Computer Science, Peking University, China; Guanyun Wang, He Chen, Beijing Key Laboratory of Embedded Realtime Information Processing Technology, Beijing Institute of Technology, China; Jinlin Liu, School of Electronic Engineering and Computer Science, Peking University, China; Siu Liu, Nong, China; Fukun Bi, School of Electronic Information Engineering, North China University of Technology, China

**Board PC.4**

**REMOTE SENSING SHIP TARGET DETECTION AND RECOGNITION SYSTEM BASED ON MACHINE LEARNING**

Zongling Li, Luyuan Wang, Jiyang Yu, Bowen Cheng, Liang Hao, Shuai Jiang, Zhen Li, Jiaofang Yin, Institute of Spacecraft System Engineering, China Academy of Space Technology, China

**Board PC.5**

**MULTI-SATELLITE SHIP DETECTION USING OPTICAL, HYPERSPECTRAL, AND MICROWAVE SAR REMOTE SENSING DATA IN COASTAL REGIONS**

Jan-jin Park, Kyong-Ae Park, Joon-Chul Jeong, Ji Hyun Lee, Seoul National University, Korea (South); Sangwoo Oh, Mornjin Lee, Korea Research Institute of Ships & Ocean Engineering (KRISO), Korea (South); June-Beom Jung, Seoul National University, Korea (South)

**Board PC.6**

**ESTIMATION OF SHIP SIZE FROM SATELLITE OPTICAL IMAGE USING ELLIPTIC CHARACTERISTICS OF SHIP PERIPHERY**

Jan-jin Park, Kyong-Ae Park, Joon-Chul Jeong, June-Beom Jung, Seoul National University, Korea (South)

**Board PC.7**

**AN ON-ORBIT SHIP DETECTION AND CLASSIFICATION ALGORITHM FOR SAR SATELLITE**

Huifeng Shi, Guangjian He, Pengming Feng, Jin Wang, State Key Laboratory of Space-Ground Integrated Information Technology, Beijing Institute of Satellite Information, China

**Board PC.8**

**MULTICLASS ORIENTED SHIP LOCALIZATION AND RECOGNITION IN HIGH RESOLUTION REMOTE SENSING IMAGES**

Jiaqi Sun, Huamin Zou, Zhongpeng Deng, Xu Cao, Meilin Li, Qian Ma, National University of Defense Technology, China

**Board PC.9**

**VISUAL SALLIENCY BASED SHIP EXTRACTION USING IMPROVED BING**

Yilun Tan, Ran Liang, Zhengang Guan, Xianning University of Science and Technology, China; Aiqiang Sun, Wuhan Institute of Technology, China

**Board PC.10**

**SHIP DETECTION IN POLARIMETRIC SAR IMAGE BASED ON SIMILARITY TEST**

Xing-Chao Cui, Si-Wei Chen, Yi Su, National University of Defense Technology, China

**Board PC.11**

**SATELLITE IMAGE-BASED SHIP CLASSIFICATION BASED ON SENTINEL-1 IW MODE DATA**

Songyang Kim, Juaneating Ren, Cao Yu, Zhenhua University of Ocean Science & Technology, Korea (South)

**Board PC.12**

**A TRANSFER LEARNING METHOD OF SHIP IDENTIFICATION BASED ON WEIGHTED HOG FEATURES**

Hongbin Li, Bin Guo, Tong Guo, Hao Chen, Harbin Institute of Technology, China

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**Deep Learning for Object Detection I**

**Session Chair:** Haipeng Wang, Fudan University

**Board PD.1**

**COMBINED CONVOLUTIONAL AND STRUCTURED FEATURES FOR POWER LINE DETECTION IN UAV IMAGES**

Hong Zhang, Wei Yang, Hao Yu, Fang Xu, Haijian Zhang, Wuhan University, China

**Board PD.2**

**PIXELWISE REMOTE SENSING IMAGE CLASSIFICATION BASED ON RECURSIVE PLOT DEEP FEATURES**

Danielle Diao, Ulisses Dars, Nathalia Menas, Raúl Camanuelli, Unicamp, Brazil; Guerline Lo Maine, Univ. Montpellier, Brazil; Ricardo Torres, Unicamp, Brazil

**Board PD.3**

**ROBUST REAL-TIME OBJECT DETECTION BASED ON DEEP LEARNING FOR VERY HIGH RESOLUTION REMOTE SENSING IMAGES**

Yuming Zhou, Zexun Zhou, Chunyu Zhou, Wenyao Xiang, Qian Li, Jiali Yang, Beijing University of Posts and Telecommunications, China

**Board PD.4**

**A WEAKLY-SUPERVISED DEEP NETWORK FOR DSM-AIDED VEHICLE DETECTION**

Xin Xu, Beijing Institute of Technology, China; Danfeng Hong, German Aerospace Center (DLR) / Technical University of Munich (TUM), Germany; Xiaojuan Tian, Ralph Kiel, German Aerospace Center (DLR), Germany; Han Tao, Beijing Institute of Technology, China

**Board PD.5**

**AN IMPROVED FASTER R-CNN BASED ON MSER DECISION CRITERION FOR SAR IMAGE SHIP DETECTION IN HARBOR**

Rufei Wang, Fanqian Xu, Peng Wu, Channahon Wang, Yulong Huang, Jinyue Yang, Junjie Wu, University of Electronic Science and Technology of China, China

**Board PD.6**

**COMPARISON OF DEEP LEARNING MODEL PERFORMANCE BETWEEN META-DATASET TRAINING VERSUS DEEP NEURAL ENSEMBLES**

Alex Hurt, Grant Scott, Curt Davis, University of Missouri, United States

**Board PD.7**

**GLOBAL RECEPTIVE BASED NEURAL NETWORK ORIENTED TO TARGET RECOGNITION IN SAR IMAGES**

Gangdong Dong, Hongwei Liu, Xidian University, China

**Board PD.8**

**T-SCNN: A TWO-STAGE CONVOLUTIONAL NEURAL NETWORK FOR SPACE TARGET RECOGNITION**

Tan Wu, Xi Yang, Bin Song, Nanmiao Wang, Xiaolong Gu, Liyuan Xiang, Xiaotian Nan, Yuanwen Chen, Xidian University, China; Dong Yang, X’ian Institute of Space Radio Technology, China

**Board PD.9**

**CLASS-ORIENTED LOCAL STRUCTURE PRESERVING DICTIONARY LEARNING FOR SAR TARGET RECOGNITION**

Haoxun Ren, Xiaoyun Yu, Lin Zuo, Yan Zhou, Xingang Wang, University of Electronic Science and Technology of China, China

**Board PD.10**

**SIAMSE NETWORK BASED METRIC LEARNING FOR SAR TARGET CLASSIFICATION**

Zonglai Pan, Xianjie Bao, Yueting Zhang, Bowei Wang, Quanzhi An, Bin Lei, Institute of Electronics, Chinese Academy of Sciences, China

**Board PD.11**

**ATTENTION BASED RESIDUAL NETWORK FOR HIGH-RESOLUTION REMOTE SENSING IMAGERY SCENE CLASSIFICATION**

Runyu Fan, Luhao Wang, Ruyi Feng, Yingqian Zhu, China University of Geosciences, China
Session MOP2.PE  Poster

**Advanced Methods for Static and Moving Objects**
Session Co-Chairs: Chao Wang, Chinese Academy of Sciences; Chunlei Huo, Institute of Automation, Chinese Academy of Sciences

**MOP2.PE.1** MOVING TARGET DETECTION AND MOTION PARAMETER ESTIMATION VIA DUAL-BEAM INTERFEROMETRIC SAR  
**Board PE.1**  
Sheng-Bao Yang, Xianning Zhang, Xinbo Yang, Shunrun Wei, Qian Shi, University of Electronic Science and Technology of China, China

**MOP2.PE.2** HIGH-SPEED AIRCRAFT SINGLE CHANNEL SAR-GMTI BASED ON NEURAL NETWORK  
**Board PE.2**  
Liang Li, Xiaolong Zhang, Chao Wang, Liming Pu, Jun Shi, Shunrun Wei, University of Electronic Science and Technology of China, China

**MOP2.PE.3** IMPACT ANALYSIS OF INCIDENT ANGLE FACTOR ON HIGH-RESOLUTION SAR IMAGE SHIP CLASSIFICATION BASED ON DEEP LEARNING  
**Board PE.3**  
Yingfu Dong, Chao Wang, Nong Zhang, Yuanjun Yan, Bo Zhang, Chinese Academy of Sciences, China

**MOP2.PE.4** AIRPORT AIRCRAFT DETECTION BASED ON LOCAL CONTEXT DPM IN REMOTE SENSING IMAGES  
**Board PE.4**  
Fukan Bi, Zhihua Yang, Mingyang Li, North China University of Technology, China; Mingming Bian, Beijing Institute of Spacecraft System Engineering, China

**MOP2.PE.5** JOINT DETECTION OF AIRPLANE TARGETS BASED ON SAR IMAGES AND OPTICAL IMAGES  
**Board PE.5**  
Jia Chen, Hechun Qu, Lianjun Zhang, University of Electronic Science and Technology of China; Hua Chen, Wen Chen, Harbin Institute of Technology, China

**MOP2.PE.6** AN AIRCRAFT DETECTION METHOD BASED ON IMPROVED MASK R-CNN IN REMOTELY Sensed IMAGery  
**Board PE.6**  
Pengfei Zhao, Harbin Institute of Technology, China; Huayan Gao, Beijing Institute of Aerospace Systems Engineering, China; Yan Zhang, Yongli Li, Rui Yang, Harbin Institute of Technology, China

**MOP2.PE.7** DETECTING AND POSITIONING OF WIND TURBINE BLADE TIPS FOR UAV-BASED AUTOMATIC INSPECTION  
**Board PE.7**  
Haiwen Guo, Guangting Cai, Jinwang Wang, Fang Xu, Wei Yang, Wuhan University, China; Zhengming Li, Beijing New3S Technology Co. LTD, China

**MOP2.PE.8** ROTATION AWARENESS BASED SELF-SUPERVISED LEARNING FOR SAR TARGET RECOGNITION  
**Board PE.8**  
Shuai Zhang, Ziduo Wen, Zhiwu Li, Qiao Pan, Northwestern Polytechnical University, China

**MOP2.PE.9** ROTATION-INARIANT LATENT SEMANTIC REPRESENTATION LEARNING FOR OBJECT DETECTION IN VHR OPTICAL REMOTE SENSING IMAGES  
**Board PE.9**  
Bixiao Guo, Xiaohu Feng, Kang Cheng, Junhua Han, Lei Guo, Northwestern Polytechnical University, China

**MOP2.PE.10** ROTATION AND SCALE-INVARIANT OBJECT DETECTOR FOR HIGH-RESOLUTION OPTICAL REMOTE SENSING IMAGES  
**Board PE.10**  
He Huang, University of Chinese Academy of Sciences, China; Chunlei Huo, Institute of Automation, Chinese Academy of Sciences, China; Fekong Wei, Beijing Univiversity, China; Chunhong Pan, Institute of Automation, Chinese Academy of Sciences, China

**MOP2.PE.11** MOTION STATES CLASSIFICATION OF ROTOR TARGET BASED ON MICRO-DOPPLER FEATURES USING CNN  
**Board PE.11**  
Wanliang Wang, Ziyue Tang, Xin Xiong, Yichang Chen, Yuanpeng Zhang, Yongjian Sun, Zhenbo He, Huaiyuan Zhang, University of Chinese Academy of Sciences, China

Session Chair: Marco Chini, LST-Luxembourg
Session MOP2.PF  Poster

**Advanced Methods for Object Detection I**

**MOP2.PF.1** LOW-RANK AND COLLABORATIVE REPRESENTATION FOR HYPER SPECTRAL ANOMALY DETECTION  
**Board PF.1**  
Zhaoyue Wu, Hangjun Su, Huai University, China; Qian Du, Mississippi State University, United States

**MOP2.PF.2** INFRARED SMALL TARGET DETECTION BASED ON MORPHOLOGICAL FEATURE EXTRACTION  
**Board PF.2**  
Mingzhang Zhao, Li Li, Beijing University of Chemical Technology, China; Wei Li, Beijing Institute of Technology, China; Limin Liu, Minjiang Zhang, Chinese Academy of Sciences, China

**MOP2.PF.3** A NEW INDEX FOR SANDY LAND DETECTION BASED ON THERMAL EMISSIVITY DATA  
**Board PF.3**  
Shanshan Chen, Yuanzhong Ren, Qianzhi Tai, Yiyang Zheng, Yuanheng Sun, Jing Nie, Jinjin Guo, Rongrui Wu, Weijian Fan, Peking University, China

**MOP2.PF.4** INVESTIGATING THE EIGENVECTOR PARAMETRIC SPACE FOR LUNAR REGOLITH CLASSIFICATION USING BISTATIC MINIATURE RADAR DATA  
**Board PF.4**  
Shashwat Shukla, University of Twente, Netherlands; Shashwat Shukla, University of Twente, Netherlands

**MOP2.PF.5** SEISMIC SIGNAL CLASSIFICATION USING PERCEPTRON WITH DIFFERENT LEARNING RULES  
**Board PF.5**  
Kuo-Yuan Huang, Fajar Abdurrahman, National Chiao Tung University, Taiwan

**MOP2.PF.6** A TRAINING-FREE, ONE-SHOT DETECTION FRAMEWORK FOR GEO SPATIAL OBJECTS IN REMOTE SENSING IMAGES  
**Board PF.6**  
Tengfei Zhang, Xue Sun, Yue Zhang, Mengyang Fan, Youyang Wang, Zhiwu Wang, Xue Fu, Institute of Electronics, Chinese Academy of Sciences, China

**MOP2.PF.7** A REVISED RTM-BASED ALGORITHM TO REMOVE THIN CLOUDS WITHIN VISIBLE BAND DATA OF SENTINEL-2A  
**Board PF.7**  
Yue Guo, Kang Wang, Haitao Li, Jiang Qian, University of Chinese Academy of Sciences, China

**MOP2.PF.8** LARGE-SCALE OIL PALM TREE DETECTION FROM HIGH-RESOLUTION REMOTE SENSING IMAGES USING FASTER-RCNN  
**Board PF.8**  
Junyong Zhou, Weijian Li, University of Science and Technology of China, China; Xiaoyu Fan, Tianyou University, China

**MOP2.PF.9** THIN AND THICK CLOUD REMOVAL ON REMOTE SENSING IMAGE BY CONDITIONAL GENERATIVE ADVERSARIAL NETWORK  
**Board PF.9**  
Zhaoxiang Wang, Guangyun Xu, Yang Wang, Diyang Lin, Piyang Li, Institute of Electronics, Chinese Academy of Sciences, China; Xiuwen Lin, National Nuclear Emergency Response and Technical Assistance Center, China

**MOP2.PF.10** A REVISED ICA ALGORITHM TO REMOVE CISRUS CLOUD EFFECTS IN SPECTRAL DATA OF LANDSAT-8 BANDS 1-7  
**Board PF.10**  
Haitao Li, University of Chinese Academy of Sciences, China; Yang Wang, East Carolina University, United States

**MOP2.PF.11** A THIN-CLOUD REMOVAL APPROACH COMBINING THE CISRUS BAND AND RTM-BASED ALGORITHM FOR LANDSAT-8 OLI DATA  
**Board PF.11**  
Bingbing Zhou, Yang Wang, University of Electronic Science and Technology of China, China

**MOP2.PF.12** CLOUD DETECTION BASED ON DEEP LEARNING COMBINING MULTIFEATURE FOR REMOTE SENSING IMAGES  
**Board PF.12**  
Nan Ma, School of Physics and Electronics, Shandong Normal University, China; Sichao Liu, Qinghua Su, Zhenjun Xu, Xiang Liu, Geomatics College, Shandong University of Science and Technology, China
Analysis of Multitemporal Multispectral Images
Session Co-Chairs: Nathan Langbein, Descartes Labs; Matthieu Molinar, VIT Technical Research Centre of Finland Ltd

MOP2.PJ.1 Board PJ.1
HUMAN SETTLEMENT DYNAMICS IN HURRICANE-PRONE ZONES OF CONTINUOUS U.S.: A VIEW FROM NIGHTTIME REMOTE SENSING
Kai Huang, Guizhen Wang, University of South Carolina, United States

MOP2.PJ.2 Board PJ.2
ESTIMATION AND PREDICTION OF VEGETATION COVERAGE IN YANCHENG NATIONAL NATURE RESERVE
Yingkun Du, Wuhuan University, China; Yifan Lin, Peking University, China; Jing Wang, Xuesong Kong, Zhifeng Jin, Xiaozhao, Wuhuan University, China

MOP2.PJ.3 Board PJ.3
UNSUPervised CHANGE DETECTION IN MULTITEMPORAL MULTISPECTRAL SATELLITE IMAGES: A CONVEX RELAXATION APPROACH
Wei Cheng, Zhang, Chao-Hsiung Lin, Ku-Hsin Tseng, Chi-Yuan Huang, Tong-Hsiung Lin, Chia-Hsiung Wang, National Central University, Taiwan; Chong-Ying Chi, National Tsing Hua University, Taiwan

MOP2.PJ.4 Board PJ.4
INTERCOMPARISON OF FIVE TOP-OF-ATMOSPHERE SATELLITE ALBEDO PRODUCTS OVER LAND
Chuan Zhan, Beijing Normal University, China; Shuqin Li, University of Maryland, United States; Zhen Song, Beijing Normal University, China; Donglei Wang, University of Maryland, United States

MOP2.PJ.5 Board PJ.5
EXPLORE URBAN POPULATION DISTRIBUTION USING NIGHTTIME LIGHTS, LAND-USE/LAND-COVER AND POPULATION CENSUS DATA
Yun Li, Hasi Bagan, Shanghai Normal University, China; Wataru Takeuchi, University of Tokyo, Japan

MOP2.PJ.6 Board PJ.6
EFFECT ANALYSIS IN THE FINE CO-REGISTRATION OF VERY-HIGH-RESOLUTION SATELLITE IMAGES FOR UNSUPERVISED CHANGE DETECTION
Youkyung Han, Sejiang Jiang, Kyungpook National University, Korea (South); Sizang Liu, Tongji University, China; Junbo Yeung, Kyungpook National University, Korea (South)

MOP2.PJ.7 Board PJ.7
AN IMPROVED Fmask Algorithm in TROPICAL REGIONS FOR LANDSAT IMAGES
Mai Sun, Yatou Sun, Lei Cui, Ruo Yang Li, Beijing Normal University, China

MOP2.PJ.8 Board PJ.8
EFFECTS OF DIFFERENT METHODS OF RADIOMETRIC CALIBRATION ON THE USE OF TRAINING DATA FOR SUPERVISED CLASSIFICATION OF LANDSAT/TIM IMAGES FROM OTHER DATES
Mariane Ribe, National Institute for Space Research (INPE), Brazil; Eliane Pantaleão, Federal University of Uberlândia, Brazil; Luciana Dutra, Sílvio Estevão Arra, Maria Isabel Escada, National Institute for Space Research (INPE), Brazil

MOP2.PJ.9 Board PJ.9
Rapid Identification of Seismic Landslides Combining with Object-Oriented and Independent Component Analysis Transformation: A Case of the M6.5 Earthquake in Ludian, Yunnan
Yanmei Wang, Shifeng Tan, China University of Geosciences (Beijing), China; Chang Liu, Shandong University of Science and Technology, China

MOP2.PJ.10 Board PJ.10
AUTOMATIC 3D BUILDING CHANGE DETECTION USING UAV IMAGES
Wenchao Li, Kaifeng Sun, Chuan Xu, Wuhuan University, China

MOP2.PJ.11 Board PJ.11
FLOOD MAPPING WITH SAR AND MULTI-SPECTRAL REMOTE SENSING IMAGES BASED ON WEIGHTED EVIDENTIAL FUSION
Xi Chen, Peking University, China; Wei Shen, Shanghai Ocean University, China; Chao Li, Xuesong Kong, Zhifeng Jin, Xiaozhao, Wuhuan University, China

MOP2.PJ.12 Board PJ.12
TRANSFER LEARNING FOR CHANGES DETECTION IN OPTICAL REMOTE SENSING IMAGERY
Larabi Mohammed Amine, Souleymane Chah, Khadsjae Bakhti, Moussa Sofiane Karoui, Center des Techniques Spatiales, Algérie
Monday, July 29  15:20 - 16:20  Room 501-502: Area K
Session MOP2.PK  Poster

Analysis of Image Time Series II
Session Chair: Charles Marshak, California Institute of Technology, NASA Jet Propulsion Laboratory

MOP2.PK.1 OBJECT-ORIENTED MONITORING OF FOREST DISTURBANCES WITH ALOS/PALSAR TIME-SERIES
Charles Marshak, Marc Samart, Michael Dennehe, California Institute of Technology, NASA Jet Propulsion Laboratory, United States

MOP2.PK.2 SENSITIVITY ANALYSIS OF LAND PRODUCTIVITY CHANGE CALCULATION
Board PK.2
Frederique Montfort, Nitide, France; Agnes Begey, Josine Leveux, Centre de cooperation internationale en recherche agronomique pour le developpement (CORIAD), France; Claudio Godoy, Brazil

MOP2.PK.3 THE IMPACT OF LAND RECLAMATION ON ESTUARINE ENVIRONMENT IN LINGDING BAY, CHINA
Board PK.3
Bahao Mahmadali, Shixun Chen, Changyang Wang, Xie Zhou, Guangzhou Institute of Geography, China

MOP2.PK.4 INSHORE SHIP CHANGE DETECTION BASED ON SPATIAL-TEMPORAL SALIENCY
Board PK.4
Long Wu, Zongzhao University, China; Wen-chao Liu, Zong Han, Yue Wang, He Chen, Beijing Institute of Technology, China

MOP2.PK.5 CONSTRAINED NONNEGATIVE MATRIX FACTORIZATION FOR HYPERSONSPECTRAL CHANGE DETECTION
Board PK.5
Alp Ertürk, Kocaeli University, Turkey

MOP2.PK.6 DETECTION AND ANALYSIS OF FOREST DEGRADATION BY FIRE USING LANDSAT/OLI IMAGES IN GOOGLE EARTH ENGINE
Board PK.6
Eygido Ara, Yosio Edemir Shimabukuro, Andreia Cecquera Dutra, Valdete Duarte, National Institute for Space Research (INPE), Brazil

MOP2.PK.7 EFFECTS OF LONG-TERM FIRE EXCLUSION IN THE MODES NDVI TIME SERIES IN THE AGUIAS EMENDADAS ECOLOGICAL STATION, BRAZIL
Board PK.7
Nicikools Santan, Damar Carvalho Júnior, Roberto Gomes, Renato Guimaraes, Universidade de Brasilia, Brazil

MOP2.PK.8 A NEW PERSPECTIVE ON GLOBAL THERMAL ENVIRONMENT MONITORING
Board PK.8
Xiao-Jing Han, Botao Zhang, Tongzhao University, China; Lianzhi Huo, Zheng Zhang, Ping Tang, Aerospace Information Research Institute, China

MOP2.PK.9 AUTOMATIC CLOUD REMOVAL FROM MULTI-TEMPORAL LANDSAT COLLECTION 1 DATA USING POISSON BLENDING
Board PK.9
Changmiao Hu, Lianzhi Huo, Zheng Zhang, Ping Tang, Aerospace Information Research Institute, Chinese Academy of Science, China

MOP2.PK.10 IMPROVEMENT OF MULTI-TEMPORAL VEGETATION MODELING USING HYBRID DEEP NEURAL NETWORKS OF MULTISPECTRAL REMOTE SENSING IMAGES
Board PK.10
Khalid Baktir, Khelfia Djerrou, Mhammed El Amri Arabi, Soudaennah Cham, Moussa Saffoul Karoui, Algerian Space Agency, Center for Space Technology, Algeria

MOP2.PK.11 A WEAKLY-SUPERVISED CHANGE DETECTION TECHNIQUE FOR SAR IMAGES BASED ON DEEP LEARNING AND SYNTHETIC TRAINING DATA GENERATED BY AN ENSEMBLE OF SELF-ORGANIZING MAPS
Board PK.11
Victor-Emil Neaga, Adrian-Damiru Carter, Polytechnic University of Bucharest, Romania; Lorenzo Buzzacini, University of Trento, Italy

MOP2.PK.12 VISIBILITY DETECTION IN TIME SERIES OF PLANETSCOPE IMAGES
Board PK.12
Tristan Dagobert, Jean-Michel Morel, Université Paris-Sud, France; Carla de Franchois, Keyrus, France; Rafaelle Gronghione von Gau, Université Paris-Sud, France

MOP2.PL.1 LAND USE APPLICATIONS IN VEGETATED AREAS
Session Co-Chairs: Josee Levesque, DRDC Valcartier Research Center; Sicong Liu, College of Surveying and Geo-informatics

MOP2.PL.2 JURISDICATIONAL SCALE ESTIMATES OF TROPICAL DEFORESTATION: CAN ESTABLISHED SOURCES SUPPORT STRATEGIC ENVIRONMENTAL POLICIES?
Jau Justice, Rafael Vargas, Juan Raya, Earth Innovation Institute, United States

MOP2.PL.3 THE USE OF NEAR-REAL-TIME DATA AND HIGH-RESOLUTION SATELLITE IMAGES FOR AREA IDENTIFICATION OF ILLEGAL FOREST CLEARING
Zunaidah Said, Ricky Firmansyah, Benita Nathania, World Resources Institute Indonesia, Indonesia

MOP2.PL.4 CORN FINE CLASSIFICATION WITH GF-3 HIGH-RESOLUTION SAR DATA BASED ON DEEP LEARNING
Sai Wei, Hong Zhang, Chao Wang, Fan Wu, Bo Zhang, Chinese Academy of Science, China

MOP2.PL.5 ASSESSMENT OF LAND USE LAND COVER IN BRAZIL, SOUTH AMERICA, USING FRACTION IMAGES DERIVED FROM PROBA-V DATASETS
Yasio Edemir Shimabukuro, Egidio Ara, Valdete Duarte, Andreia Cecquera Dutra, Brazilian National Institute for Space Research, Brazil

MOP2.PL.6 MAPPING LAND USE AND LAND COVER IN THE BRAZILIAN NORTHEAST USING FRACTION IMAGES AND MULTI-SENSOR APPROACH
Andreia Cecquera Dutra, Egidio Ara, Valdete Duarte, Yosio Edemir Shimabukuro, National Institute for Space Research (INPE), Brazil

MOP2.PL.7 REMOTE SENSING INVESTIGATION OF LAND USE STATUS OF INREDDY RIVER BASIN
Shiguang Zhou, Jie Cheng, Xiangchen Meng, Beijing Institute of Technology, China

MOP2.PL.8 DYNAMIC ATTRIBUTION ANALYSIS FOR RUNOFF CHANGE INTEGRATING LANDSAT- DERIVED LAND USE DYNAMICS WITH SWAT MODEL
Shasha Luo, Qinli Yang, Hangzhao Wu, Jianing Liu, University of Electronic Science and Technology of China, China; Guangping Wang, Nanying Hydraulic Research Institute, China; Yang Wang, Yunyun Yang, University of Electronic Science and Technology of China, China

MOP2.PL.9 SIMULTANEOUS RETRIEVAL OF LAND SURFACE TEMPERATURE AND EMISSIVITY FROM AHI/HIMAWARI DATA
Shuqun Zhou, Jie Cheng, Shuyong Meng, Beijing Normal University, China
Monday, July 29 15:20 - 16:20 Room 501-502: Area M
Session MOP2.PM  Poster

Land Use Applications II
Session Co-Chairs: Christian Bignami, Istituto Nazionale di Geofisica e Vulcanologia; Peter Reinartz, German Aerospace Center (DLR), Remote Sensing Technology Institute

MOP2.PM.1 REMOTE SENSING MONITORING AND INTEGRATED ASSESSMENT FOR THE ECO-ENVIRONMENT ALONG CHINA-PAKISTAN ECONOMIC CORRIDOR
Aisang Liu, Juhai Bao, Guanqian Lei, Xi Yao, Zengqiang Zhang, Institute of Mountain Hazards and Environment, Chinese Academy of Sciences, China

MOP2.PM.2 NEXUS APPROACH FOR CALCULATING SDG INDICATOR 2.4.1 USING REMOTE SENSING AND BIOPHYSICAL MODELING
Natalia Kassul, Mykola Lysenko, Leonid Shumilin, Andrii Kalib, Space Research Institute NASUSSAU, Ukraine

MOP2.PM.3 TEMPORAL VARIATIONS OF SURFACE AND ATMOSPHERE CHARACTERISTICS IN TAKLAMAKAN DESERT FROM AMSR2 OBSERVATIONS
Leonard Mitnik, Vladimir Kuleshov, M. Attilio Manna, Elena Khazanova, V.I. Vernadsky Pacific Oceanological Institute, Far Eastern Branch, Russian Academy of Sciences, Russia

MOP2.PM.4 COMPARING ATMOSPHERIC CORRECTION PERFORMANCE FOR SENTINEL-2 AND LANDSAT-8 DATA
Brajendral Pflug, Rudolf Richter, Raquel de los Reyes, Peter Reinartz, German Aerospace Centre (DLR), Germany

MOP2.PM.5 EVALUATION OF MINE EXPLOITATION INTENSITY BASED ON TOPSIS AND BP NEURAL NETWORK: A CASE STUDY IN FUJIAN PROVINCE, CHINA
Yujie Chen, Shufang Tian, China University of Geosciences (Beijing), China

MOP2.PM.6 THE CO-SEISMIC SLIP INDUCED BY THE 2018 SULAWESI EARTHQUAKE ON PALU BAY IMAGED BY SAR AND OPTICAL DATA
Marco Polcari, Cristiano Tolomei, Christian Bignami, Stramondo Salvatore, Istituto Nazionale di Geofisica e Vulcanologia, Italy

MOP2.PM.7 AN IMPROVED FULLY CONVOLUTIONAL NETWORK FOR LEARNING RICH BUILDING FEATURES
Shuang Wang, Ligang Zhou, Pei Hu, Dau Quan, Qing Zhou, Xuefeng Liang, Biao Hou, Xidian University, China

MOP2.PM.8 RETRIEVING LAND SURFACE TEMPERATURE FROM HIGH SPATIAL RESOLUTION THERMAL INFRARED DATA OF CHINESE GAOFEN-5
Xiangchen Meng, Jie Cheng, Shugui Zhou, Beijing Normal University, China

MOP2.PM.9 SURFACE ENERGY FLUXES RETRIEVAL IN THE ARCTIC TUNDRA AND THE BOREAL FOREST USING A THERMAL REMOTE SENSING MODEL
Jordi Cristobal, Asiaq - Greenland Survey, Denmark; Anupma Prakash, Geophysical Institute, University of Alaska Fairbanks, United States; Marthe C. Anderson, William P. Kustas, University of Minnesota Twin Cities, United States; Univ Panguey, Xavier Pans, Autonomous University of Barcelona, Spain

Monday, July 29 15:20 - 16:20 Room 501-502: Area N
Session MOP2.PN  Poster

Land Cover Dynamics for Vegetated Terrains
Session Chair: Chengguan Huang, University of Maryland

MOP2.PN.1 EVALUATION OF FOREST DISTURBANCE AND ITS PATCH SIZE
Board PN.1
Danyang Song, Center China Normal University, China; Tao He, Wuhan University, China; Min Fang, University of Maryland, College Park, United States

MOP2.PN.2 EVOLUTION OF THE VEGETATION COVER IN A COMPLEX MOUNTAIN ECOSYSTEM THROUGH THE PROCESSING OF MULTIPLATFORM REMOTE SENSING DATA
Francisco Eugenio, Javier Marznell, Universidad de Las Palmas de Gran Canaria, Spain; Ferran Marques, Universitat Politècnica de CatalunyaBarcelonaTech, Spain

MOP2.PN.3 VERY HIGH RESOLUTION IMAGERY FOR PROJECTING LAND COVER AND LAND USE TRAJECTORIES IN DEFORESTED AREAS AS DETECTED BY A NEAR-REAL TIME DEFORESTATION SYSTEM
Alessandro Gua-Castro, King’s College London, United Kingdom; Paolo Paz, Jian Tello, Louis Raymond, International Center for Tropical Agriculture, Colombia; Mark Mulligan, King’s College London, United Kingdom

MOP2.PN.4 LONG-TERM SPATIOTEMPORAL CHANGES OF SURFACE ALBEDO IN NORTHEAST CHINA: EVALUATION WITH GLASS PHASE-2 SURFACE ALBEDO DATASETS
Xu Xi, Mengqi Wang, Yan Song, Ying Qiu, Northeast Normal University, China

MOP2.PN.5 ANALYSIS OF VEGETATION VARIATION AROUND ZIJINSHAN GOLD AND COPPER MINE, FUJIAN, CHINA
Board PN.5
Mingjiao Liu, Xiaojin Wang, Aifang Xiao, Fuzhou University, China

MOP2.PN.6 SPATIOTEMPORAL PATTERN SIMULATION OF FRACTIONAL VEGETATION COVERAGE IN THE SOUTH QILIAN MOUNTAINS BASED ON BP NEURAL NETWORK
Xinmeng Wang, Baohua He, Minrong Xing, Xianghua Liu, Shuau Gao, University of Electronic Science and Technology of China, China

MOP2.PN.7 LAND SURFACE ECOSYSTEM CHANGE DUE TO NATURAL AND ANTHROPOLOGY EFFECTS-THE ORDOS CASE, INNER MONGOLIA
Board PN.7
Lingyong Wang, Lin Zhu, Jie Yu, Capital Normal University, China; Wei Wang, Tianjin Center of Land Resources and Environment, Chinese Academy of Sciences, China; Junsheng Li, Chinese Academy of Sciences, China

MOP2.PN.8 NDVI VERSUS CNN FEATURES IN DEEP LEARNING FOR LAND COVER CLASSIFICATION OF AERIAL IMAGES
Board PN.8
Anushree Ramanath, Saipreethi Muthusrinivasan, Yiqun Xie, Shashi Shekhar, University of Maryland, College Park, United States; Bharathkumar Ramachandra, North Carolina State University, United States

MOP2.PN.9 NDVI BASED SPATIAL TRENDS ANALYSIS TO EVALUATE GROWING CONDITIONS IN IRRIGATED AREAS OF INDUS BASIN
Board PN.9
Ali Imran, Zhou Diping, Hong Kong Baptist University, China

MOP2.PN.10 VEGETATION AND WATER VARIATION OF EJIN BANNER OASIS: NEW INSIGHTS INTO THE EXPANSION OF THE BADAIN JARAN DESERT
Board PN.10
Jiaxin Du, Institute of Remote Sensing and Digital Earth, Chinese Academy of Science / University of Chinese Academy of Sciences, China; Bihong Fu, Guang Qiu, Pihong Shi, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China

MOP2.PN.11 DETECTION OF VEGETATION AREAS ATTACKED BY PESTS AND DISEASES BASED ON ADAPTIVELY WEIGHTED ENHANCED GLOBAL AND LOCAL DEEP FEATURES
Yuhui Dai, Li Shen, Yungang Cao, Southwest Jiaotong University, China; Tianjie Lei, Southwest Jiaotong University, China

MOP2.PN.12 ANALYSIS OF VEGETATION DYNAMICS IN BAICHENG DISTRICT, CHINA FROM SPOT-VEGETATION NDVI TIME SERIES
Board PN.12
Fang Huang, Ping Wang, Weili Wu, Northeast Normal University, China
Monday, July 29
15:20 - 16:20 Room 501-502: Area O
Session MOP2.PO
Poster

Land Cover Dynamics in Urban and Hydrologic Systems
Session Chair: Patrick Helber, German Research Center for Artificial Intelligence (DFKI)

MOP2.PO.1 PREDICTION MODEL OF LAND USE AND LAND COVER CHANGES IN BEIJING BASED ON ANN AND MARKOW_CA MODEL
Qian Zhan, Jiaqiao Tian, Shifang Tian, China University of Geosciences (Beijing), China

MOP2.PO.2 LAND COVER SPURIOUS CHANGE DETECTION USING A GEO-ECO ZONING RULE BASE
Ling Zhu, Yuanan Su, Roaming Shi, Beijing University of Civil Engineering and Architecture, China; Shu Peng, National Geomatics Center of China, China

MOP2.PO.3 FRAGMENT POLYGON REMOVAL IN INCREMENTAL LAND COVER MAP UPDATING
Ling Zhu, Xianyue Wei, Roaming Shi, Beijing University of Civil Engineering and Architecture, China

MOP2.PO.4 TEMPORAL AND SPATIAL FEATURES OF URBAN AND CONSTRUCTION LAND IN CHENGDU CITY, CHINA
Wu Can, Liu Huang, Yunfeng Hu, Daoyong Xu, Hongyan Ren, Jiaxing Yang, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, China; Lulu Liu, School of Architecture and Civil Engineering, Chengdu University, China

MOP2.PO.5 SPATIO-TEMPORAL CHARACTERISTICS OF LAND COVER CHANGES OF LIANGJIANG NEW DISTRICT IN CHINA DURING 2010-2018
Xiujuan Wang, Changping Geomatics Center, China; Chaoqun Wang, Changping Foundation Engineering Co., Ltd., China; Yan Hu, Ying Ding, Jing Chen, Bie Zhang, Changping Geomatics Center, China

MOP2.PO.6 ANALYSIS AND EXPLORE FUTURE LAND USE/COVER CHANGE BASED ON SS AND CELLULAR AUTOMATA IN TIANJIN(CHINA)
Ruiwei Wang, Tianjin Normal University, China; Yantao Yang, Nihui University, China; Xingwei Chen, Yilian Liu, Tianjin Normal University, China

MOP2.PO.7 LAND USE AND LAND COVER CHANGE OF QINGHAI LAKE AND ITS SURROUNDINGS
Majie Li, Kui Kong, Jianli Liu, Yiquan He, Zacheng Zheng, University of Electronic Science and Technology of China, China; Mingzhu Zhou, Department of Natural Resources of Sichuan Province, China; Yang He, Sichuan Research Institute for Eco-system Restoration & Disaster Prevention, China; Yue He, Anke Hu, Nauvin Chen, University of Electronic Science and Technology of China, China; Guoping Zhu, Guijin University of Technology, China; Jiang Li, Old Dominion University, United States

MOP2.PO.8 INVESTIGATING WATER SUSTAINABILITY AND LAND USE/LAND COVER CHANGE (LULC) AS THE IMPACT OF TOURISM ACTIVITY IN BALI, INDONESIA
Andri Beose Rimba, Sanj Kumar Choppavvi, Yoshifumi Masago, United Nations University, Japan; Kunsuke Fukuda, University of Tokyo, Japan; Geetha Mohan, United Nations University, Japan

MOP2.PO.9 REMOTE SENSING ANALYSIS ON ECOSYSTEM EVOLUTION OF THE IRRAWADDY RIVER DELTA
Wu Qu, Zhiguang Pang, Jingxuan Li, Jiaqi Fu, Xiaobao Li, Tianjie Liu, Lin Li, Xuan Tan, China Institute of Water Resources and Hydropower Research (IWHR), China

Monday, July 29
15:20 - 16:20 Room 503: Area Q
Session MOP2.PQ
Poster

Identification of Remote Sensing Indicators for Climate Change I
Session Co-Chairs: Giuseppe Parella, German Aerospace Center (DLR); Ryoichi Sato, Niigata University

MOP2.PQ.1 ESTIMATION OF FOREST COVER RESILIENCE IN INDIA USING MC2 DVM
Peekesha Das, Nanyang University, and IIT Kharagpur, India; Mukuna Dev Behere, IIT Kharagpur, India; PS Rey, JAXA/ISS, India

MOP2.PQ.2 RETRIEVAL OF FRACTION OF ABSORBED PHOTOSYNTHETICALLY ACTIVE RADIATION (FPAR) BASED ON FENGYUN-3C /MERIS DATA
Xinyi Li, Wenbo Xu, University of Electronic Science and Technology of China, China; Yue Hu, Second Research Institute of Civil Aviation Administration of China, China; Xiuwen Zhang, China University of Electronic Science and Technology of China, China; Jiuding Fan, National Satellite Meteorological Center, China Meteorological Administration, China

MOP2.PQ.3 SATELLITE-ESTIMATED WINTER MEAN MINIMUM TEMPERATURE (TH) ANALYSIS OVER 2000-2013 FOR THE TIBET AUTONOMOUS REGION OF CHINA
Tianyan Wang, Zhiqian Zheng, Guici Li, National Satellite Meteorological Center, China Meteorological Administration, China

MOP2.PQ.4 IMPACTS OF CLIMATE VARIABILITY ON HANNA LAKE IN QUITTA, PAKISTAN
Salman Sarwar, Tufail Noor, Mehran University of Engineering and Technology, Pakistan; Muntaz AR, USPCS-W (AUSA) Jamshoro, Sindh, Pakistan; Azamuddin Zaib, Mehran University of Engineering and Technology, Pakistan

MOP2.PQ.5 SURFACE ALBEDO INVERSION OF FY-3C MERISI DATA
Chunchang Zhu, Wenbo Xu, Xuefei Zhang, Xinyi Li, University of Electronic Science and Technology of China, China; Jindong Fan, National Satellite Meteorological Center, China Meteorological Administration, China; Yantong Wu, University of Electronic Science and Technology of China, China

MOP2.PQ.6 MODELING CORAL REEF SUSCEPTIBILITY USING GIS MULTI-CRITERIA ANALYSIS
Khusharah Aslam, Rao Zahid Khalil, Saad Malk, Sumaira Zafar, Institute of Space Technology, Pakistan

MOP2.PQ.7 SPATIOTEMPORAL VARIATION OF VEGETATION COVERAGE AND ITS RESPONSE TO CLIMATE CHANGE BEFORE AND AFTER IMPLEMENTATION OF GRAIN FOR GREEN PROJECT IN THE LOESS PLATEAU
Pulakesh Das, Vidyasagar University; and IIT Kharagpur, India; Mukunda Dev Behere, IIT Kharagpur, India; PS Rey, JAXA/ISS, India

MOP2.PQ.8 CLIMATE DATA RECORDS FOR ATMOSPHERIC MOTION VECTORS FOR C5S
Roger Huckle, Marie Butkovic-Bucher, Alessia Lattanzio, Olivier Sax, Olivier Hautecoeur, Jörg Schade, EU4MET, Germany

MOP2.PQ.9 A GEOPHYSICAL MODEL FUNCTION FOR WIND SPEED RETRIEVAL FROM C-BAND HH-POLARIZED SYNTHETIC APERTURE RADAR
Zhuo Li, Bao Zhang, Nanjing University of Information Science and Technology, China

MOP2.PQ.10 EXAMINATION OF TYPHOON SURFACE WIND ASYMMETRY IN NORTHWEST PACIFIC OCEAN USING SMAP OBSERVATIONS
Ziya Sun, Bao Zhang, Nanjing University of Information Science and Technology, China

MOP2.PQ.11 ANALYSIS ON CHANGE TREND OF PERCIPITATION USE EFFICIENCY FOR NATURAL VEGETATION IN LONG TIME SERIES IN CHINA
Lei Hu, Chongdu University of Information Technology, China; Yuan Li, University of Electronic Science and Technology of China, China; Huaying Wu, National Climate Center, China
SAR Instruments and Calibration I
Session Chair: Takeshi Motohka, Japan Aerospace Exploration Agency

MOP2.PR.1 APPLICABILITY ANALYSIS FOR ESTIMATING AND VALIDATING POLARIMETRIC DISTORTION PARAMETERS USING CORNER REFLECTORS FOR THE N-SAR SYSTEM
Fan Wang, Aihong Liu, Hai Xu, Nanjing Research Institute of Electronics Technology, China

MOP2.PR.2 ANALYSIS OF QUADRATIC PHASE ERROR INTRODUCED BY ORBIT DETERMINATION IN SPACEBORNE TRINODAL PENDULUM SAR GENERATION REAL-TIME IMAGING WITH MONTE CARLO SIMULATION
Xiaoyu Yu, Jin Chen, Beihang University, China; Helei Nie, University of Siegen, Germany; Hongcheng Zhang, Beihang University, China; Omar Luftfeld, University of Siegen, Germany

MOP2.PR.3 EXPERIMENTAL DEMONSTRATION OF THE ABMP MODE USING THE N-SAR DATA
Fan Wang, Aihong Liu, Hai Xu, Nanjing Research Institute of Electronics Technology, China; Jinwei Xu, Xidian University, China; Chuanhai Fan, Nanjing Research Institute of Electronics Technology, China

MOP2.PR.4 AN ELECTROMAGNETIC SCATTERING SIMULATION BASED SEMI-PHYSICAL SYSTEM FOR SAR JAMMING
Jiaxuan Xu, Haipeng Wang, Fudan University, China; Chunzhuo Fan, Beijing Institute of Remote Sensing Information, China; Feng Yu, Fudan University, China

MOP2.PR.5 SAR IMAGE RECTIFICATION BASED ON VECTOR MAP
Feng Wang, Yongming Xiang, Hongxing You, Institute of Electronics, Chinese Academy of Sciences, China

MOP2.PR.6 CALIBRATION OF NEW ALONG-TRACK INTERFEROMETRIC SAR INSTRUMENT IN PI-SAR X2 SYSTEM
Shaoxin Kuang, National Institute of Information and Communications Technology (NICT), Japan

MOP2.PR.7 AUTOMATIC SUB-IMAGES EXTRACTION FROM ENTIRE URBAN SAR SCENES BASED ON THE CLUSTERING-BASED ALGORITHM AND GRAPH TRAVERSAL METHODS
Jin Li, Ran Cheng, Yesheng Gao, Xue Jiang, Bin Yuan, Yi Zhang, Xianghui Liu, Shanghai Jiao Tong University, China

MOP2.PR.8 DEVELOPMENT AND COMPARISON OF DDS AND MULTI-DDS CHIRP WAVEFORM GENERATOR
Kyung-Rok Kim, Sang Kim, Chong-Ho Ki, To-Hwan Kim, Ajou University, Korea (South); Haeun Yang, Lumii Inc, Korea (South); Jin-Hyun Kim, Ajou University, Korea (South)

MOP2.PR.9 A SPACEBORNE SAR CALIBRATION SIMULATOR BASED ON GAOFEN-3 DATA
Rui Zhang, Beihang University, China; Jianjun Huang, Beijing Institute of Remote Sensing Information, China; Wen Yang, Jin Chen, Yanwei Wang, Beihang University, China

MOP2.PR.10 ADVANTAGES AND LIMITATIONS OF FORWARD SQUINT SAR IN SINGLE PASS INTERFEROMETRIC MAPPING OF TOPOGRAPHY
Alexander Zdanovich, Katalin Kovacs, Institute of Radiophysics and Electronics, RAS, Russia; Pavel Denisov, Ministry of Agriculture of Russian Federation, Russia

MOP2.PR.11 PARAMETER DESIGN OF MULTI-MODE SMALL SATELLITE SAR SYSTEM
Wenqing Li, Peng Zhou, College of Information and Control Engineering, China University of Petroleum, China; Ting Wang, Beijing Research Institute of Telemetry, China; Xi Zhang, First Institute of Oceanography, Ministry of Natural Resources of China, China; Yong Wang, Xiaoqiu Qi, College of Information and Control Engineering, China University of Petroleum, China

MOP2.PR.12 PTE SAMPLING STRATEGIES FOR SWARMSAR SYSTEMS
Lunruo Luan, Alejandro Manzini, Tata Labs-Reliance, Peter Hogeboom, Yuanhao Li, Parak Sanal, Alexander Verway, Delft University of Technology, Netherlands
Tuesday, July 30 09:40 - 10:40 Room 503: Sprint Area
Session TUP1.SPR SPRINT Presentation

TUP1 SPRINT Session

TUP1.SPR.1 INSAR REMOTE SENSING OF ATMOSPHERE: BRIDGING HIGH RESOLUTION DATA AND NWP MODELS
09:50
Giovanni Nico, Consiglio Nazionale delle Ricerche (CNR), Italy; Pedro Mateus, João Catalão, Instituto Dei Luiz (IDL), Universidade de Lisboa, Portugal

TUP1.SPR.2 HIGH RESOLUTION CHANGE DETECTION USING PLANET MOSAIC
09:55
Alan Woodley, Connor McLaughlin, Holly Norton, Sklano Gova, Timothy Chappell, Wayne Kelly, Dimitri Penin, Wayne Bales, Lance De Vries, Queensland University of Technology, Australia

Tuesday, July 30 15:20 - 16:20 Room 503: Sprint Area
Session TUP2.SPR SPRINT Presentation

TUP2 SPRINT Session

TUP2.SPR.1 EMPIRICAL CORRECTION OF TIDES AND INVERSE BAROMETER EFFECT PHASE COMPONENTS FROM DOUBLE DINSAR AND REGIONAL MODELS
15:30
Quentin Glaude, Université Libre de Bruxelles, Belgium; Sophie Berger, Alfred Wegener Institute for Polar and Marine Research, Belgium; Charles Amory, Université Libre de Bruxelles, Belgium; Frank Pattyn, Université Libre de Bruxelles, Belgium; Christian Barbier, Anne Orban, Université Libre de Bruxelles, Belgium

TUP2.SPR.2 A STATISTICAL APPROACH TO IMPROVE VIRTUAL DIMENSIONALITY OF HYPSERSPECTRAL DATA
15:35
Vijayashekhar S S, Jignesh S. Bhatt, Indian Institute of Information Technology Vadodara, India; Bhargab Chattopadhyay, Indian Institute of Management Vishakapatnam, India

TUP2.SPR.3 ADVANCEMENT IN BEDFAST LAKE ICE MAPPING FROM SENTINEL-1 SAR DATA
15:40
Claude Duguay, University of Waterloo, Canada; Junqian Wang, H2O Geomatics Inc., Canada
Atmospheric Sounding I
Session Chair: Haris Haralambous, Frederick University, Frederick Research Center

**TUP2.PA.1**
REMOTE SENSING OF WAVE SIGNATURES IN THE IONOSPHERE OVER EASTERN MEDITERRANEAN
Krohnendu Paul, Institute of Radio Physics and Electronics, University of Calcutta, India; Haris Haralambous, Frederick University, Frederick Research Center, Cyprus; Christina Oikonomou, Frederick Research Center, Cyprus; Ashik Paul, Institute of Radio Physics and Electronics, University of Calcutta, India

**TUP2.PA.2**
A NEW TYPE OF SENSOR FOR ENVIRONMENTAL MONITORING OF FOG AND HAZE
Jengh Wang, Institute of Urban Meteorology, China Meteorological Administration, China

**TUP2.PA.3**
THE ON-ORBIT PERFORMANCE OF FY-3D GNOS
Guo Du, Yaying Sun, Weibo Bi, Xuanyi Wang, Danguo Wang, Xiangguang Meng, Yuwen Guo, Jiansong Xu, Chunyan Wu, Congliang Liu, Wei Li, Cheng Liu, Fu Li, Hao Qiao, National Space Science Center, Chinese Academy of Sciences, China

**TUP2.PA.4**
EXTINCTION ÅNGSTRÖM EXPONENTS OF COATED SOOT PARTICLES: A NUMERICAL INVESTIGATION BASED ON CLOSED-CELL MODEL
Jie Liu, Yongping Zhang, Qixing Zhang, University of Science and Technology of China, China

**TUP2.PA.5**
CONSTRAINING ANTHROPOGENIC EMISSION SOURCES FROM TROPOMI: A CASE STUDY IN NORTHERN CHINA
Haotian Zong, Beijing 101 High School, China; Zhao-Cheng Zeng, California Institute of Technology, United States; Xinhuiyu Liu, Lanzhou University, China

**TUP2.PA.6**
COMPARING THE THERMAL STRUCTURES OF TROPICAL CYCLONES DERIVED FROM ATMS AND MWHS
Fuzhong Weng, Key State Laboratory of Severe Weather, China; Hao Hu, Yang Han, Nanjing University of Information Science and Technology, China

**TUP2.PA.7**
DETERMINATION OF TOTAL PRECIPITABLE WATER FROM GNSS DATA IN THAILAND
Weeranat Phasamak, King Mongkut’s Institute of Technology Ladkrabang, Thailand; Seobhan Saisavan, NASA/NESDIS/Center for Satellite Applications and Research, United States; Yuttapong Bangsri, King Mongkut’s Institute of Technology Ladkrabang, Thailand

**TUP2.PA.8**
EQUILIBRIUM ON-LINE WAVELENGTH SELECTION OF DIFFERENTIAL ABSORPTION LIDAR FOR DETECTING ATMOSPHERIC CARBON DIOXIDE
Ailin Liang, Nanjing University of Information Science and Technology, China

**TUP2.PA.9**
RESULTS FROM SUBMILLIMETER WAVE PROPAGATION EXPERIMENTS AT 325.153 GHZ WATER VAPOR ABSORPTION LINE USING THE THZ ATMOSPHERIC AND IONOSPHERIC PROPAGATION AND SCATTERING (TAIPAS) SYSTEM
Omkar Pradhan, University of Colorado, United States; Lawrence Scally, Colorado Engineering Inc., United States; Allan Gasiewski, University of Colorado, United States
Tuesday, July 30 09:40 - 10:40 Room 501-502: Area B Poster
Session TUP1.PB
SAR Interferometry: Along and Across II
Session Chair: Jakov Toporkov, US Naval Research Laboratory

TUP1.PB.1 SYSTEM ERROR ANALYSIS OF AN AIRBORNE ALONG-TRACK INTERFEROMETRIC FM-CW SAR FOR SURFACE VELOCITY ESTIMATE
Hoang-Ngan Dang, Gordon Parakhshian; University of Washington, Seattle, United States; Mikhail Balabas, O.Ts. Ulukov Institute for Radiophysics and Electronics of NASU, Ukraine; John Sahy, Andrew Jessop, University of Washington, Seattle, United States

TUP1.PB.2 AN ENHANCED REFINED FILTER FOR SAR INTERFEROMETRIC NOISE
Tingting Li, Institute of Remote Sensing and Digital Earth, Chinese Academy of Science / University of Chinese Academy of Sciences, China; Xin-Shan Chen, Institute of Remote Sensing and Digital Earth / Jiadong University, China; Gangyue Du, Xijiang University, China

TUP1.PB.3 INTERFEROMETRIC PHASE STACK DENOISING VIA NONLOCAL HIGHER ORDER ROBUST PCA METHOD
Rui Wang, Xianyu You, Weili Zhou, Beijing University of Posts and Telecommunications, China

TUP1.PB.4 ON THE USE OF ARTIFICIAL FREQUENCY-STABLE REFLECTORS IN SPLIT-BAND INTERFEROMETRY
Ludwine Libert, Dominique Demoue, Quentin Glaude, Anne Orban, Christian Barbier, Université de Liège, Belgium

TUP1.PB.5 ACCURATE INTERFEROMETRIC PARAMETER ESTIMATION OF AIRBORNE MULTIBASELINE INSAR DATA WITHOUT CORNER REFLECTORS
Xiaotong Dong, Bingnan Wang, Liangjiang Zhou, Aerospace Information Research Institute, Chinese Academy of Sciences, China

TUP1.PB.6 AN OPTIMIZATION OF WEIGHTED MULTI-BASELINE LS UNWRAPPING ALGORITHM BASED ON QUALITY MAP
Ximiao Fan, Xiaoling Zhang, Zhiliu, Huan Dong, University of Electronic Science and Technology of China, China

TUP1.PB.7 A NEW INTERFEROMETRIC PHASE UNWRAPPING METHOD BASED ON ENERGY MINIMIZATION FROM CONTEXTUAL MODELING
Ayoub Tili, Computer Research Institute of Montreal (CRM), Canada; Francois Gouyon, Université de Montréal, Canada; Samuel Feucher, Computer Research Institute of Montreal (CRM), Canada

TUP1.PB.8 MOON-BASED SAR FOR EARTH OBSERVATION AND ITS SPATIAL BASELINE DECORRELATION IN REPEAT-PASS INTERFEROMETRY
Houjun Jiang, Nanjing University of Posts and Telecommunications, China; Jinfeng Dong, Liming Jiang, Dewei Li, Institute of Geodesy and Geophysics, Chinese Academy of Sciences, China

TUP1.PB.9 JOINT MULTI-CHANNEL SPARSE METHOD OF ROBUST PCA FOR SAR GROUND MOVING TARGET IMAGE INDICATION
Gang Lu, Southwest University, China; Xiangyang Wang, Huaqiao University, China; Yan Huang, Lanzhou Cui, Zhihao Jiang, Southwest University, China

TUP1.PB.10 PSINSAR BASED LAND DEFORMATION BASED DISASTER MONITORING USING SENTINEL-1 DATASETS
Shubham Awasthi, Kamal Jain, Akshay Pandey, Indian Institute of Technology Roorkee, India

TUP1.PB.11 THE LOCATION MODEL OF PLATFORM IN INSAR/INS INTEGRATED NAVIGATION SYSTEM
Bingnan Wang, Xianyang Wang, Liangjiang Zhou, Institute of Electronics, Chinese Academy of Sciences, China; Shan Jiang, Institute of Spacecraft System Engineering, China Academy of Space Technology, China; Jianfeng Xing, Beijing University of Chemical Technology, China

TUP1.PB.12 THE USE OF INSAR TECHNOLOGY TO CHARACTERIZE LAND SURFACE DEFORMATION IN THE CANTO DO AMARO OILFIELD, NORTHEASTERN BRAZIL
Enrica Piedone, National Agency of Petroleum, Natural Gas and Biodev, Brazil; Adrian Bahane, Eur Altinman, Canada; Wilton José de Oliveira, Cristina Maria Bento, Petróleo Brasileiro SA, Brazil

Tuesday, July 30 15:20 - 16:20 Room 501-502: Area B Poster
Session TUP2.PB
Atmospheric Sounding II
Session Chair: Ian Adams, NASA Goddard Space Flight Center

TUP2.PB.1 SPATIOTEMPORAL PATTERN OF AQI IN SHANDONG, CHINA USING THE EMPIRICAL ORTHOGONAL FUNCTION ANALYSIS
Huishan Wu, China University of Petroleum, China; Mengqi He, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, China; Li Fei, Yuan Han, China University of Petroleum, China

TUP2.PB.2 SMILES-2 BAND SELECTION STUDY FOR CHEMICAL SPECIES USING SENTINEL-2A/2B DATA
Phillippe Baron, Satoshi Ohtani, National Institute of Information and Communication Technology, Japan; Masahiro Nishagawa, Makoto Suzuki, Japan Aerospace Exploration Agency (JAXA), Japan

TUP2.PB.3 SOUNDING THE ORIGIN OF L-BAND SAR STRIPES IN THE EQUATORIAL IONOSPHERE: COORDINATED OBSERVATION OF ALOS-2 AND AIR GLOW IMAGER
Hiroatsu Sato, Jun Su Kim, German Aerospace Center (DLR), Germany; Cristiano Max Wasse, Jonas Rodrigues de Souza, National Institute for Space Research (INPE), Brazil

TUP2.PB.4 MEASURING VECTOR VELOCITY OF MIDDLE ATMOSPHERE BY MU RADAR
Junfeng Xiao, Zhongou Chen, Wuhan University, China; Hirohiko Hashiguchi, Kyoto University, Japan

TUP2.PB.5 MEASUREMENT AND VALIDATION OF IONOSPHERIC TEC BASED ON CHINESE AREA POSITIONING SYSTEM
Liang Li, Aihong, Fong Ming, Liangjiang Zhou, Institute of Electronics, Chinese Academy of Sciences, China

TUP2.PB.6 A STATISTICAL ANALYSIS OF SPREAD F OCCURRENCE DURING MINIMUM AND MAXIMUM SOLAR ACTIVITIES IN LOW LATITUDE REGION
Dessi Morla, Faiin Wu, Edführ, Beihang University, China; Aouali Huisin, National Institute of Aeronautics and Space (LAPAN), Indonesia; Guangyi Yang, Beihang University, China

TUP2.PB.7 ANALYSIS OF IONOSPHERIC IRREGULARITIES IN LOW LATITUDE DURING GEOMAGNETIC STORM USING GSTIM NETWORK
Dessi Morla, Faiin Wu, Beihang University, China; Si Ekawati, Aouali Huisin, Sofia Anggareni, National Institute of Aeronautics and Space (LAPAN), Indonesia; Edführ Edführ, Guangyi Yang, Beihang University, China
TUESDAY POSTER

Tuesday, July 30 09:40 - 10:40 Room 501-502: Area D

Session TUP1.PD

Estimation and Retrieval of Land Parameters II
Session Chair: Claudia Notarnicola, EURAC

TUP1.PD.1
Board PD.1
POLARIMETRIC ALOS/PALSAR-2 DATA FOR RETRIEVING
ABOVEGROUND BIOMASS OF SECONDARY FOREST IN THE BRAZILIAN AMAZON
Henrique Lara Godinho Cascal, Luiz E. de O. C. Amorim, Elizabete Carola Moreira, INPE, Brazil;
Joao Manuel de Brito Carneiro, University of Sheffield, United Kingdom; Yosu Edemine Shimakura, INPE, Brazil

TUP1.PD.2
Board PD.2
USING RIDGE REGRESSION METHOD TO REDUCE ESTIMATION
UNCERTAINTY IN CHLOROPHYLL MODELS BASED ON WORLDVIEW MULTISPECTRAL DATA.
Chun-Yu Lin, University of Maryland, Baltimore County, United States; Chinsu Lin, National Chiao Tung University, Taiwan

TUP1.PD.3
Board PD.3
THE CONTRIBUTION OF THE NON-LOCAL MEANS TO THE ITERATIVE
REPRESENTATIVENESS EVALUATION OF THE GROUND MEASUREMENTS FROM UAV-BASED POINT CLOUD DATA.
nSoumaya Fatnassi, Université of Gabès, Tunisia; Mohamed Yahia, Université Tunis El Manar, Tunisia; Riadh Abdelfattah, University of Carthage, MFT-Atlantique, Tunisia

TUP1.PD.4
Board PD.4
EVALUATION OF THE MUSTY LAND SURFACE TEMPERATURE PRODUCT IN AN ARID AREA OF NORTHWESTERN CHINA
Hua Li, Ruibo Li, Zunjian Bian, Biao Cao, Yongming Du, Qinhuo Liu, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China

TUP1.PD.5
Board PD.5
HYPER SPECTRAL PLANT DISEASE FORECASTING USING GENERATIVE
ADVERSARIAL NETWORKS
Alina Farster, Jens Behley, Jan Bohm, Ibrahim Reicher, University of Bonn, Germany

TUP1.PD.6
Board PD.6
VIRS LST PRODUCT VALIDATION BASED ON SPATIAL
REPRESENTATIVENESS EVALUATION OF THE GROUND MEASUREMENTS
Jin Ma, Zheng, Xiaoqiang Zhang, Mengpeng Li, Kainan Liu, Qihuang Huang, University of Electronic Science and Technology of China, China

TUP1.PD.7
Board PD.7
AN EFFECTIVE LEAF AREA INDEX ESTIMATION METHOD FOR WHEAT
FROM UAV-BASED POINT CLOUD DATA
Yang Song, Jinfeng Wang, University of Western Ontario, Canada; Bo Shan, A&L Canada Laboratories Inc, Canada

TUP1.PD.8
Board PD.8
APPLICATION OF FUZZY CLASSIFICATION THEORY IN THE INVERSION
MODEL OF MASSON PINE DISEASE INDEX
Shuang Wang, University of Electronic Science and Technology of China, China; Xia Chen, Tokyo Institute of Technology, Japan; Ying Zhang, University of Electronic Science and Technology of China, China

TUP1.PD.9
Board PD.9
REPEATED OBSERVATIONS WITH SHORT TIME INTERVALS FOR
MEASURING TEMPERATURE DISTRIBUTION OF A VOLCANIC CRATER
USING AN AIRBORNE IMAGING SPECTROMETER
Tetsuya Ikuta, National Research Institute for Earth Science and Disaster Resilience, Japan

Tuesday, July 30 15:20 - 16:20 Room 501-502: Area D

Session TUP2.PD

Differential SAR Interferometry: Methods and Techniques III
Session Co-Chairs: Michael Einder, German Aerospace Center (DLR); Howard Zebker, Stanford University

TUP2.PD.1
Board PD.1
MONITORING SPATIOTEMPORAL DEFORMATION OF TATUN VOLCANO
GROUP BY MULTI-TEMPORAL INSAR
Huangyu Liang, Hong Kong Polytechnic University, China; Lei Zhang, University of Hong Kong, China; Xin Li, Chinese Academy of Sciences, China; Xue Song, Hong Kong Polytechnic University, China; Rui Chen, Chinese Academy of Sciences, China; Bo Chen, Hong Kong Polytechnic University, China; Yungui Liu, Hong Kong Polytechnic University, China

TUP2.PD.2
Board PD.2
POTENTIAL USE OF POLARIMETRIC INFORMATION FOR TERRAIN
MORPHOMETRIC CHANGE DETECTION INCLUDING ATMOSPHERIC
PHASE SCREEN COMPENSATION EFFECT IN GROUND-BASED DINSAR
APPLICATION
Tetsu Izumi, Tohoku University, Japan; Lileng Zhu, National Institute of Advanced Industrial Science and Technology (AIST), Japan; Kazutaka Kikuta, Matsuyuki Sato, Tohoku University, Japan

TUP2.PD.3
Board PD.3
ANOMALOUS ATMOSPHERIC PHASE SCREEN COMPENSATION IN
GROUND-BASED SAR OVER MOUNTAINOUS AREA
Tetsu Izumi, Tohoku University, Japan; Lileng Zhu, National Institute of Advanced Industrial Science and Technology (AIST), Japan; Kazutaka Kikuta, Matsuyuki Sato, Tohoku University, Japan

TUP2.PD.4
Board PD.4
EMPirical CORRECTION OF TIDES AND INVERSE BAROMETER EFFECT
PHASE COMPONENTS FROM DOUBLE DINSAR AND REGIONAL MODELS
Quentin Glaude, Université Libre de Bruxelles, Belgium; Sophie Berger, Alfred Wegener Institute for Polar and Marine Research, Belgium; Charles Amary, Université de Liège, Belgium; Frank Patthey, Université Libre de Bruxelles, Belgium; Christian Barthe, Anne Urban, Université de Liège, Belgium

TUP2.PD.5
Board PD.5
LANDSLIDE DETECTION AND MONITORING FOR MOUNTAINOUS AREAS OF SOUTHWEST CHINA USING TIME SERIES INSAR
Wei Duan, Chao Wang, Hong Zhang, Yuxian Tang, Jing Wang, Chinese Academy of Sciences, China

TUP2.PD.6
Board PD.6
INSAR ERROR BUDGET FOR LARGE SCALE DEFORMATION
Francesco De Zan, Alessandro Parizzi, Fernando Rodriguez Gonzalez, Homa Ansari, Giorgio Gomba, Roman Bric, Michael Einder, German Aerospace Center (DLR), Germany

TUP2.PD.7
Board PD.7
ADAPTING STAMPS FOR JOINTLY PROCESSING DISTRIBUTED
SCATTERERS AND PERSISTENT SCATTERERS
Markus Even, Katholische Universität des Rheinland (KIT), Germany

TUP2.PD.8
Board PD.8
DETECTION OF 3D LAND DISPLACEMENT AFTER THE GREAT EAST JAPAN EARTHQUAKE IN 2011 FROM MULTITEMPORAL SAR IMAGES AND GPS DATA
Jinchi Suzuki, Hiroki Ito, Kyoto University, Japan; Takuma Anahara, Japan Aerospace Exploration Agency (JAXA), Japan

TUP2.PD.9
Board PD.9
ESTIMATING DIKE ELEVATION FROM MULTI-TEMPORAL SAR IMAGES
FOR EFFICIENT DIKE MANAGEMENT
Takuya Katohke, Jinriki Suzuki, Kyushu University, Japan; Takuma Anahara, Japan Aerospace Exploration Agency (JAXA), Japan

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Tuesday, July 30
09:40 - 10:40 Room 501-502: Area E
Session TUP1.PE  Poster

Estimation and Retrieval of Land Parameters III
Session Co-Chairs: Geng-Ming Jiang, Fudan University; Mahdi Khodadadzadeh, Helmholtz-Zentrum Dresden-Rossendorf (HZDR)

TUP1.PE.1  Board PE.1  Poster
ESTIMATING THE DISTRIBUTION OF HEAVY METALS IN SOIL FROM AIRBORNE HYPERSONIC IMAGERY OVER JILIN GONGZHULING GOLD MINING AREA OF CHINA
Rongyuan Liu, Yufang Sun, Rukan Fan, Jiushan Yu, China Aero Geophysical Survey and Remote Sensing Center for Land and Resources, China; Houzhe Fan, Institute of Remote Sensing and Geographic Information System, Peking University, China; Huiyan Yang, School of Earth Sciences and Resources, China University of Geosciences, China

TUP1.PE.2  Board PE.2  Poster
SELECTION OF PREDICTOR VARIABLES IN DOWNSCALING LAND SURFACE TEMPERATURE USING RANDOM FOREST ALGORITHM
Wen Li, Hao Wu, State Key Laboratory of Resources and Environment Information System, China; SiBo Duan, Key Laboratory of Agricultural Remote Sensing, Ministry of Agriculture/Institute of Agricultural Resources and Regional Planning, China; Zhao-Liang Li, Key Laboratory of Agricultural Remote Sensing, Ministry of Agriculture/Institute of Agricultural Resources and Regional Planning, China; Qingxiang Liu, State Key Laboratory of Resources and Environment Information System, China

TUP1.PE.3  Board PE.3  Poster
TEMPORAL NORMALIZATION OF LAND SURFACE TEMPERATURE DERIVED FROM AHI-8 MEASUREMENTS USING A DIURNAL TEMPERATURE CYCLE MODEL
Geng-Ming Jiang, Wen-Su Li; Fudan University, China; Guixi Li, Chuan Li, National Satellite Meteorological Center, China Meteorological Administration, China

TUP1.PE.4  Board PE.4  Poster
A PHYSICAL METHOD FOR RETRIEVING MICROWAVE LAND SURFACE EMISSIVITY UNDER ALL-WEATHER CONDITIONS
Fang-Cheng Zhou, Shihuang Tang, National Satellite Meteorological Center, China Meteorological Administration, China; Hua Wu, State Key Laboratory of Resources and Environment Information System, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, China; Zhao-Liang Li, Key Laboratory of Agricultural Remote Sensing, Ministry of Agriculture/Institute of Agricultural Resources and Regional Planning, China; Zhong Guo, National Satellite Meteorological Center, China Meteorological Administration, China

TUP1.PE.5  Board PE.5  Poster
IMPACT FACTORS OF DAYTIME VARIATION FOR BROADBAND LAND SURFACE EMISSIVITY OF CONCRETE ROAD
Hongmei Zhao, Jiangsu Normal University, China

TUP1.PE.6  Board PE.6  Poster
ESTIMATION OF SPATIALLY COMPLETE LAND SURFACE EVAPOTRANSPIRATION OVER THE HEIHE RIVER BASIN
Qian-Yu Liao, College of Geomatics and Geoinformation, Guilin University of Technology, China; Pei Long, Institute of Agricultural Resources and Regional Planning, Chinese Academy of Agricultural Sciences, China; Chen Ren, College of Geomatics and Geoinformation, Guilin University of Technology, China; Zhao-Liang Li, SiBo Duan, Hao-Fang Gao, Xiao-Jing Han, Institute of Agricultural Resources and Regional Planning, Chinese Academy of Agricultural Sciences, China; Cheng Guanfei, Zhou Tian, National Satellite Meteorological Center, China Meteorological Administration, China

TUP1.PE.7  Board PE.7  Poster
HIGH TEMPORAL RESOLUTION LAND SURFACE TEMPERATURE RETRIEVAL FROM GLOBAL GEOSTATIONARY SATELLITE DATA
Ruduo Li, Geomatics College, Shandong University of Science and Technology, China; Hua Li, ZiJian Bian, Biao Cong, Fangming Du, State Key Laboratory of Remote Sensing Science, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China; Lin Sun, Geomatics College, Shandong University of Science and Technology, China; Guisheng Liu, State Key Laboratory of Remote Sensing Science, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China

TUP1.PE.8  Board PE.8  Poster
PREDICTION OF NITROGEN CONTENT IN APPLE LEAVES BASED ON CONTINUOUS WAVEFORM TRANSFER
Mengke Miao, Henan Polytechnic University, China; Haikuan Feng, National Satellite Meteorological Center, China; Mengke Miao, Henan Polytechnic University, China; Guixi Li, National Satellite Meteorological Center, China Meteorological Administration, China

TUP1.PE.9  Board PE.9  Poster
UPSCALING HIGH-RESOLUTION MINERALOGICAL ANALYSES TO ESTIMATE MINERAL ABUNDANCES IN DRILL CORE HYPERSONIC DATA
Mahdi Khodadadzadeh, Richard Glasgow, Helmholtz-Zentrum Dresden-Rossendorf (HZDR), Germany

TUP1.PE.10  Board PE.10  Poster
A METHOD FOR ANGULAR NORMALIZATION OF LAND SURFACE TEMPERATURE PRODUCTS BASED ON COMPONENT TEMPERATURES AND FRACTIONAL VEGETATION COVER
Xianggang Liu, Bo-Hui Tang, Hao Wu, Rongying Tang, Zhao-Liang Li, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, China; Guanghui Shang, Hebei GEO University, China

Tuesday, July 30
15:20 - 16:20 Room 501-502: Area E
Session TUP2.PE  Poster

Differential SAR Interferometry: Methods and Techniques IV
Session Co-Chairs: Muriel Aline Pinheiro, German Aerospace Center (DLR); Giorgio Gamba, German Aerospace Center (DLR)

TUP2.PE.1  Board PE.1  Poster
MONITORING SURFACE DEFORMATION OF TRANSMISSION CORRIDORS IN MOUNTAIN AREAS BASED ON SBAS-INSAR
Hai Liao, State Grid Shandong Electric Power Company, China; Ligang Yao, Yan Chen, Yanping Chen, Jia Chen, School of Automation Engineering, University of Electronic Science and Technology of China

TUP2.PE.2  Board PE.2  Poster
LAND SUBSIDENCE IN BEIJING FROM 2017-2018 REVEALED BY SENTINEL-1 TOPS TIME SERIES INTERFEROMETRY
Nestor Xipolitou, Marlene E. Hahne, Chinese Academy of Sciences, China; Jindong Yu, Beijing Earthquake Agency, China; Tae-Gwang Yu, Peking University, China; Jiong Gao, Shouchun Zhao, Chengdu University of Technology, China

TUP2.PE.3  Board PE.3  Poster
EXPLOITATION OF BURST OVERLAPPING AREAS OF TOPS DATA
Nestor Xipolitou, Marlene E. Hahne, Chinese Academy of Sciences, China; Jindong Yu, Beijing Earthquake Agency, China; Tae-Gwang Yu, Peking University, China; Jiong Gao, Shouchun Zhao, Chengdu University of Technology, China

TUP2.PE.4  Board PE.4  Poster
ASSESSMENT OF SENTINEL-1 PRODUCTS FOR REVEALING GLACIER SURFACE MOVEMENT IN INDIAN HIMALAYAS USING DIFFERENTIAL SAR INTERFEROMETRY
Antonius Mahagaonkar, Praveen K. Thakur, Indian Institute of Remote Sensing, India; Ling Zhang, University of Twente, Faculty of Geo-Information Science and Earth Observation (ITC), Netherlands

TUP2.PE.5  Board PE.5  Poster
INVESTIGATING THE DEFORMATION HISTORY AND FAILURE MECHANISM OF HAIYANFAI LOESS LANDSLIDE, CHINA WITH MULTI-SOURCE SAR DATA
Xiaoxue Liu, Chaoyang Zhou, Nan Zhang, Chang'an University, China; Zhang Lu, Southern Methodist University, United States; Zhaodong Du, Beijing University of Technology, China

TUP2.PE.6  Board PE.6  Poster
A SQUEESAR DATABASE OVER THE ENTIRE JAPANESE TERRITORY
Alessandro Foresti, Fabrizio Noviello, Chisa Giacomo, Andrea Umitri, Islands Innnovation, The Netherlands; Toshiki Nishimura, OT Corporation, Japan

TUP2.PE.7  Board PE.7  Poster
ESTIMATION OF IONOSPHERIC EFFECTS ON SPACEBORNE TWINSAR-4 SAR INTERFEROMETERS
Yun Sun, Haiyang Fu, Feng Xu, Fudan University, China; Robert Wang, Chinese Academy of Sciences, China; Yu-Qiao Jin, Fudan University, China

TUP2.PE.8  Board PE.8  Poster
DETECTION OF SEASONAL DEFORMATION ON OVERPASSES IN BEIJING URBAN AREA USING PS-INSAR TECHNIQUE
Mingyuan Lyu, Yinghai Ke, Xiaoyun Li, Haili Gong, Lin Zhu, Capital Normal University, China
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<td>Shuai Li, Liang Cheng, Nanjing University, China</td>
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<td>A LUT-BASED METHOD TO ESTIMATE CLEAR-SKY INSTANTANEOUS LAND SURFACE SHORTWAVE DOWNWARD RADIATION AND ITS DIRECT COMPONENT FROM MODIS DATA</td>
<td>Yuwei Tu, Zunming Wang, Jianfeng Shi, Wang Zhou, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China</td>
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<td>THE GLASS DAILY SURFACE NET RADIATION PRODUCT</td>
<td>Bo Jiang, Beijing Normal University, China; Shuiling Liu, University of Maryland, United States; Jingli Xu, Beijing Normal University, China</td>
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<td>A COMPREHENSIVE ASSESSMENT OF MODIS-DERIVED INSTANTANEOUS NET SURFACE SHORTWAVE RADIATION USING THE IN-SITU FLUXNET DATABASE</td>
<td>Wangmeng Ying, Xiaowu Wang, Lu Li, Hao We, State Key Laboratory of Resources and Environment Information System, China</td>
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<td>AN IN-SCENE ATMOSPHERIC COMPENSATION ALGORITHM FOR ASTER THERMAL BAND</td>
<td>Mengxia Chen, Xiaoyang Jiang, Hao Wu, Nong Wang, Rongli Tang, University of Chinese Academy of Sciences, China</td>
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<td>UV RADIATION ESTIMATION IN THE UNITED STATES USING MODIS DATA</td>
<td>Congyou Pei, Tao He, Wuhan University, China</td>
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<td>CLOUDY-SKY LAND SURFACE LONGWAVE UPWARD RADIATION DERIVATION FROM SATELLITE MEASUREMENTS</td>
<td>Tuming Wang, Aerospace Information Research Institute, Chinese Academy of Sciences, China; Yong Li, Chinese Academy for Environmental Planning, China; Jiancheng Shi, Aerospace Information Research Instu</td>
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<td>RECONSTRUCTION OF DAILY EVAPOTRANSPIRATION ON CLOUDY SKY CONDITIONS FROM FIELD AND MODIS DATA</td>
<td>Yuchen Jiang, Xiangqiang Jiang, University of Chinese Academy of Sciences, China; Rongli Tang, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, China; Zhao-Liang Li, Xingping Zhang, University of Chinese Academy of Sciences, China; Suichuang Di, Yajing Li, Wenshi Ate, Beijing Water Science and Technology Institute, China</td>
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Session Chair: Tao He, Wuhan University
Tuesday, July 30 09:40 - 10:40 Room 501-502: Area H
Session TUP1.PH

Estimation Methods for Hyperspectral and Multispectral Data
Session Co-Chairs: Shutao Li, Hunan University; Stefania Matteoli, National Council of Research (CNR)

TUP1.PH.1 BOARD PH.1
NON-CONVEX RELAXATION LOW-RANK TENSOR COMPLETION FOR HYPERSONTRICAL IMAGE RECOVERY
Hanyang Li, Hongyi Liu, Jun Zhang, Zehao Wu, Zhihui Wei, Nanjing University of Science and Technology, China.

TUP1.PH.2 BOARD PH.2
CONSTRAINED LOW-TUBAL-RANK TENSOR RECOVERY FOR HYPERSONTRICAL IMAGES MIXED NOISE REMOVAL BY BILATERAL RANDOM PROJECTIONS
Hao Zhang, Jie Zhao, Tao-Xiang Xiang, University of Electronic Science and Technology of China; Chen, Michael; Awad, Ph. Nig., Hong Kong Baptist University, China.

TUP1.PH.3 BOARD PH.3
SYNERGISTIC INVERSION OF RICE FPAR BASED ON OPTICAL AND RADAR REMOTE SENSING DATA
Yu Zhang, Shuhui Li, Zhe He, Yuhua Liu, Zhonghao Su, University of Electronic Science and Technology of China.

TUP1.PH.4 BOARD PH.4
RETRIEVAL OF LEAF NITROGEN CONCENTRATION IN WINTER WHEAT USING RED EDGE BAND AND ARTIFICIAL NEURAL NETWORK
Tianyu Zhang, Qinming Qin, Juan Su, Yao Zhang, Cong Zhao, Peking University, China.

TUP1.PH.5 BOARD PH.5
DECS-NET: CONVOLUTIONAL SELF-ENCODING NETWORK FOR HYPERSONTRICAL IMAGE DENOISING
Xiao Liu, Shuzhan Wei, Northwestern Polytechnical University, China; Zhong, Zhang; Zhangyan Research Institute of Electronics Technology, China; Yifan Zhang, Qiqiu Ji, Northwestern Polytechnical University, China; Duan Du, Mississippi State University, China.

TUP1.PH.6 BOARD PH.6
RETRIEVAL OF SOLAR-INDUCED CHLOROPHYLL FLUORESCENCE WITH PRINCIPAL COMPONENT ANALYSIS METHOD
Menghang Jia, Bo-Hui Tang, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, China.

TUP1.PH.7 BOARD PH.7
A CNN BASED CLOUD REMOVAL MODEL USING MULTI-TEMPORAL REMOTE SENSING IMAGES
Peiye Dai, Shijing Wei, Shuming Ji, Wuhan University, China.

TUP1.PH.8 BOARD PH.8
HYPERSONTRICAL COMPRESSION VIA SPATIAL-SPECTRAL TOTAL VARIATION REGULARIZED LOW-RANK TENSOR DECOMPOSITION
Ting Xie, Shutao Li, Baozhuo Liu, Nanjing University, China.

TUP1.PH.9 BOARD PH.9
NONLINEAR RELATIVE RADIOGRAMMETRIC NORMALIZATION FOR LANDSAT 7 AND LANDSAT 8 IMAGERY
Liao Guo, Wu, Liao-Hung Lin, National Cheng Kung University, Taiwan.

TUP1.PH.10 BOARD PH.10
TOTAL VARIATION REGULARIZED LOW-RANK SPARSITY DECOMPOSITION FOR BLIND CLOUD AND CLOUD SHADOW REMOVAL FROM MULTITEMPORAL IMAGERY
Yang Chen, School of Mathematical Sciences, University of Electronic Science and Technology of China; Wei He, Nanyang Technological University, Singapore; Ting-Zhu Huang, School of Mathematical Sciences, University of Electronic Science and Technology of China; Xiaoping Chen, School of Mathematical Sciences, University of Electronic Science and Technology of China.

TUP1.PH.11 BOARD PH.11
THIN CLOUD REMOVAL WITH RESIDUAL SYMMETRICAL CONCATENATION NETWORK
Wenbo Li, School of Computer Science, Northwest Polytechnical University, China / Department of Electronics and Informatics, Vrije Universiteit Brussel, Belgium; Ying Li, Dian Chen, School of Computer Science, Northwest Polytechnical University, China; Jonathan Cheung-Wai Chan, Vrije Universiteit Brussel, Belgium.

TUP1.PH.12 BOARD PH.12
ESTIMATION OF NET SURFACE SHORTWAVE RADIATION FROM SIMULATED CHINESE GAOFEN-5 SATELLITE DATA
Menglin Su, Bo-Hui Tang, Ronglin Tang, Tao Wu, Shaoyong Li, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, China; Guofan Shang, Hebei GEO University, China.

Tuesday, July 30 15:20 - 16:20 Room 501-502: Area H
Session TUP2.PH

Target Detection and Tracking
Session Chair: Maria Parente, University of Massachusetts

TUP2.PH.1 BOARD PH.1
AN IMPROVED MOVING TARGET DETECTION METHOD BASED ON RPCA FOR SAR SYSTEMS
Yifan Guo, Guohua Liao, Jun Li, Tong Gu, Xi’an University, China.

TUP2.PH.2 BOARD PH.2
UAV TARGET DETECTION ALGORITHM USING GNSS-BASED BISTATIC RADAR
Hong-Cheng Zeng, Beihang University, China; Hao-Jie Zhang, Beijing Institute of Electronic Engineering, China; Jie Chen, Wai Yang, Beihang University, China.

TUP2.PH.3 BOARD PH.3
HYDROMETER MODEL ENHANCEMENT FOR DOPPLER POLARIMETRIC METHOD OF ATMOSPHERIC HAZARDS DETECTION
Felix Vodnansky, Ako Kudakova, Tetya Averchenko, National Aviation University, Ukraine.

TUP2.PH.4 BOARD PH.4
MULTISTATIC BEDOU-BASED PASSIVE RADAR FOR MARITIME MOVING TARGET DETECTION AND LOCALIZATION
Chuan Huang, Zhaoyu Li, Yutao Wu, Huairen Yang, University of Electronic Science and Technology of China, China.

TUP2.PH.5 BOARD PH.5
A NOVEL METHOD OF MITIGATING THE MUTUAL INTERFERENCE BETWEEN MULTIPLE LFM-CW RADARS FOR AUTOMOTIVE APPLICATIONS
Zhihao Xu, Qian Shi, Jiaqi Shi, Han Wang, Xing Wu, Ruiheng Gao, Jieping Shao, Huaijun Tao, Harbin University, China.

TUP2.PH.6 BOARD PH.6
TRACKING OF MOVING TARGET BASED ON CFWC-r IN VIDEO SAR SYSTEM
Guangpeng Li, Harbin Institute of Technology, China; Zhenhua Xu, Hong Kong University of Science and Technology, China; Zihan Liang, Yun Zhang, Harbin Institute of Technology, China.

TUP2.PH.7 BOARD PH.7
COMPARISON OF TARGET DETECTION PERFORMANCE FOR RADIANCE AND REFLECTANCE DOMAIN IN VNIR HYPERSONTRICAL IMAGES
Omer Ozdil, Ahmet Gunes, Yunus Emre Esin, Berkan Demirel, Safak Ozturk, HAVELSAN Inc., Turkey.

TUP2.PH.8 BOARD PH.8
IMPACT OF ATMOSPHERIC CORRECTION ON THE SHIP DETECTION USING AIRBORNE HYPERSONTRICAL IMAGE
Tae-Sung Kim, Sangwool Oh, Tae Byung Chun, Korea Research Institute of Ships & Ocean Engineering (KRISEO), Korea (South).

TUP2.PH.9 BOARD PH.9
SHIP DETECTION FOR POLARIMETRIC SAR IMAGES VIA GRAPH-BASED SPARSE MANIFOLD RANKING
Huaping Lin, Hongmiao Wang, Yang Chen, Tsinghua University, China; Junjun Yin, University of Science and Technology Beijing, China; Jian Yang, Tsinghua University, China.

TUP2.PH.10 BOARD PH.10
MULTI-TARGETS TRACKING IN MARITIME SEARCH USING IMPROVED DYNAMIC PROGRAMMING
Qian Zhang, Yulin Huang, Yongchao Zhang, Meng Pei, Junjie Wu, Jianyu Yang, University of Electronic Science and Technology of China, China.
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**Spatial Structure and Health Monitoring of Vegetation**  
Session Chair: Nymuresm Basankhooz, University of Tsukuba

**TUP1.PK.1**  
**Board PK.1**  
**SPATIAL PATTERNS AND DRIVING FACTORS OF QUERCUS MONGOLICA BASED ON GF-Z DATA**  
Tianjin Su, Yongsu Wang, Yutao Li, Tianyu He, Institute of Botany, Chinese Academy of Sciences, China; Jingyu Dai, Hangzhou University, China; Jingfeng Peng, Peking University, China; Jing Zhang, Shilin Jia, Institute of Botany, Chinese Academy of Sciences, China; Jinsheng Fan, Peking University, China; Zhihong Gao, Institute of Botany, Chinese Academy of Sciences, China

**TUP1.PK.2**  
**PREDICTING THE SPATIAL PATTERNS OF RED CYPRESS INVERSELY FROM POSITIVE EFFECTS OF TOPOGRAPHIC OBSTACLES ON FIR**  
Jianhua Shao, National Chung Hsing University, Taiwan; Nan-Chang Lo, Experimental Forest Management Office, Taiwan; Kai-Fu Huang, National Chung Hsing University, Taiwan

**TUP1.PK.3**  
**ACCURATE GROUND POSITIONING OBTAINED FROM 3D DATA MATCHING BETWEEN AIRBORNE AND TERRESTRIAL DATA FOR GROUND VALIDATION OF SATELLITE LASER**  
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**TUP1.PK.4**  
**THE LAND SURFACE VEGETATION FEATURES OBSERVED BY GPM/DPR BACKSCATTERING IN MONGOLIA**  
Mynursen Basankhooz, Kerel Nicholas Mashara, University of Tsukuba, Japan; Takayuki Kobata, Japan Aerospace Exploration Agency (JAXA), Japan; Yoko Ikeda, Remote Sensing Center of Japan, Japan

**TUP1.PK.5**  
**FOREST CANOPY CLOSURE ESTIMATION IN GREATER KHINGAN FOREST BASED ON GF-Z DATA**  
Shuqin Sun, Zeyu Zhao, Tian Tian, Zhihao Gu, Changyang Wang, Institute of Forest Resource Information Technology, Chinese Academy of Forestry, China; Chenyang Gu, Planning and Design Institute of Forestry Product Industry, National Forestry and Grassland Administration, China

**TUP1.PK.6**  
**SEGMENTATION OF INDIVIDUAL TREES BASED ON THE 3-D DISTRIBUTION CHARACTERISTICS OF POINT CLOUD DATA OBTAINED BY AIRBORNE LIDAR**  
Yuhan Liu, Shihua Li, Ze He, University of Electronic Science and Technology of China, China

**TUP1.PK.7**  
**FAST CONSTRUCTION OF VEGETATION POLYGONS BASED ON OBJECT-ORIENTED METHD**  
Fengmin Wu, Zhong Ping Zhang, Yan Hu, Jing Chen, Bing Zhang, Changqing Geomatics Center, China

**TUP1.PK.8**  
**EXPLORING THE CAPABILITIES OF SENTINEL-2 DATA IN VEGETATION HEALTH/STRESS MAPPING**  
Gauvum Subba, Rahul Dev Garg, Pradeep Kumar Garg, Indian Institute of Technology, Roorkee, India; Hari Shankar Srivastava, Indian Institute of Remote Sensing, Indian Space Research Organization (ISRO), India; Pradeep Kumar, Banaras Hindu University, India; Bijoy Mitra, National Institute of Technology, Mizoram, India

**TUP1.PK.9**  
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Qihan Lin, Huaqiang Huang, Beijing Forestry University, China

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**EVALUATION OF FOUR KERNEL DRIVEN MODELS IN THE THERMAL INFRARED BAND USING AIRBORNE MEASURED MULTI-ANGLE DATASETS**  
Biao Gao, Ziyiian Bian, Yongping Du, Hua Li, Qing Xiao, Qinhuo Liu, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China; Diego Zappanota, Universidad Nacional del Sur, Argentina

**TUP1.PK.11**  
**MAXENT MODEL APPLICATION FOR TREE PESTS MONITORING**  
Pablo Marzalotti, Giovanni Laurenzi, Sapienza University of Rome, Italy; Giancarlo Santilli, Universidade de Brasilia, Brazil; Wolfgang Hufnagel, Chinese Academy of Sciences, China; Diego Zappanota, Universidad Nacional del Sur, Argentina

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**Target Detection II**  
Session Chair: Antonio Plaza, University of Extremadura

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**FEATURES EXTRACTION OF THE DOPPLER FREQUENCY SIGNATURE OF A HUMAN WALKING AT 1 GHZ**  
Gabriele Manzi, Jean-Philippe Orsola, ONERA, France; Laurent Thirian-Lefevre, Centre Spatial, Université Paris-Saclay, France

**TUP2.PK.2**  
**FEASIBILITY EVALUATION FOR KEYWORD SPOTTING SYSTEM USING MINI MICROPHONE ARRAY ON UAV**  
Mohammad Bagha Ansari, Sudiman F Rahman, Tosiyuki Usagawa, Kumamoto University, Japan

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**SHIP AND SEA-ICE DISCRIMINATION USING SUB-SPECTRA STRATEGY AND SINGLE POLARIMETRIC SAR IMAGERY**  
Cao Lin, National Innovation Institute of Defense Technology, China; Deliang Xiang, National Innovation Institute of Technology, China; Ziyang Zheng, National Innovation Institute of Defense Technology, China; Laurent Ferro-Famil, Yue Huang, University of Rennes 1, France

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**A STATISTICAL APPROACH TO IMPROVE VIRTUAL DIMENSIONALITY OF HYPERSONIC DATA**  
Vijayashekar S S, Jignesh S. Bhatt, Indian Institute of Information Technology Vadodara, India; Bhargab Chattopadhyay, Indian Institute of Management Vishakhapatnam, India

**TUP2.PK.5**  
**MAIN-LOBE JAMMING SUPPRESSION METHOD IN MULTIPLE-RADAR SYSTEM**  
Shasixin Zhao, Zwei Liu, Nanjing University of Posts and Telecommunications, China

**TUP2.PK.6**  
**HYPERSONIC TARGET DETECTION USING COLLABORATIVE REPRESENTATION WITH SPECTRAL VARIATION EXTENDED DICTIONARY**  
Rui Xie, Yifan Zhang, Northwestern Polytechnical University, China; Fang Yan, Beijing Military Representatives Bureau, China; Yang Feng, Shaohui Mei, Northwestern Polytechnical University, China

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**HYPERSONIC TARGET DETECTION VIA DEEP MULTIPLE INSTANCE SELF-ATTENTION NEURAL NETWORK**  
Xiaoxi Wang, Xiaoying Chen, Shuyang Guo, Xidian University, China; Shao Chen, MathWorks, United States; Yuanbu Chen, Beijing Huahang Radio Measurement and Research Institute, China; Xu Tang, Changhe Jiao, Xidian University, China

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Remote Sensing of Vegetation Parameters
Session Chair: Andrea Massetti, Monash University

TUP1.PL.1 MONITOR LAND SURFACE PHENOLOGY USING THE NORMALIZED DIFFERENCE BETWEEN HOTSPOT AND DARKSPOT (NDHDD) INDEX
Yanyong Tang, Xinglong Wang, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, China

TUP1.PL.2 CHARACTERIZING TROPICAL SECONDARY FOREST BIOPHYSICAL PARAMETERS WITH HYPERION/EO-1
Vivaldo Lopes, Santa Catarina State University (UDESC), Brazil

TUP1.PL.3 EVALUATION OF THREE METHODS FOR ESTIMATING BREAST HEIGHT FROM TERRESTRIAL LASER SCANNING DATA
Junjie Zhou, Guoyuan Zhou, Hongyang Wei, Xiaodong Zhang, Xinning Wang, University of Electronic Science and Technology of China, China

TUP1.PL.4 A NEW METHOD OF INDIVIDUAL TREE DETECTION USING UAV PHOTOGRAMMETRIC DATA
Jian Li, Xiaohua Liu, Wenjuan Ni, Chinese Academy of Sciences, China

TUP1.PL.5 FOREST STAND HEIGHT ESTIMATION USING ZIYUAN-3 TRI-STEREOPHOTOGRAPHIC DATA AND HIGH RESOLUTION GOOGLE EARTH IMAGE FOR MAPPING TUP1.PL.6 ESTIMATION OF HIGH RESOLUTION CORN VEGETATION WATER CONTENT BASED ON AIRBORNE CASI/SASI HYPERSONSPECTRAL DATA
Jianwei Ma, Yayong Sun, China Institute of Water Resources and Hydropower Research (WIHR), China; Qiang Yang, Beijing Institute of Technology, China; Kun Yang, Shilong Huang, Yonghuan Yang, Hu Zhou, Weihua Zeng, Peng Zhu, China Institute of Water Resources and Hydropower Research (WIHR), China

TUP1.PL.7 APPLYING LIDAR AND QUICKBIRD DATA FOR CROWN SEVERITY CLASSIFICATION AT TREE LEVEL IN CONIFER FOREST
Carine Klauberg, Federal University of São João Del Rei, Brazil; Andrew Thomas Hudak, US Forest Service (USDA), United States; Sarah A. Lewis, Peter R. Rubel, East Tennessee State University, United States

TUP1.PL.8 POSSIBLE INACCURACY OF CANOPY HEIGHT MODEL ESTIMATION FOR DENSE AND SPARSE BOREAL FOREST WITH TANDEM-X DSM AND ALOS PALSAR DEM FUSION, CASE STUDY FROM THE BAikal LAKE REGION, RUSSIA
Tumen Chimitdorzhiev, Aleksey Dmitriev, Irina Kirbizhekova, Alena Sherkhoeva, Arctalic Batskhova, Pavel Dagurov, Institute of Physical Materials Science, SB RAS, Russia

TUP1.PL.9 SENSITIVITY OF BRDF SAMPLING TO ALBEDO AND ANGLE INDEX BASED ON AIRBORNE MULTISPECTRAL DATA
Xiaoning Zhang, Zhi Jin, Yiding Dong, Siyang Yu, Lai Cui, Beijing Normal University, China; Hu Zhang, Anran Dong, Tianjin Normal University, China; Yuanan Chuang, Bai Ke, Jing Guo, Beijing Normal University, China

TUP1.PL.10 QUANTIFYING THE EFFECT OF THE WIND ON THE ABILITY OF INTERFEROMETRIC SYNTHETIC APERTURE RADIUS SYSTEMS TO ACCURATELY ESTIMATE FOREST CANOPY HEIGHT
Michael Benson, Leland Pierce, Kamal Sarabandi, University of Michigan, United States

TUP1.PL.11 ESTIMATION OF FOREST STRUCTURE WITH THE VEGETATION STRUCTURE PERPENDICULAR INDEX (VSPi) FOR DYNAMIC FIRE SPREAD SIMULATIONS
Andrea Massetti, Christopher Mudigere, Monash University, Australia; Marta Yebra, Australian National University, Australia; James Hilton, Commonwealth Scientific and Industrial Research Organisation, Australia

Remote Sensing of Wetlands II
Session Co-Chairs: Amir Behnamian, Environment and Climate Change Canada; Haemi Park, University of Tokyo

TUP2.PL.1 SPATIO-TEMPORAL VARIATION OF EVAPOTRANSPIRATION OVER THE LARGEST FRESHWATER LAKE REGION IN CHINA DURING THE RECENT TEN YEARS
Xin Pan, Langyang Yan, Hohai University, China; Yutao Liu, Gaojun Guo, Nanjing Institute of Geography and Limnology, Chinese Academy of Sciences, China; Yingbao Yang, Yeheung Chen, Mi Jiang, Hohai University, China

TUP2.PL.2 INSAR MONITORING OF MARSH WETLANDS FLOW DYNAMICS IN GREAT LAKES
Zhaohua Chen, Jiro White, Sarah Banks, Amir Behnamian, Benoit Montpetit, Ian Poscher, Jason Duff, Environment and Climate Change Canada

TUP2.PL.3 SENTINEL-1A SAR IMAGES TO DETECT FLOODING AREAS IN SOUTH EASTERN MEXICO
Jesus Soria-Ruiz, INAF, Mexico; Yalanda Margarita Fernandez-Ordaz, COIFOS-Campus Monterrey, Mexico

TUP2.PL.4 ANALYZING CHLOROPHYLL FLUORESCENCE IN JUNCUS ROEMERIANUS BY PULSE AMPLITUDE MODULATED (PAM) FLUOROMETER AT DIFFERENT PLANT HEIGHTS
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TUP2.PL.5 ESTIMATION OF CARBON DIOXIDE BUDGET FROM PEATLAND IN INDONESIA WITH SITE-LEVEL VALIDATION
Haemi Park, Wataru Takeshi, University of Tokyo, Japan; Kazuhito Ishi, Chiba University, Japan

TUP2.PL.6 MONITORING ANDEAN HIGH ALTITUDE WETLANDS IN CENTRAL CHILE WITH SEASONAL SENTINEL-2 IMAGERY
Rocio Araya-Lopez, Javier Lopez, Fabian Fassnacht, Karlsruhe Institute of Technology (KIT), Germany; Jaime Hernandez, University of Chile, Chile

TUP2.PL.7 USING LANDSAT 8 IMAGES FOR THE WETLAND WATER STRESS CALCULATION: UPPER BIEBRZA CASE STUDY
Wojciech Czyżkow, Małgorzata Kleniewska, Jarosław Chormański, Warsaw University of Life Sciences, Poland

TUP2.PL.8 EARLY DETECTION OF SONNERTAAN IN MAI PO USING REMOTELY SENDED DATA WITH DEEP LEARNING
Lucena Wang, Hongsheng Zhang, Mingfeng Liu, Chinese University of Hong Kong, China

TUP2.PL.9 WETLAND MONITORING WITH GNSS-R/FIR: THEORETICAL SIMULATIONS
Kareem Wu, Chiling University, China; Junming Xia, National Space Science Center, Chinese Academy of Sciences, China; Shengyuan Jin, Weihua Bai, Jiaoming Liu, Shanghai Astronomical Observatory, Chinese Academy of Sciences, China

TUP2.PL.10 EXPLORING THE CAPABILITIES OF COMBINING THE SENTINEL-2 MSI DATA AND HIGH RESOLUTION GOOGLE EARTH IMAGE FOR MAPPING MANGROVE SPECIES
Hongzhang Li, Yu Han, Junsong Chen, Shenzhen Institute of Advanced Technology, Chinese Academy of Sciences, China
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Topography, Geology and Geomorphology II
Session Co-Chairs: Gladimir Baranoski, University of Waterloo; René Boessenkool, Helmholtz-Zentrum Dresden-Rossendorf, Helmholtz Institute Freiberg for Resource Technology

TUP1.PN.1 WORLDVIEW-3 AND SENTINEL-2 IMAGERY FOR MAPPING NATURALLY OCCURRING ASBESTOS (NOA) IN SERPENTINITES ROCKS IN SOUTHERN ITALY.
Simone Pascucci, Stefano Pipanetti, Claudia Bebico, Francesco Covaconte, CNR, Italy; Maria Paola Bagliolo, Italian Workers Compensation Authority - INAIL, Italy

TUP1.PN.2 APPLICATION OF CONSTRAINED ENERGY MINIMIZATION (CEM) ALGORITHM TO ASTER DATA FOR ALTERATION MINERAL MAPPING
Amin Benamour Fou, Toufoun S. Park, Yingchun Peng, Kang Kuk Hong, Koeso Pakri Research Institute (KOPRI), Korea (South); Biyavee Pradhan, University of Technology Sydney, Australia

TUP1.PN.3 RESEARCH ON INFORMATION EXTRACTION TECHNOLOGY OF IRON OXIDE BASED ON AIRBORNE HYPERSONSPECTRAL DATA
Kai Qing, Ying-Jun Zhao, Xin Cui, Beijing Research Institute of Uranium Geology, China

Jianming Kuang, Linlin Ge, University of New South Wales, Australia; Wei Huyang, Guangdong University of Technology, China

TUP1.PN.5 TECTONIC BELT EXTRACTION BASED ON DEM AT THE MARGIN OF QINGHAI-TIBET PLATEAU
Tian Tan, Linna Gong, Weifeng Jiang, Jingfei Zhang, Qiang Li, Hongbo Jiang, Institute of Geophysical and Geochemical Exploration of China, China

TUP1.PN.6 GEOMETRIC AND GEOMORPHIC FEATURES OF ACTIVE TECTONICS BASED ON HIGH-RESOLUTION REMOTE SENSING IMAGE
Weifeng Jiang, Jingfei Zhang, Institute of Crustal Dynamics, China Earthquake Administration, China

TUP1.PN.7 A NEW UNDERSTANDING ABOUT MARE BASILSTS IN MOSCOWVESENI
Zhiguo Meng, Huohui Wang, Jinglong Lu, Shengtao Chen, Jinlin University, China; Yingchun Zheng, National Astronomical Observatory, China; Xiaogang Jia, Shanghai Astronomical Observatory, Chinese Academy of Sciences, China; Xiangbo Gong, Jinlin University, China

TUP1.PN.8 INTEGRATING HYPERSONSPECTRAL AND RADIOMETRIC REMOTE SENSING, SPATIAL TOPOGRAPHIC ANALYSIS AND SURFACE GEOCHEMISTRY TO ASSIST MINERAL EXPLORATION IN SOUTHERN AUSTRALIA
Alicia S Caruso, Ken D Clarke, University of Adelaide, Australia; Caroline J Tiddy, University of South Australia, Australia; Megan M Lewis, University of Adelaide, Australia

TUP1.PN.9 DETECTION OF SURFACE DISPLACEMENT FROM LARGE BASELINE DATA PAIRS BY MULTI-TEMPORAL D-IN SAR APPLICATION TO BANDUNDU BASIN, INDONESIA
Panggara Ghyton Seward, Kyung University, Japan; Atap Sopahub, Bandung Institute of Technology, Indonesia; Katsuuki Sakai, Kyung University, Japan

TUP1.PN.10 UAV-BASED 3D OUTCROP ANALOG MODELS FOR OIL AND GAS EXPLORATION AND PRODUCTION
Emmanuel Dujoncquoy, AGeoS, France; Pierre Messe, Total, France; Yann Niek, Total, France; Alain S, France; Alberto Sapanza-Perus, Joren Kenten, Séverine Rios, Damien Dibout, Total, France

TUP1.PN.11 AN ANALYSIS OF RESEARCH OF TERRAIN CORRECTION METHODS CONSIDERING THE SLOPE RANGES BASED ON OLI IMAGE
Ying Zhang, Wen Xie, Shukai Sun, Xiaojun Bai, Lin Wang, China Transport Telecommunications & Information Centre, China

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Session TUP2.PN  Poster

Satellite Missions I
Session Chair: Jorge Nicolas-Alvarez, Universidad Politecnica de Catalunya
TUP2.PN.1 PRECISE ORBIT OBSERVATION TECHNIQUES FOR GEYSYNCHRONOUS SYNTHETIC APERTURE RADAR (GEOSAR)
Jorge Nicolas-Alvarez, Antti Broquetas, Alberto Apruzese, Universidad Politecnica de Catalunya (UPC), Spain

TUP2.PN.2 ARCHITECTING OPTIMIZED SPACEBORNE EARTH OBSERVATION MISSIONS
David Llaveria, Carles Araguz, Adriana Carpi, Eduard Alarcón, Universitat Politecnica de Catalunya (UPC), Spain

TUP2.PN.3 THE INFLUENCE OF MOON-BASED SENSOR’S LOCATION ON MOON-BASED EARTH OBSERVATION
Graechan Shin, Haedong Goo, Guang Liu, Lu Zhang, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China

TUP2.PN.5 ADVANCED TERAHERTZ ATMOSPHERIC PROFILING SOUNDER ON NEXT GENERATION CHINESE METEOROLOGICAL SATELLITE
Shengwei Zhang, Jingye Wu, Zhaozhong Wang, Ya Zhang, Nu Li, National Space Space Center, Chinese Academy of Sciences, China

TUP2.PN.6 NON-METEOROLOGICAL APPLICATION OF NEW GENERATION GEOSTATIONARY SATELLITES
Sayaka Kakin, Ivan Coscuz, Shiblina Bredgugan, Iran Tazice, National Space Space Center, Chinese Academy of Sciences, China

TUP2.PN.8 AN OVERVIEW OF NOAA’S GCOM-W1/AMSR-2 PRODUCT PROCESSING AND UTILIZATION
Paul Chang, Zorana Jelenak, Suleiman Alsweiss, Joseph Sapp, Patrick Meyers, Ralph Ferraro, NOAA/NESDIS/STAR, United States

TUP2.PN.9 APPLICATIONS OF KHAlFASAT MISSION
Saad Al Mansoori, Meera AlShamsi, Alya AlMaazmi, Fatima AlMarzouqi, Shaikha AlBesher, Mohammed Bin Rashid Space Centre (MBRSC), United Arab Emirates

TUP2.PN.10 A PROPOSAL FOR SATELLITE OBSERVATION OF THE WHOLE ATMOSPHERE - SUPERCONDUCTING SUBMILLIMETER-WAVE LIMB-EMISSION SOUNDER (SMILES-5)
Masato Shiotani, Kyoto University, Japan; Makoto Suzuki, Japan Aerospace Exploration Agency (JAXA), Japan; Toshiyuki Nishibori, Japan Aerospace Exploration Agency (JAXA), Japan; Hiroki Masumura, Osaka Prefecture University, Japan; Shinobuo Oyama, Nagoya University, Japan

TUP2.PN.11 CONCEPTUAL STUDY OF SUPERCONDUCTING SUBMILLIMETER-WAVE LIMB-EMISSION SOUNDER-2 (MILES-2) RECEIVER
Satoshu Ochi, Philean Rajan, Yoshio Sekine, Nagoya University, Japan; Hiroki Masumura, Japan Aerospace Exploration Agency (JAXA), Japan; Yoshinori Uzawa, National Astronomical Observatory of Japan, Japan; Hideyuki Matsumura, Tsukuba Space, Osaka Prefecture University, Japan; Akira Mizuno, Tohoku University, Japan; Hiroshi Komura, University of Tsukuba, Japan; Naotsuki Takei, Japan Aerospace Exploration Agency (JAXA), Japan; Akinoi Saito, Masato Shinoda, Kyung University, Japan
Tuesday, July 30 09:40 - 10:40 Room 501-502: Area O
Session TUP1.PO
Poster

Topography, Geology and Geomorphology III
Session Chair: Ulisse Speranza, University of Turku

TUP1.PO.1 EFFECTS OF ATTENUATION ON SEISMIC REFLECTIONS
Board PO.1 Haisan Zhao, Xi’an Jiaotong University, China; Jingyu Liu, Xi’an University of Technology, China; Yifei Zhang, Sichuan Normal University, China

TUP1.PO.2 APPLICATION OF THE STRUCTURE FROM MOTION METHOD IN ACTIVE TECTONICS RESEARCH: A CASE STUDY OVER THE ALTAI TAGH TAULI
Board PO.2 Hayyan Bi, China Earthquake Administration, China; Wenjun Zheng, Sun Yat-Sen University, China; Jiangan Zeng, Chinese Academy of Sciences, China

TUP1.PO.3 ANALYSIS OF THE KERNEEL-DRIVEN BRF MODEL OVER RUGGED TERRAINS
Board PO.3 Jin Fan, China University of Geosciences, China; Yiyou Tong, Wuhan University, China; Xiuhong Li, Beijing Normal University, China; Xiaohu Qu, Guangzhou University, China; Guoliang Fan, Nanjing Normal University, China

TUP1.PO.4 IDENTIFYING USERS BY ASYNCHRONOUS MOBILITY TRAJECTORIES
Board PO.4 Mengjiao Qi, Zhengyang Wang, Zhe Hui, Wuhan University, China; Tao Liu, Wuhan Institute of Technology, China

TUP1.PO.5 A FAST AND SIMPLE ALGORITHM FOR CALCULATING FLOW ACCUMULATION MATRICES FROM RASTER DIGITAL ELEVATION MODELS
Board PO.5 Guangyin Zhou, Wenyu Yang, Nongyang Wei, University of Electronic Science and Technology of China, and China

TUP1.PO.6 POTENTIAL PREDICTION OF COALBED METHANE ANOMALY REGION UTILIZING LANDSAT OLI AND GF-2 IMAGES
Board PO.6 Li Chen, Wei Li, Ling Chen, Mengzhi Wang, Wenyu Jia, China Aero Geophysical Survey and Remote Sensing Center for Natural Resources, China

TUP1.PO.7 IDENTIFICATION OF ALTERED MINERAL USING HYPERION HYPERSPECTRAL IMAGE IN SOUTH OF TIBET, CHINA
Board PO.7 Zhonghua Huang, Institute of Mineral Resources, China; Metallurgical Geological Bureau, China; Zhanrui Zheng, Beijing Research Center of Urban System Engineering, China

TUP1.PO.8 PRESENT VERTICAL CRUSTAL MOVEMENT IN NORTH SEGMENT OF NORTH-SOUTH TECTONIC BELT DERIVED FROM GNSS
Board PO.8 Jing Wang, Earthquake Agency of Ningxia Hui Autonomous Region, China; Mengjie Xu, Research Center for Geological Protection and Climate Change Response, China; Huiyang Ma, Earthquake Agency of Ningxia Hui Autonomous Region, China; Shuyang Li, Geological Environment Protection Office of Ningxia Hui Autonomous Region, China; Xinyan Li, Earthquake Agency of Ningxia Hui Autonomous Region, China

TUP1.PO.9 MOSIS V2: IMMERSIVE VIRTUAL OUTCROP MODELS
Board PO.9 Pedro Rosa, Rafael Kang Harosto, Alyson Squindo Ayres, Alejandra Marquez Jr., Universidade do Vale do Rio dos Sinos (UNISinos), Brazil; Enrico Mexenhofer de Souza, Universidade do Vale do Rio dos Sinos, Brazil; Gabriel Kannelberg, Julianas Lucas de Freitas, Leonardo Santana, Damiemio Nunes Alencar, Julio Bussing Pantelini, Luci Garazzo Jr., Mauricio Roberto Veronez, Universidade do Vale do Rio dos Sinos (UNISinos), Brazil; Caroline Lessa Cazão, Patrícia Brasiliano Sa, Brazil

TUP1.PO.10 MAPPING AND MONITORING OF SOIL SALINIZATION USING REMOTE SENSING AND ACCELEROMETER TECHNIQUES: A CASE STUDY IN THE BAHARIYA DEPRESSION, WESTERN DESERT, EGYPT
Board PO.10 Mohamed El-Shafiey, Tanta University, Egypt

TUP1.PO.11 DRONE THERMAL IMAGING TO OBTAIN HEAT FLOWS OF JINLUN GEOTECTONIC SITE, SOUTHEAST TAIWAN
Board PO.11 Jin-King Liu, Taiwan Group on Earth Observations, Taiwan; Ming-Chie Wu, National Chiao Tung University, Taiwan; Ching-Fang Lee, Sinotech Engineering Consultants, Inc., Taiwan

TUP1.PO.12 MAPPING OF TALC DEPOSITS USING HYPERSPECTRAL IMAGES
Board PO.12 Shinsuke Kodama, National Institute of Advanced Industrial and Science and Technology (AIST), Japan; Yasuo Yamaguchi, AIST, Japan; Yasushi Yamaguchi, Nagoya University, Japan

Tuesday, July 30 15:20 - 16:20 Room 501-502: Area O
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Poster

Missions, Sensors and Calibration
Session Chair: Sharmila Padmanabhan, NASA Jet Propulsion Laboratory

TUP2.PO.1 INTRODUCTION OF GF-5 SATELLITE AND ABILITY OF MONITORING NO2 AND O3 COLUMN DENSITY FROM EMI
Board PO.1 Chongzuo Zhao, Ming Li, Shuhui Liu, Shaohe Zhou, Satellite Environmental Center, China; Liangjia Chen, China University of Mining and Technology, China; Zengping Wang, Lianzhu Zhang, Satellite Environmental Center, China; Zunjian Bian, State Key Laboratory of Remote Sensing Science, China; Zongping Wang, Lianzhu Zhang, Satellite Environmental Center, China; Zunjian Bian, State Key Laboratory of Remote Sensing Science, China; Yinghua He, Lixin Environmental Monitoring Station, China

TUP2.PO.2 GOES-17 ADVANCED BASELINE IMAGER PERFORMANCE RECOVERY SUMMARY
Board PO.2 Joel McDermott, NASA Goddard Space Flight Center, United States; John Van Nostrand, Harris Corporation, United States; Daniel Lindsey, NASA/GSFC, United States; Boryana Efremova, Goes-17/Tank LLC, United States; Moraga Cook, Mason Block, Massachusetts Institute of Technology, Lincoln Laboratory, United States; Alexander Klimchonsky, NASA Goddard Space Flight Center, United States

TUP2.PO.3 SNAP RFI CHANGE DETECTION
Board PO.3 Priscilla Mohammed, Giovanni De Amici, Jeffrey Piepmeier, NASA Goddard Space Flight Center, United States

TUP2.PO.4 IMPACT OF THE RFI GENERATED BY ACTIVE LEO SYSTEMS ON A NEARLY-GEOSTATIONARY SAR SYSTEM
Board PO.4 Antonio Lanzara, Andrea Marti Gorrini, Politecnico di Milano, Italy; Marco Di Clemente, Giancarlo Vociatti, Roberta Fermor, Agenzia Spaziale Italiana (ASI), Italy

TUP2.PO.5 ATMOSPHERE-SPACE INTERACTIONS MONITOR, INSTRUMENT AND FIRST RESULTS
Board PO.5 Steven Strobel, Keticsen, J. E. Boll, Peter Grauer, Carl Bokhdaj, Johann Chinn, Freddy Christiansen, Kyrilka Dimitrova, Leoise Hugger, Theo Christian Juan, Ivan Kovvedel, Tarsten Neubert, Gabe Anne Ochoa, Samm Mader Pfeifer, John Polay, Bjorn Stenqvist, Guntram Luthardt, University of Miami, Florida; Christian Stoltzen, Deimos EarthTech, Inc., United States; condensed Thomas, Technical University of Denmark, Denmark; Nikolas Andak, University of Bergen, Norway

TUP2.PO.6 PERFORMANCE OF THE SNPP AND NOAA-20 CRS SENSOR DATA RECORD PRODUCTS
Board PO.6 Flavio Parbildi-Sanchez, National Oceanic and Atmospheric Administration, United States; Yong Chen, University of Maryland, United States; Denis Hambury, Tian Jin, Global Science and Technology, Inc., United States; David Jenkins, Henry Ravenwham, University of Wisconsin-Madison, United States; Lasse Browne, University of Maryland, Baltimore County, United States; David Johnson, National Aeronautics and Space Administration (NASA), United States; Joe Predin, Logitech Engineering LLC, United States; Jane Taylor, University of Wisconsin-Madison, United States; Mark Espin, Utah State University, United States; Bangzhou Yan, Chunyang Gao, Saiyu Kuai, National Oceanic and Atmospheric Administration, United States

TUP2.PO.7 SENSITIVITY VARIATION OF ASTER DERIVED FROM MOON AND DEEPSPACE OBSERVATIONS IN 2003 AND 2017
Board PO.7 Tore Koyama, Satoshi Tsuchida, National Institute of Advanced Industrial Science and Technology (AIST), Japan; Fumihito Sakuma, Tetsushi Tachikawa, Japan Space Systems, Japan; Hirokazu Yamamoto, National Institute of Advanced Industrial Science and Technology (AIST), Japan; Kentaro Okabe, Aichi Prefectural University, Japan; Souhi Kato, Remote Sensing Technology Center of Japan, Japan; Masaki Hashimoto, Japan Space Systems, Japan; Ryosuke Nakamura, National Institute of Advanced Industrial Science and Technology (AIST), Japan

TUP2.PO.8 AEROSOL MODELS FROM AERONET FOR THE EVALUATION OF THE LAND SURFACE REFLECTANCE FUNDAMENTAL CLIMATE DATA RECORD
Board PO.8 Jean-Claude Roger, University of Maryland, United States; Eric Hermans, National Aeronautics and Space Administration (NASA), United States; Senyi Sladun, Belen Franch, University of Maryland, United States; Ole Dethof, University of Ullie, France; Hal Reid, National Aeronautics and Space Administration (NASA), United States; Chris Justice, University of Maryland, United States

TUP2.PO.9 PERFORMANCE OF 2D DEFORMATION MEASUREMENTS BY THE MULTI-STATIC HARMONY (STEREOID) MISSION
Board PO.9 Yuhanbo Li, Pato Lopez-Dekker, Matthew Koons, NOAA Department of Technology, Netherlands; Paul Prati-vialvo, German Aerospace Center (DLR), Germany

TUP2.PO.10 EVALUATION OF THE SURFACE REFLECTANCE LONG-TERM DATA RECORD FROM AVHRR OVER MULTIPLE LAND SURFACE TYPES
Board PO.10 Andrés Santamaría-Artigas, Belén Franch, Jean-Claude Roger, University of Maryland, United States; Eric Vermote, National Aeronautics and Space Administration (NASA), United States; Christopher Justice, University of Maryland, United States

TUP2.PO.11 THE POLAR RADIAN EXPERIMENT IN THE FAR INFRARED EXPERIMENT
Board PO.11 Sharmila Padmanabhan, Brian Drouin, California Institute of Technology, NASA Jet Propulsion Laboratory, United States; Tristan L’Ecuyer, University of Wisconsin-Madison, United States; Mary White, Brian Lim, Matthew Koons, Giovanni De Amici, James McGuire, Nasa Goddard Space Flight Center, United States
Tuesday, July 30
09:40 - 10:40 Room 503: Area Q
Session TUP1.PQ
Poster

Numerical Weather Prediction and Data Assimilation II
Session Co-Chairs: Fuzhong Weng, State Key Laboratory of Severe Weather; V Chandrasekar, Colorado State University

TUP1.PQ.1 INSAR REMOTE SENSING OF ATMOSPHERE: BRIDGING HIGH RESOLUTION DATA AND NWP MODELS
Board PQ.1
Giuseppina Nico, Consiglio Nazionale delle Ricerche (CNR), Italy; Pedro Mateus, Instituto de Geo脐tica e Geofluids (IGG), Portugal

TUP1.PQ.2 A COMPREHENSIVE VORTEX INITIALIZATION ASSIMILATING SATELLITE MICROWAVE DERIVED HURRICANE WARM CORES USING A 4D-VAR APPROACH
Board PQ.2
Xinan Tian, Xiaohui Zuo, University of Maryland, College Park, United States

TUP1.PQ.3 ASSIMILATION AND DIRECT INSERTION OF SENTINEL PRODUCTS IN THE WRF WEATHER FORECAST MODEL
Board PQ.3
Martina Logasico, Luca Pukovarnik, Antonio Parodi, Agostino Meroni, CIMA Research Foundation, Italy

TUP1.PQ.4 EVALUATION OF GROUND-BASED MICROWAVE RADIOMETER DATA USED IN NUMERICAL WEATHER PREDICTION
Board PQ.4
Wenying He, LAGEO, Institute of Atmospheric Physics, Chinese Academy of Sciences, China

TUP1.PQ.5 AN ADVANCED WORKFLOW FOR SIMULATING HIGH RESOLUTION WIND FIELDS OVER COMPLEX URBAN TERRAIN INCLUDING SINGLE TREE OBJECTS
Board PQ.5
Maximilian Langheinrich, German Aerospace Center (DLR), Germany; Katja Seifert, Hochschule für Angewandte Wissenschaften, Würzburg, Germany

Tuesday, July 30
15:20 - 16:20 Room 503: Area Q
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Poster

Monitoring and Damage Assessment of Earthquake and Volcanic Activity
Session Co-Chairs: Yo Fukushima, Tohoku University; Gulab Singh, Indian Institute of Technology, Bombay

TUP2.PQ.1 CASE STUDIES OF UTILIZING SATELLITE REMOTE SENSING FOR DISASTER RESPONSE
Board PQ.1
Keita Hikichi, Ayumi Fukushima, Kenichi Honda, Nippon Koeido, Tomohiro Nishimura, Sakae Mukoyama, Kokusai Kogyo Co., Ltd., Japan

TUP2.PQ.2 SENSITIVITY OF LAND COVERS ON PASSIVE MICROWAVE BRIGHTNESS TEMPERATURE
Board PQ.2
Feng Jing, Institute of Earthquake Forecasting, China Earthquake Administration, China; Ramesh P Singh, Chapman University, China

TUP2.PQ.3 DETECTION OF BRIGHTNESS TEMPERATURE ANOMALIES USING MULTIPLE METHODS BEFORE THE 2009 C’AGLIA EARTHQUAKE
Board PQ.3
Xinyan Li, Earthquake Agency of Ningxia Hui Autonomous Region, China; Xinjian Shan, Institute of Geology, China Earthquake Administration, China; Heping Mo, Earthquake Agency of Ningxia Hui Autonomous Region, China; Weiying Wu, Institute of Geology, China Earthquake Administration, China

TUP2.PQ.4 POST-EARTHQUAKE DAMAGE MAPPING USING ARTIFICIAL NEURAL NETWORK AND SUPPORT VECTOR MACHINE CLASSIFIERS AT PALU, INDONESIA
Board PQ.4
Mutiara Syifa, Subin Ryoo, Chang-Wook Lee, Kangwon National University, Korea (South)

TUP2.PQ.5 NIGHT LIGHT REMOTE SENSING APPLICATION IN DISASTER AND REHABILITATION: A CASE STUDY OF MUZAFFARABAD 2005 EARTHQUAKE
Board PQ.5
Muhammad Luqman, University of the Melbourne, Australia; Sajid Rashid Ahmad, College of Earth and Environmental Sciences, University of the Punjab, Pakistan; Anam Munawar, The Urban Unit, Pakistan

TUP2.PQ.6 ANALYSIS ON ECOLOGICAL ENVIRONMENT QUALITY OF WENCHUAN COUNTY IN THE PAST 10 YEARS AFTER WENCHUAN EARTHQUAKE
Board PQ.6
Qiang Li, Jingfa Zhang, Hongbo Jiang, Dan Geng, Institute of Crustal Dynamics, China Earthquake Administration, China

TUP2.PQ.7 DISASTER DAMAGE ASSESSMENT USING POLARIMETRIC SAR IMAGE ANALYSIS: CASE OF NEPAL EARTHQUAKE
Board PQ.7
Shubham Jaiswal, Willis Towers Watson, Mumbai, India; Gulab Singh, Indian Institute of Technology Bombay, India; Anugrah Anilkumar Nagaich, School of Planning and Architecture Bhopal, India

TUP2.PQ.8 TECTONIC SHIFT MEASUREMENT WITH GEODETIC SAR PROCESSING
Board PQ.8
Hartmut Ruge, Ulrich Bohn, Steffen Suchanow; Michael Eineder, German Aerospace Center (DLR), Germany

TUP2.PQ.9 CHANGES IN CHLOROPHYLL CONCENTRATIONS ASSOCIATED WITH THE 5.1 LA HABRA EARTHQUAKE, CALIFORNIA OF 29 MARCH 2014
Board PQ.9
Ramesh P Singh, Chapman University, United States; Feng Jing, Institute of Earthquake Forecasting, China Earthquake Administration, China; Qing Ye, China Earthquake Network Center, China Earthquake Administration, China

TUP2.PQ.10 EARTHQUAKE-INDUCED BUILDING DAMAGE ASSESSMENT BASED ON SAR CORRELATION AND TEXTURE
Board PQ.10
Liu Xiaogang, Quan Li, Institute of Crustal Dynamics, China Earthquake Administration, China; Fan Wu, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China; Feng Jing, Institute of Earthquake Forecasting, China Earthquake Administration, China

TUP2.PQ.11 DIGITAL ELEVATION MODELS OF VOLCANIC PLUMES
Board PQ.11
Marcelo de Michele, Daniel Rausch, Michael Fuennels, BRGM - French Geological Survey, France
TUESDAY POSTER

2019 IEEE International Geoscience and Remote Sensing Symposium · Yokohama, Japan

Tuesday, July 30

Session TUP1.PS

GNSS-R Sensors, Techniques and Applications II

Session Co-Chairs: Hyuk Park, Universitat Politècnica de Catalunya; Zorana Jelenak, National Oceanic and Atmospheric Administration / UCAR; Estel Cardellach, Institut de Ciencies de l’Espai (CSIC/IEEC)

TUP1.PS.1 A MACHINE LEARNING FRAMEWORK FOR REAL DATA GNSS-R WIND SPEED RETRIEVAL
Yunzhang Liu, Jun Wang, Ian Collett, Jade Morton, University of Colorado Boulder, United States

TUP1.PS.2 A ‘TRACK-WISE’ WIND RETRIEVAL ALGORITHM FOR THE CYGNSS MISSION
Fauzi Said, National Oceanic and Atmospheric Administration / Global Science & Technology, United States; Zorana Jelenak, National Oceanic and Atmospheric Administration / UCAR, United States; Junghoong Park, National Oceanic and Atmospheric Administration / Global Science & Technology, United States; Seunghoon Saino, National Oceanic and Atmospheric Administration / UCAR, United States; Paul Chang, National Oceanic and Atmospheric Administration, United States

TUP1.PS.3 IMPACT OF SPECULATIVE POINT ESTIMATION INACCURACIES ON TECHDEMODSAT-1 GNSS-REFLECTOMETRY OBSERVABLES OVER OCEANS
Giusseppe Grici, Ad Stoffelen, Royal Dutch Meteorological Institute, Netherlands; Marcus Portabello, Marine Science Institute (IC-CSI), Spain

TUP1.PS.4 A PATCH MODEL BASED ON NUMERICAL SOLUTIONS OF MAXWELL EQUATIONS FOR GNSS-R LAND APPLICATIONS
Jiyun Zhao, Leuzg Zhang, Haokui Xu, Wenchao Guo, University of Michigan, United States

TUP1.PS.5 ON-ORBIT TRENDING OF CYGNSS DATA
Darren McGilvay, Christopher Rid, University of Michigan, United States

TUP1.PS.6 A REAL-TIME EIRP LEVEL 1 CALIBRATION ALGORITHM FOR THE CYGNSS MISSION USING THE ZENITH MEASUREMENTS
Tianlin Wang, Christopher Rid, University of Michigan, United States; Bruce Black, Darren McGilvay, University of Michigan, United States; Andrew O'Brien, Ohio State University, United States

TUP1.PS.7 THE PSEUDO MONOSTATIC POINT FOR GNSS-R
Benjamin Southwell, Andrew Dempster, ASCER, University of New South Wales, Australia

TUP1.PS.8 AN ADAPTIVE WINDOW FOR GNSS-R STARE PROCESSING
Benjamin Southwell, Andrew Dempster, ASCER, University of New South Wales, Australia

TUP1.PS.9 COHERENT REFLECTIONS USING CLOSED-LOOP PLL PROCESSING OF CYGNSS IF DATA
Yang Wang, Jade Morton, University of Colorado Boulder, United States

TUP1.PS.10 CHARACTERIZATION OF COHERENCE PROPERTIES OF SIGNALS OF OPPORTUNITY OVER LAND SURFACE
Rahim Shal, California Institute of Technology, NASA Jet Propulsion Laboratory, United States; Jade Morton, Yang Wang, Ian Collett, University of Colorado Boulder, United States

TUP1.PS.11 GENETIC ALGORITHM BASED GNSS-R SNOW WATER EQUIVALENT ESTIMATION
Yunwei Li, Xin Cheng, Shuyan Wang, Taoqian Jin, Wuhan University, China; Kegen Yu, China University of Mining and Technology, China

TUP1.PS.12 DIGITAL SYSTEM DESIGN OF AN AIRBONE L/S/C-BAND MICROWAVE INTERFEROMETER RADIOINTERFEROMETER
Tanshu Guo, University of Chinese Academy of Sciences, Key Laboratory of Microwave Remote Sensing, National Space Science Centre, Chinese Academy of Sciences, China; Hao Liu, Hao Lu, Changing Huo, Lihe Liu, Key Laboratory of Microwave Remote Sensing, National Space Science Centre, Chinese Academy of Sciences, China

Tuesday, July 30

Session TUP2.PS

Monitoring and Damage Assessment of Landslide and Surface Deformation II

Session Co-Chairs: Takashi Nonaka, Nihon University; Shoichiro Kajima, NICT

TUP2.PS.1 LANDSLIDE GEOHAZARD ASSESSMENT WITH CONVOLUTIONAL NEURAL NETWORKS USING SENTINEL-2 IMAGERY DATA
Silvia Librera Ucci, University of Sannio, Italy; Maximilian Shao Langenkamp, Thomas Pelleni Okbisen, Massachusetts Institute of Technology, United States; Maria Pia Del Rosso, Alessandro Sabatini, Federica Pistocchi, Stefania Siro, University of Sannio, Italy

TUP2.PS.2 LANDSLIDE SUSCEPTIBILITY MAPPING USING LOGISTIC REGRESSION MODEL BASED ON INFORMATION VALUE FOR THE REGION AROUND CHINA-THAILAND RAILWAY FROM SARABURI TO SIKHOO, THAILAND
Ch Xu, Wenschang Zhang, Yuxing Yi, Institute of Remote Sensing, Remote Sensing and Digital Earth, Chinese Academy of Sciences, China; Qi Xu, Institute of Karst Geology, Chinese Academy of Geological Sciences, China

TUP2.PS.3 MAPPING SURFACE DEFLATION AND AQUIFER CHARACTERISTICS AROUND THE KUMAMOTO PLAIN, JAPAN, USING PERSISTENT SCATTERER INTERFEROMETRY
Karunya Ishikawa, Kyushu University, Japan; Takashi Taji, Kyushu University, Japan

TUP2.PS.4 UNSUPERVISED AND AUTOMATIC GENERATION OF DINSAR CO-SEISMIC DISPLACEMENT MAPS BY MEANS OF SENTINEL-1 DATA
Fernando Monterosso, University of Naples Parthenope, Italy; Manuela Bonano, Claudio de Luca, Vincenzo De Novellis, Riccardo Lanari, Giampiero Monetti, Marco Sasso, Giovanni D'orazio, Institute of Remote for Electromagnetic Sensing of the Environment-IREA, National Research Council-CNR, Italy; Emanuela Vellaire, University of Rome “La Sapienza”, Italy; Ivan Zino, Francesco Cau, Institute of Remote for Electromagnetic Sensing of the Environment-IREA, National Research Council-CNR, Italy

TUP2.PS.5 AUTOMATIC IDENTIFICATION OF POTENTIAL LANDSLIDES BY INTEGRATING REMOTE SENSING, DEM AND DEFORMATION MAP
Zhangyan Xu, Changming Zhao, Xiaofeng Liu, Chang-an University, China; Yuanjian Liu, East China University of Technology, China

TUP2.PS.6 ALOS-2 OBSERVATIONS OF SUBSIDENCE IN SHENZHEN
Peng Liu, Xiaofei Chen, Jiankun Xu, Southern University of Science and Technology, China; Chaoqiang Wang, Zhaowei Hu, Shenzhen University, China

TUP2.PS.7 A NEW METHOD FOR URBAN SUBSIDIENCE MONITORING USING TIME SERIES INSAR COMBINING TANDEM-A CASE STUDY OF PAZHOU ISLAND
Changliu Li, Guangzhou Urban Planning Design & Survey Research Institute, China; Qi Liu, Central South University, China; Yang Song, Chenyue Chen, Guangzhou Urban Planning Design & Survey Research Institute, China

TUP2.PS.8 MULTI-TEMPORAL AND MULTI-SENSOR INSAR RESULTS TO SUPPORT GEOHAZARD ASSESSMENT IN THE BANDUNG AREA, (WESTERN JAVA, INDONESIA)
Cristiano Tolomei, Stefano Salvi, Istituto Nazionale di Geofisica e Vulcanologia, Italy; Aung T. Yuwahna, Delhaits Indonesia, Indonesia; Geert Prinsen, Delhaits, Netherlands; Giuseppe Pozzo, Istituto Nazionale di Geofisica e Vulcanologia, Italy; Joseph Beckers, Delhaits, Netherlands; Simonne Aretz, Istituto Nazionale di Geofisica e Vulcanologia, Italy

TUP2.PS.9 SPATIAL ASSESSMENT OF LAND DEGRADATION SENSITIVE AREAS IN KORLA
Jiachen Dong, Yanzhi Chen, Xiaojun Wang, Meng Ge, Key Lab. of Spatial Data Mining & Information Sharing of Ministry of Education, National & Local Joint Engineering Research Center of Satellite Geospatial Information Technology, Fudan University, China

TUP2.PS.10 MEASURING THE BOUNDARY OF CRUSTAL DEFORMATION AREA BY INSAR
Meng Zhu, Qiming Zeng, Jian Jiao, School of Earth and Space Sciences, Peking University, China

Session TUP2.PS  Poster

Tuesday, July 30 15:20 - 16:20 Room 503: Area S
WEDNESDAY

**WEPE1 SPRINT Session**

**WEPE1.SPR.1 A SEMI-SUPERVISED APPROACH TOWARDS LAND COVER MAPPING WITH SENTINEL-2 DESNSE TIME-SERIES IMAGERY**

Ting Hu, Xin Huang, Jiayi Li, Wuhan University, China; Jan Ali Benediktsson, University of Iceland, Iceland; Jiansi Yang, Jianya Gong, Wuhan University, China

**WEPE1.SPR.2 CAL/VAL PHASE FOR THE SWIM INSTRUMENT ONBOARD CFOSAT**

Raquel Rodrigues Soquet, Laura Hermosa, Cádiz Touré, Gérald Thin, CNES, France; Danielle Hauser, Patricia Schappert, Lauriane Delloye, LATMOS, CNRS, UVSQ, Sorbonne Université, France; Leilt Assaf, Nice Delphine, Matin France, France; Alain Mayne, Bertrand Chapron, Fabrice Calladine, Thémer, France; Christophe Dufarte, LATMOS, CNRS, UVSQ, Sorbonne Université, France; Flavien Guillaud, CNES, France; Annabelle Olivier, GLAS, France; Gilles Guittain, Thémer, France; Jean-Michel Lachêve, CNES, France

**WEPE1.SPR.3 CONSTRAINED DISTANCE BASED K-MEANS CLUSTERING FOR SATELLITE IMAGE TIME-SERIES**

Thomas Lampert, Baptiste Lafabregue, Pierre Gançarski, University of Strasbourg, France

**WEPE1.SPR.4 MICROWAVE SINGLE PIXEL IMAGER (MSPI) ANTENNA ASSEMBLY**

Justin Bobak, Scott Rudolph, Michael Nurnberger, Hatim Alqadah, US Naval Research Laboratory, United States

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Wednesday, July 31 15:20 - 16:20 Room 503: Sprint Area

**WEPE2 SPRINT Session**

**WEPE2.SPR.1 SMOS INSTRUMENT PERFORMANCE AFTER MORE THAN 9 YEARS IN ORBIT**

Manuel Martín-Neira, Roger Oliva, European Space Agency (ESA), Netherlands; Ignasi Cortell, Francesc Torres, Maria Dufli, Israel Durán, Polytechnic University of Catalonia, Spain; Júlio Kanno, Hayo Technologies, Finland; Joost Clos, Albert Zonett, Airbus Defence and Space, Spain; François Cahen, Ali Khazaei, EADS Astrium, France; Philippe Richard, Centre d'Étude Spatial de la BIOsphère (CESBIO), France; Jean-Bastien, Research and Development in Aerospace, Switzerland; Gonzalo Lopes, DEIMOS, Portugal; Jan Tenuell, OceanDataLab, France; Raúl Díaz-García, Telefónica VESPA-UK, Spain; Jorge Fauste, European Space Agency (ESA), Spain; Antonio Turiel, Verónica González-Gambao, SMOS Barcelona Expert Centre, Spain; Raffaele Crapolicchio, European Space Agency (ESA), Italy; Giovanni Massolari, Marco Braglia, Institute of Applied Physics, Italy; Pierre Vogel, Martin Søves, European Space Agency (ESA), Netherlands

**WEPE2.SPR.2 ARCTIC SEA SURFACE SALINITY RETRIEVAL FROM SMOS MEASURES**

Justino Martinez, Carolina Gabarre, Estrella Olmedo, Verónica González-Gambao, Cristina González-Haro, Antonio Turiel, Institute of Marine Sciences (ICM-CSIC), Spain; Roberto Sabia, Telefónica-Vega, Italy; WeiXing Tang, Simon Yeeh, California Institute of Technology, NASA Jet Propulsion Laboratory, United States
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<td>Katina Li, Zheqiang Li, Fengyun Zhang, Zhengwei Li, Han Li, Yingsong Xie, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China</td>
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<td>Yuxuan Zhang, Pengfei Ma, Lijuan Zhang, Qing Li, Zhiyong Wang, Ministry of Environmental Protection of the People’s Republic of China, China</td>
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<td>IMPROVING THE REPRESENTATION OF AGRICULTURAL AMMONIA EMISSIONS FOR A BETTER AIR QUALITY FORECASTING OVER FRANCE: A SIMPLE MODEL TO ESTIMATE FERTILIZATION DATES FROM METEOROLOGICAL CONSTRAINT</td>
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### Wednesday, July 31

**09:40 - 10:40 Room 501-502: Area B**

**Session WEP1.PB**

**Clouds and Precipitation: Calibration and Modelling I**

*Session Chair: Gail Skofronick Jackson, NASA*

**WEP1.PB.1**

A RECONSTRUCTION METHOD FOR CLOUDY REMOTE SENSING IMAGES  
**Board PB.1**  
Meng Xu, Sen Jia, Shenzhen University, China; Mark Pickering, Xiuping Jia, University of New South Wales, Canberra, Australia

**WEP1.PB.2**

MERGING SATELLITE-BASED AND GAUGE-BASED PRECIPITATION DATA FOR HYDROLOGICAL FORECASTING  
**Board PB.2**  
Ying Zhang, Jionglin Guo, Yong Ren, Wenxiong Wang, Chinese Academy of Sciences, China

**WEP1.PB.3**

THE EFFECTS OF TEMPERATURE DIFFERENCE BETWEEN CLOUD BASE AND CLOUD TOP ON SURFACE LONGWAVE RADIATION ESTIMATE BASED ON CALIPSO AND REANALYSIS DATA  
**Board PB.3**  
Feng Yang, Jun Cheng, Qi Zeng, Beijing Normal University, China

**WEP1.PB.4**

PRECIPITATION CHANGE DURING THE SNOW PERIOD IN THE NORTHERN XINJIANG, A TYPICAL ARID REGION  
**Board PB.4**  
Wenguang Wang, Hongyu Li, Jian Wang, Northwest Institute of Eco-Environment and Resources, Chinese Academy of Sciences, China

**WEP1.PB.5**

USING QUANTILE MAPPING TO CORRECT WRF PRECIPITATION FOR IMPROVEMENT OF RUNOFF SIMULATION IN MANAS RIVER BASIN  
**Board PB.5**  
Jiapei Ma, Hongyi Li, Jian Wang, Xinjun Liu, Key Laboratory of Remote Sensing of Gansu Province, Heihe Remote Sensing Experimental Research Station, Northwest Institute of Eco-Environment and Resources, Chinese Academy of Sciences, China

**WEP1.PB.6**

PHENOMENOLOGY OF THE MESOAMERICAN RAINY SEASON  
**Board PB.6**  
Danielle Groenen, Mark Bourassa, Florida State University, United States

**WEP1.PB.7**

APPLICATION OF A PHYSICALLY BASED RADAR RAINFALL SYSTEM OVER SOUTHWEST CHINA  
**Board PB.7**  
Yabin Gu, Hongzhou Meteorological Bureau, China; Huanan Chen, NOAA/Earth System Research Laboratory / Colorado State University, United States; Jionglin Guo, Key Laboratory of Microwave Remote Sensing, National Space Science Center, China; Qiulei Xia, Chengdu University of Information Technology, China

**WEP1.PB.8**

PATH INTEGRATED ATTENUATION AS A FUNCTION OF PRECIPITATION VARIABILITY ACROSS SATELLITE FIELD-OF-VIEWS  
**Board PB.8**  
Christopher Williams, University of Colorado Boulder, United States

**WEP1.PB.10**

GLOBAL PRECIPITATION SENSITIVITY ANALYSIS USING THE MWHTS AND MWTS ON FY-3D SATELLITE  
**Board PB.10**  
Ma Li, Jiaying He, Shengwei Zhang, Chinese Academy of Sciences, China

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**15:20 - 16:20 Room 501-502: Area B**

**Session WEP2.PB**

**Aerosols III**

*Session Co-Chairs: Jonathan Li, University of Waterloo; Itaru Sano, Kindai University*

**WEP2.PB.1**

THE ROLE OF AEROSOLS AND LAND SURFACE ALBEDO IN COUPLING THE LAND – ATMOSPHERE SYSTEM IN THE TIBET PLATEAU  
**Board PB.1**  
Massimo Menenti, State Key Laboratory of Remote Sensing Science, Institute of Remote Sensing and Digital Earth, China; Yongning Wu, Hunan University of Science and Technology, China; Lauro Roupioz, Office National d’Études et de Recherches Aérospatiales, ONERA, France; Lian Liu, Weiqiang Ma, Junru Jia, Chinese Academy of Sciences, China

**WEP2.PB.2**

AEROSOL PROPERTIES DURING CANADIAN WILDFIRE EVENT IN SUMMER OF 2018  
**Board PB.2**  
Itaru Sano, Kindai University, Japan; Sonoyo Mukai, Kyoto College of Graduate Studies for Informatics, Japan; Makiko Nakata, Kindai University, Japan

**WEP2.PB.3**

LATITUDINAL VARIATION OF CLOUD EFFECTIVE RADIUS AND AEROSOL OPTICAL DEPTH FROM MODIS DATA  
**Board PB.3**  
Neel Sarkar, Arijit De, Netaji Subhash Engineering College, India

**WEP2.PB.4**

LONG-TERM TREND OF GROUND-LEVEL PM2.5 CONCENTRATIONS OVER 2012-2017 IN CHINA  
**Board PB.4**  
Ming Liu, University of Waterloo, Canada; Gaoxiang Zhou, China University of Geosciences, China; Rebecca Saari, Jonathan Li, University of Waterloo, Canada

**WEP2.PB.5**

ESTIMATING PM2.5 CONCENTRATIONS OF HIGH-RESOLUTION IN TAIWAN ISLAND USING GF-1 WFV DATA  
**Board PB.5**  
Xiaoqin Wang, Feng Wang, Liangliang Jia, Hua Su, Mengjing Lin, Fuzhou University, China

**WEP2.PB.6**

HOURLY GROUND LEVEL PM2.5 ESTIMATION FOR THE SOUTHEAST OF CHINA BASED ON HIMAWARI-8 OBSERVATION DATA  
**Board PB.6**  
Ying Li, Chinese Academy of Sciences, China; Yong Xue, University of Derby, United Kingdom; Jie Guang, Lu She, Guili Chen, Cheng Fan, Chinese Academy of Sciences, China

**WEP2.PB.7**

ESTIMATION AND EVALUATION OF AIR QUALITY DEGRADATION BY THE SUDDEN BURNING ACTIVITIES  
**Board PB.7**  
Kwonho Lee, Gangneung-Wonju National University, Korea (South)

**WEP2.PB.8**

SPATIAL SIMULATION OF SECONDARY ORGANIC AEROSOL FORMATION FROM THE REACTION OF BVOCs AND NITROGEN OXIDES IN GUANGDONG, CHINA  
**Board PB.8**  
Yangcheng Zheng, Lili Li, Yunpeng Wang, Guangzhou Institute of Geochemistry, Chinese Academy of Sciences, China
### Earth Observation

**Session Co-Chairs:** Bruce Chapman, NASA Jet Propulsion Laboratory; Linlin Ge, University of New South Wales

**WEP1.PD.1**  
**POWER TRANSMISSION TOWER CFAR DETECTION ALGORITHM BASED ON INTEGRATED SUPERPIXEL WINDOW AND ADAPTIVE STATISTICAL MODEL**  
Xin Zhou, Xingyu Liu, Qiao Chen, Zheng Zhang, China University of Geosciences (Wuhan), China

**WEP1.PD.2**  
**BILGE DUMP AUTOMATIC ALERT SYSTEM IN SOUTHERN AFRICA OCEANS**  
Lizwe Mdlakane, Council for Scientific and Industrial Research, South Africa; Waldo Klynhans, University of Pretoria, South Africa; Cato Schwegmann, Rory Meyer, Council for Scientific and Industrial Research, South Africa

**WEP1.PD.3**  
**LONG TERM LAND SUBSIDENCE ANALYSIS BY FUSING MULTI-SENSOR TIME SERIES INSAR RESULTS**  
Jiaoyi Li, Lirenquan Wei, Qiyue Feng, Shouyong Liu, College of Resources and Civil Engineering, Northeastern University, China

**WEP1.PD.4**  
**ANALYSIS OF IONOSPHERIC SCINTILLATION IMPACT ON SPACE-BORNE P-BAND SLIDING SPOTLIGHT SAR SYSTEM**  
Lin Yu, Yangxiong Zhang, Yifan Ji, Miao Zhang, Zhe Dang, National University of Defense Technology, China

**WEP1.PD.5**  
**ICE VELOCITY MEASUREMENTS OF NARSSAP SERMIA IN GREENLAND USING MULTI-TEMPORAL TERRASAR-X/TANDEM-X SAR OBSERVATIONS**  
Seong-Woo Jung, Soo-Woo Park, Sang-Hoon Hong, Pusan National University, Korea (South)

**WEP1.PD.6**  
**VOLUME CHANGE OF THE QUARRY IN THE 2015 SHENZHEN LANDSLIDE MONITORED BY SAR SHAPE FROM SHADING**  
Chicheng Wang, Zhangwen Hu, Shenzhen University, China; Peng Liu, Southern University of Science and Technology, China

**WEP1.PD.7**  
**MEASUREMENTS OF FOLIAGE-INDUCED SIGNAL MODULATION AT L-BAND**  
Alvin Goh, Mark Prins, Elliott Hansen, Defence Science and Technology Group, Australia

**WEP1.PD.8**  
**FUSION OF POLARIMETRIC AND TEXTURE INFORMATION FOR EARTHQUAKE-INDUCED LANDSLIDE EXTRACTION FROM “GAOFEN-3” FULLY POLARIMETRIC SAR IMAGERY**  
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**WEP1.PD.9**  
**SAR IMAGE CHANGE DETECTION BASED ON MEAN SHIFT PRE-CLASSIFICATION AND FUZZY C-MEANS**  
Ronghua Shang, Kaize Xie, Michael Aggrey Okoth, Licheng Jiao, Xidian University, China

**WEP1.PD.10**  
**ASSESSMENT OF THE SOIL MOISTURE ESTIMATION AT THE KOREA PENINSULA: CASE STUDY FOR AGRICULTURE AND MOUNTAINEOUS AREAS**  
Seongbum Cho, Joehwan Jeong, Jongju Bak, Minha Choi, Sungkyunkwan University, Korea (South)
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SAR Interference Mitigation
Session Co-Chairs: Franz Meyer, Univ. Alaska Fairbanks; Manabu Watanabe, Tokyo Denki University

WEPI.PE.1 MULTITARGETS DECEPTION JAMMING FOR SAR WITH FREQUENCY DIVERSE ARRAY
Liping Huang, Zhulin Zong, Hui Wang, Limin Huo, Zhouwei Xu, University of Electronic Science and Technology of China, China

WEPI.PE.2 A NOVEL DECEPTIVE JAMMING METHOD VIA FREQUENCY DIVERSE ARRAY
Wei Mao, National Key Laboratory of Science and Technology on Text Physics and Numerical Mathematics, China; Hui Wang, Shunsheng Zhang, Research Institute of Electronic Science and Technology, University of Electronic Science and Technology of China, China; Xiangyang Liu, National Key Laboratory of Science and Technology on Text Physics and Numerical Mathematics, China

WEPI.PE.3 NARROWBAND INTERFERENCE SUPPRESSION ON SINGLE-CHANNEL SAR SYSTEMS VIA REWEIGHTED TENSOR NUCLEAR NORM MINIMIZATION
Yan Huang, Southeast University, China; Tao Yan, Xidian University, China; Le Zhang, Sun Yat-sen University, China; Yu Zhou, Xidian University, China; Gang Xu, Southeast University, China; Cai Wen, Northwestern University, China

WEPI.PE.4 AN NOVEL IMAGING ALGORITHM FOR MEB SAR SYSTEMS WITH CHANNEL ERRORS
Yong Zhang, Taoli Yang, Xingyu Lu, University of Electronic Science and Technology of China, China

WEPI.PE.5 REMOVAL OF DIFFERENT TYPES OF NOISES IN SYNTHETIC APERTURE RADAR (SAR) IMAGES FOR IMPROVED SHIP DETECTION
Ji-Hyan Park, Chan-Soo Yang, Ahmed Hauru-Al-Rachid, Korea Institute of Ocean Science & Technology, Korea (South); Kazuo Ouchi, IHI Corporation, Japan

WEPI.PE.6 SAR INTERFERENCE SUPPRESSION BASED ON SIGNAL SYNTHESIS FROM JOINT TIME-FREQUENCY DISTRIBUTION
Jia Su, Hang Zhang, Aimin Su, Northwestern Polytechnical University, China; Cai Wen, Northwest University, China; Guimei Zheng, Air Force Engineering University, China

WEPI.PE.7 TEMPORAL STABILITY OF GROUND NOTCHED IMAGES
Mauro Maniati di Alessandro, Politecnico di Milano, Italy; Yi Bai, Wuhan University, China; Stefano Tedaldini, Politecnico di Milano, Italy

WEPI.PE.8 MICRO-MOTION DECEPTION JAMMING ON SAR USING FREQUENCY DIVERSE ARRAY
Zhilin Zong, Liping Huang, Hui Wang, Limin Huo, Zhouwei Xu, University of Electronic Science and Technology of China, China

WEPI.PE.9 GPU-ACCELERATED FEATURE EXTRACTION AND TARGET CLASSIFICATION FOR HIGH-RESOLUTION SAR IMAGES
Yong-Lang Chang, Sine Hadipour, Cheng-Yee Chang, National Taipei University of Technology, Taiwan; Hirokazu Kobayashi, Osaka Institute of Technology, Japan

WEPI.PE.10 A COMPLEX DECONVOLUTION METHOD BASED ON DOPPLER CENTROID ESTIMATION
Yigui Huang, Deqing Mao, Yang Wu, Wengchao Zhang, Yin Zhang, Jianyu Yang, University of Electronic Science and Technology of China, China

Wednesday, July 31
15:20 - 16:20 Room 501-502: Area E
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Analysis of SAR/POLSAR Data
Session Chair: Florence Tupin, Télécom ParisTech

WEP2.PE.1 LOCAL COMPETITIVE WISHERT CLASSIFIER FOR POLARIMETRIC SAR IMAGES
Xiyun Liu, Junjun Yin, Tao Wang, University of Science and Technology Beijing, China

WEP2.PE.2 PLASTIC-MULCHED FARMLAND CLASSIFICATION COMPARISONS BETWEEN X AND C-BAND POLARIMETRIC SAR DATA
Chang-Mo Liu, Zhangrun Chen, Shangming Wu, Key Laboratory of Agricultural Remote Sensing, Ministry of Agriculture/Institute of Agricultural Resources and Regional Planning, Chinese Academy of Agricultural Sciences, China

WEP2.PE.3 CLASSIFICATION OF HUNSHANDAKE SANDY LAND BASED ON POLARIMETRIC SAR DATA
Wenian Tan, Tingting Hu, Pingping Huang, Wei Xu, Inner Mongolia University of Technology, China

WEP2.PE.4 UNSUPERVISED CATEGORIZATION OF FOREST-COVER USING MULTI-SPECTRAL AND HYBRID POLARIMETRIC SAR IMAGES
Shachanak M Awatia, Rajeswar Mahapatra, Jayantyo Mukhopadhyay, Prabir K. Brown, Suddhas Adak, Indian Institute of Technology Kharagpur, India; Arundhati Misra, Indian Space Research Organization, India

WEP2.PE.5 REGION-BASED CLASSIFICATION OF GF-3 POLSAR IMAGERY USING DEEP REINFORCEMENT LEARNING METHOD
Wen Nie, Jia Yang, Pingxiang Li, Lingyi Zhao, Jinjun Zhao, Rui Huang, Xiaoxing Gong, Wuhan University, China

WEP2.PE.6 UNSUPERVISED CLASSIFICATION OF HIGH-RESOLUTION SAR IMAGES USING MULTILAYER LEVEL SET METHOD
Chuan Xu, Haigang Su, Han Liu, Zuyin Sun, Wuhan University, China; Li Hua, Huazhong Agricultural University, China

WEP2.PE.7 SAR IMAGE CLASSIFICATION VIA CNN WITH STATISTICAL POOLING
Chuji Hu, LIESMARS, Wuhan University, China; Xin Su, Wuhan University, China; Bin Luo, LIESMARS, Wuhan University, China

WEP2.PE.8 JOINT CONVOLUTIONAL NEURAL NETWORK FOR SMALL-SCALE SHIP CLASSIFICATION IN SAR IMAGES
Yanzeng Wu, Ye Yuan, Jian Guan, Harbin Engineering University, China; Li Hua, Huazhong Agricultural University, China

WEP2.PE.9 INFORMATION ACQUISITION ABILITY OF LFMW FOR SAR
Jiawei Zhang, Huaping Xu, Zhaohong Li, Jingwen Li, Beihang University, China

WEP2.PE.10 A STUDY ON THE FREQUENCY AND AZIMUTH COHERENCE OF HIGH-RESOLUTION SAR IMAGE
Weixian Tan, Tingting He, Pingping Huang, Wei Xu, Inner Mongolia University of Technology, China

WEP2.PE.11 DEEP LEARNING SOLUTIONS FOR TANDEM-X-BASED FOREST CLASSIFICATION
Antonio Mazza, University Federvio R. d Napoles, Italy; Francescospaso Sia, German Aerospace Center (DLR), Germany

WEP2.PE.12 FOREST CLASSIFICATION AND DEFORESTATION MAPPING BY MEANS OF SENTINEL-1 IN SAR STACKS
Francescospaso Sia, Andrea Pulella, Paola Rizzoli, German Aerospace Center (DLR), Germany
### Time-Series / Change Detection
**Session Chair:** Pasquale Iervolino, University of Surrey

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<td>Davide Amirante, Raffaella Guida, Pasquale Iervolino, University of Surrey, United Kingdom</td>
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<td>Ming Chen, Ruoxi Zeng, Yue Han, University of Science and Technology of China, China; Zhiyong Li, Institute of Remote Sensing Application, Chinese Academy of Sciences, China</td>
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<td>CHANGE DETECTION AND TRANSFER LEARNING APPROACH FOR UPDATING THE HABITAT MAPS IN UAE</td>
<td>Prapow Mananath, Prasanth Marpu, Khalifa University, United Arab Emirates</td>
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<td>TIME SERIES OF SENTINEL IMAGES AND DECISION FOREST FOR CLASSIFICATION OF LAND COVER OF PAYS DE BRET (FRANCE)</td>
<td>Simona Nocito, Université de Bretagne Occidentale, France; Jouchi Su, INRAE Center for Advanced Intelligence, Japan</td>
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<td>AUTOMATED SEASONAL DETECTION OF COAL SURFACE MINE REGIONS FROM LANDSAT 8 OLI IMAGES</td>
<td>Jr. Mukherje, Jyoty Mukhopadhyay, Debashish Chakravarty, Subhas Aikat, Indian Institute of Technology Kharagpur, India</td>
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### Natural Disasters / Monitoring of the Environment
**Session Co-Chairs:** Fan Wu, Chinese Academy of Sciences; Mauro Dalla Mura, GIPSA-lab, Grenoble Institute of Technology

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<td>DISCRIMINATION OF COLLAPSED BUILDINGS FROM REMOTE SENSING IMAGERY USING DEEP NEURAL NETWORKS</td>
<td>Fan Wu, Chao Wang, Bo Zhang, Hong Zhang, Ling Gong, Chinese Academy of Sciences, China</td>
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<td>Yan Zhao, China Transport Telecommunications &amp; Information Centre / Peking University, China; Ruiwei Sun, Peking University, China; Danyang Geng, China Transport Telecommunications &amp; Information Centre / Peking University, China; Jinxin Guo, Shaohua Chen, Peking University, China</td>
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<td>Upefio Bhangole, K. J. Somaiya College of Engineering, India; Surya Dutta, Abhisek Patnaik; Rajat Shinde, I.I.T. Bombay, India</td>
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<td>CO-FEATURE AND SHAPE PRIOR BASED SALIENCY ANALYSIS FOR OIL SPILL DETECTION</td>
<td>Congying Liu, Libao Zhang, Shiyi Wang, Beijing Normal University, China</td>
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<td>APLICABILITY OF MULTIFRACTAL FEATURES AS DESCRIPTORS OF THE COMPLEX TERRAIN SITUATION IN IDP/REFUGEE CAMPS</td>
<td>Maciej Piotrowski, Anna Wawrzaszek, Michal Kupiszewski, Space Research Centre, Polish Academy of Sciences, Poland; Wojciech Drzewiecki, AGH University of Science and Technology, Poland; Sebastian Aleksandrowski, Space Research Centre, Polish Academy of Sciences, Poland</td>
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<td>Hoo Jing, Yingzhou Feng, Wenkai Zhang, Yung Zhu, Institute of Electronics, Chinese Academy of Sciences, China; Susumu Watanabe, Northeastern University, China; Kun Fu, Kaipeng Chen, Institute of Electronics, Chinese Academy of Sciences, China</td>
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<td>Emiko Arakawa, Satomi Kishi, Rikuta Goto, Tokai Sano, Asia Air Survey, Japan</td>
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<td>SUPPORT VECTOR MACHINE (SVM) CLASSIFIER WITH SMALL TRAINING SAMPLES FOR MAPPING SALTMARSH WETLAND AT SPECIES LEVEL</td>
<td>Srikar M.M. Rasel, Department of Primary Industries, Australia; Hsing-Chung Chang, Macquarie University, Australia; Iain Doherty, Macquarie University, Australia; Tairu Dhi, RaphMish University, Bangladesh; Tim Glessner, Department of Primary Industries, Australia</td>
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<td>TOWARD AN UNSUPERVISED COLORIZATION FRAMEWORK FOR HISTORICAL LAND USE CLASSIFICATION</td>
<td>Kumi Rataczak, Carlos Criquielion-Junior, Université Lumière Lyon 2, France; Elodie Faure, Béatrice Fervers, Centre Léon Bérard, France; Laure Tougne, Université Lumière Lyon 2, France</td>
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<td>Daniel Zanotta, Fabiano Dias, Leticia Soriniec, IRIS, Brazil</td>
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Wednesday, July 31 09:40 - 10:40 Room 501-502: Area G
Session WEP1.PG
Poster

Data Analysis with UAV
Session Chair: Marwan Younis, German Aerospace Center (DLR)
WEP1.PG.1 Board PG.1
UAV-BASED IDENTIFICATION OF ACHNATHERUM SPLENDENS COMMUNITY COMBINING K-MEANS AND ARTIFICIAL FISH SWARM ALGORITHM
Jingjie Zhao, Yan Feng, Qi Hong, Anhui University, China; Zhenggan Pan, Suzhou University, China; Linchao Huang, Dongyan Zhang, Anhui University, China

WEP1.PG.2 Board PG.2
TWO-BRANCH NEURAL NETWORK FOR LEARNING MULTI-LABEL CLASSIFICATION IN UAV IMAGERY
Yakouh Bai, King Saud University, Saudi Arabia

WEP1.PG.3 Board PG.3
RESEARCH ON UAV IMAGE REGISTRATION BASED ON SIFT ALGORITHM ACCELERATION
Wei Li, Changhui Li, Feng Wang, Guangzhou Urban Planning Design & Survey Research Institute, China

WEP1.PG.4 Board PG.4
FULLY CONVOLUTIONAL SVN FOR CAR DETECTION IN UAV IMAGERY
Yunyan Li, University of Electronic Science and Technology of China, China; Fard Mahamadi, University of Trento, Italy; Biabin He, University of Electronic Science and Technology of China, China

WEP1.PG.5 Board PG.5
EXTRACTING CADASTRAL BOUNDARIES FROM UAV IMAGES USING FULLY CONVOLUTIONAL NETWORKS
Xun Xu, Mia Kanno, Claudio Persello, University of Twente, Netherlands

WEP1.PG.6 Board PG.6
DEEP LEARNING FOR SEMANTIC SEGMENTATION OF UAV VIDEOS
Yiyen Wang, Ye Liu, University of Twente, Netherlands; Yanzong Cao, Zhejiang University, China; Michael Ying Yang, University of Twente, Netherlands

WEP1.PG.7 Board PG.7
AN EMPIRICAL APPROACH ON SHADOW REDUCTION OF UAV IMAGERY IN FORESTS
Xavier Pons, Joan-Cristian Padri, Universitat Autònoma de Barcelona, Spain

WEP1.PG.8 Board PG.8
WEED DETECTION USING CONVOLUTIONAL NEURAL NETWORKS BASED ON U-NET IN RGB UAV IMAGES
Hossein Luqiz Mehrabadi, Mehrdad Hareaui, College of Engineering, University of Tehran, Iran; Mehrdad Roosabzadeh, University of Western Australia, Australia

Wednesday, July 31 15:20 - 16:20 Room 501-502: Area G
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Hyperspectral Remote Sensing
Session Co-Chairs: Andrea Marmoni, University of Tromsø; Josée Lévesque, DRDC Valcartier Research Center
WEP2.PG.1 Board PG.1
MINERAL MAPPING OF DRILL CORE HYPERSONAL DATA WITH EXTREME LEARNING MACHINES
Emilio Canavesi, Mahdi Khosrodastdalah, Pedram Ghasemi, Richard Glouven, Helmholtz-Zentrum Dresden-Rossendorf (HZDR), Helmholtz Institute Freiburg for Resource Technology, Germany

WEP2.PG.2 Board PG.2
SEM-SUPERVISED CLASSIFICATION FOR HYPERSONAL IMAGES USING EDGE-CONDITIONED GRAPH CONVOLUTIONAL NETWORKS
Aruna Sha, Bin Wang, Xuelong Wu, Limeng Zhang, Bo Hu, Jian Qiu Zhang, Fudan University, China

WEP2.PG.3 Board PG.3
SPECTRAL-SPATIAL CLUSTERING OF HYPERSONAL IMAGE BASED ON LAPLACIAN REGULARIZED DEEP SUBSPACE CLUSTERING
Meng Zeng, Yaoming Cai, Xiaobo Liu, Zhihua Cai, Xiang Li, China University of Geosciences (Wuhan), China

WEP2.PG.4 Board PG.4
CORRELATION ALIGNMENT BASED ON SPARSE MATRIX TRANSFORM FOR UNSUPERVISED DOMAIN ADAPTATION IN HYPERSONAL IMAGE CLASSIFICATION
Tianhui Wei, Wenqi Fan, Jiangtao Peng, Hubei University, China; Weiwei Sun, Ningbo University, China

WEP2.PG.5 Board PG.5
KNOWLEDGE GUIDED CLASSIFICATION OF HYPERSONAL IMAGE BASED ON HIERARCHICAL CLASS TREE
Xuanxi Ma, Hongyu Wang, Dalian University of Technology, China; Yi Liu, Norwegian University of Science and Technology, Norway; Shao J., Guanghua Sun, Dalian University of Technology, China; Jie Wang, Dalian Maritime University, China

WEP2.PG.6 Board PG.6
MULTISCALE SPECTRAL-SPATIAL UNITED NETWORKS FOR HYPERSONAL IMAGE CLASSIFICATION
Sifan Wu, Junping Zhang, Chongxiao Zhong, Harbin Institute of Technology, China

WEP2.PG.7 Board PG.7
SUPERVISED HYPERSONAL IMAGE CLASSIFICATION VIA SPARSE SEPARABLE CONVOLUTIONAL FEATURE LEARNING
Menghei Song, Jie Song, Xuan Shi, Nanjing University of Science and Technology, China

WEP2.PG.8 Board PG.8
HYPERSONAL IMAGE CLASSIFICATION WITH BACKGROUND
Yajun Zhang, Xuesong Sun, Chuanwu Ye, Dalian Maritime University, China; Chong-Cheng Chang, University of Maryland, United States

WEP2.PG.9 Board PG.9
PIXEL DAG-RECURRENT NEURAL NETWORK FOR SPECTRAL-SPATIAL HYPERSONAL IMAGE CLASSIFICATION
Xiaoyang Li, Qipeng Sun, Linling Li, Zhongke Liu, Fan Li, Licheng Jiao, Xi’an University, School of Artificial Intelligence, China
Wednesday, July 31 09:40 - 10:40 Room 501-502: Area H
Session WEP1.PH Poster

Analysis of LIDAR Data
Session Co-Chairs: Uwe Stilla, Technical University of Munich (TUM); Pedram Ghamisi, Helmholtz-Zentrum Dresden-Rossendorf, Helmholtz Institute Freiberg for Resource Technology

WEP1.PH.1 SEMI-SUPERVISED PYRAMID FEATURE CO-TRAINING NETWORK FOR LIDAR DATA CLASSIFICATION
Zexin Wang, Haoan Wang, Licheng Jiao, Xi Lu, Xidian University, China

WEP1.PH.2 COLLABORATIVE CLASSIFICATION OF HYPERSONAL AND LIDAR DATA WITH INFORMATION FUSION AND DEEP NETS
Chen Chen, Beijing University of Chemical Technology, China; Xudong Zuo, Wei Li, Ruo Tao, Beijing Institute of Technology, China; Qian Du, Mississippi State University, China

WEP1.PH.3 LAND COVER CLASSIFICATION USING REMOTE SENSING IMAGES AND LIDAR DATA
Shouji Du, Shihtong Du, Peking University, China

WEP1.PH.4 A NOVEL LIDAR DATA CLASSIFICATION ALGORITHM COMBINED DENSENET WITH STN
Alii Wong, Mohamedi Wong, Kiyouran Iango, Lanfei Zhao, Harbin University of Science and Technology, China; Yujie Iwahori, Chubu University, Japan

WEP1.PH.5 LIDAR DATA CLASSIFICATION ALGORITHM BASED ON GENERATIVE ADVERSARIAL NETWORK
Alii Wong, Yui Li, Kiyouran Iango, Lanfei Zhao, Harbin University of Science and Technology, China; Yujie Iwahori, Chubu University, Japan

WEP1.PH.6 Voxel-based Attribute Profiles on LIDAR Data for Land Cover Mapping
Fluent Guitreau, LETG-Rennes, France; Sébastien Lefèvre, IRISA, France; Thomas Cappetti, LETG-Rennes, France

WEP1.PH.7 An unsupervised outlier detection method for 3D point cloud
Board: Data
Eman Kumar Dey, Mohammad Awangopp, Balu Stantic, Griffith University, Australia

WEP1.PH.8 Extraction of Multi-scale Geometric Features for Point Cloud Classification
Board: Classification
Rong Huang, Yucheng Xu, Uwe Stilla, Technical University of Munich (TUM), Germany

WEP1.PH.9 An Auxiliary Parking Method Based on Automotive Millimeter Wave SAR
Board: Path
Ruki Wang, Mian Pei, Yongshao Zhang, Minghui Li, Yuhan Huang, Junjie Wu, University of Electronic Science and Technology of China, China

WEP1.PH.10 A Novel Composite Kernel Approach for Multisensor Remote Sensing Data Fusion
Board: Path
Pedram Ghamisi, Helmholtz-Zentrum Dresden-Rossendorf, Helmholtz Institute Freiberg for Resource Technology, Germany; Behnoold Rasti, University of Iceland, Germany; Richard Giugniago, Helmholtz-Zentrum Dresden-Rossendorf, Helmholtz Institute Freiberg for Resource Technology, Germany

Wednesday, July 31 15:20 - 16:20 Room 501-502: Area H
Session WEP2.PH Poster

Hyperspectral Remote Sensing II
Session Chair: Tianzhu Liu, Harbin Institute of Technology

WEP2.PH.1 Improving Hyperspectral Image Classification with UNSUPERVISED KNOWLEDGE LEARNING
Jingyan Zhang, Wei Wei, Northwestern Polytechnical University, China; Lei Zhang, Inception Institute of Artificial Intelligence (IIAI), United Arab Emirates; Yanning Zhang, Northwestern Polytechnical University, China

WEP2.PH.2 Sub-Pixel Mapping with Multiple Shifted Hyperspectral Images Based on Multiobjective Evolutionary Algorithm
Mu Song, Yafei Zhang, Ailong Ma, Wuhan University, China; Qiqi Zhu, China University of Geosciences, China; Liyan Cao, Liangping Zhang, Wuhan University, China

WEP2.PH.3 Segmentation-Aware Hyperspectral Image Classification
Board: Path
Burkhan Dincel, Ozan Guld, Yunes Ennaoui, Safik Girard, HAVELSAN Inc., Turkey

WEP2.PH.4 Hyperspectral Image Denoising via Non-local Sparse Subspace Clustering
Board: Path
Li Zhou, Chen Wang, Xiao Du, Beihang University, China; Jun Zhou, Griffith University, Australia

WEP2.PH.5 Collaborative Representation Ensemble Using Bagging for Hyperspectral Image Classification
Ya Yu, Hongqian Su, Heiba University, China

WEP2.PH.6 Iterative Random Training Sample Selection for Hyperspectral Image Classification
Che-Chen Liang, Yi-Hsin Yau, Kenneth Yeongkau Ma, University of Maryland, Baltimore County, United States; Peter F. Yu, University of Maryland School of Medicine, United States; Chein-I Chang, University of Maryland, Baltimore County, United States

WEP2.PH.7 Data Augmentation and Refining with Steering Stencils for Supervised Classification of Hyperspectral Image
Qichao Liu, Liang Xiao, Nanjing University of Science and Technology, China; Pengfei Lu, Nanjing University of Posts and Telecommunications, China; Nan Huang, Nanjing University of Science and Technology, China

WEP2.PH.8 Classification Based on Capsule Network with Hyperspectral Image
Yi Ma, Yunnan Power Grid Co., Ltd, China; Zezhong Zheng, Zhengguang Guo, Fan Mao, University of Electronic Science and Technology of China, China; Fangrong Zhou, Yunnan Power Grid Co., Ltd, China; Rui Xiao, Jinli Zhao, University of Electronic Science and Technology of China, China; Mingzhu Bao, Department of Natural Resources of Sichuan Province, China; Tong He, Jian Ren, Shenzhen Institute of Geo-Environment Monitoring, China; Huaxin Chen, University of Electronic Science and Technology of China, China; Zhaogang Liu, Beijing Normal University, China; Guoping Zhou, Guilin University of Technology, China; Jiang Li, Old Dominion University, United States

WEP2.PH.9 Fast Kernel Collaborative Representation for Hyperspectral Image Classification
Yan Xu, Qiao Du, Nicole Younan, Mississippi State University, United States
### WEDNESDAY 9:40 - 10:40 Room 501-502: Area I
Session WEPL.P1

#### Soil Moisture and Related Variables Extraction
Session Co-Chairs: Juha Lemmetyinen, Finnish Meteorological Institute; Tianjie Zhao, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences

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<td><strong>ON THE LIGHT PENETRATION IN NATURAL SANDS</strong>&lt;br&gt;Yongsheng Zhou, Run Chen, Zheming Li, Capital Normal University, China</td>
<td><strong>RELATIONS BETWEEN LANDSAT SPECTRAL REFELECTANCES AND LAND SURFACE EMISSIVITY OVER BARE SOILS</strong>&lt;br&gt;Bruno Giardino, INRA, France; Xavier Briat, Sophie Fabre, ONERA, France; Frédéric Jacob, I3D, France; Aurélie Michel, Simon Nethel, ONERA, France; Vincent Rivard, Jean-Louis Rieupeyru, CNRS, France</td>
<td><strong>INFLUENCE OF QUALITY FILTERING APPROACHES IN BEC SMOS LS SOIL MOISTURE PRODUCTS</strong>&lt;br&gt;Miriam Pablos, Instituto de Marine Sciences - Spanish Research Council (ICM - CSIC), Spain; Mercè Vall-Busquets, Universitat Politècnica de Catalunya (UPC), Spain; Maria Piles, Universitat de València, Spain; Adrián Camps, Universitat Politècnica de Catalunya (UPC), Spain; Cristina González-Haro, Antonia Turul, Instituto de Marine Sciences - Spanish Research Council (ICM - CSIC), Spain; Christopher J. D. Herbert, David Chaparro, Gerard Portal, Universitat Politècnica de Catalunya (UPC), Spain</td>
<td><strong>EVALUATION OF SMAP L2/L3 PASSIVE SOIL MOISTURE PRODUCTS USING IN-SITU DATA FROM A DENSE OBSERVATION NET-WORK OVER AGRICULTURAL AREA IN NORTHEAST CHINA</strong>&lt;br&gt;Xiaoqing Zhao, Northeast Institute of Geography and Agriculture, Chinese Academy of Sciences, China; Chen Chen, Sichuan Industrial Park Surveying, Mapping and Geoinformation Co., Ltd., Sichuan, China; Shuang Liang, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China</td>
<td><strong>OVERVIEW AND INITIAL RESULTS OF SOIL MOISTURE EXPERIMENT IN THE LUAN RIVER</strong>&lt;br&gt;Tianjie Zhao, Jianchang Shi, Aerospace Information Research Institute, Chinese Academy of Sciences, China; Shuang Liang, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China</td>
<td><strong>SOIL MOISTURE RETRIEVAL USING A MODIFIED DECOMPOSITION METHOD AND MULTI-INCIDENCE POLARIMETRIC SAR DATA</strong>&lt;br&gt;Hongtao Shi, Jie Xue, Linyi Zhao, Li Shi, Finkong Xiong, Jie Zhao, Weixiang Liu, Li Wang, Wuhan University, China</td>
<td><strong>ESTIMATION OF SOIL MOISTURE THROUGH WATER CLOUD MODEL USING SENTINEL-1A SAR DATA</strong>&lt;br&gt;Vijay Pratap Yadav, Rajendra Prasad, Archi Bala, Ajay Kumar Vishwakarma, Indian Institute of Technology BHU (Banaras Hindu University), India</td>
<td><strong>EVALUATION OF SATELLITE- DERIVED SOIL MOISTURE PRODUCTS USING GROUND-BASED OBSERVATIONS ACROSS CANADA AND CHINA</strong>&lt;br&gt;Ally Yuvar, Ramani Magogigi1, Magogigi, Kallio Guitar, Mongqu Wang, University of Sherbrooke, Canada</td>
<td><strong>GROUND OBSERVATION EXPERIMENTS OF SOIL MOISTURE BASED ON DIFFERENT VEGETATION COVERAGE</strong>&lt;br&gt;Rui Zhao, Engineering University of Cape, China; Tianjie Zhao, Shangrong Li, Jiancheng Shi, Aerospace Information Research Institute, Chinese Academy of Sciences, China; Hao Lu, Engineering University of Cape, China; Li Xu, Aerospace Information Research Institute, Chinese Academy of Sciences, China</td>
<td><strong>SIMULATED MULTI-ANGULAR MICROWAVE RADIATION OF MONTAINOUS AREA</strong>&lt;br&gt;Shaojie Zhao, Beijing Normal University, China; Tao Zhang, Ministry of Natural Resources of P.R.China, China; Yongqiang Li, Beijing City University, China</td>
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Alternative Approaches for Soil Moisture Estimation

Session Chair: Yue-An Liou, National Central University; Rajat Bindlish, NASA Goddard Space Flight Center

**WEP1.P1.1** RETRIEVAL PERFORMANCE ANALYSIS FOR TIME SERIES RETRIEVALS OF SOIL MOISTURE UNDER DYNAMIC VEGETATION CANOPIES AND HETEROGENEOUS LAND COVER USING THE CYGNSS CONSTELLATION
Mohammad Afzal, Shanka Wijesundara, Joel Johnson, Ohio State University, United States

**WEP1.P1.2** REMOTE SENSING OF SOIL MOISTURE FOR VEGETATION/FORESTS WITH LARGE VWC USING NMM3D FULL WAVE SIMULATIONS
Hunting Huang, Long Tang, University of Michigan, United States; Andreas Collander, Simon Trench, California Institute of Technology, NASA Jet Propulsion Laboratory, United States

**WEP1.P1.3** ESTIMATING SOIL MOISTURE FROM SAR INTERFEROMETRY WITH CLOSURE PHASES
Giorgio Gomba, Francesco De Zan, German Aerospace Center (DLR), Germany

**WEP1.P1.4** APPLYING A MACHINE LEARNING METHOD TO OBTAIN LONG TIME AND SPATIO-TEMPORAL CONTINUOUS SOIL MOISTURE OVER THE TIBETAN PLATEAU
Yanlin Cui, Wenchao Xiong, Linyi Hu, Institute of Remote Sensing and GIS, School of Earth and Space Sciences, Peking University, China; Ronghua Liu, Institute of Water Resources and Hydropower Research (INWR), China; Xi Chen, Institute of Remote Sensing and GIS, School of Earth and Space Sciences, Peking University, China; Xiaoyue Geng, Peking University, China; Feng Li, Wenjie Yang, Yang Yang, Institute of Remote Sensing and GIS, School of Earth and Space Sciences, Peking University, China

**WEP1.P1.5** SPATIOTEMPORAL TREND ANALYSIS OF SOIL MOISTURE RETRIEVED FROM THREE NLDAS-BASED ADVANCED LAND SURFACE MODELS OVER THE UNITED STATES: A COMPARATIVE STUDY
Tingqi Wang, Dapeng Wang, Sun Yat-Sen University, China; Yunpeng Wang, Guangzhou Institute of Geochemistry, Chinese Academy of Sciences, China

**WEP1.P1.6** MULTI-PLATFORM RADIONUCLID SYSTEMS FOR SURFACE SOIL MOISTURE RETRIEVAL
Xiaoming Wu, Nan Ye, Jeff Walker, Monash University, Australia; James Hills, University of Tasmania, Australia; Francais Jesus, Institute of Bio- and Geosciences - Agrosphere, Germany; Valentin Pavelew, Monash University, Australia

**WEP1.P1.7** ESTIMATING SURFACE SOIL MOISTURE FROM AMSR2 TB WITH ARTIFICIAL NEURAL NETWORK METHOD AND SMAP PRODUCTS
Panpan Yao, Hui Lu, Siyu Yue, Fan Yang, Haobo Lyu, Kun Yang, Tsinghua University, China; Weitao Xiong, Ling Hu, Institute of Remote Sensing and GIS, School of Earth and Space Sciences, Peking University, China

**WEP1.P1.8** RETRIEVAL OF SOIL SURFACE PARAMETERS VIA HELICOPTER-BORNE P-BAND POLARIMETRIC SAR DATA ACQUIRED ALONG ANTIPARALLEL FLIGHT TRACKS
Antonio Natale, Carmen Esposito, Paolo Berardino, Francesco De Zan, Institute for the Rilevamento Artificiali Nei Modelli (OPTRAM) and University of Genoa, Italy

**WEP1.P1.9** DOWNSCALING SPARSE PASSIVE SOIL MOISTURE PRODUCT WITH MODIS PRODUCTS OVER MOUNTAINOUS REGION
Wen Zhai, Fengqing Xue, Institute of Mountain Hazards and Environment, Chinese Academy of Sciences, China; Liqing Song, School of Geographical Sciences, Southwest University, China; Xinjun Li, Aimin Li, Institute of Mountain Hazards and Environment, Chinese Academy of Sciences, China

**WEP1.P1.10** ESTIMATING SOIL MOISTURE USING THE OPTICAL TRAPEZOID MODEL (OPTRAM) IN A SEMI-ARID AREA OF SONGNEN PLAIN, CHINA BASED ON LANDSAT-8 DATA
Fang Huang, Ping Wang, Yue Ren, Bao Li, Northeast Normal University, China

**WEP1.P1.11** SOIL MOISTURE ESTIMATION USING CYGNSS CONSTELLATION
Mohsen Zabi, Mikele Huc, Sebastian Astokovitz, CNRS, France; Michel Le Page, Centre d’Étude Spatiale de la Biosphère (CESBIO), France; Mauro D’Anna, IRSA, Italy; Nikolaos Baghdad, INRES, France

**WEP1.P1.12** SOIL MOISTURE ACQUISITION THROUGH MULTISPECTRAL SENSORS COUPLED TO UNMANNED AERIAL VEHICLE (UAV)
Beto Saraiva dos Reis, Leonardo Campos Innocencio, Mauro Roberto Veronesi, Luiz Guzzago da Silva Jr., Fabiano Bordi, Rafael Kenji Maruta, Ademir Marques Jr., Universidade do Vale do Rio do Sul (UNIVATES), Brazil
Agricultural Applications of Soil Moisture

Session Chair: Brian Hornbuckle, Iowa State University

WEP1.PK.1 SENTINEL-1 AND SENTINEL-2 DATA FOR SOIL MOISTURE AND IRRIGATION MAPPING OVER SEMI-ARID REGION
Board PK.1
Safia Bouchichi, Mehrez Zbib, Centre d’Etude Spatiale de la Biodépêche (CESBIO), France; Mohammad El Hajj, Nicolas Baghdadi, ICSTEA, UMR TETS, University of Montpellier, France; Zouha Chabanne Lili, INAT, Tunisie; Pascal Fanise, Gilles Boulet, Centre d’Etude Spatiale de la Biodépêche (CESBIO), France

WEP1.PK.2 SURFACE SOIL MOISTURE RETRIEVAL OVER IRRIGATED WHEAT CROPS IN SEMI-ARID AREAS USING SENTINEL-1 DATA
Board PK.2
Nadia Ghadou, Cadi-Ayyad University, Morocco; Lionel Jollet, Institut de recherche pour le développement, France; Jamal Esnafa, Cadi Ayyad University, Morocco; Mehrez Zbib, Institut de recherche pour le développement, France; Said Khedda, Bmahassine Bous, Cadi Ayyad University, Morocco; Pierre-Lois Frisou, Université de Paris-Est marne la vallée, France

WEP1.PK.3 STUDY OF BRIGHTNESS TEMPERATURE AND SOIL MOISTURE DOWNSCALING USING AIRBORNE PASSIVE MICROWAVE OBSERVATIONS
Board PK.3
Tao Zhang, Guanghui Wang, Land Satellite Remote Sensing Application Center, Ministry of Natural Resources, China; Shoujie Zhao, State Key Laboratory of Earth Surface Processes and Resource Ecology, Faculty of Geographical Sciences, Beijing Normal University, China; Yu Liu, Land Satellite Remote Sensing Application Center, Ministry of Natural Resources, China; Yuming Li, School of Urban Construction, Beijing City University, China

WEP1.PK.4 FARMLAND SOIL MOISTURE DETECTION BASED ON MULTI-TEMPORAL RADARSAT-2 AND LANDSAT-8 DATA
Board PK.4
Fengqiang Long, China University of Mining and Technology, China; Ting Jiang, China West Normal University, China; Xin Zhang, Shuying Yan, China University of Mining and Technology, China

WEP1.PK.5 DOWNSCALING OF SNAP SOIL MOISTURE PRODUCTS OVER GENIE AREA IN CHINA
Board PK.5
Hucheng Cui, Lingmei Jiang, Jian Wang, Gangwe Wang, Jianmei Yang, Xu Su, Beijing Normal University, China

WEP1.PK.6 SNAP SOIL MOISTURE RETRIEVAL USING SINGLE CHANNEL ALGORITHM OVER AGRICULTURAL AREA
Board PK.6
Swati Suman, Prashant K Srivastava, Banaras Hindu University, India; Bhindmendra Kumar Pandey, Space Application Centre, India; Rajendra Prasad, Indian Institute of Technology BHU (Banaras Hindu University), India

WEP1.PK.7 SOIL MOISTURE MONITORING OF AGRICULTURAL FIELDS IN BURKINA FASO USING DUAL POLARIZED SENTINEL-1A DATA
Board PK.7
Yune Muar, Tolukou University, Japan; Jafir Erickson, Chattu University of Technology, Sweden; Madeleine Ostwald, University of Gothenburg / Chalmers University of Technology, Sweden; Martin Karson, Linköping University, Sweden; Hugues Rasti, Université de Ouagadougou, Burkina Faso; Majid Sajee, AI Saya Consulting, Australia; Jesus Tanas, Instituto de la Environnement et de la Recherche Agricole (INERA), Burkina Faso; Jules Brault, World Agriculture Centre (CRAF), Mali; Heather Reese, University of Gothenburg, Sweden

WEP1.PK.8 DOWNSCALING SNAP SOIL MOISTURE RETRIEVALS OVER AN AGRICULTURAL REGION IN CENTRAL MEXICO USING MACHINE LEARNING
Board PK.8
Juan Carlos Hernandez-Sanchez, Alejandro Monroy-Hurtado, Instituto Politecnico Nacional, Mexico;ESIME Ticomán, Mexico; Jomar Jusid, University of Florida, Mexico; José Carlos Jiménez-Escalón, Instituto Politécnico Nacional, Mexico

WEP1.PK.9 APPLICATION OF COSMIC-RAY NEUTRON SENSING TO MONITOR SOIL WATER CONTENT IN AGROECOSYSTEM IN NORTH CHINA PLAIN
Board PK.9
Jing Tian, Shangkun Song, Institute of Geographical Sciences and Natural Resources Research, Chinese Academy of Sciences, Beijing, China; Songyu Li, China National Water Resources and Hydropower Research (IWHR), China; Yunqing Li, School of Urban Construction, Beijing City University, China; Liu, Land Satellite Remote Sensing Application Center, Ministry of Natural Resources, China; Shaojie Zhao, State Key Laboratory of Earth Surface Processes and Resource Ecology, Faculty of Geographical Science, Beijing Normal University, China; Yu Zhang, Shiyong Yan, China University of Mining and Technology, China

WEP1.PK.10 USING SATELLITE REMOTE SENSING AND REGIONAL CLIMATE CHANGE SCENARIO DATA FOR PROJECTING SOIL EROSION RISK: A CASE STUDY IN CRETE, GREECE
Board PK.10
Dimitrios Alexakis, Foundation for Research and Technology Hellas, Greece; Elia Tampakopoulou, Manolis Grilliakos, Ioannis Santis, Technical University of Crete, Greece

WEP1.PK.11 SPATIAL EVALUATION OF SOIL MOISTURE AND LAND SURFACE TEMPERATURE DYNAMICS DURING THE Sampa'Vex12 EXPERIMENT
Board PK.11
Hao Sun, Xin Lin, Jinbao Jiang, Wenbo Sun, Deba Yuan, Zhikuo Xu, China University of Mining and Technology (Beijing), China

Synergistic Approaches for Soil Moisture Estimation

Session Co-Chairs: Yann Kerr, CESBIO; Xiaolong Dong, Chinese Academy of Sciences

WEP2.PK.1 A FRAMEWORK FOR RETRIEVING A TIME-VARYING EFFECTIVE ARTIFICIAL NEURAL NETWORKS: A CASE STUDY IN CENTRAL ITALY
Board PK.1
Andrew Feldman, Dana Embrechts, Massachusetts Institute of Technology, United States; Emmanuelle Santi, Simona Puliciano, Giacomo Fantonelli, Institute of Applied Physics - National Research Council (IFAC - CNR), Italy; Sara Madeddu, Luca Bracca, Luca Cabibbo, Christian Marzese, Research Institute for Geo-Hydrological Protection - National Research Council, Italy

WEP2.PK.2 SCATTERING ALBEDO FROM SATELLITE MICROWAVE MEASUREMENTS
Board PK.2
Andrew Feldman, Dana Embrechts, Massachusetts Institute of Technology, United States

WEP2.PK.3 STUDY ON THE SOIL MOISTURE CONTENT MODELLING AND DATA ASSIMILATION BASED ON REMOTE SENSING AND LAND SURFACE MODEL
Board PK.3
He Zhu, Shifeng Huang, Xu Yang, Jiaojiao Ma, Yongmin Yang, Yong Sun, China Institute of Water Resources and Hydropower Research (IWHR), China

WEP2.PK.4 NUMERICAL STUDY ON THE EFFECTIVE DIELECTRIC PERMITTIVITY OF MULTIPHASE MIXTURE
Board PK.4
Chen Sun, Nanze Ma, Chang’an University, China; Bowen Ling, Stanford University, United States

WEP2.PK.5 A MERGED SNAP – SENTINEL-1 SOIL MOISTURE PRODUCT USING ARTIFICIAL NEURAL NETWORKS: A CASE STUDY IN CENTRAL ITALY
Board PK.5
Zahraa Al-Ali, Abderrazak Bannari, Nadra Hanafi, Arabian Gulf University, Bahrain; Ali El-Bartti, International Center for Biosavanna Agriculture, United Arab Emirates

WEP2.PK.6 IMPROVING THE AMSR-E/NOAA NASA SOIL MOISTURE DATA PRODUCT USING IN-SITU MEASUREMENTS IN THE TIBETAN PLATEAU
Board PK.6
Qiaoxue Xiao, Maxima Menenti, Li Jia, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, Beijing, China

WEP2.PK.7 HIGH-RESOLUTION SOIL MOISTURE ESTIMATES USING C- AND L-BAND ACTIVE PASSIVE OBSERVATIONS AND THE THEX-MEX’15 DATASET
Board PK.7
Alejandro Monroy-Hurtado, Juan Carlos Hernández-Sánchez, Daniel Enrique Constantino-Recillas, José Carlos Jiménez-Escalón, Instituto Politécnico Nacional, Mexico

WEP2.PK.8 SOIL MOISTURE RETRIEVAL USING MULTI-TEMPORAL SENTINEL-1 SAR DATASETS IN ZOIGE WETLAND, CHINA
Board PK.8
Yuntian Yang, Yong Wang, University of Electronic Science and Technology of China, China; Xiaoqun Jiang, Institute of Geographical Sciences and Natural Resources Research, Chinese Academy of Sciences, Beijing, China

WEP2.PK.9 VALIDATION OF SOIL MOISTURE RETRIEVAL IN DESERT STEPPE AREA
Board PK.9
Jun’ei Fu, Zhiguo Peng, Jiaoxun Lu, Lin Li, Tinglei Liu, Wei Qi, Xiaolu Li, China Institute of Water Resources and Hydropower Research (IWHR), China

WEP2.PK.10 COMPARISON OF SURFACE SOIL MOISTURE SIMULATED BY THE ORCHIDEE LAND SURFACE MODEL WITH MULTI-SOURCE GLOBAL SATELLITE PRODUCTS
Board PK.10
Hindu Mishra, National Institute of Advanced Industrial Science and Technology (AIST), Japan; Anmee Ahn, Jean-Pierre Wigneron, INRA, France; Agnès Duchaine, Sorbonne University, France
Wednesday, July 31 09:40 - 10:40 Room 501-502: Area L
Session WEP1.PL Poster

Ocean Biology and Water Quality II

Session Chair: Xiaofeng Yang, RADI, Chinese Academy of Sciences

WEP1.PL.1 RECALIBRATION OF OFFSHORE CHLOROPHYLL CONTENT BASED ON VIRTUAL SATELLITE CONSTELLATION
Maeuen Huang, Xufeng Xing, Weijian Luo, Guangdong Ocean University, China

WEP1.PL.2 SPATIAL AND SEASONAL VARIATIONS OF THE UPPER OCEAN CHLOROPHYLL CONCENTRATION IN THE EASTERN NORTH PACIFIC
Tao Wang, Jue Ning, Qing Xu, Hohai University, China

WEP1.PL.3 RECONSTRUCT OCEANIC CHLOROPHYLL AND REFLECTANCE DATA BASED ON AN IMPROVED VE-DINEOF METHOD
Bo Ping, Tianjin University, China; Yunshan Meng, National Marine Data and Information Service, China

WEP1.PL.4 THE VALIDATION OF BAREOGRIC PRODUCT DERIVED FROM VIIRS AROUND CHINA SEA FROM CLEAN WATER TO TURBID WATER
Jin Li, Bing Han, Tongji Li, Jiaohua Xiu, Anan Yang, Fei Guo, Weiwu Li, Zhihong Li, Di An, Kai Guo, Xiaoxiao Huang, National Ocean Technology Center, China

WEP1.PL.5 EFFECTS OF ENVIRONMENTAL FACTORS ON PHYTOPLANKTON DYNAMICS DURING BLOOM CONDITIONS IN THE PEARL RIVER ESTUARY, CHINA
Jun Zhao, Jiahui Liu, Bin Ai, Jun Yang, Sun Yat-sen University, China; Liping Tian, Wuhan University, China

WEP1.PL.6 LONG-TIME-SCALE INVESTIGATION OF PHYTOPLANKTON BIOMASS THROUGH RECONSTRUCTED CHLOROPHYLL-A DATA USING DINEOF METHOD
Rebekah S, A B Inamdar, Shirish S Gedam, Indian Institute of Technology Bombay, India

WEP1.PL.7 OCEAN COLOR ATMOSPHERIC CORRECTION OF SENTINEL-3 OLCI USING SWIR METHOD
Huang Liu, Hang Kong Baptist University, China; Gaofu Fu, Qiangqian Li, Shenzhen University, China; Qiming Zhou, Hang Kong Baptist University, China

WEP1.PL.8 INVESTIGATION OF THE CHLOROPHYLL-A CONCENTRATION RESPONSE TO SEA SURFACE TEMPERATURE (SST) IN THE EAST CHINA SEA
Chen Xu, Nanjing University of Information Science and Technology, China; Yuntao Zhang, Chinese University of Hong Kong, China

WEP1.PL.9 WATER QUALITY MONITORING ALONG THE GIZZRI CREEK: AN APPLICATION OF OLS REGRESSION USING LANDSAT OLI IMAGERY
Abdul Basit, Rao Zahid Khalil, Saad Malik, Institute of Space Technology, Pakistan; Ibrahim Zia, National Institute of Oceanography, Pakistan

Wednesday, July 31 15:20 - 16:20 Room 501-502: Area L
Session WEP2.PL Poster

Applications of Soil Moisture Measurements

Session Chair: Jeffrey Walker, Macah University

WEP2.PL.1 EXPERIMENTAL INVESTIGATION OF THE COUPLED HYDRAULIC AND LOW-FREQUENCY DIELECTRIC BEHAVIOR OF THE ARCTIC PERMROAST ACTIVE LAYER ORGANIC SOIL
Kazem Bakhtiarieh, Richard Cho, Malek Moghadam, Alivaz Tabatabaeinejad, University of Southern California, United States

WEP2.PL.2 SENSITIVITY OF BACKSCATTER TO SOIL WATER CONTENT AT L-, S-, AND X-BANDS IN SEMI-FLOODED AREA
Lei He, Changdu University of Information Technology, China; Xiaoxi Li, University of Electronic Science and Technology of China, China; Yachen Li, Changdu Software Industry Development Center, China; Haoyang Wu, National Climate Centre, China

WEP2.PL.3 EVALUATION OF DENGUE DISEASE IN BRAZIL: MULTIVARIABLE ANALYSIS
Luciano Riosco Spinadello, Mohamed El Khaltoy, Merci Valf iTunes, Universidade Politecnica de Catalunya (UPC), Spain; Helen Gunger, University of Brasilia, Brazil; Adriano Campos, Universitat Politècnica de Catalunya (UPC), Spain; Carlos Frederico Angeloni, National Centre for Monitoring and Early Warning of Natural Disasters, Brazil; Gerard Portal, David Chaparro, Universitat Politècnica de Catalunya (UPC), Spain

WEP2.PL.4 A FRAMEWORK OF IMPROVING SATELLITE PRECIPITATION PRODUCTS BY UTILIZING SOIL MOISTURE AND TEMPERATURE INFORMATION
Gui Meng, Changjiang Institute of Survey, Planning, Design and Research, China; Chi Hs, Fan Yang, Kun Yang, Tongji University, China

WEP2.PL.5 A DOWNSCALING SCHEME FOR DERIVING SPATIALLY CONTINUOUS FINE-RESOLUTION SOIL MOISTURE DATA BASED ON GAP-FREE LAND SURFACE TEMPERATURE
Fengping Wen, Wenhao Zhao, Institute of Mountain Hazards and Environment, Chinese Academy of Sciences, China; Wei Wang, College of Earth Sciences, Changjiang University of Technology, China

WEP2.PL.6 LEAK DETECTION IN WATER TRANSMISSION SYSTEMS BY MULTISPECTRAL REMOTE SENSING WITH AIRPLANE AND UAV
Christian Conte, ONERA, France; Javier Sánchez Marza, Galileo Geogyxms S.L, Spain; Jean-Claude Korpas, ONERA, France, Christophe Mazet, Vincent Dielman, Air Marine, France; Juan Barba Palu, Galileo Geogyxms S.L, Spain; Yoos-Michel Freidics, Frank Helias, Philippe Boulila, ONERA, France; Isabelle Le Goff, Guillaume Serra, Société du Canal de Provence, France

WEP2.PL.7 STUDY AND APPLICATION OF METHODS OF SOIL MOISTURE CONTENT DATA ASSIMILATION FOR REGIONS PARTIALLY LACKING OF OBSERVATION DATA
Hai Zhu, Kun Yang, Shilong Huang, Jianwei Ma, Xuyang Yang, Yongmin Yang, Sun Technology and Innovation Research (NMR), China

WEP2.PL.8 EVALUATION OF A PHYSICALLY-BASED PASSIVE MICROWAVE LAND SURFACE TEMPERATURE RETREIAL ALGORITHM USING MODIS DATA
Cheng Huang, University of Chinese Academy of Sciences, China; Shuo Bu, Chinese Academy of Agricultural Sciences, China; Xiaoguang Jiang, University of Chinese Academy of Sciences, China; Zhou-Liang Li, Hui Wu, Chinese Academy of Sciences, China; Xia-Xiong Han, Peng Liang, Meishan Guo, Chinese Academy of Agricultural Sciences, China; Yachen Jiang, Xiaoping Zhang, University of Chinese Academy of Sciences, China; Guo Guo, Chinese Academy of Sciences, China

WEP2.PL.9 IMPACTS OF THE TERRESTRIAL CARBON CYCLE ON ATMOSPHERIC CO2 GROWTH RATES INFERRED FROM CCDoAS USING REMOTELY SENSED SOIL MOISTURE
Mousong Wu, Nanjing University, China; Marko Scholze, Lund University, Sweden; Thomas Kaminski, Michael Voebuch, The Inversion Lab, Germany

WEP2.PL.10 CHARACTERIZATION OF SENTINE-M3I LANDSAT-O3 FILTERS RESPONSIVITIES DIFFERENCES FOR SOIL SALINITY DYNAMIC MONITORING IN AN ARID LANDSCAPE
Abderrazak Banver, Nadi Fayed, Araban Gulf University, Bahrain

WEP2.PL.11 MEASURING COMPLEX PREFERREDITY OF SOILS BY WAVEGUIDE TRANSMISSION/REFLECTION METHOD
Shan Liu, Bo Gu, Long Yang, Kun Yang, Yi Li, Ming Li, University of Electronic and Science and Technology of China, China

WEP2.PL.12 PRELIMINARY APPLICABILITY ANALYSIS OF SOIL DIELECTRIC CONSTANT MODEL OF THE DIFFERENT SOIL TEXTURE CONDITION
Yuyang Sun, Jianwei Ma, China Institute of Water Resources and Hydropower Research (NMR), China; Zhiheng Huang, Kun Yang, Peng Zhu, He Zhu, China Institute of Water Resources and Hydropower Research (NMR), China
**Ocean Surface Winds and Currents I**
Session Chair: Alexander Fore, Jet Propulsion Laboratory

**WEP1.PM.1**
**COMSAT SCATTEROMETER DATA LEVEL-1 PROCESSING AND PRELIMINARY RESULTS**
Richard Xia, Xiaolong Dong, National Space Science Center, Chinese Academy of Sciences, China; Lei Zhang, Beijing Normal University, China; Wei He, China JF Research Institute, China; Xiaoyan Mu, National Space Science Center, Chinese Academy of Sciences, China

**WEP1.PM.2**
**CAL/VLF PHASE FOR THE SWIM INSTRUMENT ONBOARD CCOMS**
Rafael Rodriguez Suquire, Laura Merino, Cédric Toupin, Céline Tison, CNES, France; Danielle Hausser, Patricia Schott, Laura Devile, LATMOS, CNES, France; Hoang Au, Alice Delphine, Météo-France, France; Alex Marche, Bertrand Chapron, Fabrice Calkult, Thérel, France; Christophe Dutuit, LATMOS, CNES, France; Véronique Leung, LATMOS, CNES, France; Silvio Fontanari, CNES, France

**WEP1.PM.3**
**THE PRELIMINARY RESULTS OF HY-2B MICROWAVE SCATTEROMETER DATA**
Juhong Zou, Yi Zhang, National Satellite Ocean Application Service, China; Qingsi Bao, Beijing Plum Information Technology Co. Ltd, China; Zhiying Wang, Nanjing University of Information Science and Technology, China; Xiaoju Xu, School of Geographical Sciences, Guangzhou University, China; Lijie Lin, Yin Qing, National Satellite Ocean Application Service, China

**WEP1.PM.4**
**WIND RETRIEVAL ACCURACY ANALYSIS OF HY-2B MICROWAVE SCATTEROMETER**
Qian Feng, Juhong Zou, National Satellite Ocean Application Service, China; Qingsi Bao, Beijing Plum Information Technology Co. Ltd, China; Lijie Lin, National Satellite Ocean Application Service, China

**WEP1.PM.5**
**SYNERGY OF EXPERIMENTAL, THEORETICAL AND NUMERICAL APPROACHES FOR A BETTER UNDERSTANDING OF SKIM NEAR NADIR KA-BAND DOPPLER MEASUREMENTS.**
Frederic Nougier, Bertrand Chapron, Thérel, France; Fabrice Calkult, DWR/Datalab, France; Fabrice Ardhuin, CNRS, France

**WEP1.PM.6**
**A SST-DEPENDENT GEOPHYSICAL MODEL FUNCTION FOR HY-2A MICROWAVE SCATTEROMETER**
Xueting Xia, Guangzhou University, China; Dongpan Tan, Institute of Space Radio Technology, China; Kehai Chen, Zhifeng Wu, Guangzhou University, China

**WEP1.PM.7**
**SEA SURFACE WIND RETRIEVAL FROM SYNTHETIC APERTURE RADAR DATA BY DEEP CONVOLUTIONAL NEURAL NETWORKS**
Daolin Shen, Coastal Carolina University, United States; Xio Hui, Shanghai Ocean University, China; Xiaofeng Li, National Oceanic and Atmospheric Administration, United States

**WEP1.PM.8**
**NOAA SCATTEROMETER WIND RETRIEVALS FROM THE SCATSAT-1 MISSION**
Sudhakar Saisuravam, NOAA/NESDIS-USGCR, United States; Zarina Jelehnik, Faissi Sadri, Jeonghwun Park, Qiu Zhou, Paul Zhang, NOAA, United States

**WEP1.PM.9**
**ANALYSIS OF CYGNSS WIND CHARACTERISTICS WITH NOAA L2 RETRIEVALS AND TES METHOD**
Jeonghwun Park, Faissi Sadri, NOAA, United States; Stephen J. K行事, NASA Langley Research Center, United States; Sudhakar Saisuravam, Zarina Jelehnik, NOAA, United States; Paul S. Chang, NOAA, United States

**WEP1.PM.10**
**EXPERIMENTAL STUDY OF THE SURFACE WAVES PARAMETERS INFLUENCE ON THE BACKSCATTERED DOPPLER SPECTRUM CHARACTERISTICS**
Yury Titchenko, Evgeniy Meshkov, Vladimir Karasev, Institute of Applied Physics, Russian Academy of Science, Russia

**WEP1.PM.11**
**NEW OPPORTUNITIES FOR MULTISTATIC REMOTE SENSING OF WATER SURFACE USING RECEIVERS WITH DIFFERENT ANTENNA PATTERNS**
Yury Titchenko, Vladimir Karasev, Institute of Applied Physics, Russian Academy of Science, Russia

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**Microwave Radiometer Instruments and Calibration II**
Session Co-Chairs: Martti Hallikainen, Aalto University; Gail Skofronick Jackson, NASA

**WEP2.PM.1**
**A DESIGN OF HYPERSONIC MICROWAVE RADIOMETER SUBSYSTEM FOR SOUNDING ATMOSPHERE.**
Yangjin Luo, Shengwei Zhang, National Space Science Center, Chinese Academy of Sciences, China

**WEP2.PM.2**
**CHARACTERIZATION OF THE X-BAND FPASMR AIRBORNE EXPERIMENT**
Xiaojiao Yang, Guangnan Song, Hailang Su, Pingfui Li, Yinon Li, Jiokun Wang, X’ian Institute of Space Technology, China

**WEP2.PM.3**
**RESEARCH ON WATER ICE IN LUNAR POLES BASED ON THE SVD METHOD FROM CHANG’E-2 MRMM DATA**
Yi Lian, Xinghan Wang, Nanjing Normal University, China; Zhiguo Meng, Jilin University, China; Jingxing Peng, National Astronomical Observatories of the Chinese Academy of Sciences, China; Xingmei Chen, Pengyi Liu, Hu Zhang, Tianjin Normal University, China

**WEP2.PM.4**
**ANALYSIS OF NON-STATIONARY RADIOMETER GAIN VIA ENSEMBLE DETECTION**
Xiaotao Shao, Caike Wei, Yan Shen, Beijing Jiaotong University, China; Caiyun Wang, Chinese Academy of Sciences, China; Xiuli Pan, Yeli Hou, Beijing Jiaotong University, China; Xumin Wang, Beijing Institute of Radio Measurement, China

**WEP2.PM.5**
**THE CALIBRATION AND STABILITY ANALYSIS OF THE JPL ULTRA-WIDE P/L-BAND RADIOMETER**
Mehmet Oayt, Sathish Mur, Xavier Bosch-Lluis, Carl Fröhne, Isaac Ramos-Pérez, Baron Latham, Tong Lue, Simon York, Sharon Brown, California Institute of Technology, NASA Jet Propulsion Laboratory, United States

**WEP2.PM.6**
**ARTIFACTS SUPPRESSION OF PASSIVE MILLIMETER-WAVE SAIR IMAGING**
Xiaotao Shao, Caike Wei, Yan Shen, Beijing Jiaotong University, China; Caiyun Wang, Chinese Academy of Sciences, China; Xiuli Pan, Yeli Hou, Beijing Jiaotong University, China; Xumin Wang, Beijing Institute of Radio Measurement, China

**WEP2.PM.7**
**FIELD OF VIEW OF MIRRORED APERTURE SYNTHESIS RADIOMETERS**
Yangjin Luo, Shengwei Zhang, National Space Science Center, Chinese Academy of Sciences, China; Li Feng, Huazhong University of Science and Technology, China; Hao Zhang, Nanjing University, China; Xumin Wang, Beijing Institute of Radio Measurement, China

**WEP2.PM.8**
**A MULTIBAND PASSIVE RADIOMETER FOR SEA SALINITY, SOIL MOISTURE AND CRYOSPHERE STUDIES**
Ludovic Brucker, Giovanni Di Amico, Emmanuel Donnet, David Le Vigne, Jeff Piggmeier, NASA Goddard Space Flight Center, United States

**WEP2.PM.9**
**SIMULATION SENSITIVITY OF GROUND-BASED MICROWAVE RADIOMETER DURING INTENSIVE OBSERVATION PERIOD**
Chong-tai Cho, National Institute of Meteorological Sciences, Korea (South); Byong-oo Lee, Do-Yan Kim, AIAA Consulting & Technology Ltd, Korea (South); Ki-hoon Kim, Injung Park, National Institute of Meteorological Sciences, Korea (South)
Wednesday, July 31
09:40 - 10:40 Room 501-502: Area O
Session WEP1.PO

Ocean Surface Winds and Currents III
Session Co-Chairs: Mingsen Lin, National Satellite Ocean Application Service; Wenqing Tang, Jet Propulsion Laboratory

WEP1.PO.1
Board PO.1
ESTIMATE OF WIND AND RAIN RATE INSIDE TROPICAL CYCLONE USING SPACEBORNE C- AND X-BAND PASSIVE MICROWAVE RADIOMETER MEASUREMENTS
Mingcan Liu, National Satellite Ocean Application Service, China; Xiaoting Yin, Beijing Picoin Information Technology Co. Ltd, China; Wu Zhou, Chaofei Mo, Yefei Zhang, National Satellite Ocean Application Service, China

WEP1.PO.2
Board PO.2
ACTIVE/PASSIVE GEOPHYSICAL MODEL FUNCTIONS FOR OCEAN VECTOR WIND RETRIEVALS FROM TRMM
Alamgir Hossain, University of Central Florida, United States; Maria Jacob, Universidad Nacional de Córdoba, Argentina; W. Linnwood Jones, University of Central Florida, United States

WEP1.PO.3
Board PO.3
TRMM ACTIVE/PASSIVE OCEAN VECTOR WIND RETRIEVALS
Maria Jacob, Universidad Nacional de Córdoba, Argentina; Alamgir Hossain, W. Linnwood Jones, University of Central Florida, United States

WEP1.PO.4
Board PO.4
MEAN SQUARE SLOPES OF SEA WAVES IN CYCLONE AREA FROM DUAL-FREQUENCY PRECIPITATION RADAR AND MICROWAVE RADIOMETER
Vladimir Karave, Institute of Applied Physics, Russian Academy of Science, Russia; Leonid Mitnik, R.J. Wisches Pacific Oceanological Institute, For Eastern Branch, Russian Academy of Sciences, Russia; Maria Panfilova, Maria Ryabkova, Eugeny Meshkov, Yuri Tkachenko, Anton Yakibut, Institute of Applied Physics, Russian Academy of Science, Russia

WEP1.PO.5
Board PO.5
UNDERWATER ACOUSTIC WAVE GAUGE MEASUREMENTS OF SEA WAVE PARAMETERS: TEST EXPERIMENT AND MODELING
Maria Ryabkova, Eugeny Meshkov, Vladimir Karave, Maria Panfilova, Institute of Applied Physics, Russian Academy of Science, Russia

WEP1.PO.6
Board PO.6
THE EFFECTS OF MSATD AND MWS ON THE COUPLING COEFFICIENT BETWEEN SATDA AND WSA
Yihua Wang, Ocean University of China, China; Yuhua Wang, Yaomin Zhang, Ocean University Of China, China

WEP1.PO.7
Board PO.7
WIND RETRIEVAL FOR CFOSCAT EDGE AND NADIR OBSERVATIONS BASED ON NEURAL NETWORKS AND IMPROVED PRINCIPLE COMPONENT ANALYSIS
Xingao Su, Key Laboratory of Microwave Remote Sensing, China; Ad Stoffelen, Royal Netherlands Meteorological Institute (KNMI), Netherlands

WEP1.PO.8
Board PO.8
THE EFFECTS OF WIND TRANSFER ERROR ON CURRENT RETRIEVAL
Yaoying Miao, Xiaoling Ding, Key Laboratory of Microwave Remote Sensing, National Space Science Centre, Chinese Academy of Sciences, China; Dongbo Xie, Beijing Picoin Information Technology Co. Ltd, China; Di Zhu, Key Laboratory of Microwave Remote Sensing, National Space Science Centre, Chinese Academy of Sciences, China

WEP1.PO.9
Board PO.9
OBSERVATION OF TYPHOON MERANTI WITH HIGH FREQUENCY RADAR SYSTEM
Heng Zhou, Xianglin Wu, Xianchun Yue, School of Electronic Information, Wuhan University, China

WEP1.PO.10
Board PO.10
A STUDY ON POLARIMETRIC SCATTEROMETER SIMULATION AND WIND VECTOR RETRIEVAL
Dongxuan Tian, Institute of Space Radio Technology, China; Xuetong Xie, Guangzhou e-GEOS - Italian Space Agency / Telespazio, Italy; Siyue Wang, Northeastern University, China; Yaoling Wang, Lei Wang, Institute of Electronics, Chinese Academy of Science, China; Qingliu Bao, Beijing Piesat Information Technology Co. Ltd, China; Di Zhu, Key Laboratory of Microwave Remote Sensing, National Space Science Centre, Chinese Academy of Sciences, China; Siyue Wang, Northeastern University, China; Yaoling Wang, Lei Wang, Institute of Electronics, Chinese Academy of Science, China; Yanming Zhang, University of Electronic Science and Technology of China, China

WEDNESDAY POSTER
Wednesday, July 31 09:40 - 10:40 Room 501-502: Area P
Session WEP1.PP  Poster

Small Satellite Technology II
Session Co-Chairs: William Blackwell, MIT Lincoln Laboratory; Sharmila Padmanabhan, NASA Jet Propulsion Laboratory

WEP1.PP.1 Board PP.1
MICROWAVE SINGLE PIXEL IMAGER (MSPI) OVERVIEW AND IMAGING ALGORITHM
Justin Budak, Matti Alajärvi, Michael Nurnberger, Scott Rudolph, David Truesdale, US Naval Research Laboratory, United States

WEP1.PP.2 Board PP.2
MICROWAVE SINGLE PIXEL IMAGER (MSPI) ANTENNA ASSEMBLY
Justin Budak, Scott Rudolph, Michael Nurnberger, Matti Alajärvi, US Naval Research Laboratory, United States

WEP1.PP.3 Board PP.3
DESIGN AND ANALYSIS OF RADIOMETRIC CALIBRATION MISSION IN-ORBIT FOR ENVIRONMENT AND DISASTERS MONITORING SATELLITE
Yang Zhu, Jun Zhu, Zhongqiang Bai, Jun Dong, Bin Wu, Wei He, Xiao Huang, Xiao Yin, Qinggan Cao, Dong Feng Huang Satellite Corporation Limited, China; Jin Xu, Jincheng, Institute of Optics and Fine Mechanics, Chinese Academy of Sciences, China; Dejian Sun, Shanghai Institute of Technical Physics, Chinese Academy of Sciences, China; Wai Mei, Xian Institute of Optics and Precision Mechanics, Chinese Academy of Sciences, China; Liling Jia, Beijing Institute of Space Mechanics & Electric; China

WEP1.PP.4 Board PP.4
ON STUDY OF ATMS GEOMETRIC CALIBRATION BY USING TWO-DIMENSION LUNAR SCAN OBSERVATIONS
Jun Zhou, Hui Yang, University of Maryland, United States

WEP1.PP.5 Board PP.5
A FEASIBLE SATELLITE ATTITUDE MANEUVER STRATEGY FOR HIGH RESOLUTION SLIDING Spotlight SAR
Chao Zhou, Zherong Li, Xidian University, China; Zhijin Wang, Beijing Institute of Spacecraft System Engineering, China; Feng Tan, Xidian University, China

WEP1.PP.6 Board PP.6
LONG-WAVELENGTH INFRARED DIGITAL FOCAL PLANE ARRAYS FOR EARTH REMOTE SENSING APPLICATIONS

WEP1.PP.7 Board PP.7
ULID: AN UNCONNECTED L-BAND INTERFEROMETER DEMONSTRATOR
Francisco Esteban, Eric Anterrieu, Centre d’Etude Spatial de la BIOsphère (CESBIO), France; Thaye Assvet, CNES, France; Yoon Koo, Centre d’Etude Spatial de la BIOsphère (CESBIO), France

WEP1.PP.8 Board PP.8
A PLAYBACK SOFTWARE APPLIED TO REMOTE SENSING VIDEO
Feng Wang, Yunming Xiang, Hangyuan You, Institute of Electronics, Chinese Academy of Sciences, China

WEP1.PP.9 Board PP.9
*CAT-1 MISSION: A 1-UNIT CUBESAT FOR EARTH OBSERVATION WITH A 1-BAND RADIOMETER AND A GNSS-REFLECTOMETER USING DEFINED RADIO
Joan A. Ruiz-de-Azua, Joan F. Mulet, Lara Fernandez, Marc Riba, David Llaveria, Carlos Diez, Andrea Aguillero, Adrian Perez, Quival Milian, Marta Sobrado, Angel Navarro, Néstor Lloré, Miguel Samnín, Manel Soria, Anna Calveras, Adriano Camps, Technical University of Catalonia (UPC), Spain

WEP1.PP.10 Board PP.10
PROOF-OF-CONCEPT OF A FEDERATED SATELLITE SYSTEM BETWEEN TWO 6-UNIT CUBESATS FOR DISTRIBUTED EARTH OBSERVATION SATELLITE SYSTEMS
Joan A. Ruiz-de-Azua, Lara Fernandez, Joan F. Mulet, Marc Riba, Ricard Castells, Carlos Diez, Andrea Aguillero, Technical University of Catalonia (UPC), Spain; Simone Brustolin, Nicola Garzanti, Skolkovo Institute of Science and Technology, Russia; Anna Calveras, Technical University of Catalonia (UPC), Spain; Alessandro Golkar, Skolkovo Institute of Science and Technology, Russia; Adriano Camps, Technical University of Catalonia (UPC), Spain

WEP1.PP.11 Board PP.11
ARCHITECTURES AND SYNCHRONIZATION TECHNIQUES FOR COHERENT DISTRIBUTED REMOTE SENSING SYSTEMS
Juan Carlos Merlano-Duncan, Jorge Querol, University of Luxembourg, Luxembourg; Adriano Camps, Universitat Politècnica de Catalunya-BarcelonaTech and BECT/ITE-UPC, Spain; Symeon Chatzinotas, Bijan Otterson, University of Luxembourg, Luxembourg

WEP1.PP.12 Board PP.12
ENABLING TECHNOLOGIES FOR NEXT GENERATION MIR (MICROWAVE INTERFEROMETRIC RADIOIMETERS) SYSTEMS
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Wenhua Qi, Guiwu Su, Institute of Geology, China Earthquake Administration, China

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Lureta Ahim, Dan Papacu, University POLITEHNICA of Bucharest, Romania

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Wei Zheng, Jiali Shao, Hao Gao, National Satellite Meteorological Center, China Meteorological Administration, China

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WEP1.PS.7 Study on Rapid Extraction of Oil Spill Information from Remote Sensing Monitoring of "SANGJI OIL TANKER"
Yueyang Liu, Chao Liang, National Satellite Ocean Application Service, China

WEP1.PS.8 Huge Oil Spill in the Desert: Fake News or Reality? The Remote Sensing Perspective
Dominique Dubucq, TUD, S.A., France

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W Timothy Liu, Xiao Su, California Institute of Technology, NASA Jet Propulsion Laboratory, United States

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Board PT.2
Hua Su, Xin Yang, Fuzhou University, China; Xiao-Hai Yan, University of Delaware, United States

WEP2.PT.3 SEA SURFACE SALINITY RETRIEVALS FROM AQUARIUS USING NEURAL NETWORKS
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Yan Soldo, NASA Goddard Space Flight Center / Chapman University / Universities Space Research Association, United States; Emmanuel Dinant, NASA Goddard Space Flight Center / Chapman University, United States

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Yiwen Zhou, Roger Lang, George Washington University, United States; Emmanuel Dinant, David Le Vine, National Aeronautics and Space Administration (NASA), United States

WEP2.PT.5 COMPARISON OF SENTINEL-3 SLSTR SST PRODUCT WITH SHIPBOARD SKIN SST MEASUREMENTS
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Liqin Qu, Lei Guan, Minglun Yang, Ocean University of China, China

WEP2.PT.6 ARCTIC SEA SURFACE SALINITY RETRIEVAL FROM SMOS MEASURES
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Li Wei, Lei Guan, Liqin Qu, Lele Li, Ocean University of China, China

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Ke Zhang, Jie Huang, Tao Jiang, Hongchun Zhu, Shandong University of Science and Technology, China

WEP2.PT.9 SPATIO-TEMPORAL DISTRIBUTION OF CARBON DIOXIDE PARTIAL PRESSURE IN THE BAY OF BENGAL
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WEP2.PT.10 VALIDATION OF AVHRR SEA SURFACE TEMPERATURE IN THE NORTHWEST PACIFIC
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Yan Chen, Liqin Qu, Lei Guan, Ocean University of China, China

WEP2.PT.11 PRELIMINARY ESTIMATE OF SEA SURFACE TEMPERATURE FROM THE SCANNING MICROWAVE RADIOMETER ONBOARD HY-2B SATELLITE
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WEP2.PT.12 INFLUENCE OF CIRRUS CLOUDS ON THE ESTIMATE OF SEA SURFACE TEMPERATURE
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Xuwen Yan, Guozhong Nie, Yan Dang, Jiewen An, Jianwei Zhou, Chaowu Xia, Institute of Geology, China Earthquake Administration, China
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THP1.SPR.2  POTENTIAL OF RED EDGE SPECTRAL BANDS IN FUTURE LANDSAT SATELLITES ON AGROECOSYSTEM CANOPY CHLOROPHYLL CONTENT RETRIEVAL
Zhaoyu Cui, John Kerekes, Rochester Institute of Technology, United States

Thursday, August 1 15:20 - 16:20  Room 503: Sprint Area  SPRINT Presentation

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THP2.SPR.1  DEPENDENCE OF POLARIMETRIC CHARACTERISTICS ON SAR RESOLUTIONS: EXPERIMENTAL ANALYSIS
Hyunsoo Kim, Jungmin Song, Ryo Natsuaki, Akira Hirose, University of Tokyo, Japan

THP2.SPR.2  MAPPING DIGITAL DRAINAGE NETWORK USING GEOPROCESSING: A CASE STUDY OF KALI GANDAKI RIVER BASIN, NEPAL HIMALAYA
Feiyu Chen, Bingwei Tian, Basanta Adhikari, Xiaoyun Gou, Sichuan University, China

THP2.SPR.3  NEW INSIGHTS OF GROUND-BASED LAND SURFACE TEMPERATURE MEASUREMENTS PROTOCOLS FOR IMPROVING VALIDATION OF THERMAL INFRARED SATELLITE DATA
Jean-Pierre Lagouarde, Mark Irvine, Institut National de la Recherche Agronomique (INRA), France; Pierre Guillevic, University of Maryland, United States
THURSDAY 09:40 - 10:40 Room 501-502: Area A
Session THP1.PA  Poster

Electromagnetic Modeling of the Sea, Land, Atmosphere

Session Chair: Honglei ZHENG, Ocean University of China

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Electromagnetic Scattering from Two-Dimensional Dielectric Rough Sea Surfaces with Ship-Induced Kelvin Wake
Rui Wu, Peng-Yu Yang, Xin-Cheng Ren, Yi-Qiang Zhang, Yan-Jun Wang, Yunnan University, China

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Study on the Spectral Width Characteristic of Scattering Clutter from Sea Surface
Lijia Ji, Youming Zhang, Yonghua Zhang, College of Information Science & Engineering, Ocean University of China, China

**THP1.PA.3**
Study on the Doppler Spectrum of the Sea Surface Covered by Very Thin Oil-Film Based on Extended Physical Optical Method
Rui Wang, Yuan Wang, Lixin Guo, Guanghui Gao, Xidian University, China

**THP1.PA.4**
Investigation of Doppber Properties of S-Band In-Plane Bistatic Sea Echos Through Numerical Monte Carlo Simulations: Exact Solution, Two-Scale Model, and Small Slope Approximation
Jokuk Toporkov, Jeffery Guerriero, US Naval Research Laboratory, United States

**THP1.PA.5**
Stochastic Dynamics of Sea Clutter for Applications to Remote Sensing
Clément Roussel, Arnaud Coatanhay, Alexandre Bussard, ENSTA Bretagne, France

**THP1.PA.6**
Numerical Modeling of Wake Due to an Underwater Moving Body and Its Electromagnetic Scattering Property
Hai-Lu Zhang, University of Electronic Science and Technology of China, China; Zhi-Hua Xu, Yi-Xin Sha, Ming-Fu Xia, Peking University, China

**THP1.PA.7**
Microwave and Terahertz EM Wave Scattering from Oil-Water Complex Sea Surface at Small Incident Angles
Hongbo Zhang, Yunnan Zhang, Yonghua Wang, Ocean University of China, China; Ali Khancha, ENSA-Bretagne, France

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Miaofen Huang, Guangdong Ocean University, China; Yang Liu, PetroChina Exploration & Development Research Institute, China; Junhua Bai, Qinhuo Academy of Sciences, China; Weihua Bai, National Space Science Center, Chinese Academy of Sciences, China; Shuanggen Jin, Shanghai Astronomical Observatory, Chinese Academy of Sciences, China; Wei Zhang, Wuxi Fishery Technology Promotion Station, China

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**THP1.PA.10**
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Xuewu Wu, Chilong University, China; Jinming Xu, National Space Science Center, Chinese Academy of Sciences, China; Shuanggen Jin, Shanghai Astronomical Observatory, Chinese Academy of Sciences, China; Wei Zhang, Shanghai Astronomical Observatory, Chinese Academy of Sciences, China; Wei Shang, Shanghai Astronomical Observatory, Chinese Academy of Sciences, China

**THP1.PA.11**
The Effect of Leaf Inclination Angle on Microwave Emission of Corn at C- and X-Bands
Jing Liu, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China; Paolo Ferrazzoli, Leila Guerriero, Tor Vergata University of Rome, Italy; Junhua Bai, Qinhuo Academy of Sciences, China; Weihua Bai, National Space Science Center, Chinese Academy of Sciences, China; Ali Khenchaf, University of Electronic Science and Technology of China, China; Zhi-Hua Xu, Xidian University, China

**THP1.PA.12**
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Hangao Ye, Zhiyuan Zhao, Key Laboratory for Information Science of Electromagnetic Waves (MkE), Fudan University, China
**Thursday, August 1 09:40 - 10:40**
**Room 501-502: Area B**
**Session THP1.PB**

### Topics in Electromagnetic Modeling

**Session Co-Chairs:** Hanyu Shi, Beijing Normal University; Xiaolan Xu, NASA Jet Propulsion Laboratory

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**Session Co-Chairs:** Kostas Papathanassiou, German Aerospace Center (DLR); Tom Ainsworth, NRL

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**THP2.PE.2**
**Board PE.2**
**ANALYSIS OF RIVER NETWORK IN JIU YUANGOU BASIN USING MEAN CHANGE POINT METHOD AND D-DINF ALGORITHM**
Fang Xu, Ruixiang Zhang, Wen Yang, Guisong Xia, Wuhan University, China

**THP2.PE.3**
**Board PE.3**
**SEGMENTATION OF MULTISPECTRAL DATA SIMULATED FROM HYPERSPECTRAL IMAGERY**
Michal Marcinkiewicz, Matjaz, Poland; Michal Kowalski, Jakub Nalepa, Krakow, Poland; Silesian University of Technology, Poland

**THP2.PE.4**
**Board PE.4**
**RANDOMIZED LOCALITY-PRESERVING DIMENSION REDUCTION AND HYPER SPECTRAL IMAGE CLASSIFICATION**
Wooseh Noh, University of Alabama Huntsville, United States

**THP2.PE.5**
**Board PE.5**
**A GEOHASH BASED PLACE2VEC MODEL**
Jie Zhang, The 14th Research Institute of CETC, China

**THP2.PE.6**
**Board PE.6**
**GEOMETRICAL MODEL FOR THE LAYOVER OF GABLE-ROOFED BUILDINGS AND ITS APPLICATION IN BUILDING RECONSTRUCTION**
Hao You, Zhe Zhou, Dong Fong, Institute of Electronics, Chinese Academy of Sciences, China

**THP2.PE.7**
**Board PE.7**
**STUDY ON FULL-DUPLEX CHANNEL CHARACTERISTIC FOR SIMULTANEOUS TRANSMIT AND RECEIVE USED IN PHASED ARRAY**
Jie Zhang, The 14th Research Institute of CETC, China

**THP2.PE.8**
**Board PE.8**
**MENTAL RETRIEVAL OF LARGE-SCALE SATELLITE IMAGES VIA LEARNED SKETCH-IMAGE DEEP FEATURES**
Fang Xu, Xiaoxia Zhang, Wen Yang, Guisong Xia, Wuhan University, China

**THP2.PE.9**
**Board PE.9**
**ROAD SAFETY EVALUATION USING REMOTE SENSING TECHNIQUES**
Kamil Faisal, King Abdulaziz University, Saudi Arabia

**THP2.PE.10**
**Board PE.10**
**PATCH-BASED AND TENSOR-PATCH-BASED DIMENSION REDUCTION METHODS FOR HYPER SPECTRAL IMAGES**
Boyu Feng, Jinfei Wang, Kaizhong Zhang, University of Western Ontario, Canada
Deep Learning Techniques
Session Chair: Begüm Demir, Technische Universität Berlin

THP1.PF.1 HIGH-ORDER SELF-ATTENTION NETWORK FOR REMOTE SENSING SCENE CLASSIFICATION
Narajan Hry, Leyang Yang, Yi Li, Hunan University, China; Antonio Plaza, University of Extremadura, Spain

THP1.PF.2 FEATURE SPARSITY IN CONVOLUTIONAL NEURAL NETWORKS FOR SCENE CLASSIFICATION OF REMOTE SENSING IMAGE
Wu Huong, Qi Wang, Xialong Li, Northwestern Polytechnical University, China

THP1.PF.3 A NOVEL DEEP FEATURE FUSION NETWORK FOR REMOTE SENSING SCENE CLASSIFICATION
Yangyang Li, Qi Wang, Xiaolu Li, Xidian University, China

THP1.PF.4 LEARNING DEEP NETWORKS UNDER NOISY LABELS FOR REMOTE SENSING IMAGE SCENE CLASSIFICATION
Yancheng Li, Youjian Zhang, Wuhan University, China; Zhixi Zhu, Johns Hopkins University, United States

THP1.PF.5 FUSING DEEP LOCAL AND GLOBAL FEATURES FOR REMOTE SENSING IMAGE SCENE CLASSIFICATION
Keli Yan, Shaohui Mei, Mingyang Ma, Feng Yan, Northwestern Polytechnical University, China

THP1.PF.6 EXTRACTION OF A SPECIFIC LAND-COVER CLASS FROM VERY HIGH SPATIAL RESOLUTION IMAGERY USING POSITIVE AND UNLABELED LEARNING WITH CONVOLUTIONAL NEURAL NETWORKS
Khelifa Djerriri, Moussa Sofiane Karoui, Centre des Techniques Spatiales, Algeria; Ruda Adjoudj, Djillali Liabes University, Algeria

THP1.PF.7 PERFORMANCE COMPARISON OF TWO POOLING STRATEGIES FOR REMOTE SENSING IMAGE SCENE CLASSIFICATION
Munxue Wang, Gang Cheng, Xiaoyan Quan, Junwei Nai, Lei Guo, Northwestern Polytechnical University, China

THP1.PF.8 SUPERVISED GENERATIVE ADVERSARIAL NETWORK BASED SAMPLE GENERATION FOR SCENE CLASSIFICATION
Wu Han, Rui Feng, Lichao Wang, Jia Chen, China University of Geosciences, China

THP1.PF.9 MSPPF-NETS: A DEEP LEARNING ARCHITECTURE FOR REMOTE SENSING IMAGE CLASSIFICATION
Rui Yang, Yun Zhang, Pengfei Zhao, Zhenyuan Ji, Weibo Deng, Harbin Institute of Technology, China

THP1.PF.10 VERY HIGH RESOLUTION IMAGE SCENE CLASSIFICATION WITH CAPSULE NETWORK
Saeedeyan Chah, Mohammad El Amin Lababdi, Centre des Techniques Spatiales, Algeria; Yafeng Gu, Harbin Institute of Technology, China; Khaila Bahtin, Moussa Sofiane Karoui, Centre des Techniques Spatiales, Algeria

THP1.PF.11 LAND PRICE ASSESSMENT BASED ON DEEP NEURAL NETWORK
Arhak Hou, Hui Liu, Youyan Sun, Shubin Jiang, Kui Li, Zhaolong Zheng, University of Electronic Science and Technology of China, China; Jun Xu, Wuhan University, China; Yong He, Sichuan Research Institute for Eco-system Restoration & Geo-disaster Prevention, China; Minggang Zhu, Department of Natural Resources of Sichuan Province, China; Guoming Zhao, Guizhou University of Technology, China; Jie Zhang, Chinese University of Hong Kong, China; Jiang Li, Old Dominion University, China

THP1.PF.12 CLASSIFICATION PERFORMANCE EVALUATION OF DEEP LEARNING ARCHITECTURES FOR COMPLEX OBJECT BASED FACILITY RECOGNITION
Krishna Karthik Goda, Bharratkumar Ramachandran, Ranga Raju Vatsavai, North Carolina State University, United States
Super-resolution and Multiresolution Fusion Techniques III

THP1.PH.1  A CNN-BASED PANSHARPENING METHOD WITH PERCEPTUAL LOSS
Board PH.1  Sergio Vitale, Università Parthenope, Italy

THP1.PH.2  DEEP SPATIAL-SPECTRAL INFORMATION EXPLOITATION FOR RAPID HYPERSPECTRAL IMAGE SUPER-RESOLUTION
Board PH.2  Jing Hu, Xi’an University of Technology, China; Yansong Li, Xi’an University, China; Ninghua Zhao, Yaling Zhang, Xi’an University of Technology, China

THP1.PH.3  DUAL 1D-2D SPATIAL-SPECTRAL CNN FOR HYPERSPECTRAL IMAGE SUPER-RESOLUTION
Board PH.3  Jianli Lai, Ruxing Cui, Xi’an University, China; Bu Li, Northwestern Polytechnical University, China; Yansong Li, Xi’an University, China; Shanshan Mei, Northwestern Polytechnical University, China; Jian Bu, Mississippi State University, United States

THP1.PH.4  UNSUPERVISED REMOTE SENSING IMAGE SUPER-RESOLUTION USING CYCLE CNN
Board PH.4  Pengrui Wang, Haopeng Zhang, Beihang University, China; Feng Zhou, OR Satellite Co., Ltd., China; Zhiguo Jiang, Beihang University, China

THP1.PH.5  SIMULTANEOUS SUPER-RESOLUTION AND SEGMENTATION FOR REMOTE SENSING IMAGES
Board PH.5  San Liu, Zhenwei Shi, Beihang University, China; Hongxun Hao, Civil Aviation University of China, China

THP1.PH.6  ON TRAINING DEEP NETWORKS FOR SATELLITE IMAGE SUPER-RESOLUTION
Board PH.6  Michal Kowalski, Silesian University of Technology, Poland; Szymon Pecharszuk, Krysztof Hrynyczko, Future Processing, Poland; Pawel Beneski, Daniel Kortzewa, Jakub Malys, Silesian University of Technology, Poland

THP1.PH.7  PANCHROMATIC SHARPENING OF MULTISPECTRAL SATELLITE IMAGERY VIA AN EXPLICITLY DEFINED CONVEX SELF-SIMILARITY REGULARIZATION
Board PH.7  Chao-Hsiung Wang, Chao-Hsiang Lin, National Central University, Taiwan; Jose Bioucas Dias, Universidade de Lisboa, Portugal; Wei-Cheng Zheng, National Central University, Taiwan

THP1.PH.8  SPECTRAL-DRIVEN PANSHARPENING USING ADAPTIVE IMAGE SEGMENTATION TO REDUCE COLOR DISTORTION
Board PH.8  Jiao Jiao, Xiangwu Gong, Lingda Wu, Space Engineering University, China

THP1.PH.9  HYPERSONTAL AND MULTISPECTRAL IMAGE FUSION BASED ON SPECTRAL LOW RANK AND NON-LOCAL SPATIAL SIMILARITIES
Board PH.9  Renwei Dian, Shutao Li, Hunan University, China

THP1.PH.10  SSCNET: SPECTRAL-SPATIAL CONSISTENCY OPTIMIZATION OF CNN FOR PANSHARPENING
Board PH.10  Kento Doi, Akira Iwasaki, University of Tokyo, Japan

Geographic Information Science II

THP2.PH.1  A VISUALIZATION-ORIENTED TRAJECTORY DATA COMPRESSION METHOD
Board PH.1  Yan Zhao, Minna Huang, Fan Jiang, Chenguang Jiang, University of Electronic Science and Technology of China, China; Bojue Shen, Unit 69006 of Xinjiang Military Region, China

THP2.PH.2  GBSS: AN INTEGRATED MANAGEMENT SYSTEM FOR BICYCLE SHARING IN CHINA
Board PH.2  Wenshi Zhu, Kai Qi, Peking University, China; Shuhua Sang, Jangsu Zhili Technology Co., Ltd., China; Chengqi Cheng, Peking University, China

THP2.PH.3  AN OPTIMAL SAMPLING DESIGN FOR LAND SURFACE TEMPERATURE VALIDATION WITH SPATIAL AND DIURNAL VARIATIONS
Board PH.3  Jing Li, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, China; Li Ni, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China; Zhao-Cong Li, Institute of Agricultural Resources and Regional Planning, Chinese Academy of Agricultural Sciences, China; Yung-Gang Qian, Academy of Opto-Electronics, Chinese Academy of Sciences, China; Nuo Wu, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, China

THP2.PH.4  SPATIAL DISTRIBUTION PATTERN OF COUNTY-LEVEL MULTIDIMENSIONAL POVERTY VALIDATION WITH SPATIAL AND DIURNAL VARIATIONS
Board PH.4  Wenping Qi, Yuankui Wang, Xuefeng Zhang, Feng Wang, Lai Liu, Chinese Academy of Sciences, China

THP2.PH.5  THE DUAL-ASPECT GEOMETRIC TERRAIN CORRECTION METHOD USING GF-3 SATELLITE DATA
Board PH.5  Jiaojiao Li, Ruxing Cui, Xidian University, China; Bo Li, Northwestern Polytechnical University, China; Zhao-Liang Li, Institute of Agricultural Resources and Regional Planning, Chinese Academy of Agricultural Sciences, China; Shaohui Mei, Northwestern Polytechnical University, China; Yunsong Li, Xidian University, China; Shaohui Mei, Northwestern Polytechnical University, China; Zhiguo Jiang, Beihang University, China; Yunsong Li, Xidian University, China; Shaohui Mei, Northwestern Polytechnical University, China; Zhiguo Jiang, Beihang University, China

THP2.PH.6  AN IMPROVED ALGORITHM FOR TERRAIN RENDERING
Board PH.6  Wei Cao, Lin Huang, Tianfei Hu, Xiaoyang Xu, Hongyan Ren, Junming Yang, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, China

THP2.PH.7  GEOMORPHIC SPATIO-TEMPORAL CHANGE DETECTION OF INDUS DELTA PAKISTAN, USING SATELLITE LANDSAT DATA
Board PH.7  Zahid Ali Malik, Federal Urdu University of Arts, Sciences and Technology, Pakistan

THP2.PH.8  IMPACT OF IN-SITU OBSERVATION SITES CONFIGURATION ON SPATIAL INTERPOLATION: A CASE STUDY ON AIR TEMPERATURE
Board PH.8  Yujie Xiong, Sun Yat-Sen University, China

THP2.PH.9  RESEARCH ON EXTRACTION AND EVALUATION OF ECOLOGICAL CORRIDOR BASED ON REMOTE SENSING AND GIS
Board PH.9  Chengyan Yang, Shenzhen Urban Planning and Land Resource Research Center, China; Hongga Li, Xiaoxia Huang, Xia Li, Unit 69006 of Xinjiang Military Region, China; Wuyang Hong, Shenzhen Urban Planning and Land Resource Research Center, China; Yong-Gang Qian, Academy of Opto-Electronics, Chinese Academy of Sciences, China; Zhao-Liang Li, Institute of Agricultural Resources and Regional Planning, Chinese Academy of Agricultural Sciences, China; Yunsong Li, Xidian University, China; Shaohui Mei, Northwestern Polytechnical University, China; Zhiguo Jiang, Beihang University, China; Yunsong Li, Xidian University, China; Shaohui Mei, Northwestern Polytechnical University, China; Zhiguo Jiang, Beihang University, China
Session Chair: Ken Clarke, University of Adelaide

THP1.PJ.1 ACCURACY OF SSH MEASUREMENT BY USV EQUIPPED WITH GPS-A COMPARISON WITH THE GPS BUOY
Zhao Wancun, Yan Changhao, Wang He, National Ocean Technology Centre, China; Qiao Jingyi, Liang Hao, Tian Jin Centre for Marine Geology Survey, China

THP1.PJ.2 SPATIAL AND SOCIAL ASPECT OF TRANSFORMATION LIVE CORAL TO DEAD CORAL AT INHABITANT AND UNHABITANT ISLAND IN SPERMONDE ARCHIPELAGO
Nurjanah Nurani, Supriadi Supriadi, Dwi Aries Tina Pulubuhu, Mahatma Lanunu, Agus Asis, Hassanuddin University, Indonesia; Teruhiro Kamatani, University of Tokyo, Japan

THP1.PJ.3 APPLICATION OF HY-1C SATELLITE COASTAL ZONE IMAGE IN ISLAND REEF MONITORING
Yunpeng Zhou, Chao Liang, National Satellite Ocean Application Service, China; Shengli Zhang, Beijing International Studies University, China; Asheng Zuo, National Satellite Ocean Application Service, China

THP1.PJ.4 BATHYSENT - A METHOD TO RETRIEVE COASTAL BATHYMETRY FROM SATELLITE Images - ENVIRONMENTAL IMPLICATIONS
Xinyi Nie, Yuying Wang, Guangzhou Institute of Geochemistry, Chinese Academy of Sciences, China

THP1.PJ.5 ON THE USE OF SATELLITE-BASED DIGITAL ELEVATION MODELS TO DETERMINE COASTAL TOPOGRAPHY
Harold Diaz, Rafael Almar, LEGOS, France; Erwin W.J. Bergsma, CNES-LEGOS, France; Fabien Leger, LEGOS, France

THP1.PJ.6 THE EFFECTS OF SUN-VIEWER GEOMETRY ON SUN-INDUCED FLUORESCENCE AND ITS RELATIONSHIP WITH GROSS PRIMARY PRODUCTION
Tao Zhang, Yuying Zhang, Zhihui Li, Ji Li, Xingkang Zhang, Shanghai University, China

THP1.PJ.7 EXPERIMENTAL COMPARISON AND ANALYSIS OF BLOCK BUNDEL ADJUSTMENT MODELS FOR CHINESE ZY-3 OPTICAL SATELLITE IMAGERY
Wenping Song, Shijie Liu, Xiaohua Tong, Tongji University, China; Changling Niu, Qingdao Remote Sensing Application Center, China

THP1.PJ.8 NOAA-20 VISIBLE INFRARED IMAGING RADIOMETER SUITE (VIIRS) TRANSMISSION TECHNOLOGY FOR INFRARED REMOTE SENSING DATA
Fan Mo, Beijing Institute of Spacecraft System Engineering, China; Hua Li, State Key Laboratory of Remote Sensing Science, Chinese Academy of Sciences, China

THP2.PJ.1 AN ERROR-BASED BLOCK ADJUSTMENT METHOD FOR MULTI-ANGLE SATELLITE IMAGERY WITHOUT GROUND CONTROL POINTS
Wangang Xue, Fang Wang, Huajiao Yin, Yin Hu, Yulan Yang, Key Laboratory of Technology in Geo-Spatial Information Processing and Application Systems, China

THP2.PJ.2 FIRST RESULTS FROM LASER-BASED SPECTRAL CHARACTERIZATION OF LANDSAT 9 OPERATIONAL LAND IMAGER-2
Joel McCorkel, Brendan McAndrew, NASA Goddard Space Flight Center, United States; Julia Barns, SSD, United States; Brian MacKinnon, NASA Goddard Space Flight Center, United States; James Pharr, J.t. Solutions, Inc., United States; Michael Rodgers, Hexagon U.S Federal, United States; Tim Shuman, FiberTek, United States; Andrew Sartikov, Genesis Engineering Corp, United States; Barbara Zukowski, Ball Aerospace, United States

THP2.PJ.3 THE EFFECTS OF SUN-VIEWER GEOMETRY ON SUN-INDUCED FLUORESCENCE AND ITS RELATIONSHIP WITH GROSS PRIMARY PRODUCTION
Gao Zhang, Fengyang Zhang, Zhicai Li, Ji Li, Xingkang Zhang, Shanghai University, China

THP2.PJ.4 MISSION STATUS OF A GEOSTATIONARY ENVIRONMENTAL MONITORING SPECTROMETER: THE DEVELOPMENT OF A GROUND STATION SYSTEM
Jeokwon Jang, Ara Cho, Jongmin Youn, National Institute of Environmental Research, Korea (South); Minseok Nam, Goo Kim, National Institute of Environmental Research, Korea (South); Deokan Kim, Songkyun Kim, National Institute of Environmental Research, Korea (South)

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Wenping Song, Shijie Liu, Xiaohua Tong, Tongji University, China; Changling Niu, Qingdao Remote Sensing Application Center, China

THP2.PJ.8 IMPROVING THE AVHRR’S BRDF CORRECTION USING MODIS
Bao Ai, Luoyu Liao, Baochun Yang, Beijing International Studies University, China; Xin Chen, Xi Chen, Shihui Guo, Zhong Miao, Zhaohui Li, Xueli He, Wuhan University, China

THP2.PJ.9 A MULTI-SATELLITE REGIONAL IMAGING MISSION PLANNING METHOD BASED ON ROOM FOR EMERGENCY SURVEYING AND MAPPING
Yanming Chen, Xin Shen, Shixue Li, Guo Zhang, Miaozhong Xu, Yulin Liu, Junfei Xu, Wuhan University, China

THP2.PJ.10 CURRENT TRENDS IN REMOTE SENSING SYSTEMS AND INSTRUMENTATION
Chris Herbage, Laboratoire de Botanique et Géosciences, Université de Bourgogne, France; Fabrice Gascuel-Odoux, Université de Strasbourg, France; Eric Vermote, NASA Goddard Space Flight Center, United States; Jean-Claude Roger, Chris Herbage, Laboratoire de Botanique et Géosciences, Université de Bourgogne, France; Eric Vermote, NASA Goddard Space Flight Center, United States; Jean-Claude Roger, Chris Herbage, Laboratoire de Botanique et Géosciences, Université de Bourgogne, France; Xi Shao, National Oceanic Atmospheric Administration / University of Maryland, United States; Changying Gu, National Oceanic Atmospheric Administration, United States

THP2.PJ.11 HYPERSONIC SPECTRAL CAMERA FOCUS SETTING WITH SPECTRAL DERIVATIVE ANALYSIS
Yusen Cini Esa, Ozan Ozal, Safak Ozturk, Recep Demir, NIVELSAN Inc., Turkey
Thursday, August 1 09:40 - 10:40 Room 501-502: Area K
Session THP1.PK  Poster
Coastal Zones III
Session Co-Chairs: Francisco Eugenio, Universidad de Las Palmas de Gran Canaria; Duk-Jin Kim, Seoul National University

THP1.PK.1 Board PK.1
SPATIAL STRUCTURE AND RELATIONSHIP BETWEEN PORTS AND PORT CITIES ALONG THE MARITIME SILK ROAD
Li Zhang, Yu Gu, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China; Grazina Metternicht, School of Biological, Earth and Environmental Sciences, University of New South Wales, Australia; Niu Yan, Sen Bi, Mohammad Emran Hasan, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China

THP1.PK.2 Board PK.2
MULTIPLATFORM EARTH OBSERVATION SYSTEMS FOR THE MONITORING AND CONSERVATION OF VULNERABLE NATURAL ECOSYSTEMS
Minyoung Back, Joong-Sun Won, Yonsei University, Korea (South)

THP1.PK.3 Board PK.3
BATHYMETRY MAPPING USING VERY HIGH RESOLUTION SATELLITE IMAGERY IN SHALLOW COASTAL WATERS OF PROTECTED ECOSYSTEMS
Francisco Eugenio, Monica Allara, Javier Martin, Javier Marvolo, Universidad de Las Palmas de Gran Canaria, Spain

THP1.PK.4 Board PK.4
SUN GLINT MITIGATION FOR THE SABIA-MAR MISSION
Roberto Alonso, Jose Kibar, Comisión Nacional de Actividades Espaciales (CONAE), Argentina; Robert Frouin, Scripps Institution of Oceanography, University of California San Diego, United States

THP1.PK.5 Board PK.5
BATHYMETRY MAPPING WITH MULTISPECTRAL REMOTE SENSING USING A PHYSICS-BASED MODELLING APPROACH
Christopher Olayinka-Ivie, Simon Fraser University, Canada; Anders Knudby, University of Otago, New Zealand

THP1.PK.6 Board PK.6
RANDOM FOREST CLASSIFICATION SCENARIOS FOR BENTHIC HABITAT MAPPING USING PLANETSCOPE IMAGE
Pramaditya Wicaksono, Widyawati Lazuardi, Universitas Gadjah Mada, Indonesia

THP1.PK.7 Board PK.7
MEASUREMENT OF COASTAL WATER QUALITY INDICATORS USING SENTINEL-2: AN EVALUATION OVER HONG KONG AND THE PEARL RIVER ESTUARY
Sidrah Hafeez, Man Sing Wong, Hong Kong Polytechnic University, China

THP1.PK.8 Board PK.8
THE GF-2 CAPABILITY ANALYSIS IN SHALLOW WATER REMOTE SENSING
Wei Shen, Qian Ji, Yantai Institute of Coastal Zone Research, Chinese Academy of Sciences, China; Xiaojian Wu, Nansung University, China

THP1.PK.9 Board PK.9
STUDY ON CRUDE OIL AND ITS EMMULSIFICATION CHARACTERISTICS
Jie Gao, Tianjin Institute of Coastal Zone Research, Chinese Academy of Sciences; Key Laboratory of Coastal Zone Environmental Processes, CAS; Shandong Provincial Key Laboratory of Coastal Zone Environmental Processes, China; Tsunyong Lu, Fan Gu, Danhua Wang, Mingzao Diao, Qiuo Yang, School Environmental and Material Engineering, Yantai University, China; Yan Liu, Yantai Marine Environment Monitoring Central Station, State Oceanic Administration, 11 Weiyue Road, Fushan District, Yantai 264008, P R China, China; Zhi Qi, China National Offshore Oil Corporation Limited, China; Tianzhang Zheng, China University of Geosciences, China

THP1.PK.10 Board PK.10
SEA SURFACE CURRENT VELOCITY VECTORS FROM PASSIVE REMOTE SENSING IMAGERY
Guillermo Martinez-Floranes, Olga Zaltzev, Enrique H. Nova-Sánchez, Instituto Politécnico Nacional, Centro Interdisciplinario de Conocimientos Marinos, Mexico

THP1.PK.11 Board PK.11
ANALYSIS FOR THE CHANGE OF AQUACULTURE AREA AND WATER QUALITY IN SANSHA BAY DURING 2010-2018
Yuting Chen, Yuchuang Wang, Tingting Xie, Minghui Zhang, Fuzhou University, China

THP1.PK.12 Board PK.12
TWO-DIMENSIONAL SHIP VELOCITY RETRIEVAL FROM THE KOMPSAT-5 SAR
Myeongyong Back, Joong-San Won, Yonsei University, Korea (South)

Thursday, August 1 15:20 - 16:20 Room 501-502: Area K
Session THP2.PK  Poster
UAV Platforms and Applications
Session Chair: José Marcato, Federal University of Mato Grosso do Sul

THP2.PK.1 Board PK.1
COMPENSATION METHOD FOR MULTI-ROTOR UAV-MAGNETOMETER SYSTEM
Yuan-Mo Xie, Xiaoyuan Zhang, Luchao Chen, Youxin Zheng, Wupeng Xie, Chinese Academy of Sciences, China

THP2.PK.2 Board PK.2
MICRO-DOPPLER AIDED TRACK-BEFORE-DETECT FOR UAV DETECTION
Yaochun You, Ping Wei, Lin Guo, Wun Sun, Huqiao Zhang, Guohang Li, University of Electronic Science and Technology of China, China

THP2.PK.3 Board PK.3
EVALUATING THE APPLICABILITY OF RTK-UAV FOR FIELD MANAGEMENT
Hirokiyo Ohara, Shintani Sojirou, Takamori Yogi, National Agriculture and Food Research Organization, Japan

THP2.PK.4 Board PK.4
THE IMPACT OF GROUND CONTROL POINT QUANTITY ON AREA AND VOLUME MEASUREMENTS WITH UAV SfM PHOTOGRAMMETRY APPLIED IN OPEN PIT MINES
Henrique Segovia, José Marcato Junior, Edson Matsubara, Federal University of Mato Grosso do Sul, Brazil; Anette Elhorn, Technische Universität Dresden, Brazil; Reinolda Colares, Fabio Santos, ICMC, Brazil

THP2.PK.5 Board PK.5
ZONING THE FIRE-RISK IN PROTECTED AREAS WITH DRONES
Nan Wang, Juan Bai, Guangzhou University, China; Wenyong Zhang, University of Electronic Science and Technology of China, China; Zhengchun Yu, National Agriculture and Food Research Organization, Japan

THP2.PK.6 Board PK.6
RESOURCE ALLOCATION OPTIMIZATION OF DISTRIBUTED RADAR IMAGING SYSTEM BASED ON SPATIAL SPECTRAL ANALYSIS
Fanyun Xu, Aliu Wang, Daqiang Mao, Yongzhang Zhu, Yin Zhang, Yuanci Huang, Jianyou Yang, University of Electronic Science and Technology of China, China

THP2.PK.7 Board PK.7
UNMANNED AERIAL VEHICLE (UAV) APPLICATIONS IN PRECISION AGRICULTURE
Rom Artur, Stanley Andok Sari, Hakusaido University, Japan; Kanichiro Matsumura, Tokyo University of Agriculture, Japan; Satoshi Inoue, National Agriculture and Food Research Organization, Japan

THP2.PK.8 Board PK.8
ESTIMATING AREA AND WATER VOLUME OF RURAL S reservoirs USING DRONES
Jade Vitor Silva Costa, Manuel Eduardo Ferreira, Federal University of Goias, Brazil; Monica Maredo, Woods Hole Research Center, United States

THP2.PK.9 Board PK.9
A UAS PLATFORM FOR ASSESSING SPECTRAL, STRUCTURAL, AND THERMAL PATTERNS OF ARCTIC TUNDRA VEGETATION
Ron Meng, Zhizhong Agricultural University / Brookhaven National Laboratory, United States; Didi Yang, Andrew McKeehan, Brookhaven National Laboratory, United States; Wester Huysing, Dan Hays, University of Maine, United States; Amy Breen, University of Alaska Fairbanks, United States; Shown Sediq, Brookhaven National Laboratory, United States

THP2.PK.10 Board PK.10
UAV IMAGE MOSAIC BASED ON NON-RIGID MATCHING AND BUNDLE ADJUSTMENT
Linlin Liu, Quan Wu, China University of Geosciences, China; Tao Lu, Wuhan Institute of Technology, China; Yang Wang, China University of Geosciences, China

THP2.PK.11 Board PK.11
EXTRACT ROW-STRUCTURE PARAMETERS OF THE MAIZE FROM UAV IMAGERIES
Xiaofeng Li, Northeast Institute of Geography and Agriculture, Chinese Academy of Sciences, China; Tao Jiang, Xiaoying Zheng, Kai Zhou, NIESA, China; Balon Li, Nanjing University of Information Science & Technology, China; Li Li, Xiangyun Wan, NIESA, China
Ocean Altimetry I
Session Co-Chairs: Fabien Leger, LEGOS (University of Toulouse, IRD, CNES, CNRS, UPS); Bertrand Chapron, IFREMER

THP1.PL.1 Board PL.1 X-TRACK/ALES REGIONAL ALTIMETER PRODUCT FOR COASTAL APPLICATION: TOWARD A NEW MULTI-MISSION ALTIMETRY PRODUCT AT HIGH RESOLUTION Fabien Leger, Florence Brodu, Fernando Nilo, LEGOS (University of Toulouse, IRD, CNES, CNRS, UPS), France; Marcello Pasqua, DEFUM, Germany; Florence Marti, Amey Cazenave, LEGOS (University of Toulouse, IRD, CNES, CNRS, UPS), France

THP1.PL.2 Board PL.2 MULTI-SOURCE OCEAN GRAVITY ANOMALY DATA FUSION PROCESSING METHOD Jiaorong Zhao, Jianhua Wan, Qinting Sun, Shanwei Liu, China University of Petroleum (East China), China

THP1.PL.3 Board PL.3 IMPACTS OF NORTH ATLANTIC LONG-TERM SEA LEVEL VARIABILITY ON U.S. EAST COAST Yongjun Jia, Mingsen Lin, Youguang Zhang, National Ocean Satellite Application Service, China; Lin Zhu, Anhui Institute of Optics and Fine Mechanics, Chinese Academy of Science, China; Xiaobin Yin, Shenzhen AerialRemote Technology Co., Ltd., China

THP1.PL.4 Board PL.4 DATA QUALITY ASSESSMENT OF JASON-3 ALTIMETER DATA BASED ON JASON-2 SYNCHRONOUS DATA Shanwen Liu, Yinglong Li, Qinting Sun, Jianhua Wan, China University of Petroleum (East China), China

THP1.PL.5 Board PL.5 STUDY ON NEUTRAL NETWORKS OF IONOSPHERE DELAY CORRECTIONS OF SATELLITE ALTIMETERS Xiexiong Huang, Hangki Miao, Wenwen Xue, Xiangyong Zhao, Guohong Wang, Ocean University of China, China

THP1.PL.6 Board PL.6 VALIDATION OF HY-2A SATELLITE SEA LEVEL MEASUREMENTS OFFSHORE HONG KONG USING JASON-2 SATELLITE AND TIDE GAUGE DATA Xie Xu, Xu Ke, Mao Fei Jiang, Key Laboratory of Microwave Remote Sensing, National Space Science Center, Chinese Academy of Sciences, China; Ying Xu, National Satellite Ocean Application Service, China

THP1.PL.7 Board PL.7 AN INNOVATIVE APPROACH FOR THE CALIBRATION OF WIDE SWATH ALTIMETERS Xu Ke, Yu Xue, Key Laboratory of Microwave Remote Sensing, National Space Science Center, Chinese Academy of Sciences, China

THP1.PL.8 Board PL.8 RESEARCH PROGRESS OF SATELLITE ALTIMETER CALIBRATION IN CHINA Xinghao Zhao, Lei Yang, First Institute of Oceanography, Ministry of Natural Resources of China, China; Lin Zhu, Anhui Institute of Optics and Fine Mechanics, Chinese Academy of Science / University of Science and Technology of China, China; Yangjun Fu, Shandong University of Science and Technology, China; Feng Li, Dongtiao / Spatial Ocean Technology Co., China

THP1.PL.9 Board PL.9 CALIBRATION OF HY-2A SATELLITE ALTIMETER BASED ON GPS BOUY Zhou Weihua, Zhu Huchun, Chen Chunhua, Yan Linghua, Huang Xiaoqiang, National Ocean Technology Center, China

THP1.PL.10 Board PL.10 CURRENT STATUS OF THE HY-2B SATELLITE RADAR ALTIMETER AND ITS PROSPECT Yangjun Jin, Mingxin Li, Yangrong Zhang, National Ocean Satellite Application Service, China; Wenbo An, Xiangdong Li, National Satellite Ocean Application Service, China

THP1.PL.11 Board PL.11 THE EFFECTS OF RANDOM ERROR ON THE MEASUREMENT RESULTS OF WIDE-SWATH INTERFEROMETRIC IMAGING RADAR ALTIMETER Yiming Zhou, Yanghong Wang, Zhanyue Zhang, Chaofang Zhao, Ocean University of China, China

THP1.PL.12 Board PL.12 RANGE NOISE LEVEL ESTIMATION OF HY-2B RADAR ALTIMETER AND ITS COMPARISON WITH JASON-2 AND JASON-3 ALTIMETERS Maozhi Jiang, Xu Ke, Xiuyu Li, Lingwei Shi, Xuren Yu, Peng Liu, National Space Science Center, Chinese Academy of Sciences, China
Thursday, August 1  \hspace{1cm} 09:40 - 10:40 \hspace{1cm} Room 501-502: Area M
Session THP1.PM  \hspace{1cm} Poster

**Lidar Methods and Techniques**

Session Chair: Georgios Tzeremes, European Space Agency

**THP1.PM.1**  
RECONSTRUCTION OF AIRBORNE LASER SCANNER TRAJECTORY FROM DATA  
Florian de Boissieu, Marc Lang, Jean-Baptiste Féret, Jean-Matthieu Monnet, Sylvie Durrieu, IRSTE, France

**THP1.PM.2**  
NON-REFERENCE QUALITY EVALUATION FOR INDOOR 3D POINT CLOUDS  
Yuhan Lian, Chenglu Wen, Cheng Wang, Jonathan Li, Xiamen University, China

**THP1.PM.3**  
RETRIEVAL OF THE FOREST LEAF AREA INDEX BASED ON THE LASER PENETRATION RATIO FROM THE GLAS WAVEFORM LIDAR DATA  
Lei Cui, Zhi Jin, Min Su, Yadong Zhang, Xiaoning Zhang, Sinyung Yin, Yaouan Cheng, Anning Ding, Rui Xin, Jing Guo, Beijing Normal University, China

**THP1.PM.4**  
GEOMETRIC-SPECTRA-BASED POINT CLOUD SEGMENTATION FOR HYPERSPECTRAL LIDAR  
Biao Chen, Shuo Shi, Jia Sun, Wai Gong, Wuhan University, China; Lin Du, Jian Yang, China University of Geosciences, China

**THP1.PM.5**  
STRUCTURAL OPTIMIZATION OF RECEIVING SYSTEM BASED ON OPTIMAL FIELD OF VIEW FOR SHALLOW SEA LASER MEASUREMENT  
Guoging Zhao, Jianfeng Wu, Xiang Zhou, Wei Huang, Jie Kong, Yuli Tan, Guolin University of Technology, China

**THP1.PM.6**  
SLAM-BASED MULTI-SENSOR BACKPACK LIDAR SYSTEMS IN GNSS-DENIED ENVIRONMENTS  
Dongyang Zhang, Zhenggang, University of Waterloo, Canada; Yiping Chen, Xiamen University, China; John Zolek, Jonathan Li, University of Waterloo, Canada

**THP1.PM.7**  
DENOISING ALGORITHM BASED ON LOCAL DISTANCE WEIGHTED STATISTICS FOR PHOTO COUNTING LIDAR POINT DATA  
Wenli Lian, Shuangbing Li, Wuhan University, China; Guo Zhang, Xinyang Chen, Wuhan University, China; Zixuan Li, University of Science and Technology LiaoNing, China

**THP1.PM.8**  
PIECEWISE HORIZONTAL 3D ROOF RECONSTRUCTION FROM AERIAL LIDAR  
Sami Namouchi, RIAD-ENSI, Tunisia; Bruno Vollet, IGN, France; Imed Rached Farah, RIAD-ENSI, Tunisia; Nefiym Ismail, CNCT (Centre National de la Cartographie et de la Télédiffusion), Tunisia

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Thursday, August 1  \hspace{1cm} 15:20 - 16:20 \hspace{1cm} Room 501-502: Area M
Session THP2.PM  \hspace{1cm} Poster

**Ground Based Systems I**

Session Co-Chairs: Yu Okada, Mitsubishi Electric Corporation; Mototsugu Sato, Tohoku University

**THP2.PM.1**  
JOINT DESIGN OF TRANSMIT AND RECEIVE BEAMFORMING FOR MIMO RADAR  
Ziyang Cheng, University of Electronic Science and Technology of China; Bao Liao, Shenzhen University, China; Jin Li, Jilin University, China; Jun Li, University of Electronic Science and Technology of China, China

**THP2.PM.2**  
AN INVESTIGATION OF AN OPERATIONALIY VAILABLE SOLUTION FOR MITIGATING WIND TURBINE CLUTTER BASED ON DUAL POLARIZATION WEATHER RADAR SIGNATURES  
Antti Dittrich, Colorado State University, United States; Sean Ruszanski, Vaisala, Inc., United States; V Chandrasekar, Colorado State University, United States

**THP2.PM.3**  
DESIGN OF A DIGITAL LOW-FREQUENCY GEOPHONE BASED ON 4TH-ORDER SIGMA-DELTA MODULATOR AND VELOCITY FEEDBACK  
Xiaopeng Zhang, Xin Li, Tongdong Wang, Weiqing Xiao, Northwest Institute of Nuclear Technology, China

**THP2.PM.4**  
A RADAR FORWARD-LOOKING SUPER-RESOLUTION METHOD BASED ON SINGULAR VALUE WEIGHTED TRUNCATION  
Xiaopeng Zhang, Xin Li, Tongdong Wang, You Yang, University of Electronic Science and Technology of China, China

**THP2.PM.5**  
NEW INSIGHTS OF GROUND-BASED LAND SURFACE TEMPERATURE MEASUREMENTS PROTOCOLS FOR IMPROVING VALIDATION OF THERMAL INFRARED SATELLITE DATA  
Jean-Pierre Lagaudez, Mark Irvine, Institut National de la Recherche Agronomique (INRA), France; Pierre Guillaumier, University of Maryland, United States

**THP2.PM.6**  
PROPOSAL OF THREE-PORT DIELECTRIC WAVEGUIDE PROBES FOR HUMAN BLOOD GLUCOSE MONITORING  
Soko Nagae, Akira Hirose, University of Tokyo, Japan

**THP2.PM.7**  
MULTI-UAV ARCHITECTURE FOR GROUND DATA COLLECTION  
Emilian Vlasceanu, Dan Popescu, Loretta Ichim, University POLITEHNICA of Bucharest, Romania

**THP2.PM.8**  
VALIDATING GCM-TERRESTRIAL ECOLOGY PRODUCTS: HOW SHOULD IN-SITU OBSERVATION BE PERFORMED AT SATELITE SCALE?  
Tomoko Akitsu, Hiroko Hasiboro, University of Tsukuba, Japan; Tatsuro Nakaji, Hokkaido University, Japan; Hajime Kodetaya, Tokyo University, Japan; Saigusa, National Institute for Environmental Studies, Japan; Masato Hayashi, Japan Aerospace Exploration Agency (JAXA), Japan; Reiko Ide, National Institute for Environmental Studies, Japan; Yoshiki Honda, Koyo Kajiwara, Chiba University, Japan; Kazuo Tachiiri, Hokkaido Kodetaya, Japan Agency for Marine-Earth Science and Technology (JAMSTEC), Japan; Kazuho Matsumoto, University of the Ryukyus, Japan; Toshiyuki Kobayashi, Japan Aerospace Exploration Agency (JAXA), Japan
Thursday, August 1
09:40 - 10:40 Room 501-502: Area N
Session THP1.PN  Poster

Calibration

Session Chair: Toshio Yamaguchi, Japan Aerospace Exploration Agency

THP1.PN.1 EXTREME CASE OF SPECTRAL BAND DIFFERENCE CORRECTION BETWEEN THE OSIRIS-REX/NAVACAM2 AND DSCOVR EPIC IMAGERS
Board PN.1
Benjamin Scarron, SSU, United States; David Dowling, National Aeronautics and Space Administration (NASA), United States; Conor Harvey, Rajendra Bhattacharya, Avin Gopalan, SSU, United States

THP1.PN.2 SPECTRAL CALIBRATION OF NOAA-20 OMPS SENSOR DATA RECORD
Board PN.2
Chunhua Pan, University of Maryland, United States; Liubing Zhao, Changyang Gao, Lawrence Flynn, Satya Kulkarni, NDA, United States

THP1.PN.3 CALIBRATION AND VALIDATION OF CERES FM-6 ON NOAA-20 UTILIZING ONBOARD CALIBRATION SUBSYSTEMS FIRST 12 MONTHS OF OPERATIONS
Board PN.3
Kory Priestley, National Aeronautics and Space Administration (NASA), United States; Susan Thomas, Nathaniel Smith, Robert Wilson, Science Systems and Applications, Inc., United States

THP1.PN.4 RADIOIMAGING CROSS-CALIBRATION OF ZY3 SATELLITE WITH GF-01 PMS/WFY AND LANDSAT-8 OLI
Board PN.4
Hongshuai Tang, Junfeng Xie, Xianyang Tang, Land Satellite Remote Sensing Application Center, Ministry of Natural Resources, China; Qi Li, Peking University, China

THP1.PN.5 CORRECTION OF THE BDRF EFFECTS ON SENTINEL-2 OCEAN IMAGES
Board PN.5
Maria Zieminska, Yosuke Karahaliosi, National Technical University of Athens, Greece

THP1.PN.6 IMPROVED VICARIOUS RADIOCALIBRATION METHOD CONSIDERING ADJACENCY EFFECT FOR HIGH RESOLUTION OPTICAL SENSORS
Lingling Mo, Ning Wang, Yonggang Zhao, Youkai Liu, Xinhong Wang, Academy of Opto-Electronics, Chinese Academy of Sciences, China; Shihang Li, Chuanrong Li, Lingli Tang; Key Laboratory of Quantitative Remote Sensing Information Technology, Academy of Opto-Electronics, Chinese Academy of Sciences, China; Yonggang Qian, Academy of Opto-Electronics, Chinese Academy of Sciences, China

THP1.PN.7 NOAA-20 VIIRS ON-ORBIT CALIBRATION AND PERFORMANCE UPDATE
Board PN.7
Xiaoxiong (Jack) Xiong, NASA Goddard Space Flight Center, United States; Jiankang Zhang, Science Systems and Applications, Inc., United States; Benjamin Butler, NASA Goddard Space Flight Center, United States; Kwok (Vincent) Chang, Ning Li, Yonggang Qian, Kevin Twiddy, Science Systems and Applications, Inc., United States

THP1.PN.8 GROUND SURFACE CALIBRATION SOURCES FOR EARTH OBSERVATION SEGMENTED ELESCope
Sachi Sato, Toshio Yamaguchi, Japan Aerospace Exploration Agency (JAXA), Japan

THP1.PN.9 CROSS-CALIBRATION OF FY-3/MERSI BAND 1 USING SEAWIFS DATA
Board PN.9
Xiongwei He, Qi Hu, Ning Kang, Qiang Guo, Yi Peng, National Satellite Meteorological Center, China Meteorological Administration, China

THP1.PN.10 INTER-CALIBRATION OF NIGHTTIME LIGHT DATA BETWEEN DMSP/OLS AND NPP/VIIRS IN THE ECONOMIC CORRIDORS OF BELT AND ROAD INITIATIVE
Board PN.10
Jinhu Bian, Junfeng Xie, Qianghui Lu, Guanping Li, Zhihong Ma, Chuanrong Li, Lingli Tang, Academy of Opto-Electronics, Chinese Academy of Sciences, China

THP1.PN.11 CROSS-CALIBRATION OF CHINA MODERATE-HIGH RESOLUTION REMOTELY Sensed DATA WITH WIDE VANGUARD ANGLE
Board PN.11
Aixia Yang, Bo Zhang, Shanshan Wu, Junjun Wu, Dinhuo Liu, State Key Laboratory of Remote Sensing Science, Institute of Remote Sensing and Digital Earth of Chinese Academy of Sciences, China; Dong Nao, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China

THP1.PN.12 EVALUATION OF SUPERVISED 1-ON-1 ORBIT RADIOMETRIC CALIBRATION WITH AIRBORNE HYPERSONSPECTROMETER
Youkai Liu, Ning Wang, Yonggang Zhao, Lihong Mo, Xiaoxiong (Jack) Xiong, NASA Goddard Space Flight Center, United States; Qi Li, Changyang Gao, Lawrence Flynn, Satya Kulkarni, NDA, United States; Benjamin Butler, NASA Goddard Space Flight Center, United States; Jiankang Zhang, Science Systems and Applications, Inc., United States; Benjamin Harvey, Rajendra Bhattacharya, Avin Gopalan, SSU, United States; Susan Thomas, Nathaniel Smith, Robert Wilson, Science Systems and Applications, Inc., United States

UAV Sensors

Session Chair: Claude Rene Duguay, University of Waterloo

THP2.PN.1 OPERATING PROCEDURES AND CALIBRATION OF A HYPERSONSPECTRAL SENSOR ONBOARD A REMOTELY PILOTED AIRCRAFT SYSTEM FOR WATER AND AGRICULTURE MONITORING
Board PN.1
Kevin (Kyung-Kuk) Kang, KIST Geomatics Inc., Canada; Marie Hooeckstra, Marzio Fanfani, Amir Mosadeghazarian, Kian Zolfaghari, Claude Rene Duguay, University of Waterloo, Canada

THP2.PN.2 DISCOVERY AND MITIGATING VARIATION FEATURES OF URBAN SURFACE TEMPERATURE BASED ON UAV THERMAL THERMOGRAPHY
Board PN.2
Li Feng, Huihui Tian, Menen Zhou, Yonghong Zhang, Song Gou, Yunsu Liu, Huahao University, China

THP2.PN.3 UAV-BASED POLARIMETRIC SYNTHETIC APERTURE RADAR FOR MINE DETECTION
Board PN.3
Jianhua Li, Yingying Zhang, Rui Wang, Junjie Wu, Yun Zhang, Jianyu Yang, University of Electronic Science and Technology of China; Xiangning Ma, Wuhan University, China

THP2.PN.4 DRONE IMAGE STITCHING GUIDED BY ROBUST ELASTIC WARPING AND LOCALITY PRESERVING MATCHING
Board PN.4
Liubo Luo, Qi Wan, Jin Chen, Yongping Wang, China University of Geosciences, China; Xiaoguang Mei, Wuhan University, China

THP2.PN.5 PARKING SPACE INFORMATION MONITORING BY MILLIMETER WAVE SAR BASED ON UNMANNED AERIAL VEHICLE
Board PN.5
Jinghui Li, Yingying Zhang, Rui Wang, Junjie Wu, Yun Zhang, Jianyu Yang, University of Electronic Science and Technology of China; Yuming Yang, University of Electronic Science and Technology of China; Chen Chen, University of Electronic Science and Technology of China

THP2.PN.6 A NOVEL MOSAIC METHOD FOR UAV-BASED HYPERSONSPECTRAL IMAGES
Board PN.6
Jinjung Fung, Xiao Wang, Tianyi Zhu, Xin Liu, Xiaohong Zhang, Dong Zhao, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China

THP2.PN.7 ASSESSING VIS CALCULATED FROM UAS-ACQUIRED MULTISPECTRAL IMAGING TO DETECT IRON CHLOROSIS IN GRAIN SOYGUM
Board PN.7
Jihel A. Garcia, Michael J. Starks, Texas A&M University Corpus Christi, United States; Michael J. Brown, Texas A&M AgriLife Research and Extension Center, United States

THP2.PN.8 RICE LODGING AREA EXTRACTION BASED ON YBCBR SPATIAL AND TEXTURE FEATURES
Yang Dong, Dongyan Zhang, Xin Zhu, Dong Liang, China National Engineering Research Center for Agricultural Big Data Analysis & Application, China; Shichao Du, Starch Dub, Institute of Crop. Anhui Academy of Agricultural Sciences Hefei, China

THP2.PN.9 LOR DIFERENCING CORRELATING RADIOMETER (LDR) DIGITAL CORRELATOR SPECIFIC CALIBRATION AND CHARACTERIZATION
Board PN.9
Ao Min, Zhenkun Wang, Xiaonan Gao, Ahlan Gao, University of Colorado, United States; Marios Stachura, Jack Elston, BlackSwift Technologies LLC, United States

THP2.PN.10 A UAV-BASED MULTI-SENSOR SYSTEM FOR EXPLORING VERTICAL DISTRIBUTION OF AEROSOLS
Shuang Liu, Fangjie Yu, Ge Chen, Ocean University of China, China

THP2.PN.11 MONITORING THE BRAZILIAN SAVANNA WITH LIDAR AND RGB SENSORS ONBOARD REMOTELY PILOTED AIRCRAFT SYSTEMS
Board PN.11
Manuel Ferreira, Leomar Alves Júnior, Federal University of Goiás, Brazil; Rafael Albuquerque, World Wildlife Fund, Brazil; Cassio Cezare, Federal University of Goiás, Brazil; Angelica Zambrano, BlackSwift Technologies LLC, United States

THP2.PN.12 ACCURACY ESTIMATION OF A LOW-COST GPS RECEIVER USING DUAL MODE ON AERIAL IMAGES
Board PN.12
Raul A. Garcia-Huerta, Ivan E. Villalon-Turrubiates, Luis E. González-Jiménez, Instituto Tecnológico y de Estudios Superiores de Occidente, Mexico; Gerardo Allende-Alba, German Aerospace Center (DLR), Germany
## Data Management and Systems II

**Session Co-Chairs:** Weiguo Han, University Corporation for Atmospheric Research; Reginald Blake, New York City College of Technology

**THP1.PP.1**

**Board PP.1**

**SKEWNESS-ADJUSTED ROBUST STATISTICAL ASSESSMENT ON GOOGLE EARTH 3D MODELS: RAPPLEE RIDGE**

Ademir Marques Junior, Rafael Kenji Horota, Enio Meneses da Souza, Pedro Reisca, Alysson Soares Aare, Mauricio Roberto Venen, Luiz Gustasso Jr, Universidade de Vale do Rio dos Sinos (UNISINOS), Brazil; Caroline Lessio Cazarin, Petróleo Brasileiro SA, Brazil

**THP1.PP.2**

**Board PP.2**

**THOUGHTS ON THE CONSTRUCTION OF UNIFIED SPATIAL DATA MANAGEMENT SYSTEM FOR ECO-ENVIRONMENTAL PROTECTION**

Nan Lu, Ecology Environment Ministration, China; Nippar Niu, China Earthquake Administration, China; Jianchao Wang, Ministry of Ecology and Environment of China, China

**THP1.PP.3**

**Board PP.3**

**BIG DATA ANALYSIS OF REMOTE SENSING MONITORING OF LAND COVER IN WUHAN CITY FROM 2000 TO 2017**

Zhipeng Wang, Jinjing Yan, Luxiao Cheng, Xiaohui Huang, Dong Huang, Lizhe Wang, China University of Geosciences (Wuhan), China

**THP1.PP.4**

**Board PP.4**

**A SPATIO-TEMPORAL COUPLED METHOD FOR RETRIEVING REMOTE SENSING IMAGE DATA OF REPEATING SUN-SYNCHRONOUS ORBIT SATELLITES**

Meng Jin, Yuli Bai, Tsinghua University, China

**THP1.PP.5**

**Board PP.5**

**PRACTICES AND EXPERIENCES IN HIGH VOLUMES OF SATELLITE DATA MANAGEMENT**

Weiguo Han, University Corporation for Atmospheric Research, United States; Matthew Jochum, National Geospatial and Atmospheric Administration, United States

**THP1.PP.6**

**Board PP.6**

**BUILDING AND DYNAMICALLY MANAGING WORKFLOWS FOR PROCESSING REMOTE SENSING DATA IN DISTRIBUTED HIGH-THROUGHPUT ENVIRONMENT**

Ruobing Zheng, University of Chinese Academy of Sciences, China; Yingzhao Piao, Zu Luo, Boqing Yan, Computer Network Information Center, Chinese Academy of Sciences, China; Miron Livny, University of Wisconsin-Madison, United States

**THP1.PP.7**

**Board PP.7**

**ADDITIONAL RAIN GAUGE SITE APPROPRIATION FOR MONITORING PRECIPITATION IN SINDH, PAKISTAN USING GEO SPATIAL TECHNIQUES & MULTI-CRITERIA DECISION MAKING**

Sadaf Sadiq, Rao Zahid Khalil, Saad Malik, Saad ul Haque, Institute of Space Technology, Pakistan

**THP1.PP.8**

**Board PP.8**

**AUTOMATED BURNED AREA DETECTION AND VIOLATION MONITORING USING LANDSAT-TM AND VHR DATA: AN ENGINEERING AND ECONOMIC STUDY TO ANALYSE LOCAL GOVERNANCE PERFORMANCE IN SARDINIA (ITALY)**

Davide De Santis, Gabriele Becconi, Fabio De Fazio, Luca Corrado, Germana Corrado, Giovanni Schiavon, University of Rome Tor Vergata, Italy

**THP1.PP.9**

**Board PP.9**

**REMOTE SENSING OF VEGETATION CANOPY FLUORESCENCE WITH WIDE-AREA IMAGE ACQUISITION**

Kenji Maurda, Shizuoka University, Japan; Naohiro Manago, Hiroaki Kuze, Chiba University, Japan
Remote Sensing for Crop Classification, Mapping and Monitoring II

Session Co-Chairs: Seungbom Kim, NASA Jet Propulsion Laboratory; Kunaki Uto, Tokyo Institute of Technology

THP1.PQ.1
Board P01
ASSESSMENT OF AGRICULTURAL PRACTICES FROM SENTINEL 1 & 2 IMAGES APPLIED ON RICE FIELDS TO GET A FARM TYPOLOGY IN THE CAMARGUE REGION

Dominique Courault, UMR 1114 EMMAH INRA, GAPA University of Angers, France; Valérie Darman, Centre d’Etude Spatial de la Bretagne (CESBIO) / University of Paul Sabatier, France; Louis Huard, INRA/UMR 951 Innovation, France; Fabrice Flamand, INRA, université d’Angers et des pays du Val de Loire, France; Emile Ndikumana, Din Ho-Tong Minh, Nicolas Bérgnol, INRA, University of Montpellier, France; François Rieg, INRA, université d’Angers et des pays du Val de Loire, France

THP1.PQ.2
Board P02
NDVI-BASED WINTER WHEAT RESPONSES TO HEATWAVE IN THE NORTH CHINA PLAIN

Zengfeng Zhang, Jiangsou Jinhong Da Real Estate Appraisal Planning Surveying and Consulting Co. Ltd, China; Lian Song, Shaolin Deng, Dian Zhang, Nanjing University, China; Ji Jian, Chengdu University of Technology, China

THP1.PQ.3
Board P03
LAND SURFACE TEMPERATURE DECOMPOSITION IN OASIS UTILIZING A TWO-SOURCE ENERGY BALANCE MODEL BASED ON THE PRIESTLEY-TAYLOR APPROACH

Runke Wang, Jian Wang, Hongyi Li, Northwest Institute of Eco-Environment and Resources, Chinese Academy of Sciences, China; Dongfang Shou, University of Electronic Science and Technology of China, China; Xiaohua Hao, Woyuao Wang, Northwest Institute of Eco-Environment and Resources, Chinese Academy of Sciences, China

THP1.PQ.4
Board P04
MONITORING SPACIAL VARIANCE OF WINTER WHEAT GROWTH VIA CHIRIS IMAGE

Xiaohu Ge, Meijuan Shu, Guojian Yang, Xiaoyun Song, Xingang Yu, Beijing Research Center for Information Technology in Agriculture, China

THP1.PQ.5
Board P05
POTENTIAL OF RED EDGE SPECTRAL BANDS IN FUTURE LANDSAT SATELLITES ON AGROECOSYSTEM CANOPY CHLOROPHYLL CONTENT RETRIEVAL

Zhangyu Cui, John Lenski, Rochester Institute of Technology, United States

THP1.PQ.6
Board P06
AN ATTEMPT TO EXTRACT PADDY FIELDS USING POLARIMETRIC DECOMPOSITION OF POLSAR DATA

Chunro Younanae, Tohoku University, Japan

THP1.PQ.7
Board P07
EFFICIENT CORN CULTIVATED AREA IDENTIFICATION WITH MULTITEMPORAL SYNTHETIC APERTURE RADAR AND OPTICAL IMAGE IN GOOGLE EARTH ENGINE CLOUD PLATFORM

Fuyou Tian, Bingfang Wu, Hongwei Zeng, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China

THP1.PQ.8
Board P08
PLOT-SCALE RICE GRAIN YIELD ESTIMATION USING UAV-BASED REMOTELY SENSED IMAGES VIA CNN WITH TIME-INVARIANT DEEP FEATURES DECOMPOSITION

Qi Yang, Liangheng Shi, Lin Lin, Wuhan University, China

THP1.PQ.9
Board P09
CROP PHENOLOGY CLASSIFICATION USING A REPRESENTATION LEARNING NETWORK FROM SENTINEL-1 SAR DATA

Shahadad Bey, Dipankar Mondal, Vinay Kumar, Dipak Banerjee, Indian Institute of Technology Bombay, India; Jean-Emmanuel Lopez-Sanchez, University of Alicante, Spain; Heather McNairn, Agriculture and Agri-Food Canada, Canada; Ark Bhattacharya, Indian Institute of Technology Bombay, India

THP1.PQ.10
Board P10
FRESHNESS OF PLEUROTUS DETERMINED BY ANALYSIS OF NEAR-INFRARED SPECTRA

Bing-Hang Huang, Chao-Cheng Wu, National Taiwan University of Technology, Taiwan; Hsiao-Min Chen, Veterans General Hospital, Taiwan; Wei-Shen Lo, Tsang-Sen Liu, Hong-Yeh Guo, Taiwan Agriculture Research Institute, Taiwan; Yen-Chieh Ouyang, National Chung Hsing University, Taiwan; Hsiao-Chi Li, National Taiwan University of Science and Technology, Taiwan

THP1.PQ.11
Board P11
DETECTION OF THE RESPONSE OF CHLOROPHYLL FLUORESCENCE TO WATER STRESS THROUGH THE EXPERIMENT AND SATELLITE DATA

Zhuoya Ni, National Satellite Meteorological Center, China Meteorological Administration, China; Hangyuan Hua, Beijing University of Technology, China

THURSDAY, AUGUST 1 09:40 - 10:40  ROOM 503: AREA Q
SESSION THP1.PQ  POSTER


Session Chair: Liping Di, George Mason University

THP2.PQ.1
Board P01
COMPARISON OF TWO MODELING APPROACHES TO SIMULATE RICE PRODUCTION IN THE CAMARGUE REGION USING SENTINEL 2 DATA

Dominique Courault, UMR 1114 EMMAH INRA, GAPA University of Angers, France; Valérie Darman, Centre d’Etude Spatial de la Bretagne (CESBIO) / University of Paul Sabatier, France; Louis Huard, INRA/UMR 951 Innovation, France; Fabrice Flamand, INRA, université d’Angers et des pays du Val de Loire, France; Emile Ndikumana, Din Ho-Tong Minh, Nicolas Bérgnol, INRA, University of Montpellier, France; François Rieg, INRA, université d’Angers et des pays du Val de Loire, France

THP2.PQ.2
Board P02
COMPARISON OF TWO MODELING APPROACHES TO SIMULATE RICE PRODUCTION IN THE CAMARGUE REGION USING SENTINEL 2 DATA

Dominique Courault, UMR 1114 EMMAH INRA, GAPA University of Angers, France; Valérie Darman, Centre d’Etude Spatial de la Bretagne (CESBIO) / University of Paul Sabatier, France; Louis Huard, INRA/UMR 951 Innovation, France; Fabrice Flamand, INRA, université d’Angers et des pays du Val de Loire, France; Emile Ndikumana, Din Ho-Tong Minh, Nicolas Bérgnol, INRA, University of Montpellier, France; François Rieg, INRA, université d’Angers et des pays du Val de Loire, France

THURSDAY, AUGUST 1 15:20 - 16:20  ROOM 503: AREA Q
SESSION THP2.PQ  POSTER

THP2.PQ.3
Board P03
EXPLOITING THE TEXTURAL INFORMATION OF UAV MULTISPECTRAL HYPERSONIC SENSING IN GOOGLE EARTH ENGINE CLOUD PLATFORM

Fan, National Satellite Meteorological Center, China; Yen-Chieh Ouyang, National Chung Hsing University, Taiwan; Wei-Shen Lo, Tsang-Sen Liu, Horng-Yuh Guo, National Chung Hsing University, Taiwan; Hsiao-Chi Li, Fu Jen Catholic University, Taiwan

THP2.PQ.4
Board P04
MACHINE LEARNING METHODOLOGIES FOR PADDY FIELD ESTIMATION IN INDIA: A CASE STUDY

Renjini R, Gangavorkar, Kumar Saurav, Sukanya Randhawa, IBM, India

THP2.PQ.5
Board P05
A HEURISTIC EXPLORATION OF BRIDGING PHENOLOGY-BASED AND MACHINE LEARNING-BASED METHODS FOR PADDY RICE MAPPING WITH SENTINEL-2 IMAGES

Chenlong Zhang, Hangyang Zhang, Wuhan University, China; Yi Liu, NTNU-Norwegian University of Science and Technology, Norway; Liangwei Zhang, Wuhan University, China
Remote Sensing for Crop Classification, Mapping and Monitoring III

Session Co-Chairs: Subit Chakrabarti, Indigo; Alejandro Monsiváis Huertero, Instituto Politécnico Nacional, ESIME Tlaxco

THP1.PR.1 ESTIMATION OF BIOMASS IN WINTER WHEAT (TRITICUM AESTIVUM L.) USING POLARIMETRIC WATER-CLOUD MODEL
Zhengyi Zhang, Southwest Forestry University, China; Enze Chen, Zengyuan Li, Lei Zhao, Zhihao Ge, Chinese Academy of Forestry, China

THP1.PR.2 ESTIMATION OF THE LEAF AREA INDEX USING A MODIFIED TRIANGULAR DIFFERENCE VEGETATION INDEX
Lihong Huang, Jing Yang, Fanru Song, Jinleng Zhou, Anhui University, China; Wenjing Zhang, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China

THP1.PR.3 CROP PHENOLOGY RETRIEVAL FROM POLARIMETRIC DECOMPOSITION AND RANDOM FOREST ALGORITHM DURING SMAPVEX16-MB CAMPAIGN
Hanqing Wang, Ramato Mapago, Kholo Gota, Melanie Texel, University of Sherbrooke, Canada; Heather McAlmon, Jarrett Powers, Agriculture and Agri-Food Canada, Canada

THP1.PR.4 TEXTURE AND SHAPE FEATURES FOR GRASS WEED CLASSIFICATION USING HYPER SPECTRAL REMOTE SENSING IMAGES
Adnan Farooq, University of New South Wales, Australia; Jun Zhou, Griffith University, Australia; Xianghai Jia, University of New South Wales, Australia

THP1.PR.5 ESTIMATION MODEL OF WINTER WHEAT YIELD BASED ON UAV HYPER SPECTRAL DATA
Siqu Yang, Ling Hu, Haobo Wu, Wenjie Fan, Huazhong Ren, Peking University, China

THP1.PR.6 THE IMPACT OF CANOPY STRUCTURE ASSUMPTION ON THE RETRIEVAL OF GAE AND LEAF CHLOROPHYLL CONTENT FOR WHEAT AND MAIZE CROPS
Jingyin Jang, Marine Wiets, Shouying Liu, Frederic Baret, Institut National de la Recherche Agronomique (INRA), France

THP1.PR.7 OLIVE TREES STRESS DETECTION USING SENTINEL-2 IMAGES
Ioannis Ntzouvris, Thomas Alexandridis, Dimitris Machos, Xanthos Via Pavlidou, Andronikos Tsimidou, Centre for Research and Technology-Hellas, Greece; Dimitri Koutoulakis, Pleinere, Czech Republic; Fabien Castel, Atos Origin Integration SAS, France; Anastasia Lagouvardou, Aristotle University of Thessaloniki, Greece; Zoe Zarkopoulou, Agroinformatik, Germany

THP1.PR.8 GARLIC MAPPING FOR SENTINEL-2 TIME-SERIES DATA USING A RANDOM FOREST CLASSIFIER
Zhaoyang Chai, Hongyan Zhang, Wuhan University, China; Xiong Xu, Tongji University, China; Zhanbai Gao, Chinese Academy of Forestry, China

THP1.PR.9 ESTIMATING THE NUMBER OF HARVESTS PER RICE PADDY FIELD
Carlin Kounte, Kamelouj Sarvia, Rich Chartdray, Dylan Rich, Darceus Labs, United States

THP1.PR.10 THE WHEAT BIOMASS ESTIMATION BASED ON GENETIC ALGORITHM FEATURE SELECTION METHOD USING C-BAND POLSAR DATA
Kuoppang Xu, Erxue Chen, Zengyuan Li, Lei Zhao, Institute of Forest Resources Information Technique, Chinese Academy of Forestry, China; Wangyi Zhang, College of Forestry, Southwest Forestry University, China; Xiongning Wan, Institute of Forest Resources Information Technique, Chinese Academy of Forestry, China

THP1.PR.11 MAIZE CROP AND WEEDS SPECIES DETECTION BY USING UAV VNIR HYPER SPECTRAL DATA
Stefano Pignatti, Institute of Methodologies for Environmental Analysis IMAG-CNR, Italy; Raffaello Cesari, Antoine Hubert, University of Tuscia, Italy; Wenjing Huang, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China; Angelo Palombo, Simone Pacciani, Institute of Methodologies for Environmental Analysis IMAG-CNR, Italy

THP1.PR.12 KOREA APPLICATION: POTATOES YIELD ASSESSMENT
Nino Sofia Wijaya, Mariela Mierszewski, David Pett, Threasy Padder, Deimos Space UK, United Kingdom; Jin Wilson, Doug Woods, Soil Essentials, United Kingdom

Remote Sensing for Crop Classification, Mapping and Monitoring IV

Session Co-Chairs: Heather McMakin, Agriculture and Agri-Food Canada; Mehdi Hossini, Carleton University

THP2.PR.1 EVALUATING YIELD VARIABILITY OF CORN AND SOYBEAN USING LANDSAT-8, SENTINEL-2 AND MODIS IN GOOGLE EARTH ENGINE
Feng Tao, Martha Anderson, USDA Agricultural Research Service, United States

THP2.PR.2 ESTIMATING PADDY RICE AREA IN SOUTHERN CHINA WITH MULTI-TEMPORAL MODIS DATA
Shao Feng, Binhui Yu, Hangyang Zhang, Minfeng Xing, Yanzhu Zhou, University of Electronic Science and Technology of China, China

THP2.PR.4 MAPPING RICE CULTIVATED AREA WITH TIME-SERIES NDVI IMAGERY AND AUTOMATIC THRESHOLDING ALGORITHM IN THE MIDDLE-LOWER YANGTZEE RIVER REGION OF CHINA
Bulun Li, Chengbo Li, Wenhong Li, Xianfeng Yu, Nanjing University of Information Science and Technology; Xinsheng Li, Northeast Institute of Geography and Agriculture, Chinese Academy of Sciences, China; Zhihai Gao, Chinese Academy of Forestry, China

THP2.PR.5 REMOTE SENSING IMAGES
Xiaohe Gu, Quan Sun, Guojian Yang, Xiao Yao, Xingang Xu, Beijing Research Center for Information Technology in Agriculture, China

THP2.PR.6 REMOTE SENSING FOR ASSESSING DROUGHT INSURANCE CLAIMS IN CENTRAL EUROPE
Konrad Heidler, Technische Universität München, Germany; Arno Fischbeck, Retra GmbH, Germany

THP2.PR.7 VIRTUAL CONSTELLATION OF X-C AND L BAND SAR IMAGES TO ASSESS SOIL AND VEGETATION WATER CONTENT IN AGRICULTURAL AREAS
Giovanni Cossuza, Felix Greifeneder, Antonio Padovano, Eures Research, Italy; Raimo Salvarci, AgriTerrein Space Agency, Argentina; Giacomo Bertoldi, Claudia Natironicola, Eures Research, Italy

THP2.PR.8 IDENTIFICATION OF PRECISION VEGETATION VARIATIONS OF CHINESE CABBAGE USING UAV AND SENSORS
Dong-Ho Lee, Hong-Sup Shin, Jang-Hwa Park, Chungbuk National University, Korea (South)

THP2.PR.9 CROP CLASSIFICATION WITH AIRBORNE HYPER SPECTRAL IMAGES FROM CONCAVE GRATING SYSTEM
Hang Ren, Chinh Huang, National Central University, Taiwan

THP2.PR.10 NEW MODIS VEGETATION INDEX FOR BORO RICE MODEL USING 3D PLT AND X-NH: BANGLADESH HAOR REGION PERSPECTIVE
Kazi A. Kalamoo, Anik Choudhury, Nowshin Nowrul Arany, Mehrjub Nowshin, Bangladesh University of Science and Technology; Junichi Kukhi, Tohoku University, Japan

THP2.PR.11 BORO RICE MODEL FOR HAOR REGION OF BANGLADESH BASED ON MODIS NDVI IMAGES
Kazi A. Kalamoo, Nowshin Nowrul Arany, Anik Choudhury, Mehrjub Nowshin, Bangladesh University of Science and Technology; Jumichi Kukhi, Tohoku University, Japan

THP2.PR.12 BORO RICE YIELD ESTIMATION MODEL USING MODIS NDVI DATA FOR BANGLADESH
Md. Samir Alam, Kazi Kalamoo, Md. Sanaul Karim, Abdullah al Setaf, Bangladesh University of Science and Technology; Junichi Kukhi, Tohoku University, Japan
**THURSDAY POSTER**

**Session THP1.PS**

**Big Data and Machine Learning - Machine Learning for SAR and Meteorology**

**Session Chair:** Shilei Fu, Key Lab for Information Science of Electromagnetic Waves (MoE), Fudan University

**THP1.PS.1** SAR IMAGE SIMULATION BY GENERATIVE ADVERSARIAL NETWORKS  
*Board PS.1*

**THP1.PS.3** SAR IMAGE GENERATION WITH SEMANTIC-STATISTICAL CONVOLUTION  
*Board PS.3*

**THP1.PS.4** ARCTIC OCEAN SURFACE TYPE CLASSIFICATION USING SAR IMAGES AND MACHINE LEARNING ALGORITHMS.  
*Board PS.4*

**THP1.PS.5** A TENSOR NETWORK FOR TROPICAL CYCLONE WIND SPEED ESTIMATION  
*Board PS.5*

**THP1.PS.6** ESTIMATING TYPHOOON INTENSITY WITH CONVOLUTIONAL NEURAL NETWORK  
*Board PS.6*

**THP1.PS.7** A FULLY AUTOMATIC AND CLOUD-BASED P-SBAS DINSAR PIPELINE FOR SENTINEL-1 PROCESSING  
*Board PS.7*

**THP1.PS.8** LEARNING PHYSICAL SCATTERING PATTERNS FROM POLSAR IMAGES BY USING COMPLEX-VALUED CNN  
*Board PS.8*

**THP1.PS.9** A COMPLEX-VALUED CNN FOR DIFFERENT ACTIVATION FUNCTIONS IN POLSAR IMAGE CLASSIFICATION  
*Board PS.9*

**THP1.PS.10** REMOTE SENSING IMAGE SYNTHESIS VIA GRAPHICAL GENERATIVE ADVERSARIAL NETWORKS  
*Board PS.10*

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**Session THP2.PS**

**Forest and Vegetation Obervation by SAR and LiDAR**

**Session Co-Chairs:** Johan E.S. Fransson, Swedish University of Agricultural Sciences; Sassan Saatchi, Jet Propulsion Laboratory, California Institute of Technology

**THP2.PS.1** FUSING AIRBORNE LASER SCANNING AND RAPIDPEYE SENSOR PARAMETERS FOR TROPICAL FOREST BIOMASS ESTIMATION OF NEPAL  
*Board PS.1*

**THP2.PS.2** ESTIMATE FOREST BIOMASS DYNAMICS USING MULTI-TEMPORAL LIDAR AND SINGLE-DATE INVENTORY DATA  
*Board PS.2*

**THP2.PS.3** RETRIEVAL OF LEAF AREA INDEX FROM AIRBORNE WAVEFORM LIDAR DATA BASED ON GORT MODEL  
*Board PS.3*

**THP2.PS.4** ASSESSING POST-FIRE TREE MORTALITY AND BIOMASS CHANGE BY INTEGRATING LIDAR AND HYPERSONIC DATA  
*Board PS.4*

**THP2.PS.5** THE POTENTIAL OF FOREST BIOMASS INVERSION BASED ON CANOPY-INDEPENDENT STRUCTURE METRICS TESTED BY AIRBORNE LIDAR DATA  
*Board PS.5*

**THP2.PS.6** MULTI-TEMPORAL SENTINEL-1 DATA FOR WALL-TO-WALL HERBACEOUS BIOMASS MAPPING IN KRUGER NATIONAL PARK, SOUTH AFRICA — FIRST RESULTS  
*Board PS.6*

**THP2.PS.7** PEATLAND CARBON EMISSIONS ESTIMATES BY ALOS-2 PALSAR-2 INTERFEROMETRY IN BORNEO  
*Board PS.7*

**THP2.PS.8** EVALUATION OF NISAR BIOMASS ALGORITHM IN TEMPERATE AND BOREAL FORESTS  
*Board PS.8*
THURSDAY, August 1 09:40 - 10:40 Room 503: Area T  
Session THP1.PT  Poster 


**Session Chair:** Mesay Belete Bejiga, University of Trento

**THP1.PT.1**

**Board PT.1**

**EXTRACTING HIGH-VOLUME TRAFFIC ROUTES FROM AIS SPATIAL DISTRIBUTION MAPS**
Tran Han, Hahn, Stellenbosch University, South Africa; Wael Khrisany, University of Pretoria, South Africa

**THP1.PT.2**

**Board PT.2**

**REMOTE SENSING SATELLITE JITTER DETECTION BASED ON IMAGE REGISTRATION AND CONVOLUTIONAL NEURAL NETWORK FUSION**
Zhuang Zhang, Akira Iwasaki, University of Tokyo, Japan; Guodong Xu, Harbin Institute of Technology, China

**THP1.PT.3**

**MULTI-SCALE CROPPING MECHANISM FOR REMOTE SENSING IMAGE CAPTIONING**
Jiuting Zhang, Qi Wang, Northwestern Polytechnical University, China; Shangdong Chen, Northwest University, China; Xukang Li, Northwestern Polytechnical University, China

**THP1.PT.4**

**MACHINE LEARNING LIFECYCLE FOR EARTH SCIENCE APPLICATION: A PRACTICAL INSIGHT INTO PRODUCTION DEPLOYMENT**
Masol Maskey, Rahul Ramachandran, NASA Marshall Space Flight Center, United States; Iksha Gunig, Bryan Freising, Jeffrey Miller, Methukumar Ramasubramanian, University of Alabama Huntsville, United States; Drew Ballinger, Ricardo Monteiro, Development Seed, United States; Daniel Cecil, Andrew Molthan, Christopher Hao, NASA Marshall Space Flight Center, United States

**THP1.PT.5**

**BUILDING TYPE CLASSIFICATION FROM SOCIAL MEDIA TEXTS VIA GEO-SPATIAL TEXTMINING**
Matthias Häberle, Technical University of Munich (TUM), Germany; Martin Werner, Xiao Xiang Zhao, German Aerospace Center (DLR), Germany

**THP1.PT.6**

**FUNDAMENTAL MATRIX ESTIMATION FROM STEREO CORRESPONDENCES USING MULTI-OBJECTIVE PARTICLE SWARM OPTIMIZATION APPROACH**
Mamunudeen Marufah, Shikshikumar Gade, Krishna Mohan Buddhraj, Indian Institute of Technology Roorkee, India

**THP1.PT.7**

**A MULTI-TASK ARCHITECTURE FOR REMOTE SENSING BY JOINT SCENE CLASSIFICATION AND IMAGE QUALITY ASSESSMENT**
Cong Zhang, Qi Wang, Xuening Li, Northwestern Polytechnical University, China

**THP1.PT.8**

**SEA SURFACE DYNAMICS RECONSTRUCTION USING NEURAL NETWORKS**
Benedetto Biava, Technical University of Munich (TUM), Germany; Martin Werner, Xiao Xiang Zhao, German Aerospace Center (DLR), Germany

**THP1.PT.9**

**LEVERAGING STAGE FOR CO-ALIGNED DATA LOCALITY WITH NETCDF AND PYTHON MPI**
Kuo-Sen Kuo, NASA Goddard Space Flight Center, United States; Hongfong Yu, Jiu Pan, University of Nebraska Lincoln, United States; Michael Rilee, NASA Goddard Space Flight Center, United States

**THP1.PT.10**

**EXPLORATORY SEARCH METHODOLOGY FOR SENTINEL 2 DATA: A PROSPECT OF BOTH VISUAL AND LATENT CHARACTERISTICS**
Cortina Hadves, Florian Andre Grengesser, Andreas Griepent, Julio Magne, Alexandra Cosmin Gnesi, Mihai Datta, University Politehnica of Bucharest, Romania

**THP1.PT.11**

**RESEARCH ON RESOURCE ALLOCATION METHOD OF THE SIN BASED ON SDN**
Xiangli Meng, Lingda Wu, Jiao Jiao, Xiangwu Gong, Space Engineering University, China

**THP1.PT.12**

**THE USE OF MASSIVE DEFORMATION DATASETS FOR THE ANALYSIS OF SPATIAL AND TEMPORAL EVOLUTION OF MAUNA LOA VOLCANO (HAWAI’I)**
Sara Pope, IREA-CNR Institute for Remote Sensing of Environment (IREA), National Research Council (CNR), Italy; Luca D’Auria, Istituto Volcanologico di Catania, Tennese, Spain; Raffaello Castaldo, Francesco Cava, Claudio De Luca, Vicentia De Nolfel, Eugenio Sansosti, Giuseppe Saloro, Pietro Tazzari, IREA-CNR Institute for Remote Sensing of Environment (IREA), National Research Council (CNR), Italy

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**Thursday, August 1 15:20 - 16:20 Room 503: Area T  Session THP2.PT  Poster**

**Forest Parametrization with SAR and Optics**

**Session Chair:** Sassan Saatchi, Jet Propulsion Laboratory, California Institute of Technology; Nereida Rodriguez-Alvarez, California Institute of Technology, NASA Jet Propulsion Laboratory

**THP2.PT.1**

**Board PT.1**

**INTEGRATING REMOTE SENSE DATA WITH PROCESS-BASED HYDRO-ECOLOGICAL MODEL FOR CONTINUOUS GRID SIMULATION OF CARBON FLUX OVER MOUNTAINOUS AREAS**
Xinyue Xue, Anjuang Li, Jinhui Bian, Zhengkang Zhang, Research Center for Digital Mountain and Remote Sensing Application, Institute of Mountain Hazards and Environment, Chinese Academy of Sciences, China

**THP2.PT.2**

**FOREST HEIGHTS ESTIMATION BASED ON ARTIFICAL NEURAL NETWORK BY USING GLAS AND LANDSAT DATA**
Xiang Ni, Chuncheng Guo, Aeronautics Information Research Institute, Chinese Academy of Sciences, China

**THP2.PT.3**

**ESTIMATION OF FOREST GROSS PRIMARY PRODUCTIVITY IN NORTH-EAST CHINA BY A PHYSIOLAGICALLY-BASED MODEL DRIVEN WITH REMOTE SENSING DATA**
Yanmin Li, Wuhan University, China; Weishu Gong, University of Maryland, United States; Xiangyan Hu, Wuhan University, China

**THP2.PT.4**

**PARAMETERIZATION AND VALIDATION OF A REMOTE SENSING MODEL FOR GROSS PRIMARY PRODUCTION ESTIMATION IN EVERGREEN BROADLEAF FORESTS WITH CLIMATE CLASSIFICATION**
Shangrong Lin, Jing Li, Qinhao Liu, Jing Zhao, Wensuo Yu, Chinese Academy of Sciences, China

**THP2.PT.5**

**DIVERGENCE OF WATER YIELD AND GROSS ECOYSTEM PRODUCTIVITY UNDER THE CHANGING VEGETATION COVER AND CLIMATE IN THE POTANG LAKE WATERSHED**
Liu Ling, Wuhan University, China; Xiaoxin Gu, Chinese Academy of Sciences, China; Xuangling Chen, Jiu Pan, Wuhan University, China

**THP2.PT.6**

**LONG-TERM RELATIONSHIPS OF NDVI-BASED FOREST GROWTH WITH CLIMATIC VARIABLES ACROSS THE NORTH HEMISPHERE**
Jiaxin Jin, Huai University, China; Ying Wang, Sanjiang University, China; Bin Yang, Huai University, China

**THP2.PT.7**

**COMPARISON OF NDVI PRIMARY PRODUCTIVITY SIMULATED FROM TWO DIFFERENT BIOSPHERIC MODELS IN A PLANTATION SITE IN INDIA**
Neeamand Tripathi, International Centre for Integrated Mountain Development, Nepal; Saty Prakash Singh Kushwaha, Indian Institute of Remote Sensing, Dehradun, India

**THP2.PT.8**

**SENSITIVITY ANALYSIS OF SMAP-Reflectometry (SMAP-R) SIGNALS TO VEGETATION WATER CONTENT**
Nereida Rodriguez-Alvarez, Southern Oregon, Mary Morris, California Institute of Technology, NASA Jet Propulsion Laboratory, United States

**THP2.PT.9**

**RESPONSES OF FOREST WATER-USE EFFICIENCY TO GROWING SEASON LENGTH ACROSS EASTERN CHINA**
Fengcheng Guo, Jiaxin Jin, Yang Bai, Huai University, China
THP1 SPRINTER Session

FRP1.SPR.1 THE USE OF FIELD SPECTROSCOPY FOR THE IMPLEMENTATION OF VEGETATION INDICES FOR THE SATELLITE REMOTE SENSING DETECTION OF UNDERGROUND MILITARY STRUCTURES IN CYPRUS
George Mehlis, Kyracos Themistocleous, Aftos Agapiou, Silas Michaelides, Cyprus University of Technology, Cyprus; George Papadavid, Ministry of Agriculture, Cyprus; Dikantas G. Hadjimitsis, Cyprus University of Technology, Cyprus
09:50

FRP1.SPR.2 UNSUPERVISED DISCRIMINATIVE DIMENSION REDUCTION FOR HYPERSONSPECTRAL CHEMICAL PLUME SEGMENTATION
James Murphy, Tufts University, United States; Mauro Maggioni, Johns Hopkins University, United States
09:55

FRP1.SPR.3 ESTIMATING SNOW-DEPTH BY FUSING SATELLITE AND STATION OBSERVATIONS: A DEEP LEARNING APPROACH
Jiwen Wang, Qiangqiang Yuan, Tongwei Li, Huafeng Shen, Liangwei Zhang, Wuhan University, China
10:00

FRP1.SPR.4 RESULTS FROM THE FIRST ULTRAWIDEBAND MICROWAVE BRIGHTNESS TEMPERATURE CAMPAIGN IN ANTARCTICA: THE IISIUMAX PROJECT
Marco Brogioni, IFAC-CNR, Italy; Mark Andrews, Ohio State University, United States; Stefano Urban, INAV, Italy; Joel Johnson, Kenneth Jowk, Ohio State University, United States; Giovanni Macchivel, IFAC-CNR, Italy; Alexandra Bringa, Oskar Denier, Ohio State University, United States; Lars Kofod, Alfred Wegener Institute (AWI), Germany; Mariano Ledo-Ledalbuera, Francesco Montemanni, Giacomo Fantoni, IFAC-CNR, Italy; Liang Li, University of Michigan, United States; Shuran Tan, Zhejiang University/University of Illinois at Urbana-Champaign Institute, China; Massimo Frezzotti, ENEA, Italy
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<td>Session Chair: Waymond Scott, Georgia Institute of Technology</td>
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<td><strong>FRP1.PB.2</strong></td>
<td>ASSESSING SUB-WAVELENGTH VHF RADAR SCATTERING LOSSES IN DRY TERRAINS: APPLICATION TO KARST ENVIRONMENTS</td>
<td>Board PB.2</td>
<td>Giovanni Scibilia, Qatar Environment and Energy Research Institute (QETRI), Qatar; Esam Heggy, Qatar Environment and Energy Research Institute / University of Southern California, United States</td>
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<td>ELECTROMAGNETIC INDUCTION SENSOR WITH A SPINNING MAGNET EXCITATION</td>
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<td>Waymond Scott, Georgia Institute of Technology, United States</td>
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<td>ANALYSIS OF SUBSURFACE HYPOTHESES THROUGH SIMULATION OF RIME RADARGRAMS BASED ON AVAILABLE ANALOGOUS DATA</td>
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<td>Sanchai Thalak, University of Trento, Italy; Andrea Vettor, University of Padua, Italy; Lorenzo Bruszone, University of Trento, Italy</td>
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<td>SUPER-TEMPORAL RESOLUTION VELOCITY VECTOR ESTIMATION BY KERNEL BASED DOPPLER ESTIMATION FOR UWB-TWI RADARS</td>
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<td>Masahiro Setsu, Shouhei Kidera, University of Electro-Communications, Japan</td>
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<td>AN AUTOMATIC METHOD TO ESTIMATE THE CALIBRATION QUALITY OF THE AEROMAGNETIC COMPENSATION</td>
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<td>Yuchen Wang, Qi Han, Xiu Yu, Dechen Zhan, Harbin Institute of Technology, China</td>
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<td>SPARSE RECOVERY METHOD FOR ESTIMATION OF WALL PARAMETERS IN THROUGH-THE-WALL RADAR</td>
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<td>Loke Qi, Zhang Fang, Tanshang Yang, Youpeng Sun, Li Zhang, Shenyang Aerospace University, China</td>
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<td>IMPROVED CONFIGURATION ADAPTABILITY BASED ON IAA FOR DISTRIBUTED RADAR IMAGING</td>
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<td>Fanxian Xu, Qingsong Wang, Yanghua Zhang, Yixun Huang, Jianyu Yang, University of Electronic Science and Technology of China</td>
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<td><strong>FRP1.PB.9</strong></td>
<td>NUMERICAL SIMULATIONS OF THE SOIL MOISTURE RETRIEVAL BY MEASURING ANGULAR DEPENDENCE OF THE REFLECTION COEFFICIENT</td>
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<td>Alexander Kowarz, NOAA/Earth System Research Laboratory, United States</td>
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<td>THE USE OF FIELD SPECTROSCOPY FOR THE IMPLEMENTATION OF VEGETATION INDICES FOR THE SATELLITE REMOTE SENSING DETECTION OF UNDERGROUND MILITARY STRUCTURES IN CYPRUS</td>
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<td>George Meilides, Kyriacos Themistocleous, Athos Agapiou, Silas Michaelides, Cyprus University of Technology, Cyprus</td>
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<td>Tai-Tan Ji, Kuo-Shan Chen, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China</td>
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<td>MULTI-CLASS CRESTA SDETECTION USING GROUND PENETRATING RADAR AND FEATURE-BASED MACHINE LEARNING</td>
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<td>Benjamine Walley, Laura Ray, Dartmouth College, United States</td>
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<td>ROBUST SUBSURFACE VELOCITY CHANGE DETECTION METHOD WITH THE AEROMAGNETIC COMPENSATION</td>
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<td>Kazuhiko Kikuta, Tohoku University, Japan; Li Li, Osaka University, Japan; Lifeng Zou, National Institute of Advanced Industrial and Science and Technology (AIST), Japan; Motoyuki Sato, Tohoku University, Japan</td>
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<td>EXPERIMENTAL MULTISTATIC IMAGING VIA THE LINEAR SAMPLING METHOD</td>
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<td>Michele Ambrosio, Università degli studi di Napoli Parthenope, Italy; Martina Teresa Bevanzza, Università Tor Vergata, Università Mediterranea di Reggio Calabria, Italy; Vito Paciaccio, Università degli studi di Napoli Parthenope, Italy</td>
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<td>3-D IMAGING OF A PLANAR INTERFACE CLOSE TO A BOREHOLE WITH AN ARRAY-TYPE DIRECTIONAL BOREHOLE RADAR</td>
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<td>Satoshi Nishizawa, Shohei Katano, Kenpo Fujimoto, Osaka Electro-Communication University, Japan</td>
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<td><strong>FRP1.PC.6</strong></td>
<td>CORRELATION BETWEEN ROOT DENSITY AND SOIL MOISTURE OF CARAGANA MICROPHYLLA IN XILINHOT GRASSLAND</td>
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<td>Zheng Zhang, Xiang Cai, Jin Chen, Beijing Normal University, China</td>
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<td>ROADWAY INTERFACE ANALYSIS WITH A SUPPORT VECTOR REGRESSION BASED LINEAR PREDICTION METHOD USING STEPPED-FREQUENCY RADAR</td>
<td>Board PC.7</td>
<td>Cédric Le Bastard, Cerema, France; Jingjing Pan, Yide Wang, IETR-University of Nantes, France; Shendong Fan, Shandong University, China; Yanxin Dang, HUST, People’s Republic of China; Kunmao Lu, University of Science and Technology, China</td>
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<td>TARGET CLUSTERING IN THREE-DIMENSIONAL GROUND PENETRATING RADAR BASED ON TIME-DOMAIN PHASE INFORMATION AND COMPLEX-VALUED SELF-ORGANIZING MAP</td>
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<td>Soshi Shimomura, Akira Hide, University of Tokyo, Japan</td>
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<td>HYBRID GPR LAYER PICKING METHOD USING AVERAGE SQUARE DIFFERENCE FUNCTION</td>
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<td>ESTIMATION OF CONCRETE CORROSION STATE USING ULTRA-WIDEBAND RADAR SIGNATURES</td>
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<td>Masahiko Nakamoto, Hotiyan P. Rahim, Kumamoto University, Japan; Yoshihiro Naka, Kyushu University of Health and Welfare, Japan</td>
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<td><strong>FRP1.PC.11</strong></td>
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Friday, August 2 09:40 - 10:40 Room 501-502: Area D
Session FRP1.PD  Poster

**Tomography and 3D Mapping I**
Session Co-Chairs: Matteo Pardini, German Aerospace Center (DLR); Gilda Schirinzi, University of Naples Parthenope

**FRP1.PD.1**  Board PD.1
CHARACTERIZATION OF DOUBLE-BOUNCE SCATTERING IN RVG SCENARIOS USING CONTROLLED IR-POLITOMSAR EXPERIMENTS
Roy Alobi, Laurent Feraud-Famli, Frédéric Boutet, Lehmanzi Harmani, IRTR - Université de Rennes 1, France

**FRP1.PD.2**  Board PD.2
TOMOSAR APPLICATION FOR EARLY WARNING IN INFRASTRUCTURE HEALTH MONITORING
Alessandra Budillon, Gianpaolo Ferrari, Angel C. Johnny, Wro Puczak, Gilda Schirinzi, University of Naples Parthenope, Italy

**FRP1.PD.3**  Board PD.3
SAR TOMOGRAPHY BASED ON DEEP LEARNING
Yue Huang, Laurent Ferro-Famil, University of Rennes 1, France

**FRP1.PD.4**  Board PD.4
MULTIPLE VIEW GEOMETRY IN REMOTE SENSING: AN EMPIRICAL STUDY BASED ON PLEIADES SATELLITE IMAGES
Roland Perko, Matthias Schardt, Joanneum Research, Austria; Livio Pignatelli, Technical University of Vienna, Austria; Stefan Auer, German Aerospace Center (DLR), Germany; Peter Roth, Graz University of Technology, Austria

**FRP1.PD.5**  Board PD.5
MULTIPLE SCATTERER DETECTION OVER ARTIFICIAL MEDIA USING SAR TOMOGRAPHY AND HIGH-RESOLUTION SPECTRAL ESTIMATION TECHNIQUES
Yue Huang, Laurent Feraud-Famli, University of Rennes 1, France

**FRP1.PD.6**  Board PD.6
AN IMPROVED STAGEWISE WEAK ORTHOGONAL MATCHING PURSUIT METHOD FOR ELECTRIC POWER TRANSMISSION TOWER EVALUATION USING DIFFERENTIAL SAR TOMOGRAPHY
Jing Chen, Yun Cheng, University of Electronic Science and Technology of China, China; Lei Wu, Deep Blue Remote Sensing Technology Co, Ltd, China; YanPing Chen, Min Du, University of Electronic Science and Technology of China, China

**FRP1.PD.7**  Board PD.7
IMPROVED DERAMPING METHOD BASED ON D-TOMOSAR FOR EXTRACTING DEFORMATION OF TRANSMISSION TOWERS IN MOUNTAIN AREA
Min Du, Yan Cheng, University of Electronic Science and Technology of China, China; Lei Wu, Deep Blue Remote Sensing Technology Co, Ltd, China; Yongping Chen, Jing Chen, Xuan Huang, University of Electronic Science and Technology of China, China

**FRP1.PD.8**  Board PD.8
SAR TOMOGRAPHIC IMAGING DEMONSTRATION USING GF-3 DATA
Hangxiang Li, University of Chinese Academy of Sciences, China; Yushan Dong, Wendong Zhang, Weidong Yu, Robert Wang, Institute of Electronics, Chinese Academy of Sciences, China

**FRP1.PD.9**  Board PD.9
A NEW STRUCTURE-BASED COREGISTRATION METHOD FOR NEAR-FIELD GROUND-BASED MIMO TOMOGRAPHIC SAR
Gen Li, Beijing Institute of Technology, China; Yu Zhu, Chinese Academy of Space Technology, China; Lianghong Zhao, Beijing Institute of Spacecraft System Engineering, China; Ziqiang Ding, Weidong Yu, Robert Wang, Institute of Electronics, Chinese Academy of Sciences, China

**FRP1.PD.10**  Board PD.10
THE SAME RANGE LINE CELLS BASED FAST TWO-DIMENSIONAL COMPRESSIVE SENSING FOR AIRBORNE MIMO ARRAY SAR 3-D IMAGING
Chunxiao Wu, Zenghui Zhang, Shanghai Key Laboratory of Intelligent Sensing and Recognition, China; Longyong Chen, Nanjing University of Aeronautics and Astronautics, China; Qinwen Yu, Shanghai Key Laboratory of Intelligent Sensing and Recognition, China

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Friday, August 2 09:40 - 10:40 Room 501-502: Area E
Session FRP1.PE  Poster

**Tomography and 3D Mapping II**
Session Co-Chairs: Fabrizio Lombardini, Università di Pisa; Matteo Pardini, German Aerospace Center (DLR)

**FRP1.PE.1**  Board PE.1
3D LANDSCAPE MODELLING FOR ASSESSING EFFECTIVENESS OF VEGETATION CONSERVATION ON AN URBAN NATURE RESERVE
Chen Wenjie, Thabiso Mtswa, Northwest University, South Africa

**FRP1.PE.2**  Board PE.2
ACCURATE MODELING AND ANALYSIS OF TEMPORAL-SPATIAL VARIANT IONOSPHERIC INFLUENCES ON GEYSYNCHRONOUS SAR TOMOGRAPHY
Cheng Hu, Bin Zhang, Xiaohao Dong, Fusheng Liu, Beijing Institute of Technology, China

**FRP1.PE.3**  Board PE.3
TOMOSAR FOCUSING BY MEANS OF A VARIANT OF TIKHONOV REGULARIZED METHOD
Jinwei Xie, Xidian University, China; Zhikun Wang, Beijing Institute of Spacecraft System Engineering, China; Zhefeng Li, Xi’an University, China

**FRP1.PE.4**  Board PE.4
SA-BILASAR DOWN-LOOKING 3-D IMAGING BASED ON SPARSE BAYESIAN RECONSTRUCTION
Min Yan, Shunjuan Wu, Hao Su, Xiaoling Zhang, Jun Shi, University of Electronic Science and Technology of China, China

**FRP1.PE.5**  Board PE.5
STOCHASTIC RADIATION RADAR 3-D HIGH RESOLUTION IMAGING TECHNIQUE
Jinpeng Mao, Yinchang Zhang, Chenyi Yu, Xiaoao Yang, Jianyu Yang, University of Electronic Science and Technology of China, China

**FRP1.PE.6**  Board PE.6
DENSE MATCHING FOR DSM GENERATION FROM ZY-3 SATELLITE Imagery
Wenhuan Yang, Xing Li, Bo Yang, Yuhui Yang, Yang Yan, Wuhan University, China

**FRP1.PE.7**  Board PE.7
TEXTURED BUILDING MODEL BOTTOM BOUNDARY RECTIFICATION BASED ON DEM
Transhu Liu, Fei Deng, Wuhan University, China

**FRP1.PE.8**  Board PE.8
GENERATING 3D POINT CLOUDS FROM A SINGLE SAR IMAGE USING 3D RECONSTRUCTION NETWORK
Lingxiao Peng, Suzhou Institution, Institute of Electronics, Chinese Academy of Sciences, China; Xiaolan Qiu, Chibiao Ding, Institute of Electronics, Chinese Academy of Sciences, China; Wenjie Xie, Suzhou Institution, Institute of Electronics, Chinese Academy of Sciences, China

**FRP1.PE.9**  Board PE.9
3D SCATTERING DISTRIBUTION RECONSTRUCTION FOR AIR TARGETS VIA RADAR NETWORK
Qun Zhang, Kewen Liu, Yu-Fei Yin, Qing-Mei Ma, Yie-Ming Lu, Institute of Information and Navigation, Air Force Engineering University, China
FRP1.PF.1 COMPARISON FEATURE SELECTION METHODS FOR SUBTROPICAL VEGETATION CLASSIFICATION WITH HYPER SPECTRAL DATA
Qiaqia Li, Frankle Xuan Kit Wong, Tong Feng, Chinese University of Hong Kong, China

FRP1.PF.2 MORPHOLOGICAL ANALYSIS FOR BANANA DISEASE DETECTION IN CLOSE RANGE HYPER SPECTRAL REMOTE SENSING IMAGES
Wenchao Liao, Ghent University, Belgium; Daniel Chen, Escuela Superior Politecnica del Litoral, Ecuador; Liangrui Gao, Bing Zhang, Chinese Academy of Sciences, China; Wilfried Philips, Ghent University, Belgium

FRP1.PF.3 DETECTION OF ANOMALOUS GRAPEVINE BERRIES USING ALL-CONVOLUTIONAL AUTOENCODERS
Laura Schuhmann, Uwe Kuechel, Forschungszentrum Jülich GmbH, Germany; Ribana Rascher, University of Bonn, Germany

FRP1.PF.4 AUTOMATIC EXTRACTION METHOD OF SARGASSUM BASED ON SPECTRAL-TEXTURE FEATURES OF REMOTE SENSING IMAGES
Yankang Chen, China University of Petroleum (East China); National Marine Environmental Monitoring Centre, China; Jianhua Wan, Jie Zhang, China University of Petroleum (East China); Jianhua Zhou, National Marine Environmental Monitoring Centre, China; Feng Ye, State Key Laboratory of Satellite Ocean Environment Dynamics, China; Zhuch Wang, National Marine Environmental Monitoring Center, China; Shanshan Liu, China University of Petroleum (East China), China

FRP1.PF.5 USING THE CBERS-04 MULTISPECTRAL DATA TASSELED CAP TRANSFORMATION TO DETECT THE QUASI-CIRCULAR VEGETATION PATCHES
Qingzheng Liu, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, China

FRP1.PF.6 RESEARCH ON TREE SPECIES BAND RECOGNITION METHOD BASED ON HYPER-SPECTRUM
Jingjing Shi, Ying Pu, Academy of Forest Inventory and Planning, State Forestry and Grassland Administration, China; Liyuan Zhang, Beijing Geoway Software Co.LTD, China; Wu Wu, Academy of Forest Inventory and Planning, State Forestry and Grassland Administration, China

FRP1.PF.7 HIERARCHICAL CLASSIFICATION OF BRAZILIAN SAVANNA PHYSIOLUMINOSITIES USING VERY HIGH SPATIAL RESOLUTION IMAGE, SUPERPIXEL AND GEOBIA
Alana Raschhauer Neves, Thadeu Schin Kurtz, César Di Girolamo Neto, Samuel Adelabu, University of the Free State, South Africa; Pooja Aneja, Leila Maria Garcia Fonseca, National Institute for Space Research (INPE), Brazil

FRP1.PF.8 ASSESSMENT OF SENTINEL-1 AND SENTINEL-2 SATELLITE IMAGERY FOR CROP CLASSIFICATION IN INDIAN REGION DURING KHARIF AND RABI CROP CYCLES
Jyhandra Singh, IBM, India; Arvindhaha Mahapatra, Indian Institute of Technology Roorkee, India; Saurej Bass, IBM, India; Rajyad Barweyee, Indian Institute of Technology Bombay, India

FRP1.PF.9 COST EFFECTIVE APPROACH FOR MAPPING PROSPIS INVASION IN ARID SOUTH AFRICA USING SPOT-6 IMAGERY AND TWO MACHINE LEARNING CLASSIFIERS
Nyasha Florence Mureriwa, Thadeu Schin Kurtz, César Di Girolamo Neto, Samuel Adelabu, University of the Free State, South Africa

FRP1.PF.10 CROP IDENTIFICATION AND DISCRIMINATION USING AYRIS-NG HYPER SPECTRAL DATA BASED ON DEEP LEARNING TECHNIQUES
Hemant Patil, Nirma University, India; Nitu Bhagia, Indian Space Research Organisation, India; Tarjun Vyas, Nirma University, India; Binul Bhattacharya, Indian Space Research Organisation, India; Kajal Dama, Nirma University, India

FRP1.PF.11 SCALING DEEP LEARNING BASED CROP CLASSIFICATION ON MODERN INTEL XEON PROCESSORS
Bharathkumar Ramachandra, Krishna Govdu, Rangaraju Vattanava, North Carolina State University, United States; Jaime Puentes, Lenovo, United States

FRP1.PF.12 IMAGE SPECTRAL DATA CLASSIFICATION USING PIXEL-PURITY KERNEL GRAPH CUTS AND SUPPORT VECTOR MACHINES: A CASE STUDY OF VEGETATION IDENTIFICATION IN INDIAN PINE EXPERIMENTAL AREA
Mengjie Wang, Wuqiu Jin, China Aero Geophysical Survey and Remote Sensing Center for Natural Resources, China; Qingsheng Liu, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China; Fengxian Miao, STATE Grid AC Engineering Construction Company, China

FRP1.PG.1 LOW-RANK AND CONTINUOUS TARGET FEATURE ENHANCEMENT FOR SAR OBJECT RECOGNITION
Liu Chen, Xiao Zhang, Shanghai Jiao Tong University, China; Zhou Li, Beijing Institute of Remote Sensing Information, China; Xinghua Liu, Shanghai Jiao Tong University, China; Zhiwen Zhou, Space Engineering University, China

FRP1.PG.2 SAR EDGE DETECTOR WITH HIGH LOCALIZATION ACCURACY
Qian-Rui Wu, Yue-Ke Wang, Peng-Yi Xie, School of Software and Microelectronics, Northwestern Polytechnical University, China

FRP1.PG.3 RADAR HRRP TARGET RECOGNITION BASED ON STACKED FRAME MAXIMUM LIKELIHOOD PROFILE-TRAJECTORY SIMILARITY AUTOENCODERS
Wenda Liu, Gang Zhang, Wenzhi Chen, Cheng Hong, Nanjing University of Aeronautics and Astronautics, China

FRP1.PG.4 ANALYSIS OF SEA CLUTTER USING DYNAMIC MODE DECOMPOSITION
Yuming Zhang, Lijun Yang, University of Hong Kong, China; Hong-Tao Eue, Universiti Tun Abdul Rahman, Malaysia

FRP1.PG.5 3-D SCATTERING CENTER EXTRACTION BASED ON BPDN FOR COMPLEX RADAR TARGETS
Xiaoyan Qian, Xiao Zhao, Juan Yang, Xiaoyan Xie, Wenzhuo Bao, China Academy of Launch Vehicle Technology, China; Baishe Zhang, Yang Wu, Aerospace Information Research Institute, Chinese Academy of Sciences, China

FRP1.PG.6 A METHOD FOR MICRO-DOPPLER EXTRACTION UNDER PASSIVE RADAR BASED ON COMMUNICATION SIGNAL
Kereng Li, Xianyu Du, Institute of Information and Navigation, Air Force Engineering University, China; Yang Wu, Shaanxi Institute of Metrology Science, China; Yu-Ke Xie, Wang-yang Li, Institute of Information and Navigation, Air Force Engineering University, China

FRP1.PG.7 DENSELY CONNECTED CONVOLUTIONAL NEURAL NETWORK BASED POLARIMETRIC SAR IMAGE CLASSIFICATION
Hongwei Dong, Luming Zhang, Bin Zou, Harbin Institute of Technology, China

FRP1.PG.8 POLSAR IMAGE CLASSIFICATION BASED ON AN IMPROVED BOW MODEL WITH MID-LEVEL SEMANTIC FEATURES
Bin Zou, Yu Zhang, Laming Zhang, Harbin Institute of Technology, China

FRP1.PG.9 VEHICLE AZIMUTH ANGLE ESTIMATION OF SAR IMAGE BASED ON TARGET RESTORATION
Laming Zhang, Wuxiao Mao, Bin Zou, Harbin Institute of Technology, China

FRP1.PG.10 RESEARCH OF BACKSCATTERING PROPERTIES OF VEGETATION FIRE BASED ON GROUND-BASED SCATTEROMETER MEASUREMENT
Longfei Tan, Sichuan Fire Research Institute of Ministry of Emergency Management, China; Weiliang Zhang, Guangzhou College, University of Electronic Science and Technology of China, China; Zijian Zhang, Hang Hye, Sichuan Fire Research Institute of Ministry of Emergency Management, China; Xun Yang, Ling Tong, School of Automation Engineering, University of Electronic Science and Technology of China, China

FRP1.PG.11 TARGET RECOGNITION IN SAR IMAGE VIA SPARSE REPRESENTATION IN TRANSFORMED DOMAIN
Ganggang Dong, Hongwei Liu, Bo Ju, Jin Zhong, Jiankun Yan, Xidian University, China

FRP1.PG.12 TOWARDS A ML BASED GLOBAL CROP IDENTIFICATION MODEL USING LIMITED SAR DATA - THAT IS SCALABLE ACCROSS DATA-SPACE GEOGRAPHIES
Sukanya Randhawa, Jitendra Singh, Jagdishbhai Hazra, IBM Research, India
Hyperspectral Band Selection

Session Chair: Xilong Ma, Wuhan University

FRP1.PH.1 ANOMALY DETECTION-ORIENTED BAND SELECTION FOR HYPERSPECTRAL IMAGE
Long Ren, Liangyang Zhao, Hangzhou Dianzi University, China; Xiaoran Li, Zhejiang University, China

FRP1.PH.2 GLOBAL SELF-LABELLED DISTRIBUTION ANALYSIS FOR HYPERSPECTRAL BAND SELECTION
Xinyi Tang, Jihua Yin, Beihang University, China; Luini Wu, Beijing Institute of Space Mechanics & Electricity, China; Hui Du, Beihang University, China

FRP1.PH.3 HYPER SPECTRAL REMOTE SENSING IMAGE BAND SELECTION VIA MULTIPLE OBJECTIVE SINE COSINE ALGORITHM
Yating Wan, Yufei Zheng, Xilong Ma, Longgui Zhang, Wuhan University, China

FRP1.PH.4 ROBUST MULTI-FEATURE SPE ctrAL CLUSTERING FOR HYPERSPECTRAL BAND SELECTION
Weini Sun, Gang Yang, Jiaxi Li, Wuxi University, China

FRP1.PH.5 HYPERSPECTRAL BAND SELECTION BASED ON TERNARY WEIGHT CONVOLUTIONAL NEURAL NETWORK
Jie Feng, Dl Li, Jiangong Chen, Xiangrong Zhao, Xiu Tang, Xianlu Wu, Key Laboratory of Intelligent Perception and Image Understanding of Ministry of Education, Xidian University, China

FRP1.PH.6 PARTICLE SWARM OPTIMIZATION-BASED HOTSPOT ANALYSIS AND IMPURITY FUNCTION BAND PRIORITIZATION USING MULTIPLE ATTRIBUTE DECISION-MAKING MODEL FOR BAND SELECTION OF HYPER SPECTRAL IMAGES
Yang-Ling Chang, Anamr Anagw Ayale, Min-Yu Huang, Hua Yuan, National Taipei University of Technology, Taiwan; Lina Chiang, National Taiwan Ocean University, Taiwan; Wai-Yee Chang, National Dong Hwa University, Taiwan

FRP1.PH.7 BAND SELECTION USING SEGMENTS INPUT AND COMPONENT LOADINGS FOR HYPERSPECTRAL IMAGE CLASSIFICATION
Musamun Baisantry, Defence Terrain Research Laboratory, India; Anil Kumar Sao, Indian Institute of Technology Mandi, India

FRP1.PH.8 UNIFORM BAND INTERVAL DIVIDED BAND SELECTION
Fang Li, Hongjie Liu, Xiaodong Shang, Meiqing Song, Chuan Yu, Chein-I Chang, Dalian Maritime University, China

FRP1.PH.9 ATTENTION NETWORKS FOR BAND WEIGHTING AND SELECTION IN HYPERSPECTRAL REMOTE SENSING IMAGE CLASSIFICATION
Jing Wang, Chinese Academy of Sciences / University of Chinese Academy of Sciences, China / Griffith University, Australia; Jun Zhou, Griffith University, Australia; Weiping Huang, Chinese Academy of Sciences, China; Jieke Chen, William G. Enloe Magnet High School, United States

FRP1.PH.10 A BAND SELECTION BASED 1D-CNN TO CLASSIFY OIL FILM THICKNESS
Bingxin Liu, Song Gao, Dongfei Wu, Guoxian Li, Yiping Li, Dalian Maritime University, China

FRP1.PH.11 UNSUPERVISED DISCRIMINATIVE DIMENSION REDUCTION FOR HYPERSPECTRAL CHEMICAL PLUME SEGMENTATION
James Murphy, Tufts University, United States; Mauro Maggioni, Johns Hopkins University, United States

FRP1.PH.12 A DISCRIMINATIVELY LEARNED CNN EMBEDDING FOR REMOTE SENSING IMAGE SCENE CLASSIFICATION
Wen Wang, University of Electronic Science and Technology of China, China; Lijun Du, Leshan Normal University, China; Yingxing Gao, Yanzhou Su, Fang Wang, Jian Cheng, University of Electronic Science and Technology of China, China

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Session FRP1.PI Poster

Image Segmentation I

Session Chair: Sebastiano Serpico, University of Genoa

FRP1.PI.1 TOWARDS AUTOMATED DELINEATION OF SMALLHOLDER FARM FIELDS FROM VHRR IMAGES USING CONVOLUTIONAL NETWORKS
Claudia Porello, Valeryn Toddani, John Kay Bergada, Rolf de By, University of Twente, Netherlands

FRP1.PI.2 SEA-LAND SEGMENTATION WITH RES-UNET AND FULLY CONNECTED CRF
Zengquan Chu, Tian Tan, Koji Fujii, Lichao Wang, China University of Geosciences, China

FRP1.PI.3 THE MODIFIED ENCODER-DECODER NETWORK BASED ON DEPTHWISE SEPARABLE CONVOLUTION FOR WATER SEGMENTATION OF REAL SAR IMAGERY
Jingsong Zhang, Mengtian Xing, Guangyi Sun, Xi’an University, China

FRP1.PI.4 AN EFFECTIVE VARIATIONAL WATERLINE SEGMENTATION METHOD
Yong Meng, Zengying Zhou, Yuli Liu, Xiaoxing Lai, Chenglin Tian, Xiaohong Zhao, National University of Defense Technology, China

FRP1.PI.5 A MARKOV RANDOM FIELD MODEL WITH ALTERNATING GRANULARITIES FOR SEGMENTATION OF HIGH SPATIAL RESOLUTION REMOTE SENSING IMAGERY
Chen Zhang, Min Zhang, Xiaohui Chen, Henan University, China; Leiguang Wang, Southwest Forestry University, China

FRP1.PI.6 SEMANTIC SEGMENTATION OF HIGH RESOLUTION REMOTE SENSING IMAGE BASED ON BATCH-ATTENTION MECHANISM
Yunzhou Su, University of Electronic Science and Technology of China, China; Yongqiu Wu, Northeastern University, China; Min Wang, Feng Wang, Jian Cheng, University of Electronic Science and Technology of China, China

FRP1.PI.7 SIMULTANEOUS SEGMENTATION AND EDGE DETECTION FOR HYPER SPECTRAL IMAGE VIA A DEEP SUPERVISED AND BOUNDARY-CONSTRAINED NETWORK
Yanhuo Xu, Bo Du, Lianggui Zhang, Wuhan University, China

FRP1.PI.8 FULL-RESOLUTION IMAGE SEGMENTATION MODEL COMBINING MULTI-SOURCE INPUT INFORMATION
Chunshuo Feng, Xi Wang, Shaoan National University, China; Xiyun Wang, Ningxia University, China; Ming Liu, Jie Wu, Shaoan Normal University, China

FRP1.PI.9 REGION-BASED IMAGE KEY-ELEMENT DECOMPOSITION FOR LARGE-SCALE SAR IMAGES
Weihe Li, Bin Liu, Janyue Zhang, Harbin Institute of Technology, China; Xu Yin, Beijing Institute of Remote Sensing Information, China

FRP1.PI.10 SEGMENTATION OF SENTINEL-2 IMAGES ON SNAP - AN EVALUATION WITH SITEF
Andre K S Marcel, Faculdade de Ciências, Universidade do Porto, Portugal

FRP1.PI.11 A SIMPLE ROTATIONAL EQUIVARIANCE LOSS FOR GENERIC CONVOLUTIONAL SEGMENTATION NETWORKS: PRELIMINARY RESULTS
Kangsheng Liu, Bohao Huang, Leslie Collins, Duke University, United States; Kyle Bradbury, Energy Initiative, Duke University, United States; Jordan Melled, Duke University, United States

FRP1.PI.12 PIPELINE SEGMENTATION USING LEVEL-SET METHOD
Apinya Leangaramkul, Teerasit Kasetkasem, Yodyium Tipsuwan, Kasetsart University, Thailand; Tuyoshi Ishiki, Tokyo Institute of Technology, Japan; Thitiporn Chumwimuang, National Electronics and Computer Technology Center (NECTEC), Thailand; Phakthanan Hosonsaw, PTT Exploration and Production Public Company Limited (PTTEP), Thailand
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DEEP LEARNING MODEL FOR WATER/ICE/LAND CLASSIFICATION USING LARGE-SCALE MEDIUM RESOLUTION SATELLITE IMAGES
Na Li, University of Rennes 1 - TOTAL, France; Arnaud Martin, University of Rennes 1, France
FRP1.PJ.2
A LEVEL SET BASED METHOD FOR LAND MASKING IN SHIP DETECTION USING SAR IMAGES
Zhen Wei, Wei Yang, Jie Chen, Chuncheng Li, Beihang University, China
FRP1.PJ.3
A DEEP LEARNING FOREST TYPES CLASSIFICATION METHOD FOR HIGH SPATIAL RESOLUTION REMOTE SENSING IMAGE: DUAL-FCN8S-CRF
Ying Sun, Zengzhuo Li, Erwan Chen, Xu Zhang, Lei Zhang, Yan Chen, Yuhao Wang, Chinese Academy of Forestry, China
FRP1.PJ.4
OPTICAL REMOTE SENSING WATER-LAND SEGMENTATION REPRESENTATION BASED ON PROPOSED SNS-CNN NETWORK
Shan Dong, Long Pang, Communication University of China, China; Yin Zhang, Peking University, China; Wenbo Liu, Beijing Institute of Technology, China; Zhansun Yang, Communication University of China, China; Yong Leqin, Beijing Institute of Technology, China
FRP1.PJ.5
SEA-LAND SEGMENTATION FOR HARBOUR IMAGES WITH SUPERPIXEL DEMPSTER-SHAFER THEORY FOR MULTI-SPECTRAL IMAGES
Bin Sun, Shizhao Li, Jie Xie, Hunan University, China
FRP1.PJ.6
TRAINING A SINGLE MULTI-CLASS CONVOLUTIONAL SEGMENTATION NETWORK USING MULTIPLE DATASETS WITH HETEROGENEOUS LABELS: PRELIMINARY RESULTS
Fanjin Kang, Cheng Chen, Bahan Huang, Leslie Collins, Duke University, United States; Kyle Bradbury, Energy Initiative, Duke University, United States; Jordan Malof, Duke University, United States
FRP1.PJ.7
A REVERSIBLE GENERATIVE ADVERSARIAL NETWORKS FOR SAR IMAGERY CLUTTER SUPPRESSION
Qian Zhang, Li Zhang, Yulin Huang, Yue Zhang, Junyi Yang, Yuqiu Wu, Haoyang Yang, University of Electronic Science and Technology of China, China
FRP1.PJ.8
EFFECTIVE FUSION OF MULTI-MODAL DATA WITH GROUP CONVOLUTIONS FOR SEMANTIC SEGMENTATION OF AERIAL IMAGERY
Kaiqiang Chen, University of Chinese Academy of Sciences, China; Kan Fu, Xin Gao, Mengyang Yan, Wenkai Zhang, Yue Zhang, Han Sun, Chinese Academy of Sciences, China
FRP1.PJ.9
APPLICATION OF UUNET FULLY CONVOLUTIONAL NEURAL NETWORK TO IMPERVIOUS SURFACE SEGMENTATION IN URBAN ENVIRONMENT FROM HIGH RESOLUTION SATELLITE IMAGERY
Joe McGlinchy, Brian Johnson, Brian Muller, Maxwell Joseph, Jeremy Diaz, University of Colorado Boulder, United States
FRP1.PJ.10
AN AUTOMATIC LAND COVERS IDENTIFICATION BASED ON DEMPSTER-SHAFER THEORY FOR MULTI-SPECTRAL IMAGES
Ji Li, University of Rennes 1, France; Arnaud Martin, University of Rennes 1, France; Remi Estavud, Tatal, France

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ROAD NETWORK EXTRACTION FROM SATELLITE IMAGES USING CNN BASED SEGMENTATION AND TRACING
Yao Mei, Xin Zhang, Shuzheng J, Wuhan University, China
FRP1.PK.2
D-RESUNET: RESUNET AND DILATED CONVOLUTION FOR HIGH RESOLUTION SATELLITE IMAGERY ROAD EXTRACTION
Zhiquan Li, Rui Yang, University of Chinese Academy of Sciences (Wuhan), China; Luhe Wang, Yanfu Zhang, Wuhan University, China; Lipin Cao, School of Printing and Packaging, Wuhan University, China
FRP1.PK.3
ROAD CENTERLINES EXTRACTION FROM HIGH RESOLUTION REMOTE SENSING IMAGE
Shixian Sun, Wei Xie, Bingqi Zhang, Ying Zhang, China Transport Telecommunications & Information Center, China
FRP1.PK.4
NEW NEURAL NETWORK AND AN IMAGE POSTPROCESSING METHOD FOR HIGH RESOLUTION SATELLITE IMAGERY ROAD EXTRACTION
Yuxia Li, Bo Peng, Kunlong Fan, Liang Yang, University of Electronic Science and Technology of China, China; Li He, Chengdu University of Information Technology, China
FRP1.PK.5
NEW NETWORK BASED ON D-LINKNET AND DENSENET FOR HIGH RESOLUTION SATELLITE IMAGERY ROAD EXTRACTION
Bo Peng, Yuxia Li, Kunlong Fan, Liang Yang, University of Electronic Science and Technology of China, China; Li He, Chengdu University of Information Technology, China
FRP1.PK.6
ROAD MATERIAL INFORMATION EXTRACTION BASED ON MULTI-FEATURE FUSION OF REMOTE SENSING IMAGE
Chao Yang, Yuxia Li, Bo Peng, Yuan Cheng, Ling Yang, University of Electronic Science and Technology of China, China; Li He, Chengdu University of Information Technology, China
FRP1.PK.7
MULTI-SCALE ENHANCED DEEP NETWORK FOR ROAD DETECTION
Juanjuan Lin, Yanfei Zhang, Wuhan University, China; Ji Zhao, China University of Geosciences, China
FRP1.PK.8
LOCATION-SPECIFIC EMBEDDING LEARNING FOR THE SEMANTIC SEGMENTATION OF BUILDING FOOTPRINTS ON A GLOBAL SCALE
Benjamin Bochke, Patrick Helber, Jörn Hees, Andreas Dengel, German Research Center for Artificial Intelligence (DFKI), Germany
FRP1.PK.9
WEAKLY SUPERVISED BUILDING SEGMENTATION FROM AERIAL IMAGES
Muhammad Umar Rafique, Nathan Jacobs, University of Kentucky, United States
FRP1.PK.10
BUILDINGS EXTRACTION FROM REMOTE SENSING DATA USING DEEP LEARNING METHOD BASED ON IMPROVED U-NET NETWORK
Tao Yuan, Lin Sun, Shandong University of Science and Technology, China
FRP1.PK.11
CONVOLUTION BASED SPECTRAL PARTITIONING ARCHITECTURE FOR HYPER-SPECTRAL IMAGE CLASSIFICATION
Kongs S. W. Chu, University College London, United Kingdom; Huichang Ng, Imperial College London, United Kingdom; Yuwei Wang, China Academy of Space Technology, China; Wayne Luk, Imperial College London, United Kingdom
Friday, August 2 09:40 - 10:40 Room 501-502: Area L
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Optical Remote Sensing of Snow
Session Co-Chairs: Limin Jiang, Beijing Normal University; Sirajuddin Khadro, Univ. of Colorado, Boulder

FRP1.PL.1  FORWARD SIMULATION OF SNOW ALBEDO BASED ON SNICAR MODEL
Board PL1.1  Dongchang Shao, Wenbo Xu, University of Electronic Science and Technology of China, China; Hongyi Li, Jian Wang, Xiaohua Hao, Hongyi Li, Northwest Institute of Eco-Environment and Resources, Chinese Academy of Sciences, China; Youwei Ju, University of Electronic Science and Technology of China, China

FRP1.PL.2  A VIRTUAL AIRBORNE MISSION SIMULATOR AT X- AND KU-BANDS DRIVE BY SNOWEX 2017 DATA
Board PL2.1  Dohyuk Kang, University of Maryland, College Park / NASA Goddard Space Flight Center, United States; Juiyu Zhu, University of Michigan, United States; Shunfen Tan, Zhejiang University/University of Illinois at Urbana-Champaign Institute, China; Leilong Zhang, University of Michigan, Ann Arbor, United States; Edward Kim, NASA Goddard Space Flight Center, United States

FRP1.PL.3  ASSESSING PERFORMANCE OF THE KERNEL-DRIVEN BRDF MODELS IN RETRIEVING SNOW ALBEDO BASED ON THE BIC-PT MODEL
Board PL3.1  Anxin Dong, Zhe Jiao, Yadong Dang, Xiaozhang Li, Lei Cui, Siyan Yin, Yixuan Chang, Jing Gou, Rui Xie, Beijing Normal University, China

FRP1.PL.4  A DEVICE TO MEASURE SNOW SPECIFIC SURFACE AREA USING SWIR REFLECTANCE
Board PL4.1  Joshua Elliott, Austin Lines, Laurie Ray, Mary Albert, Thayer School of Engineering at Dartmouth College, United States

FRP1.PL.5  EVALUATION OF THERMAL DETECTOR TECHNOLOGY CAPABILITIES FOR THE COMPACT THERMAL IMAGER: RESULTS FROM THE QWIP INFRARED CAMAERA FROM SNOWEX’17
Board PL5.1  Alicia Joseph, Mary Shubadra, Donald Jennings, Dorothy Hall, Nicolo DiGirolamo, Larry Stock, NASA Goddard Space Flight Center, United States

FRP1.PL.6  ESTIMATION OF FRACTIONAL SNOW COVER FROM FY-4A/AGRI
Board PL6.1  Gangyuan Wang, Lingmei Jiang, Xiqing Liu, Huchuan Ci, Jiwen Wang, Jian Wang, Beijing Normal University, China

FRP1.PL.7  GREENLAND ALBEDO REANALYSIS PRODUCT AND PRELIMINARY ACCURACY ASSESSMENT
Board PL7.1  Xiangying Tian, Min Q, Rengang Li, Tongji University, China

FRP1.PL.8  IMPROVING MODIS FRACTIONAL SNOW COVER PRODUCTS VIA BLOCK-BASED NONLOCAL SPATIO-TEMPORAL FILTERING
Board PL8.1  Linlang Hou, Chunlei Huang, Yanzhe Zhang, Cold and Arid Regions Environmental and Engineering Research Institute, Chinese Academy of Sciences, China

FRP1.PL.9  AN EFFECTIVE ALGORITHM OF SNOW, CLOUDS AND CLOUD SHADOW DETECTION FOR MODIS IMAGERY
Board PL9.1  Rongjuan Yang, Ronggao Liu, Yang Liu, Xuexin Wei, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, China

FRP1.PL.10  SNOW GRAIN SIZE ESTIMATION AT A SITE IN THE INDIAN HIMALAYAN REGION USING HYPERSPECTRAL REMOTE SENSING: AVIRIS-NG DATA
Board PL10.1  Anmol Jalali, Dericks Praise Shukla, Indian Institute of Technology (IIT), Mandi, India

FRP1.PL.11  AREA CHANGE OF SNOW AND ICE IN THE BABAO RIVER BASIN, TIBETAN PLATEAU
Board PL11.1  Hongyi Li, Key Laboratory of Remote Sensing of Gansu Province, Heihe Remote Sensing Experimental Research Station, Northwest Institute of Eco-Environment and Resources, Chinese Academy of Sciences, / University of Chinese Academy of Sciences, China; Hongyi Li, Jian Wang, Key Laboratory of Remote Sensing of Gansu Province, Heihe Remote Sensing Experimental Research Station, Northwest Institute of Eco-Environment and Resources, Chinese Academy of Sciences, China

FRP1.PL.12  SNOW AREA MAPPING USING FEATURE-ORIENTED PRINCIPAL COMPONENT ANALYSIS
Board PL12.1  Pragadeesh Pandurangan Murmole, Rishikesh Bhargava, Indian Institute of Technology Guwahati, India

Friday, August 2 09:40 - 10:40 Room 501-502: Area M
Session FRP1.PM  Poster

Microwave Remote Sensing of Snow Cover
Session Chair: Juha Lemmetyinen, Finnish Meteorological Institute

FRP1.PM.1  RETRIEVING DRY SNOW DEPTH BASED ON CO-POLARIZED PHASE OBSERVATIONS: A DEEP LEARNING APPROACH
Board PM1.1  Shuai Qian, Lianzhang Li, Zhibing Wang, Key Laboratory of Remote Sensing of Gansu Province, Hebei Remote Sensing Experimental Research Station, Northwest Institute of Eco-Environment and Resources, Chinese Academy of Sciences, China; Shurun Tan, National Meteorological Information Center, China; Hongyi Li, Jian Wang, Xiuhua Hao, Beijing Normal University, China

FRP1.PM.2  DIFFERENCE OF X-BAND RADAR IMAGE AND SATELLITE DATA FOR SNOW MAPPING
Board PM2.1  Mengming Li, Yongmiao Song, Xingxin Zhang, Guanfang Zhang, Rongxin Liu, Yang Liu, Xuexin Wei, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, China; Xingxin Wei, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, China

FRP1.PM.3  RETRIEVING DRY SNOW DEPTH BASED ON CO-POLARIZED PHASE OBSERVATIONS: A DEEP LEARNING APPROACH
Board PM3.1  Shuai Qian, Lianzhang Li, Zhibing Wang, Key Laboratory of Remote Sensing of Gansu Province, Hebei Remote Sensing Experimental Research Station, Northwest Institute of Eco-Environment and Resources, Chinese Academy of Sciences, China; Shurun Tan, National Meteorological Information Center, China; Hongyi Li, Jian Wang, Xiuhua Hao, Beijing Normal University, China

FRP1.PM.4  X-BAND POLARIMETRIC SAR COPOLAR PHASE DIFFERENCE FOR FRESH SNOW DEPTH ESTIMATION IN THE NORTHWESTERN HIMALAYAN WATERSHED
Board PM4.1  Sayantan Majumdar, Faculty of Geo-information Science and Earth Observation (ITC), University of Twente, Netherlands; / Indian Institute of Remote Sensing (IIRS), Indian Space Research Organisation (ISRO), India; Praveen K. Thakur, Indian Institute of Remote Sensing (IIRS), Indian Space Research Organisation (ISRO), India; Ling Long, Faculty of Geo-information Science and Earth Observation (ITC), University of Twente, Netherlands; Shashi Kumar, Indian Institute of Remote Sensing (IIRS), Indian Space Research Organisation (ISRO), India

FRP1.PM.5  SUBBANDED PROCESSING FOR ULTRAWIDEBAND FMCW RADAR FOR SNOW MEASUREMENT
Board PM5.1  Shaokun Weng, Weidong Cao, University of Alabama, United States

FRP1.PM.6  ESTIMATING SNOW-DEPTH BY FUSING SATELLITE AND STATION OBSERVATIONS: A DEEP LEARNING APPROACH
Board PM6.1  Jianwen Yang, Lingmei Jiang, Gangyuan Wang, Jian Wang, Huiwen Cui, Xu Su, Beijing Normal University, China

FRP1.PM.7  A FRAME ON SNOW DEPTH RECONSTRUCTION BASED ON MACHINE LEARNING TECHNIQUE
Board PM7.1  Jianwen Yang, Lingmei Jiang, Gangyuan Wang, Jian Wang, Huiwen Cui, Xu Su, Beijing Normal University, China

FRP1.PM.8  BUILDING LONG-TERM SNOW DEPTH DATASETS FROM PASSIVE MICROWAVE OBSERVATIONS—A CASE STUDY IN THE UNITED STATES
Board PM8.1  Xiaoyu Li, Lingmei Jiang, Gangyuan Wang, Jian Wang, Xiuhua Hao, Beijing Normal University, China

FRP1.PM.9  RETRIEVAL OF SNOW WATER EQUIVALENT BY GAMMA
Board PM9.1  Yuxin Mo, Houxia Li, Jian Wang, Xiaohua Hao, Northwest Institute of Eco-Environment and Resources, Chinese Academy of Sciences, China

FRP1.PM.10  INVESTIGATING LAKE ICE PHENOLOGY IN TIBETAN PLATEAU USING SATELLITE DATA
Board PM10.1  Lixia Guo, Yanhong Wu, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China

FRP1.PM.11  YELLOW RIVER ICE DECISION TREE CLASSIFICATION METHOD BASED ON POLARIMETRIC SAR DATA
Board PM11.1  Pengfei Huang, Qiang Shi, Weiyan Tan, Wei Xu, Inner Mongolia University of Technology, China
FRP1.PN.1 RESULTS FROM THE FIRST ULTRAWIDEBAND MICROWAVE BRIGHTNESS TEMPERATURE CAMPAIGN IN ANTARCTICA: THE ISSUSIM PROJECT
Marco Briguglio, ISP-CNR, Italy; Mark Andrews, Ohio State University, United States; Stefano Urban, INGV, Italy; Joel Johnson, Kenneth Jaks, Ohio State University, United States; Giovanni Macelloni, IFS-CNR, Italy; Alexandre Brande, Opuz Zen, Ohio State University, United States; Lars Kalscheke, Alfred Wegener Institute (AWI), Germany; Marion Leveque-Lebliveau, Francesca Mantovani, Giacomo Fontanelli, IFS-CNR, Italy; Leung Tsang, University of Michigan, United States; Shucong Tan, Zhejiang University/University of Wuxi at Urban-Champaign Institute, China; Massimo Frezzotti, INEA, Italy

FRP1.PN.2 RADAR SCATTERING IN FIRM AND ITS IMPLICATIONS FOR VHF/UHF ORBITAL ICE SOUNDING
Riley Colberg, Dustin M. Schroeder, Stanford University, United States

FRP1.PN.3 RESEARCH ON THE DETECTION METHOD OF ANTARCTIC ICE SHEET FREEZING AND THAWING BASED ON GEE AND SENTINEL-1 DATA
Chung Yun, W on University of Science and Technology, China; Zhang Lu, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China; Chen Huixian, Northeast Agricultural University, China; Bing Sun, School of Electronics and Information Engineering, China

FRP1.PN.4 ANALYSIS OF FLOW VELOCITY AND SURFACE STRUCTURE OVER NORTHERN LARSEN ICE SHELF USING TIME SERIES SATELLITE IMAGES
Hongxing Liu, University of Alabama, United States; Shujie Wang, Columbia University, United States

FRP1.PN.5 VELOCITY ANOMALY OF DAVID GLACIER, EAST ANTARCTICA, OBSERVED BY DOUBLE-DIFFERENTIAL INSAR
Hwayong Seo, Kangwon National University, Korea (South); Hyoungsun Han, Korea Polar Research Institute (KOPRI), Korea (South); Hoon-young Lee, Kangwon National University, Korea (South)

FRP1.PN.6 GLACIER MASS BALANCE IN THE KANGRI KARPO MOUNTAINS BY ZY-3 STEREO IMAGES AND SRM DEMS BETWEEN 2000 AND 2017
Shuang Ren, Massimo Menenti, Li Jia, Jing Zhang, Jingxiao Zhang, Institute of Remote Sensing Science, Institute of Remote Sensing and Digital Earth, China

FRP1.PN.7 IMAGING OF SNOW/ICE SUBSURFACE FEATURES FROM AIRBORNE SAR AT UHF, L AND X BAND. THE ONERA SAR CAMPAIGN IN SOUTH GREENLAND.
Hébert Cantalloube, ONERA, France

FRP1.PN.8 A COMPACT MULTI-CHANNEL RADAR FOR >1MA OLD ICE CORE SITE IDENTIFICATION IN EAST ANTARCTICA
Fernando Rodriguez-Morales, Hugo Aiton, Sebastian Alvarez, David Bratson, Krishna Teja Kardi, Aaron Pedder, John Pedder, Jiavan Shang, University of Kansas, United States; Terry Atkins, James Carwell, Remote Sensing Solutions, United States; Prasadi Géroni, Ryan Taylor, Svein, University Aalborg, United States; Aayaka Abe-Suchi, University of Tokyo, Japan; Shou Fujita, Keri Kawamura, National Institute of Polar Research, Japan; Shun Tsuchi, University of Tokyo, Japan; Brice Van Lieffléneg, Knut Katsud,Joko Matsumasa, Norwegian Polar Institute, Norway

FRP1.PN.9 APPLICATION OF GLACIAL ISOSTATIC ADJUSTMENT MODELS AT THE EDGE OF THE FENNOSCANDIAN ICE SHEET
Ulo Souvao, University of Tartu, Estonia; Holger Steffen, Utsmanien, Sweden; Tammo Kal, Estonian University of Life Sciences, Estonia

FRP1.PN.10 MONITORING GLACIER RETREAT IN THE CHILEAN SOUTHERN PATAGONIAN ICE FIELD
Nester Sáez, Gustavo Soto, Rodrigo Alanis del Río, University of Concepción, Chile

FRP1.PN.11 FLUCTUATIONS OF THE ICE FLOW VELOCITY OF SHIRASE GLACIER AND ITS SURROUNDING LANDFAST ICE DISPLACEMENT IN EAST ANTARCTICA DERIVED FROM ALOS-2/PALSAR-2 IMAGE CORRELATION
Kazuki Nakamura, Nihon University, Japan; Shigeru Aoki, Hokkaido University, Japan; Tsutomu Hara, Hokkaido University, Japan; Shun Tanaka, Institute of Remote Sensing Technology of Japan, Japan; Tetsuji Tanaka, Shizuka University, Kanagawa University, Japan

FRP1.PN.12 IMPACT OF WINDOW SIZE IN REMOTE SENSING BASED GLACIER FEATURE TRACKING – A STUDY ON CHHOTA SHIGRI GLACIER, WESTERN HIMALAYAS, INDIA
Samtha Kumar, Indian institute of Technology, Bombay, India; Monash University, Australia; Rajan Ramakrishnan, Indian Institute of Technology, Bombay, India; Jeffrey Walker, Monash University, Australia
Urban Remote Sensing I

**Session Chair: Ian Adams, NASA Goddard Space Flight Center**

**FRP1.PR.1**
Estimation of PM2.5 Concentration in Beijing-Tianjin-Hebei Region through Global Resolved Datasets
Yan Wang, Jiyou Wang, Lian Zhuo, Guang Chen, Mingshu Du, Changhai Jing, University of Beijing of Civil Engineering and Architecture, China; Ming Liu, National Disaster Reduction Center of China, China; Yang Liu, Beijing University of Civil Engineering and Architecture, China

**FRP1.PR.2**
Diurnal Land Surface Temperature Characteristics of Local Climate Zones: A Case Study in Beijing, China
Jingke Guan, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, China

**FRP1.PR.3**
Effects of Urbanization on Long-Term Surface Albedo
Tao He, Tianli Gao, Jun Lu, Wuhan University, China; Daxue Song, Central China Normal University, China

**FRP1.PR.4**
Impact of Urban Spatial Form on Daytime Land Surface Temperature in Communities of Wuhan
Tao Wang, Huafang Li, Huaibin Shen, Meiling Gao, School of Resource and Environmental Sciences, Wuhan University, China

**FRP1.PR.5**
Satellite-Derived PM2.5 and its Correlation with Urban Form in Guangdong, China
Lili Li, Xingpeng Deng, Guangzhou Institute of Geochimistry, Chinese Academy of Sciences, China; Tao Chen, South China Normal University, China; Yingping Wang, Guangzhou Institute of Geochimistry, Chinese Academy of Sciences, China

**FRP1.PR.6**
Remote Sensing and Direct Observation of the Atmospheric Boundary Layer Structure during Haze Episode in Beijing
Yu Shi, Fei Liu, State Key Laboratory of Atmospheric Boundary Layer Physics and Atmospheric Chemistry, Institute of Atmospheric Physics, Chinese Academy of Sciences, China; Guangping Fan, Key Laboratory of Environmental Optics and Technology, Ahsui Institute of Optics and Fine Mechanics, Chinese Academy of Sciences, China

**FRP1.PR.7**
Accuracy Assessment of the Urban Land Surface Temperature Calculation Based on Landsat-8/OLI Data (Case Study: Coyhaique, Chile)
Konstantin Venchen, Universidad Austral de Chile, Chile; Polina Nikkhadylova, Lomonosov Moscow State University, Russia; Aliás Salawue, Tanghura University, China; Cristian Salazar, Universidad Austral de Chile, Chile; Manuel Carpio, Pontificia Universidad Católica de Chile, Chile

**FRP1.PR.8**
A New Method for Noise Removal in NPP-VIIRS Monthly Nighttime Light Imagery over the Sahel Region
Xianlian Yuan, Li Zuo, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China; Ju Zhou, Central China Normal University, China; Massimo Menenti, Qiting Zhang, Wuhan University, China; Yafei Liu, Chinese Academy of Surveying and Mapping, China

**FRP1.PR.9**
Introducing Satellite Data Based Biosphere Model Beams to Improve Regional Transport Model AIST-MM for Estimating Carbon Dioxide Emission from Mega-City Tokyo
Qiao Wang, Ryoichi Imasu, Satoshi Ito, University of Tokyo, Japan; Takahiro Sasai, Tohoku University, Japan; Hikaru Kondo, National Institute of Advanced Industrial Science and Technology (AIST), Japan

**FRP1.PR.10**
Downscaling of Satellite Land Surface Temperature Data over Urban Environments
Anna F. Vaculik, City College of New York, United States; Abdoul Rachid Bah, CUNY-Graduate Center, United States; Namul Naruzi, Christopher Beadle, Makiko Kawai, Justine Gincheau, Regions de France, New York City College of Technology, United States

**FRP1.PR.11**
Urban Thermal Environment Observation Using Himawari-8/AHI Data
Toshiro Sugimura, Yuuki Uchida, Naohide Iwashita, College of Industrial Technology, Nihon University, Japan

**FRP1.PR.12**
Nearest Neighbor Method to Estimate Urban Areas Using MODIS NDVI Time Series
Oscar Luis de Carvalho, Renato Guimarães, Roberto Gomes, Oscar Alfredo de Carvalho Junior, Cristiano Silva, University of Brasilia, Brazil

Urban Mapping

**Session Co-Chairs: Lu Jiang, Nanjing University; Francesca Bovolo, Fondazione Bruno Kessler**

**FRP1.PS.1**
Mapping Fine-Scale Urban Spatial Population Distribution Based on High-Resolution Remote Sensing Images
Ming Xu, Chuanming Cao, Aerospace Information Research Institute, Chinese Academy of Sciences, China; Hongyan Yue, National Key Laboratory of Science and Technology on Aerospace Intelligence Control, China; Tianyu Yang, Aerospace Information Research Institute, Chinese Academy of Sciences, China; Peng Jia, Faculty of Geo-Information Science and Earth Observation (IT), University of Twente, Netherlands

**FRP1.PS.2**
Urban Green Space Accessibility Evaluation Using Age-Based 2-Step Floating Catchment Area Method
Jingyuan Qi, You Bai, Tsinghua University, China; Yuchun He, Yichang Smart City Construction Office, China; Tianhao Wang, Yichang Big Data Management Center, China; Pei Zhang, Chengsheng Xu, Yichang Center for Disease Control and Prevention, China

**FRP1.PS.3**
Automatic Workflow for the Generation of True Orthoimages from Very High-Resolution Satellite Data
Ani Maruotti, Research Centre of the Slovenian Academy of Sciences and Arts, Slovenia

**FRP1.PS.4**
Analysis of Ecological Factors Affecting Beijing City Based on Geographic Detector
Xiaoming Deng, Xiaohan Liao, Chenchun Xu, Huayun Yue, Institute of Geographical Sciences and Natural Resources Research, Chinese Academy of Sciences, China

**FRP1.PS.5**
Assessing and Predicting Changes of the Ecosystem Service Values Based on Land Use/Land Cover Changes in Qingdao, China
Yaochuan Qin, Institute of Remote Sensing and Digital Earth, Chinese Academy of Science / University of Chinese Academy of Sciences, China; Binhong Fu, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China

**FRP1.PS.6**
Land Suitability Analysis for Urban Land Development in Pendik, Turkey
Ece Ustoglu, Jeff Capps Aydogdu, Galen Technical University, Turkey

**FRP1.PS.7**
Monitoring Displacement on National Route and Railway with Palsar-1 Data by Using Multi-temporal Displacement Decomposition in Chiba Prefecture, Japan
Fumiaki Ogura, Masashi Matsuzaka, Tokyo Institute of Technology, Japan

**FRP1.PS.8**
Urban Expansion Analysis of China’s Prefecture Level City from 2000 to 2016 Using High-Precision Urban Boundary
Hao Wang, Xiaoguang Neng, Chinese Academy of Surveying and Mapping, China; Minzhou Zhang, Wuhan University, China; Yafei Liu, Chinese Academy of Surveying and Mapping, China

**FRP1.PS.9**
A Remote Sensing-Based Vacancy Area Index for Estimating Housing Vacancy and Ghost Cities in China
Huan Li, School of Earth and Space Sciences, Peking University, China; Chao Zeng, School of Resource and Environmental Sciences, Wuhan University, China; Wei Wan, Youkui Cui, Yang Hong, Wenjie Fan, School of Earth and Space Sciences, Peking University, China

**FRP1.PS.10**
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Jiawe Huang, Nanguai Li, Xia Li, Lin Zhang, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China
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Special Issue on

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In the cover letter, please provide the corresponding paper number of IGARSS 2019. If this information is not provided, the paper will be considered as a regular submission.

Format
All submissions will be peer reviewed according to the IEEE Geoscience and Remote Sensing Society guidelines. Submitted articles should not have been published or be under review elsewhere. Submit your manuscript on http://mc.manuscriptcentral.com/jstars, using the Manuscript Central interface and select the “IGARSS2019” special issue manuscript type. Prospective authors should consult the site http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=7416303 for guidelines and information on paper submission. All submissions must be formatted using the IEEE standard format (double column, single spaced). For a template in this format please see http://www.ieee.org/publications_standards/publications/authors.author_templates.html. Please note that as of Jan. 1, 2020, IEEE J-STARS will become a fully open-access journal charging a flat publication fee $1250 per paper.

Schedule
Sept. 1, 2019: Submission system opening
Feb. 28, 2020: Submission system closing
2020: Publication date

Guest Editors
Akira Hirose, The University of Tokyo, Japan (ahirose@ee.t.u-tokyo.ac.jp)
Irena Hajnsek, ETH, Zurich (irena.hajnsek@dlr.de)
Akira Iwasaki, The University of Tokyo, Japan (aiwasaki@sal.rcast.u-tokyo.ac.jp)
Hiroyoshi Yamada, Niigata University, Japan (yamada@ie.niigata-u.ac.jp)
Call for Papers

Hosted by the IEEE Geoscience and Remote Sensing Society, the 2020 IEEE International Geoscience and Remote Sensing Symposium (IGARSS 2020) will be held Sunday, 19 July through Friday, 24 July, 2020 at the Hilton Waikoloa Village in Waikoloa, Hawaii, USA. The main theme of the 2020 symposium is “Remote Sensing: Global Perspectives for Local Solutions”.

On behalf of the IEEE Geoscience and Remote Sensing Society and the IGARSS 2020 Organizing Committee, we invite you to participate in IGARSS 2020, the world’s premier symposium on geoscience, remote sensing and related topics. We look forward to meeting you in Waikoloa during IGARSS 2020.

Important Dates

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IGARSS 2020 19–24 July 2020

Organizing Committee

- **General Chair**: Bill Emery, University of Colorado
- **General Co-Chair**: Adriano Camps, UPC-BarcelonaTech
- **Technical Program Co-Chairs**: Jasmeet Judge, University of Florida; Paolo Gamba, University of Pavia; Jiancheng Shi, Chinese Academy of Sciences
- **Finance Chair**: Paul Rosen, JPL
- **Publicity Chair**: Steve Reising, Colorado State University
- **Exhibits Chair and Industry Liaison**: Fabio Pacifici, Digital Globe
- **Government Liaison**: Gail Skofronick Jackson, NASA GSFC
- **Local Arrangements Chair**: Ryan Perroy, University of Hawaii Hilo

https://igarss2020.org/
Technical Program

IGARSS is a premier event in remote sensing and provides an ideal forum for obtaining up-to-date information about the latest developments, exchanging ideas, identifying future trends and making networking with the international geoscience and remote sensing community.

The IGARSS 2020 technical program will include the following general themes:

- Data Analysis Methods, Classification, and Data Mining
- Atmosphere
- Cryosphere
- Oceans
- Land
- Missions, Sensors and Calibration
- Data Management and Education

In addition, special scientific themes will be addressed, including:

- Monitoring and damage assessment of volcanoes and other natural disasters
- Monitoring and Preservation of Natural Reserves
- Coastal environment, its change and the impact of rising sea levels
- The Great Pacific Garbage Patch
- NewSpace in Remote Sensing
- Artificial Intelligence in Remote Sensors

Student Paper Competition

IEEE Geoscience and Remote Sensing Society student members are invited to submit a paper to the IGARSS Student Paper Competition. The selection of the finalist papers will be done by a committee of experts, and the selected students will present their papers during a special session at the Symposium.

Publication of Proceedings

Accepted papers will be published in the proceedings on IEEE Xplore® only if presented at the Symposium by one of the listed authors, duly registered.

Paper Submission

Authors who wish to give a presentation are requested to submit a paper (minimum of 2 pages; maximum of four pages). A link to submit the paper online will be available at the Symposium website beginning 11 November 2019.

Welcome to Waikoloa, Hawaii!

IGARSS 2020 - Remote Sensing: Global Perspectives for Local Solutions – is to be held on the Big Island of Hawaii. This island – over 4,000 square miles – has 10 of the world’s 14 climate zones and lends itself to discovery for our diverse global viewpoints and discussions. You will also find the longest running active volcano in the world (continuous since 1983.)

The IGARSS 2020 conference will be held at the Hilton Waikoloa Village on 62 oceanfront acres along the Kohala Coast. It is 20 minutes north of the Kona International Airport. This property offers tropical gardens, wildlife, Asian and Polynesian art, golf courses, tennis courts, shopping, restaurants, snorkeling, a nearby white sand beach (anaeho’omalu bay), salt-water lagoon, fresh water swimming pools, waterfalls and slides, dolphin encounters, sea turtles, and much more.

IGARSS 2020 is offering unique perspectives, discussions, research, solutions, and an opportunity to network in a beautiful environment.
Sponsors

Co-Sponsors

IEEE Geoscience and Remote Sensing
Science Council of Japan

Technical Co-Sponsors (Alphabetical)

The Geodetic Society of Japan
IEEE AESS Japan Chapter
IEEE APS Japan Chapter
IEEE GRSS Japan Chapter

Institute of Electronics, Information and Communication Engineers (IEICE), Communication Society
Institute of Electronics, Information and Communication Engineers (IEICE), Electronics Society

Japan Geoscience Union (JpGU), Atmospheric and Hydrospheric Sciences Section
National Institute of Information and Communications Technology (NICT)

Japan Society of Photogrammetry and Remote Sensing (JSPRS)
Remote Sensing Society of Japan (RSSJ)

The Society of Instrument and Control Engineers (SICE)

Conference Grants (Alphabetical)

City of Yokohama
National Institute of Information and Communications Technology (NICT)
Obayashi Foundation

SECOM Science and Technology Foundation
Society for Promotion of Space Science
The Murata Science Foundation