Contents

Welcome from General Co-Chairs

On behalf of the IGARSS 2017 Organizing Committee, we are pleased to welcome you to Fort Worth, Texas, for the 37th annual symposium of the IEEE Geoscience and Remote Sensing Society (GRSS). IGARSS 2017 continues the tradition of gathering world-class scientists and engineers engaged in Earth observation, geoscience and remote sensing to meet and present their latest research and activities. The theme for IGARSS 2017 is "International Cooperation for Global Awareness" which emphasizes the need for us to work together to address many challenges we are facing today. With nearly equal representation from Asia, Europe and the Americas, IGARSS is truly an international event with a full week of technical sessions, forums, exhibits, and social activities.

To begin, we would like to highlight the primary aspect of IGARSS: the extensive Technical Program. This year we hope you will find that IGARSS' technical program along with several special sessions will help you build the cross-disciplinary relationships needed to address the many challenging problems in remote sensing. We feel that the strength of IGARSS is rooted in this robust representation both from the point of view of technical discipline and international representation. We would like to recognize our technical co-chairs, Prof. Joel Johnson and Dr. Kun-Shan Chen, who have led the coordination of an exciting technical program addressing the key problems and research areas in remote sensing.

In addional to the technical program, we are particularly excited about three special aspects of this year's IGARSS. We would like to first highlight the week-long Technology, Industry, and Education (TIE) Forum that runs concurrent with the technical program. The TIE forum will feature many current topics in remote sensing, from research and education to technology transfer and applications. The TIE Forum sessions include presentations from the Group on Earth Observation (GEO) and the United Nations 2030 Program, highlights of GRSS Technical Committees, special topics dedicated to underrepresented groups in remote sensing, emerging trends from the private industry sector, funding opportunities for small businesses, and focused discussion on hyperspectral remote sensing.

Secondly, the IGARSS 2017 plenary features presentations from representatives of United States National Aeronautics and Space Administration, European Space Agency, Chinese Academy of Sciences, and the Intergovernmental Group on Earth Observation. We believe this session will provide attendees an insightful international perspective of current directions in remote sensing and Earth observation activity.

The third special aspect of IGARSS activities this year is the many learning and networking opportunities offered for students and young professionals. Some of these began prior to the IGARSS week such as the Geoscience and Remote Sensing Society Summer School (GR4S) held at the University of Texas at Arlington from Wednesday through Friday and also includes a Young Professionals (YP) networking event and Luncheon to be held on Thursday of IGARSS week. We also have multiple author education sessions during the TIE forum and a full set of tutorials on Sunday before IGARSS.

To cap off the week, IGARSS 2017 will conclude with a closing ceremony that highlights key events during the conference along with presentation of awards and prizes. As we look forward to an exciting week of activities, we would like to thank all of the volunteers on the 2017 organizing committee and members of the technical program committee as well as the hundreds of technical reviewers that have made IGARSS 2017 possible. Finally, we would like to thank the team at Conference Management Services, Inc for their outstanding work in making IGARSS 2017 a reality!

Saibun Tjuatja
The University of Texas at Arlington

David Kunkee
The Aeorspace Corporation

Welcome from the IEEE Geoscience and Remote Sensing Society President

Welcome to the 37th IEEE International Geoscience and Remote Sensing Symposium, IGARSS 2017, in Fort Worth, Texas! IGARSS is the flagship remote sensing conference organized by the IEEE Geoscience and Remote Sensing Society (GRSS). This year's theme "International Cooperation for Global Awareness" reminds us of the implications that methods and techniques we develop have on our ability to understand the changes we are imposing on our planet. At the same time, this 'awareness' reminds us that only by cooperating on global scale we can address these challenges.

On one side, the European Copernicus program, and the plans of China, India, and Japan along with other nations, to develop their own Earth Observation (EO) capabilities show the health of our field and the speed at which it is maturing. On the other side, the quick development of the Galileo and Beidou global navigation satellite systems will gracefully complement the existing GPS and Glonass systems, which will further enhance geo-location and time-tagging geophysical data acquired by distributed networks of sensors all interconnected to the internet. At the same time, these navigation systems "illuminate" the Earth 24/7 with signals of opportunity that can be used for EO. Since the last IGARSS, we have seen the launch of NASA CYGNSS mission, the first operational constellation of small satellites using these techniques for hurricane monitoring. As we can see, despite the skepticism of some, EO is in a healthy state.

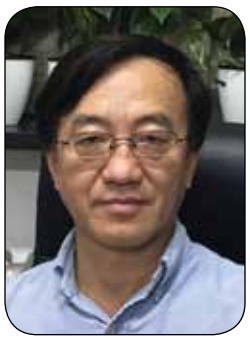
IGARSS becomes then, the ideal environment for scientists and engineers, practitioners and companies, students and decision makers, to meet and exchange ideas, to get the latest information on remote sensing, or to receive updated continuous training tutorials. However, in order not to get quickly outdated in this fast and ever-changing world, it is very important to stay connected. No matter if you are already a GRSS member or not, I cordially invite you to come by the IEEE GRSS booth and find out how GRSS can help you in your career by developing relationships with world leaders in remote sensing, by working for societal benefits through remote sensing, by increasing the visibility and access to international research opportunities, by getting connected to industry, by benefiting from the mix of theory and practice in remote sensing published in our three journals which spans from optical and hyperspectral systems to active/passive microwave systems, by actively participating in one of our Technical Committees, by benefiting from the student research and travel scholarships to attend GRSS-sponsored conferences, or by simply supporting the activities of our 57 local chapters. Please come by and ask us what GRSS can do for you, and how you can collaborate with us.

We would like to thank the IGARSS 2017 General Chairs Prof. Saibun Tjuatja and Dr. David Kunkee, the Technical Program co-chairs Profs. Joel T. Johnson and Kun - Shan Chen, and the rest of the team for all the hard work and effort that they have put in the organization of an event like this. With about 1060 oral and 730 poster presentations organized in a new schedule format, it is expected that posters will have more prominence.

I am looking forward to meeting you in this outstanding IGARSS 2017 conference this July!

Adriano Camps
2017 President
IEEE Geoscience and Remote Sensing Society

Welcome from Technical Program Committee



The IGARSS2017 Technical Program Committee (TPC) expresses great pleasure in welcoming you to IGARSS 2017 and hopes that will you have an enjoyable stay in the beautiful and historic city of Fort Worth.

IGARSS 2017 received 2073 abstract submissions from authors in 58 countries. Each submitted abstract was reviewed by a minimum of 2 expert reviewers, and the IGARSS 2017 Theme Coordinators and Session Organizers determined abstract acceptance and placement based on the relevance, technical soundness, and originality of the paper. Following the review process, the IGARSS 2017 Theme Coordinators met in Miami to coordinate our wonderful and exciting program. We thank the Theme Coordinators, Session Organizers, and Abstract Reviewers for their important contributions to the technical program.

The final technical program includes 1644 papers that will be presented, with 1049 oral session presentations and 595 interactive poster papers. Posters will be displayed in two daily sessions throughout the morning and afternoon hours, with authors present during morning and afternoon extended coffee breaks. We encourage you to review poster papers through the day, and to interact with poster authors during the poster sessions. All presented papers will be published in the conference proceedings on IEEE Xplore.

The theme of IGARSS 2017 is "International Cooperation for Global Awareness". The technical program covers all related remote sensing areas including advances in analysis techniques, missions, sensors and calibration, and remote sensing of land, oceans, atmosphere, and cryosphere. Six special themes were included this year: international cooperation, emerging industry remote sensing activities, energy, internet-of-things, our living environment, and water resource management. The final program fully captures the IGARSS 2017 theme, and we hope that numerous opportunities to expand international cooperation will occur during the course of the conference.

The program is further enriched by other events, including seminars and special activities that you can find in the Program Guide and by using the IGARSS 2017 App. In particular, the Technology, Industry, and Education (TIE) Forum will provide opportunities for panel discussions and other interactions on a variety of important topics. The six technical committees of GRSS (ESI, FARS, IADF, IFT, ISIS, and MIRS) will hold their meetings during the symposium, and warmly welcome all interested colleagues to participate. The technical program also includes the highly competitive IGARSS Student Prize Paper Competition. The ten selected finalist papers will be presented in two dedicated sessions on Tuesday morning, and winners will be announced at the awards banquet on Thursday evening, to which everyone is welcome.

We thank all the delegates who submitted their papers to IGARSS 2017, the Theme Coordinators, the Session Organizers, the Invited Session Organizers, and the Reviewers for their persistent hard work and generous support that has culminated in an excellent technical program. Last but not least, Conference Management Services, Inc. has made a tremendous contribution to the implementation of the IGARSS 2017 program. We thank Mr. Lance Cotton of CMS for his outstanding support through all our activities.

We hope you enjoy an exciting and productive week in Fort Worth!

Joel Johnson and Kun-Shan Chen
IGARSS 2017 Technical Program Co-Chairs

IGARSS 2017 at a Glance

Tutorials & Welcome Reception

Sunday, July 23								
	Sundance 1	**Sundance 2**	**Sundance 3**	**Sundance 4**	**Sundance 5**	**Sundance 6**	**Fort Worth Ballroom 6**	**Fort Worth Ballroom 8**
08:30 - 12:00	FD1: Mathematical Morphology in Interpolations and Extrapolations	FD2: Machine Learning in Remote Sensing - Best practice and recent developments	FD3: Hyperspectral Imaging Remote Sensing	FD4: Remote Sensing with Reflected Global Navigation Satellite System (GNSS-R) Signals	FD5: Design and Implementation of a Remote Sensing Program for a Continental Scale Ecological Observatory	FD6: Spaceborne Synthetic Aperture Radar (SAR): Theory, Technology and Applications	Workshop: CEOS Open Data Cube - A new way to manage satellite data utilizing an open source platform	HD3: Earth Observation Big Data: The Data Science paradigm shift
12:00 - 13:30	Lunch Break							
13:30 - 17:00	[FD1 Continued]	[FD2 Continued]	[FD3 Continued]	[FD4 Continued]	[FD5 Continued]	[FD6 Continued]	HD4: 3-/4-D SAR Tomography	HD6: A Tour of Patch-based Methods and their Applications in Remote Sensing
19:30 - 21:30	Welcome Reception – Fort Worth Water Gardens							

Opening, Plenary, and Oral Sessions. Technical and Social Events

Monday, July 24												
08:45 - 12:20	Opening and Plenary Session – Ballroom ABC											
12:20 - 13:40	Lunch Break											
	Ballroom B	**Ballroom A**	**Ballroom C**	**Room 201 BC**	**Room 203 BC**	**Room 202 CD**	**Room 201 A**	**Room 202 A**	**Room 203 A**	**Room 204 A**	**Room 202 B**	**Room 204 B**
13:40 - 15:20	MO3.L1 Band Selection	MO3.L2 Land Use Applications I	MO3.L3 Cross Track and Along Track InSAR Methods	MO3.L4 Companion SAR Missions I	MO3.L5 Change Detection in Hyperspectral and Multispectral Images I	MO3.L6 Spectral Unmixing Techniques I	MO3.L7 Microwave Radiometer Calibration I	MO3.L8 New GEO/LEO Mission Advanced Imagery Products: Optical Sensor Calibration and Applications I	MO3.L9 Active/Passive Snow and Ice	MO3.L10 Special Theme: Emerging Industry Remote Sensing Activities	MO3.L11 Ocean Surface Wind	MO3.L12 International Spaceborne Imaging Spectroscopy Missions: Updates and News I
13:40 - 15:20	TIE Forum: MO3.TIE: GEO and Global Awareness – Room 200											
15:20 - 16:20	Poster Sessions & Break											
16:20 - 18:00	MO4.L1 Numerical Weather Modelling and Data Assimiliation	MO4.L2 Land Use Applications II	MO4.L3 Multi-satellite Cross-track Interferometry	MO4.L4 Companion SAR Missions II	MO4.L5 Change Detection in SAR Images I	MO4.L6 Spectral Unmixing Techniques II	MO4.L7 Synthetic Aperture Microwave Radiometers II	MO4.L8 New GEO/LEO Mission Advanced Imagery Products: Optical Sensor Calibration and Applications II	MO4.L9 Sea Ice	MO4.L10 Intelligence for Big Geospatial Data	MO4.L11 Ocean Surface Current and Wave	MO4.L12 International Spaceborne Imaging Spectroscopy Missions: Updates and News II
16:20 - 18:00	TIE Forum: MO4.TIE: Earth Observation, Sustainable Goals and the United Nations 2030 Program – Room 200											
18:00 - 19:00										ESI-TC Meeting		GSIS-TC Meeting
19:00 - 21:30	Tex-Mex Dinner at Joe T. Garcia's – Load buses in front of the Omni Fort Worth Hotel beginning at 19:00. Dinner begins at 19:30.											

IGARSS 2017 at a Glance

Oral Sessions. Technical and Social Events

Tuesday, July 25												
	Ballroom B	**Ballroom A**	**Ballroom C**	**Room 201 BC**	**Room 203 BC**	**Room 202 CD**	**Room 201 A**	**Room 202 A**	**Room 203 A**	**Room 204 A**	**Room 202 B**	**Room 204 B**
08:00 - 09:40	TU1.L1 High Resolution Classification Methods	TU1.L2 Forest Monitoring Applications	TU1.L3 TanDEM-X: The Earth in 3D I	TU1.L4 Student Paper Contest Finalists I	TU1.L5 Change Detection in VHR Images	TU1.L6 Target Detecton and Unmixing Techniques I	TU1.L7 Current and Future Microwave Radiometer Imagers and Sounders	TU1.L8 New GEO/LEO Mission Advanced Imagery Products: Optical Sensor Calibration and Applications III	TU1.L9 Active/Passive Microwave Remote Sensing of Terrestrial Snow I	TU1.L10 Physical Models for Microwave Remote Sensing in Honor of Professor Adrian K. Fung I	TU1.L11 40 Years of Ocean Remote Sensing - a Session to Honor W. Alpers on the Occasion of his 80th Birthday I	TU1.L12 Radar and Thermal Data for Urban Monitoring
08:00 - 09:40	TIE Forum: TU1.TIE: Author Education: How to publish IEEE papers – Room 200											
09:40 - 10:40	Poster Sessions & Break											
10:40 - 12:20	TU2.L1 Data Reduction Methods	TU2.L2 Deep Networks for Detection and Recognition I	TU2.L3 TanDEM-X: The Earth in 3D II	TU2.L4 Student Paper Contest Finalists II	TU2.L5 Change Detection and Analysis of Image Time Series: Techniques	TU2.L6 Target Detecton and Unmixing Techniques II	TU2.L7 Radio Frequency Interference and Challenges for Microwave Remote Sensing I	TU2.L8 Lidar Processing	TU2.L9 Active/Passive Microwave Remote Sensing of Terrestrial Snow II	TU2.L10 Physical Models for Microwave Remote Sensing in Honor of Professor Adrian K. Fung II	TU2.L11 40 Years of Ocean Remote Sensing - a Session to Honor W. Alpers on the Occasion of his 80th Birthday II	TU2.L12 SMOS Soil Moisture II
10:40 - 12:20	TIE Forum: TU2.TIE: 2017 IEEE GRSS Women in STEM Forum – Room 200											
12:20 - 13:40	Lunch											
12:20 - 13:40	Women in Geoscience Luncheon – Omni Fort Worth Hotel, Fort Worth Ballroom 4											
	Ballroom B	**Ballroom A**	**Ballroom C**	**Room 201 BC**	**Room 203 BC**	**Room 202 CD**	**Room 201 A**	**Room 202 A**	**Room 203 A**	**Room 204 A**	**Room 202 B**	**Room 204 B**
13:40 - 15:20	TU3.L1 SAR Image Segmentation	TU3.L2 Deep Networks for Detection and Recognition II	TU3.L3 Differential SAR Interferometry Applications	TU3.L4 Polarimetric Techniques II	TU3.L5 Change Detection and Analysis of Image Time Series: Applications	TU3.L6 Reconfigurable and Innovative Instruments and Satellite Mission Concepts	TU3.L7 Radio Frequency Interference and Challenges for Microwave Remote Sensing II	TU3.L8 Hyperspectral Target Detection I	TU3.L9 NASA's SnowEx Campaign: Preliminary Results I	TU3.L10 Optical Modeling in Remote Sensing I	TU3.L11 Retrievals of Coupled Variables from Satellite Remotely Sensed Imagery I	TU3.L12 Hydrologic Applications
13:40 - 15:20	TIE Forum: TU3.TIE: IEEE GRSS Membership and Technical Committees – Room 200											
15:20 - 16:20	Poster Sessions & Break											
16:20 - 18:00	TIE Forum: TU4.TIE: IEEE TAB Ad Hoc Committee on Women and Under-represented Groups – Room 200											
16:20 - 18:00	TU4.L1 Multisource Data Classification	TU4.L2 Ship and Road Detection	TU4.L3 SAR Data Processing and DEM	TU4.L4 Bistatic SAR	TU4.L5 Recent Advances in Wetlands Remote Sensing	TU4.L6 IEEE GRSS Data Fusion Contest	TU4.L7 Microwave Remote Sensing and the Challenges of Radio Frequency Interference	TU4.L8 Hyperspectral Target Detection II	TU4.L9 NASA's SnowEx Campaign: Preliminary Results II	TU4.L10 Optical Modeling in Remote Sensing II	TU4.L11 Retrievals of Coupled Variables from Satellite Remotely Sensed Imagery II	TU4.L12 Remote Sensing for Energy Applications
18:00 - 19:00						IADF-TC Meeting	FARS-TC Meeting			MIRS-TC Meeting		
19:00 - 21:30	Texas Night at Billy Bob's – Load buses in front of the Omni Fort Worth Hotel beginning at 19:00. Dinner begins at 19:30.											

Oral Sessions. Technical and Social Events

Wednesday, July 26												
	Ballroom B	**Ballroom A**	**Ballroom C**	**Room 201 BC**	**Room 203 BC**	**Room 202 CD**	**Room 201 A**	**Room 202 A**	**Room 203 A**	**Room 204 A**	**Room 202 B**	**Room 204 B**
08:00 - 09:40	WE1.L1 Clustering and Unsupervised Methods	WE1.L2 SAR Target Detection and Recognition	WE1.L3 SAR Speckle Filtering	WE1.L4 ALOS/ALOS-2/ALOS-2 Follow-on (SAR) Mission I	WE1.L5 Methodologies for High Resolution Soil Moisture from Microwave Observations I	WE1.L6 Data Fusion I	WE1.L7 Global Navigation Satellite System Reflectometry Spaceborne Missions I	WE1.L8 Global Precipitation Measurement Instruments and Algorithms I	WE1.L9 The Joint Polar Satellite System: NOAA's New Global Operational Capability to Monitor the Planet I	WE1.L10 Forest Monitoring by LIDAR	WE1.L11 Ocean Salinity	WE1.L12 Latin America Activities in Remote Sensing I
09:40 - 10:40	Poster Sessions & Break											
10:40 - 12:20	WE2.L1 Kernel-based Classification	WE2.L2 RADAR Target Detection	WE2.L3 SAR Moving Target Imaging	WE2.L4 ALOS/ALOS-2/ALOS-2 Follow-on (SAR) Mission II	WE2.L5 Methodologies for High Resolution Soil Moisture from Microwave Observations II	WE2.L6 Data Fusion II	WE2.L7 Global Navigation Satellite System Reflectometry Spaceborne Missions II	WE2.L8 Global Precipitation Measurement Instruments and Algorithms II	WE2.L9 The Joint Polar Satellite System: NOAA's New Global Operational Capability to Monitor the Planet II	WE2.L10 Forest Monitoring by LIDAR and other Measurements	WE2.L11 Ocean Temperature	WE2.L12 Latin America Activities in Remote Sensing II
10:40 - 12:20	TIE Forum: WE2.TIE: Remote Sensing Industry Panel – Room 200											
12:20 - 13:40	Lunch											
12:20 - 13:40	TIE Forum Luncheon – Room 104											
	Ballroom B	**Ballroom A**	**Ballroom C**	**Room 201 BC**	**Room 203 BC**	**Room 202 CD**	**Room 201 A**	**Room 202 A**	**Room 203 A**	**Room 204 A**	**Room 202 B**	**Room 204 B**
13:40 - 15:20	WE3.L1 Deep and Convolutional Nneural Betworks	WE3.L2 RADAR Imaging	WE3.L3 SAR Image Formation and Compressive Sensing	WE3.L4 3-/4-D Computational Radar Imaging Advancements, System, and User Applications I	WE3.L5 Observations by the NASA Soil Moisture Active Passive Mission I	WE3.L6 Accuracy and Quality Assessment of Data Analysis Algorithms	WE3.L7 Instrumentation Advances for Reflectometry with GNSS and Signals of Opportunity (GNSS+R) I	WE3.L8 Small Satellite Technology I	WE3.L9 Ice Sheets and Glaciers II	WE3.L10 Microwave Remote Sensing of Dense Vegetation	WE3.L11 Ocean Wave and Sea State: Coastal Imacts	WE3.L12 Global Scale Spectroscopy from Space for the Health of Planet Earth I
13:40 - 15:20	TIE Forum: WE3.TIE: Remote Sensing Industry Session – Room 200											
15:20 - 16:20	Poster Sessions & Break											
16:20 - 18:00	WE4.L1 Spatial Feature Detection and Extraction	WE4.L2 Object Detection and Recognition I	WE4.L3 SAR Imaging Systems	WE4.L4 3-/4-D Computational Radar Imaging Advancements, System, and User Applications II	WE4.L5 Observations by the NASA Soil Moisture Active Passive Mission II	WE4.L6 Image and Data Fusion II	WE4.L7 Instrumentation Advances for Reflectometry with GNSS and Signals of Opportunity (GNSS+R) II	WE4.L8 Advanced Methods for Lidar Data Processing	WE4.L9 Ice Sheets and Glaciers III	WE4.L10 Forest Monitoring by Optical Radiometry I	WE4.L11 Ocean Monitoring with Satellite Altimetry and SAR	WE4.L12 Global Scale Spectroscopy from Space for the Health of Planet Earth II
16:20 - 18:00	TIE Forum: WE4.TIE: Remote Sensing Agency Session – Room 200											
18:00 - 19:00							IFT-TC Meeting					
18:15 - 21:00	Soccer Tournament – Load buses in front of the Omni Fort Worth Hotel beginning at 18:15. The game begins at 19:30.											
19:00 - 22:00	Technical Committee & Chapter Chairs Dinner – Fort Worth Ballrom 4											

IGARSS 2017 at a Glance

Oral Sessions. Technical and Social Events

Thursday, July 27												
	Ballroom B	**Ballroom A**	**Ballroom C**	**Room 201 BC**	**Room 203 BC**	**Room 202 CD**	**Room 201 A**	**Room 202 A**	**Room 203 A**	**Room 204 A**	**Room 202 B**	**Room 204 B**
08:00 - 09:40	TH1.L1 Hyperspectral Image Classification II	TH1.L2 Object Detection and Recognition II	TH1.L3 Differential SAR Interferometry Techniques I	TH1.L4 Forest Monitoring by Optical Radiometry II	TH1.L5 SMAP Soil Moisture I	TH1.L6 Image and Data Fusion IV	TH1.L7 Global Navigation Satellite Systems Reflectometry / GNSS-R Sensors II	TH1.L8 Calibration and Registration for Optical Sensors II	TH1.L9 Snow and Freeze/ Thaw	TH1.L10 Land Cover Dynamics I	TH1.L11 Wind and Precipitation Radar	TH1.L12 Geoscience Remote Sensing in Support of the New GEO Energy and Minerals Societal Benefit Area I
	TIE Forum: TH1.TIE: Author Education: How to publish IEEE papers – Room 200											
09:40 - 10:40	Poster Sessions & Break											
10:40 - 12:20	TH2.L1 Hyperspectral Image Classification III	TH2.L2 GPR System and Data Processing I	TH2.L3 Differential SAR Interferometry Techniques II	TH2.L4 Polarimetric SAR Interferometry	TH2.L5 Land Surface Temperature	TH2.L6 Ocean Surface Remote Sensing Missions	TH2.L7 Global Navigation Satellite Systems Reflectometry / GNSS-R Sensors III	TH2.L8 Calibration and Registration for Optical Sensors I	TH2.L9 Land Cover Dynamics III	TH2.L10 Agriculture Applications III	TH2.L11 Atmospheric Sounding and Ionospheric Effects	TH2.L12 Geoscience Remote Sensing in Support of the New GEO Energy and Minerals Societal Benefit Area II
10:40 - 12:20	TIE Forum: TH2.TIE: NASA ROSES Proposal Writing – Room 200											
12:20 - 13:40	Lunch											
12:20 - 13:40	Young Professionals Luncheon – Omni Fort Worth Hotel, Sundance 1											
	Ballroom B	**Ballroom A**	**Ballroom C**	**Room 201 BC**	**Room 203 BC**	**Room 202 CD**	**Room 201 A**	**Room 202 A**	**Room 203 A**	**Room 204 A**	**Room 202 B**	**Room 204 B**
13:40 - 15:20	TH3.L1 Image Classification I	TH3.L2 Multispectral/ Hyperspectral Image Segmentation	TH3.L3 Emerging Spaceborne SAR Instruments and Missions I	TH3.L4 Polarimetric Classification	TH3.L5 Estimation and Regression Techniques I	TH3.L6 Calibration and Validation of S-NPP and GOES-R Instruments	TH3.L7 Soil Moisture From Active and Active/ Passive Sensors	TH3.L8 Space Lidar: Missions, Technologies and Observations I	TH3.L9 Active Airborne Remote Sensing of Forest Ecosystems I	TH3.L10 Agriculture Applications II	TH3.L11 Microwave Models for Ocean	TH3.L12 Clouds and Precipitation I
13:40 - 15:20	TIE Forum: TH3.TIE: Navigating Technology Transition – Room 200											
15:20 - 16:20	Poster Sessions & Break											
16:20 - 18:00	TH4.L1 Image Classification II	TH4.L2 Image Segmentation and Detection	TH4.L3 Emerging Spaceborne SAR Instruments and Missions II	TH4.L4 Polarimetric Techniques I	TH4.L5 Estimation and Regression Applications	TH4.L6 Techniques and Applications of Active Microwave Remote Sensing Instruments	TH4.L7 Soil Moisture Remote Sensing	TH4.L8 Space Lidar: Missions, Technologies and Observations II	TH4.L9 Active Airborne Remote Sensing of Forest Ecosystems II	TH4.L10 Agriculture Applications VII	TH4.L11 Models for Radar Applications	TH4.L12 Clouds and Precipitation IV
16:20 - 18:00	TIE Forum: TH4.TIE: GSIS Round Table: Imaging Spectroscopy from an Industry Perspective - State of the Art/Potential/Challenges – Room 200											
17:30 - 22:00	Awards Banquet – AT&T Stadium; Load buses in front of the Omni Fort Worth Hotel from 17:30-18:30.											

IGARSS 2017 at a Glance

Oral Sessions

Friday, July 28												
	Ballroom B	**Ballroom A**	**Ballroom C**	**Room 201 BC**	**Room 203 BC**	**Room 202 CD**	**Room 201 A**	**Room 202 A**	**Room 203 A**	**Room 204 A**	**Room 202 B**	**Room 204 B**
08:00 - 09:40	FR1.L1 Pansharpening Techniques	FR1.L2 Data Management and Systems I	FR1.L3 SAR Polarimetry: Theory and Applications I	FR1.L4 SAR Image Processing and Analysis	FR1.L5 Estimation and Regression Techniques II	FR1.L6 Advances in Remote Sensing and Geospatial Technology for Sustainable Water Resource Management I	FR1.L7 Geographic Information Science I	FR1.L8 GCOM Status I	FR1.L9 Flooding	FR1.L10 Biomass and Monitoring	FR1.L11 Tomography and 3D Mapping I	FR1.L12 Earth Remote Sensing with Small Satellites: Enabling Time Resolved Observations of Earth's Atmosphere from Space
09:40 - 10:40	Poster Sessions & Break											
10:40 - 12:20	FR2.L1 Image Registration and Matching Techniques	FR2.L2 Data Management and Systems III	FR2.L3 SAR Polarimetry: Theory and Applications II	FR2.L4 SAR Imaging Algorithms I	FR2.L5 Denoising and Estimation	FR2.L6 Advances in Remote Sensing and Geospatial Technology for Sustainable Water Resource Management II	FR2.L7 Remote Sensing Big Data and the Internet of Things	FR2.L8 GCOM Status II	FR2.L9 Inland Waters and Vegetation	FR2.L10 Remote Sensing of Forests	FR2.L11 Optical and LIDAR Data for Urban Applications	FR2.L12 Aerosols and Atmospheric Chemistry II
12:20 - 13:40	Lunch											
	Ballroom B	**Ballroom A**	**Ballroom C**	**Room 201 BC**	**Room 203 BC**	**Room 202 CD**	**Room 201 A**	**Room 202 A**	**Room 203 A**	**Room 204 A**	**Room 202 B**	**Room 204 B**
13:40 - 15:20	FR3.L1 Deep Learning using High Resolution Optical Imagery	FR3.L2 Understanding the synergistic use of COSMO-SkyMed and RADARSAT-2	FR3.L3 Advanced Methods for Polarimetric SAR Information Extraction I	FR3.L4 Advances in SAR Instrumentation and Calibration I	FR3.L5 Fusion of SAR and Optical Remote Sensing Data I	FR3.L6 Copernicus Sentinel-1 Mission: Operational Status, Scientific Results and Future Evolution I	FR3.L7 Remote Sensing for Water Management I	FR3.L8 Topography	FR3.L9 Living Environment I	FR3.L10 Monitoring Forests II	FR3.L11 UAV and Airborne Platforms I	FR3.L12 DFW and other Small Weather Radar Networks I
15:20 - 15:50	Break											
15:50 - 17:30	FR4.L1 Deep Learning using Hyperspectral and SAR Imagery	FR4.L2 Ground-based Radar, Lidar, and Optical Systems	FR4.L3 Advanced Methods for Polarimetric SAR Information Extraction II	FR4.L4 Advances in SAR Instrumentation and Calibration II	FR4.L5 Fusion of SAR and Optical Remote Sensing Data II	FR4.L6 Copernicus Sentinel-1 Mission: Operational Status, Scientific Results and Future Evolution II	FR4.L7 Remote Sensing for Water Management II	FR4.L8 Topography, Geology and Geomorphology I	FR4.L9 Living Environment II	FR4.L10 Agriculture Applications VI	FR4.L11 UAV and Airborne Platforms II	FR4.L12 DFW and other Small Weather Radar Networks II
17:30 - 18:00	Closing Ceremony – Ballroom B											
19:00 - 22:00	Rodeo Night at the Stockyards – Load buses in front of the Omni Fort Worth Hotel beginning at 19:00. Rodeo from 20:00 to 22:00.											

IGARSS 2017 at a Glance

Poster Sessions

Monday, July 24			
	Session Code	**Poster Area Name**	**Session Name**
Exhibit Hall B/C 15:20 – 16:20	MOP2.PA	Poster Area A	SAR and InSAR Methods
	MOP2.PB	Poster Area B	Living Environment: Observations and Assessments
	MOP2.PC	Poster Area C	Calibration and Validation of Space-borne Imaging and Radiometer Systems
	MOP2.PD	Poster Area D	Development of Advanced Remote Sensing Instrumentation and its Applications
	MOP2.PE	Poster Area E	Classification Methods
	MOP2.PF	Poster Area F	Target Detection and Unmixing of Hyperspectral Images II
	MOP2.PG	Poster Area G	Change Detection Applications
	MOP2.PH	Poster Area H	Target Detection and Unmixing in Hyperspectral Images I
	MOP2.PI	Poster Area I	Land Use and Land Cover Mapping
	MOP2.PJ	Poster Area J	Snow and Ice I
	MOP2.PK	Poster Area K	Synthetic Aperture Microwave Radiometers I
	MOP2.PL	Poster Area L	Ocean Surface Wind and Wave I

Tuesday, July 25			
	Session Code	**Starting Board Number**	**Session Name**
Exhibit Hall B/C 09:40 - 10:40	TUP1.PA	Poster Area A	SAR Imaging Algorithms I
	TUP1.PB	Poster Area B	Urban and Peri-Urban Area Mapping
	TUP1.PC	Poster Area C	Lidar Data Analysis
	TUP1.PD	Poster Area D	Change Detection Techniques
	TUP1.PE	Poster Area E	Target Identification
	TUP1.PF	Poster Area F	Road and Traffic Detection
	TUP1.PG	Poster Area G	Change Detection in SAR Images II
	TUP1.PH	Poster Area H	Change Detection in Hyperspectral and Multispectral Images II
	TUP1.PI	Poster Area I	SMAP Retrievals and Applications
	TUP1.PJ	Poster Area J	Target Detection and Applications
	TUP1.PK	Poster Area K	Microwave Radiometer Calibration II
	TUP1.PL	Poster Area L	Ocean Surface Wind and Wave II
Exhibit Hall B/C 15:20 – 16:20	TUP2.PA	Poster Area A	SAR Data Processing and Applications
	TUP2.PB	Poster Area B	Differential SAR Interferometry I
	TUP2.PC	Poster Area C	SAR Imaging Techniques
	TUP2.PD	Poster Area D	Image Segmentation
	TUP2.PE	Poster Area E	Deep Networks for Classification
	TUP2.PF	Poster Area F	Ship, Vessel and Spill Detection
	TUP2.PG	Poster Area G	Change Detection and Multitemporal Analysis
	TUP2.PH	Poster Area H	Ocean Surface Remote Sensing
	TUP2.PI	Poster Area I	Soil Moisture Validation
	TUP2.PJ	Poster Area J	Calibration and Validation of Space-borne Remote Sensing Instruments
	TUP2.PK	Poster Area K	Advanced Microwave Instruments
	TUP2.PL	Poster Area L	Ocean Remote Sensing: Techniques and Applications

Authors for the morning poster session should have their posters in place by 8:00, stand by their poster during the 9:40-10:40 morning poster session, and remove their poster by 12:20. Authors for the afternoon poster session should have their posters in place by 13:30, stand by their poster during the 15:20-16:20 afternoon poster session, and remove their poster by 18:20.

IGARSS 2017 at a Glance

Poster Sessions

Wednesday, July 26			
	Session Code	**Starting Board Number**	**Session Name**
Exhibit Hall B/C 09:40 - 10:40	WEP1.PA	Poster Area A	SAR Image Processing
	WEP1.PB	Poster Area B	Remote Sensing for Energy and other Applications
	WEP1.PC	Poster Area C	Calibration in UAV and Spaceborne Platforms
	WEP1.PD	Poster Area D	Hyperspectral Image Classification I
	WEP1.PE	Poster Area E	SAR Classification
	WEP1.PF	Poster Area F	Urban, Artificial Targets
	WEP1.PG	Poster Area G	Image and Data Fusion I
	WEP1.PH	Poster Area H	Ground-based Sensing
	WEP1.PI	Poster Area I	Soil Properties
	WEP1.PJ	Poster Area J	Forest Monitoring by Optical Rradiometry III
	WEP1.PK	Poster Area K	Ocean Temperature and Salinity
	WEP1.PL	Poster Area L	Ocean Monitoring Applications I
Exhibit Hall B/C 15:20 – 16:20	WEP2.PA	Poster Area A	SAR Image Processing and Segmentation
	WEP2.PB	Poster Area B	Differential SAR Interferometry II
	WEP2.PC	Poster Area C	Remote Sensing for Water Management III
	WEP2.PD	Poster Area D	Optical Image Classification
	WEP2.PE	Poster Area E	Target Recognition: Radar
	WEP2.PF	Poster Area F	Target Recognition: Optical
	WEP2.PG	Poster Area G	Image and Data Fusion III
	WEP2.PH	Poster Area H	Microwave Remote Sensing and the Challenges of Radio Frequency Interference
	WEP2.PI	Poster Area I	Forest Monitoring
	WEP2.PJ	Poster Area J	Small Satellite Technology II
	WEP2.PK	Poster Area K	Ice Sheets and Glaciers I
	WEP2.PL	Poster Area L	Ocean Monitoring Applications II

Authors for the morning poster session should have their posters in place by 8:00, stand by their poster during the 9:40-10:40 morning poster session, and remove their poster by 12:20. Authors for the afternoon poster session should have their posters in place by 13:30, stand by their poster during the 15:20-16:20 afternoon poster session, and remove their poster by 18:20.

IGARSS 2017 at a Glance

Poster Sessions

Thursday, July 27			
	Session Code	**Starting Board Number**	**Session Name**
Exhibit Hall B/C 09:40 - 10:40	THP1.PA	Poster Area A	PolSAR Classification: Techniques & Assessments
	THP1.PB	Poster Area B	Differential SAR Interferometry III
	THP1.PC	Poster Area C	Atmospheric Sounding I
	THP1.PD	Poster Area D	Passive Optical Sensors and Calibration
	THP1.PE	Poster Area E	Multispectral/Hyperspectral Image Classification
	THP1.PF	Poster Area F	Land and Environmental Applications of Target Detection
	THP1.PG	Poster Area G	Estimation and Regression I
	THP1.PH	Poster Area H	Microwave Models for Land
	THP1.PI	Poster Area I	Soil Moisture Retrieval and Applications I
	THP1.PJ	Poster Area J	Snow and Ice II
	THP1.PK	Poster Area K	Global Navigation Satellite Systems Reflectometry / GNSS-R Sensors I
	THP1.PL	Poster Area L	Agriculture Applications I
Exhibit Hall B/C 15:20 – 16:20	THP2.PA	Poster Area A	PolSAR Applications
	THP2.PB	Poster Area B	Clouds and Precipitation II
	THP2.PC	Poster Area C	Clouds and Precipitation III
	THP2.PD	Poster Area D	Atmospheric Sounding II
	THP2.PE	Poster Area E	Advanced Techniques for Optical Images
	THP2.PF	Poster Area F	GPR System and Data Processing I
	THP2.PG	Poster Area G	Estimation and Regression II
	THP2.PH	Poster Area H	Microwave Models for Natural Media
	THP2.PJ	Poster Area J	Agriculture Applications IV
	THP2.PK	Poster Area K	Agriculture Applications V
	THP2.PL	Poster Area L	Land Cover Dynamics II

Authors for the morning poster session should have their posters in place by 8:00, stand by their poster during the 9:40-10:40 morning poster session, and remove their poster by 12:20. Authors for the afternoon poster session should have their posters in place by 13:30, stand by their poster during the 15:20-16:20 afternoon poster session, and remove their poster by 18:20.

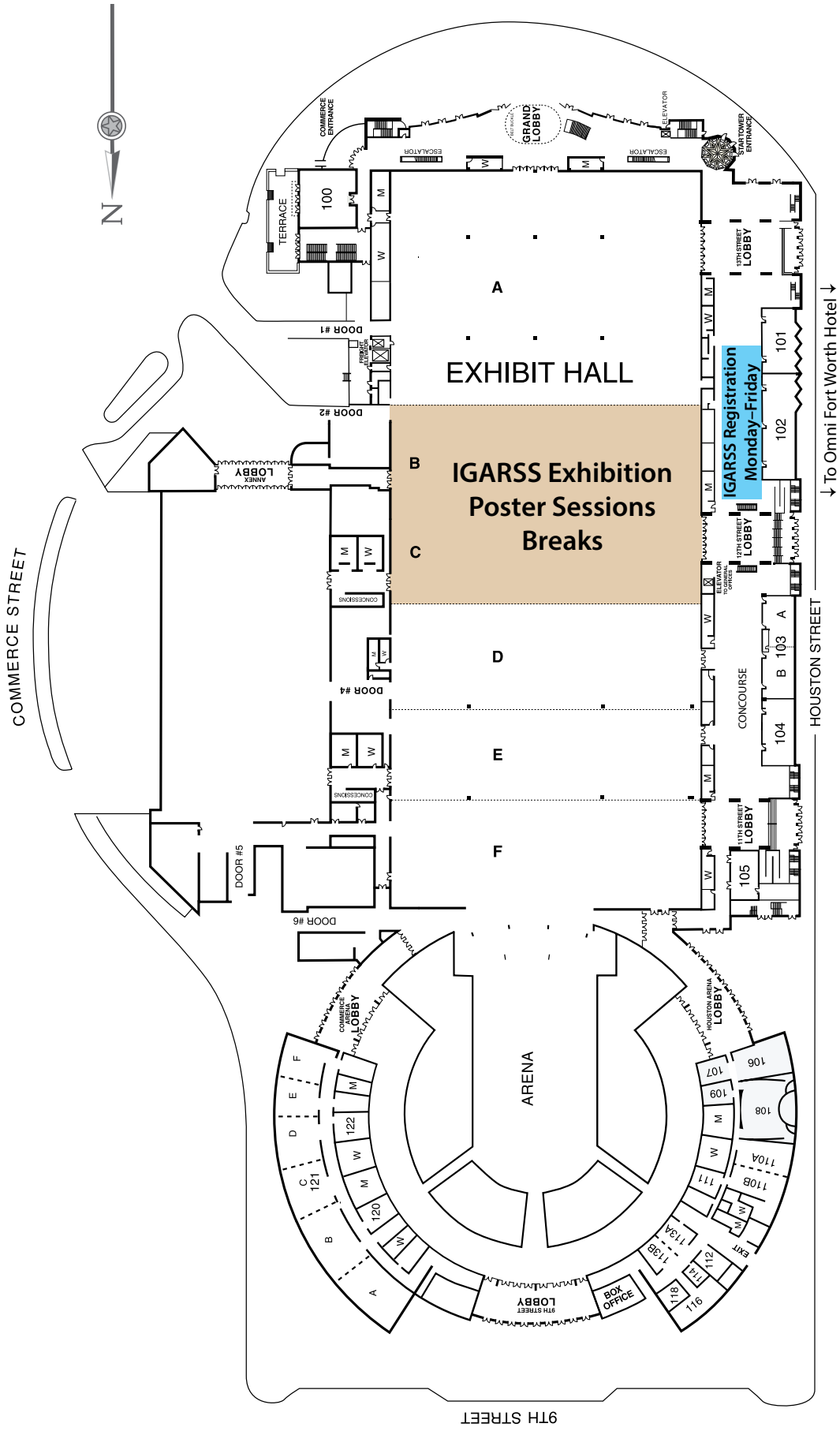
IGARSS 2017 at a Glance

Poster Sessions

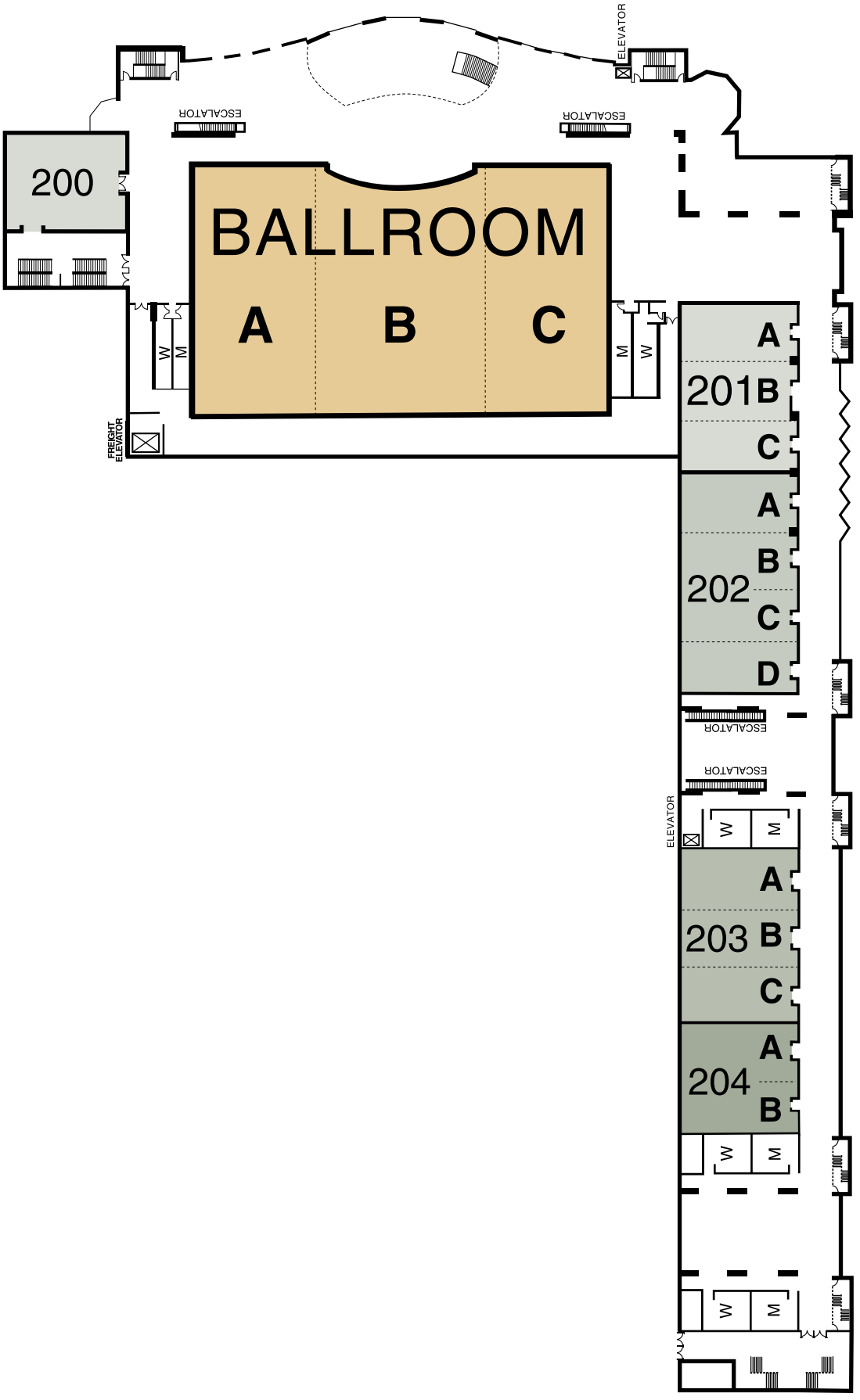
Friday, July 28			
	Session Code	Starting Board Number	Session Name
Exhibit Hall B/C 09:40 - 10:40	FRP1.PA	Poster Area A	Synthetic Aperture Radar Instrumentation and Calibration
	FRP1.PB	Poster Area B	Tomography and 3D Mapping II
	FRP1.PC	Poster Area C	Aerosols and Atmospheric Chemistry I
	FRP1.PD	Poster Area D	Geographic Information Science II
	FRP1.PE	Poster Area E	Geographic Information Science III
	FRP1.PF	Poster Area F	Image and Data Fusion V
	FRP1.PG	Poster Area G	Estimation and Regression III
	FRP1.PH	Poster Area H (Board 1)	Data Management and Systems II
	FRP1.PH	Poster Area H (Board 5)	Data Management, Policy Decisions and Education
	FRP1.PI	Poster Area I	Monitoring Forests I
	FRP1.PJ	Poster Area J	Inland Waters
	FRP1.PK	Poster Area K	Topography, Geology and Geomorphology II
	FRP1.PL	Poster Area L	Remote Sensing Applications in Urban Areas

Authors for the morning poster session should have their posters in place by 8:00, stand by their poster during the 9:40-10:40 morning poster session, and remove their poster by 12:20. Authors for the afternoon poster session should have their posters in place by 13:30, stand by their poster during the 15:20-16:20 afternoon poster session, and remove their poster by 18:20.

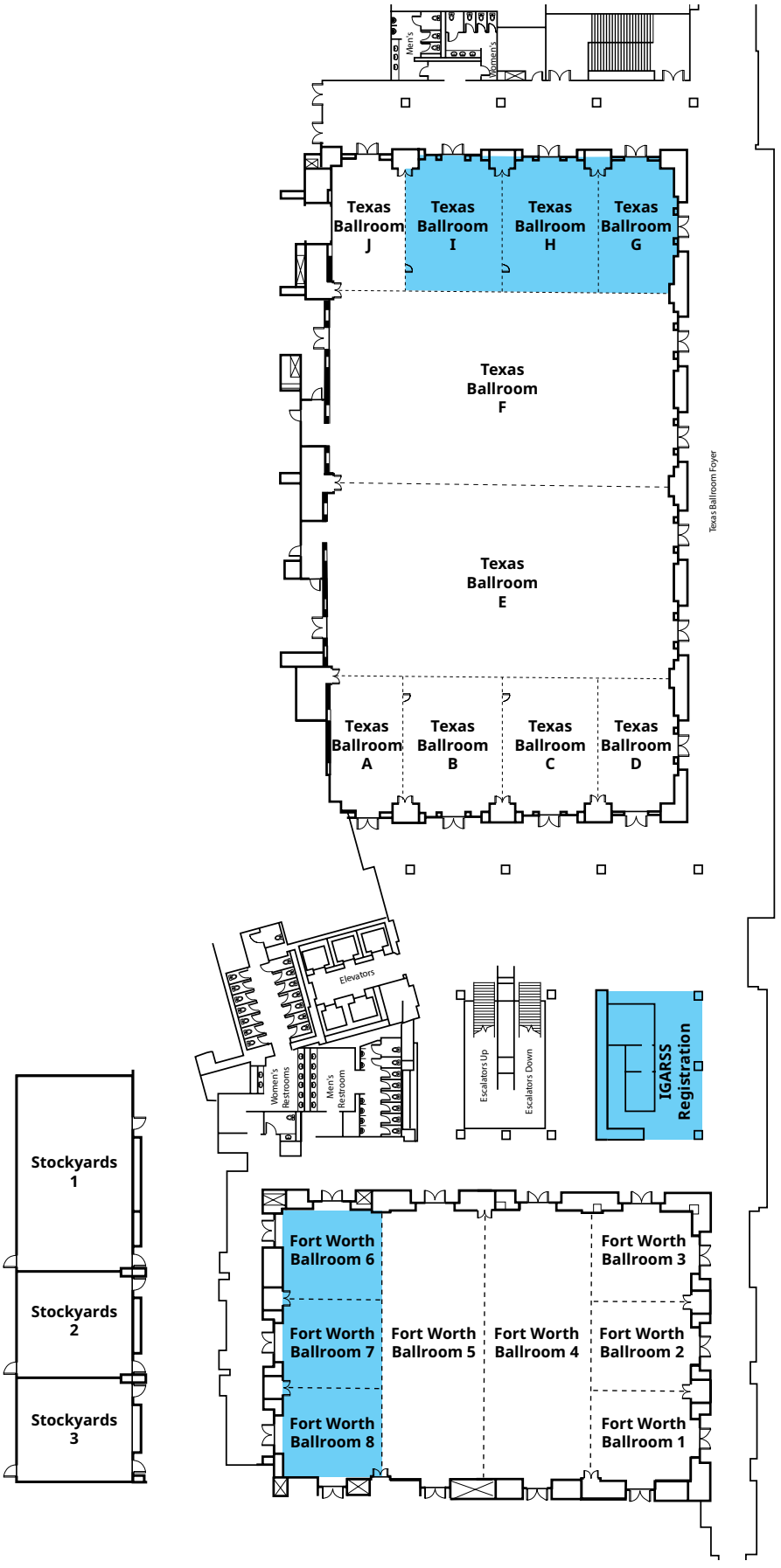
Fort Worth Convention Center — Level 1 / Ground Level



Fort Worth Convention Center — Level 2



Omni Fort Worth Hotel — Level 2



Omni Fort Worth Hotel — Level 3

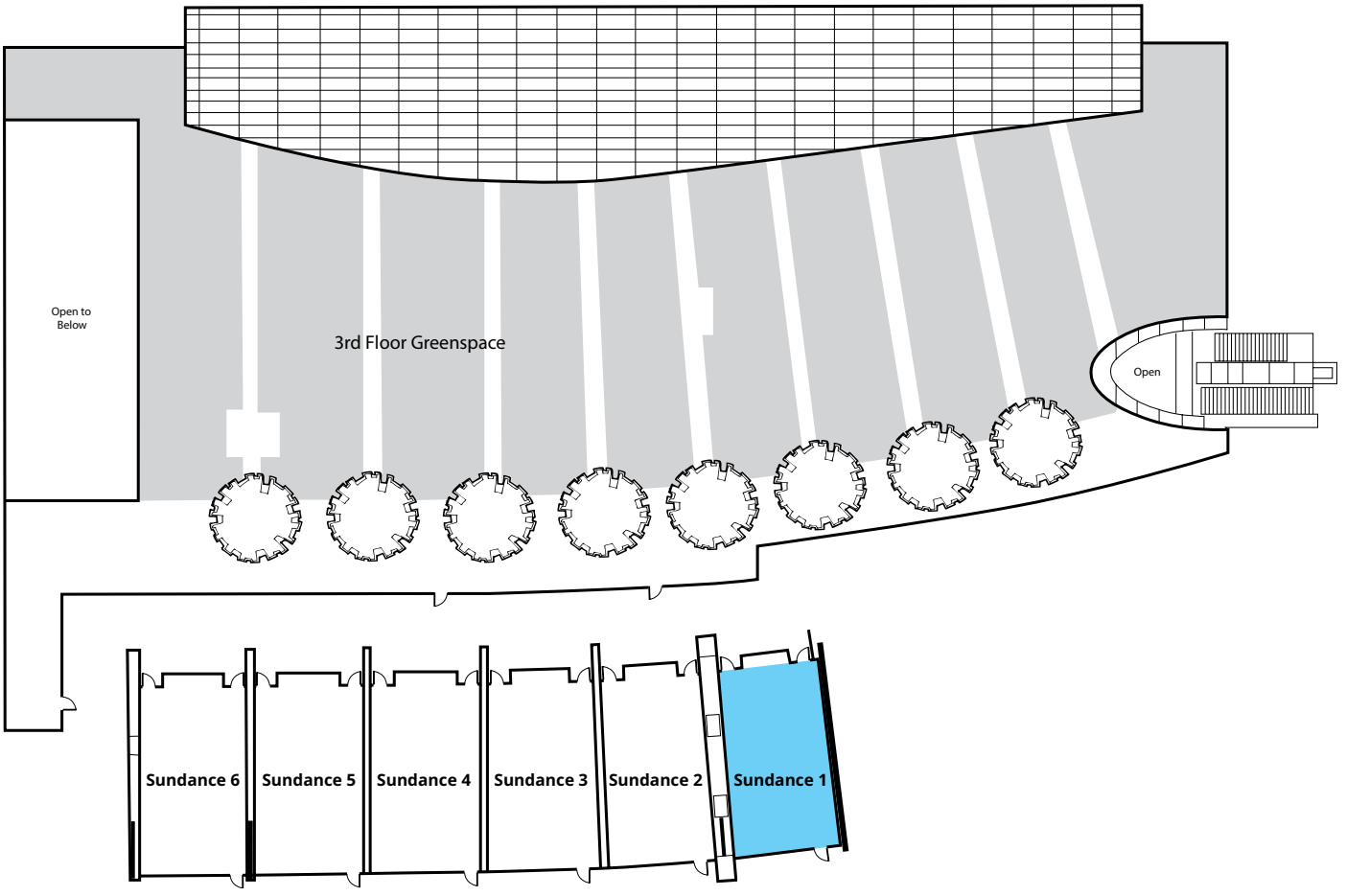
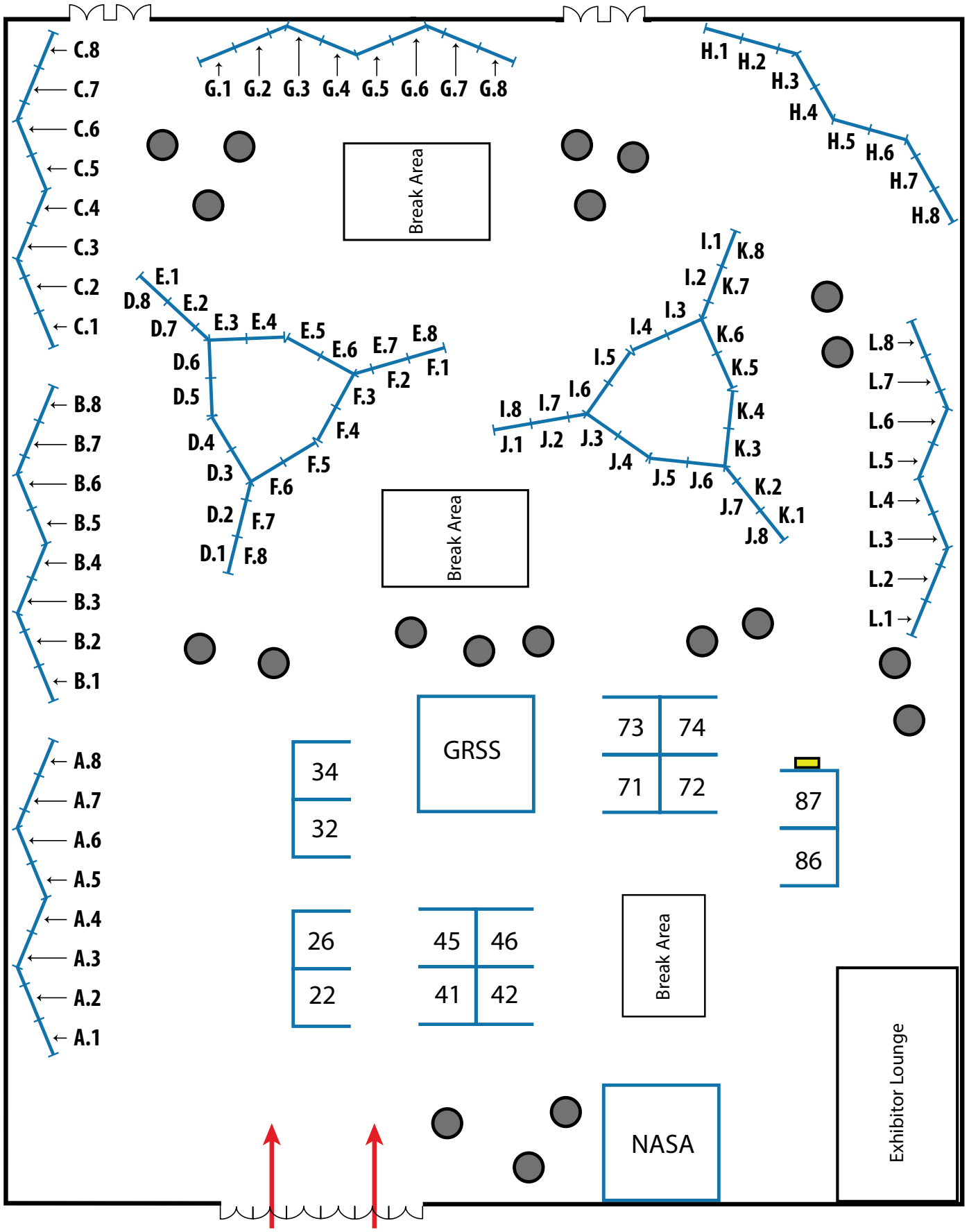


Exhibit Hall B/C — Poster Area Detail



IEEE GRSS Membership

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.

IEEE Societies provide access to current information, opportunities to network with peers, and enhancement of the worldwide value of your profession. IEEE members receive special prices for Society memberships. If you are not an IEEE member, you may wish to join as an Affiliate.

Membership includes

IEEE Geoscience and Remote Sensing Magazine (electronic and digital), IEEE Transactions on Geoscience and Remote Sensing (electronic), IEEE Geoscience and Remote Sensing Letters (electronic), IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing (electronic), and IEEE Geoscience and Remote Sensing Society Digital Library.

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

GRSS membership:

https://www.ieee.org/membership-catalog/productdetail/showProductDetailPage.html?product=MEMGRS029

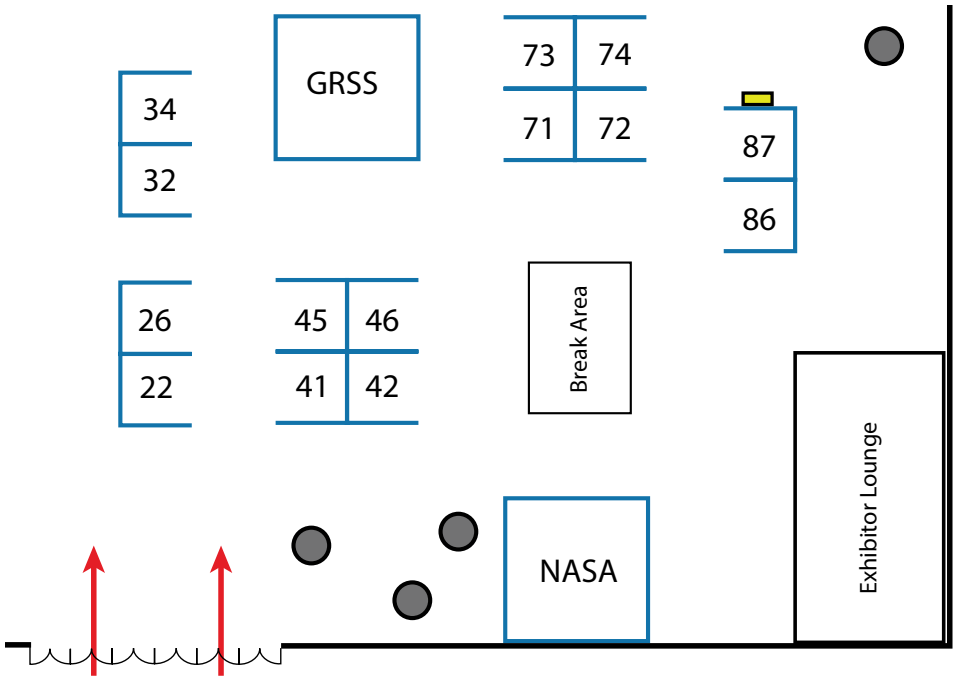
IGARSS 2019

Yokohama, Japan

July 28 – August 2, 2019, PACIFICO Yokohama

Environment and Disasters

Exhibits — Exhibit Hall BC



87	Airborne Imaging, Inc.
42	ASD Inc., a PANalytical company
41	Beijing Piesat Information Technology Co. Ltd
74	BaySpec, Inc.
86	CEOS SEO
GRSS	IEEE Geoscience and Remote Sensing Society
34	Headwall Photonics, Inc.
73	IEEE IGARSS 2018 – (July 22-27)
71	JAXA (Japan Aerospace Exploration Agency)
NASA	NASA
26	PASCO Corporationv
22	PCI Geomatics
72	Southwest Research Institute
46	ST Electronics (Satcom & Sensor Systems) Pte Ltd
32	Taylor and Francis Group
45	The Aerospace Corporation

The exhibits are located in the Fort Worth Convention Center, Exhibit Hall B/C, located on the ground level near the Houston Street entrances.

Exhibition opening hours are:

Tuesday, July 25 ..... 09:00 – 17:00
Wednesday, July 26..... 09:00 – 17:00
Thursday, July 27 ..... 09:00 – 17:00
Friday, July 28..... 09:00 – 12:00

Exhibitors

	Airborne Imaging, Inc. We provide airborne sensor testing platforms. http://www.airborneimaging.net/
ASD Inc. A PANalytical Company PANalytical	ASD Inc., a PANalytical company ASD Inc., a PANalytical company, is the global leader in remote sensing and hyperspectral measurement solutions, providing unparalleled ground truthing results. Our rugged, portable FieldSpec® 4 line of spectroradiometers provides the freedom to rapidly collect high-quality spectra in the field. Trusted by top research experts at thousands of universities and research institutions, ASD's full-range spectrometers are used in more than 70 countries. http://www.asdi.com/
BaySpec	BaySpec, Inc. BaySpec, Inc., founded in 1999 with 100% manufacturing in the USA (San Jose, California), is a vertically integrated spectral sensing company. The company designs, manufactures and markets advanced spectral instruments, including UV-VIS-NIR-SWIR spectrometers, benchtop and portable NIR/SWIR and Raman analyzers, confocal Raman microscopes, hyperspectral imagers, mass spectrometers, and OEM spectral engines and components, for the R&D, biomedical, pharmaceuticals, chemical, food, semiconductor, health monitoring, human & animal medical devices, and the optical telecommunications industries. http://www.bayspec.com/
航天宏图	Beijing Piesat Information Technology Co. Ltd Beijing Piesat founded in 2008 is a high- tech enterprise that specializes in the search and application of satellite technology (Remote sensing satellite and Navigation satellite). Taking the advantage of China's Aerospace Technology,Beijing Piesat makes providing professional services and applications of domestic satellites as its own mission, consequently, it has independently developed products of PIE(Pixel Information Expert)offering the customers the whole solutions of Spatial information application. http://www.piesat.cn/en/index.html
CEOS	CEOS SEO The Systems Engineering Office of the CEOS Organization http://www.ceos.org/
IEEE GRSS	IEEE Geoscience and Remote Sensing Society http://grss-ieee.org/

Headwall	Headwall Photonics, Inc. Headwall is a leader in spectral imaging solutions for remote sensing missions. Products include both multispectral and hyperspectral sensors that provide a wide field of view, very high SNR, and aberration-corrected performance in an all-reflective, concentric design that results in instruments that deliver scientific-grade data in small, rugged, and lightweight packages. Spectral ranges include VNIR, NIR, SWIR, and others. New for 2017 is Nano-Multispec (for precision agricultural missions), and a fluorescence imaging sensor that targets the weak but crucial oxygen bands present between 670-780nm. Headwall's sensors are in use today aboard LEO satellites, manned aircraft, and UAVs. Sensors are also suitable for ground deployment in pan-and-tilt or point-and-stare configurations. Application areas include precision agriculture, geological research, climatology, infrastructure inspection, and more. http://www.headwallphotonics.com/
	IEEE IGARSS 2018 Valencia, Spain, July 23-27, 2018 http://igarss2018.org/
JAXA	JAXA (Japan Aerospace Exploration Agency) http://www.jaxa.jp/
NASA	NASA (National Aeronautics and Space Administration) http://ww.nasa.gov/
PASCO World's Leading Geospatial Group	PASCO CORPORATION PASCO is constantly in pursuit of the most advanced technologies of geospatial information. We are distributing JAXA's ALOS-2 PALSAR-2 data to global market. http://en.alos-pasco.com/
PCI GEOMATICS	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 Geomatica® - a complete and integrated desktop software that features tools for remote sensing, digital photogrammetry, geospatial analysis, map production, mosaicking and more. Geomatica® 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. PCI Geomatics is also the developer of the GeoImaging Accelerator (GXL), an automated, high performance, Graphics Processor (GPU) system for processing terabytes of imagery data. PCI Geomatics is a privately held Canadian corporation headquartered in Toronto, Ontario and Gatineau, Quebec with worldwide facilities located in the United States; Arlington and Beijing, China. http://www.pcigeomatics.com/
SwRI	Southwest Research Institute Southwest Research Institute® (SwRI®) is an independent, nonprofit, applied research and development organization. SwRI is an internationally recognized center for basic space science research and for the development of spacecraft instrumentation and avionics systems. We have participated in a number of NASA and European Space Agency missions and currently lead the Juno mission to Jupiter, the New Horizons mission, and the science investigation for the Magnetospheric Multiscale (MMS) mission. As the spacecraft provider and mission operations lead for the 8-satellite Cyclone Global Navigation Satellite System (CYGNSS), NASA's first Earth Venture mission, we have expanded our space-related activities into the area of microsatellite design, development, fabrication, and operations. SwRI is also a leader in lighter-than-air (LTA) technology, performing design, analysis, development, and testing of LTA autonomous vehicles for diverse military and scientific applications. More than 2,600 employees work in two million square feet of laboratories, workshops, and offices at the main facility at San Antonio, Texas. Engineers, scientists, analysts, and technologists perform contract work for government and industrial clients worldwide. http://www.swri.org/
ST Electronics (Satcom & Sensor Systems)	ST Electronics (Satcom & Sensor Systems) Pte Ltd AgilSpace is the signature brand for satellite and remote sensing products and services offered by ST Electronics (Satcom & Sensor Systems) Pte Ltd, a wholly owned subsidiary of ST Electronics. AgilSpace focuses on GeoServices, satellite and related subsystem solutions. GeoServices - provide high data availability and responsive geospatial and remote sensing services. Satellite Solutions - design, develop and manufacture small satellites to help meet customers' satellite mission objectives. Subsystem Solutions - develop and supply cost effective and modular space-qualified products. http://www.agilspace.com/
Taylor & Francis Group	Taylor and Francis Group CRC Press is a premier global publisher of science, technology, and medical resources. Our textbooks and informational resources in electrical engineering, computing, and technology are all trusted by expert authors and provide the professional community with essential knowledge for innovation and growth in their fields. Please stop by our booth to learn more about our latest products and to claim an exclusive conference discount. https://www.crcpress.com/engineering-electrical
AEROSPACE	The Aerospace Corporation The Aerospace Corporation has provided independent technical and scientific research, development, and advisory services to national security space (NSS) programs since 1960. We operate a federally funded research and development center (FFRDC) for the United States Air Force's Space and Missile Systems Center (SMC) and the National Reconnaissance Office (NRO). We also apply more than 55 years of space systems experience to projects in the national interest for civil agencies like NASA, the National Oceanic and Atmospheric Administration, commercial companies, universities, and international organizations. http://aerospace.org/

Location: Fort Worth Convention Center, Ballroom ABC

Opening and Awards Session

08:45 **Welcome to IGARSS 2017**
Saibun Tjuatja, General Co-Chair

08:50 **Welcome from Mayor of Fort Worth**
Representative from City of Fort Worth

09:00 **Welcome from IEEE**
Marina Ruggieri, Director & Vice President, IEEE Technical Activities

09:10 **Welcome from IEEE GRSS Society**
Adriano Camps, President, IEEE Geoscience and Remote Sensing Society

09:20 **Major Awards and Recognitions**
Master of Ceremony: Werner Wiesbeck
2017 IEEE Fellow
2017 IEEE GRSS Education Award
2017 IEEE GRSS Outstanding Service Award
2017 IEEE GRSS Distinguished Achievement Award

10:00 **Coffee Break**

Plenary Session

10:30 **Welcome and Introduction**
David Kunkee, General Co-Chair

10:35 **Presentation by Michael Freilich**

10:55 **Presentation by Huadong Guo**

11:15 **Presentation by Maurice Borgeaud**

11:35 **Presentation by Barbara Ryan**

Symposium Introduction

11:55 **IGARSS 2017 Technical Program**
Joel Johnson and Kun-Shan Chen, Technical Program Co-Chairs

12:10 **IGARSS 2017 TIE Forum**
Boon Lim, TIE Forum Chair

12:15 **Closing remarks**
Saibun Tjuatja and David Kunkee, General Co-Chairs

12:20 **Lunch**

Plenary Speakers

Michael H. Freilich
Director of NASA's Earth Science Division

Michael H. Freilich is responsible for all of NASA's Earth observing flight missions, Earth-focused research and analysis, applied sciences, and Earth-focused technology development activities. Prior to joining NASA in November 2006, he was a Professor and Associate Dean in the College of Oceanic and Atmospheric Sciences at Oregon State University, and from 1983 to 1991 he was a Member of the Technical Staff at the Jet Propulsion Laboratory. Freilich received his Ph.D. in Oceanography from Scripps Institution of Oceanography in 1982.

Dr. Freilich served as Project Scientist and Mission Principal Investigator for NASA's NSCAT, QuikSCAT, and SeaWinds/ADEOS-2 scatterometer satellite missions in the 1990s and 2000s. He led the NASA Ocean Vector Winds Science Team from 1984 through 2005, and was a member of the QuikSCAT, SeaWinds, and Aqua/AMSR Validation Teams, as well as the NASDA (now JAXA) ADEOS-2 Science Team. He has served on many NASA program and project review boards, as well as on the U.S. National Research Council's (NRC) Ocean Studies Board, Space Studies Board, and from 2001 to 2005 as Chair of the NRC Committee on Earth Studies.

Huadong Guo
Academician and Professor
Chinese Academy of Sciences Institute of Remote Sensing and Digital Earth

GUO Huadong is a Professor of the Chinese Academy of Sciences (CAS) Institute of Remote Sensing and Digital Earth (RADI), an Academician of CAS, a Foreign Member of Russian Academy of Sciences (RAS), and a Fellow of The World Academy of Sciences (TWAS). He presently serves as President of the International Society for Digital Earth (ISDE), Director of the International Center on Space Technologies for Natural and Cultural Heritage (HIST) under the Auspices of UNESCO, Director of the CAS-TWAS Center of Excellence on Space Technology for Disaster Mitigation (SDIM), and Editor-in-Chief of the International Journal of Digital Earth. He served as President of ICSU Committee on Data for Science and Technology (CODATA). He has over 30 years of experience in Earth observation, specializing in radar remote sensing and Digital Earth science. He has been Principle Investigator for over 30 major national projects in China, and Principle Investigator for 7 international radar remote sensing projects. Prof. Guo has published more than 400 papers and sixteen books, and is the principal awardee of sixteen domestic and international prizes.

Maurice Borgeaud
Head, ESA Earth Observation Department of Science, Applications, and Future Technologies (EOP-S)

Maurice Borgeaud earned an Engineer Degree from EPFL, Lausanne, and a Ph.D. Degree (1987) from the Massachusetts Institute of Technology. He worked for the German Aerospace Agency (DLR) and the European Space Agency (ESA), spent a year at NASA-JPL, was affiliated with the Swiss Space Office, and was Director of the Space Center at EPFL. He also was appointed Chairman of the ESA Programme Board on Earth observation during the period 2008-2010. Since 2011, Maurice Borgeaud works again for ESA as Head of the Department dealing with science, applications, climate, and future technologies in the Earth Observation Directorate.

M. Borgeaud is a Fellow of the IEEE and is an associate Editor for the "IEEE Transactions on Geoscience and Remote Sensing". He has authored and co-authored more than 100 publications in refereed journals or conference proceedings.

Barbara Ryan
GEO Secretariat Director

Barbara J. Ryan, is the Secretariat Director of the Intergovernmental Group on Earth Observations (GEO) in Geneva, Switzerland. GEO is comprised of nearly 100 Member States, the European Commission, and 90 international scientific and technical partner organizations. Previously Ryan was an Associate Director for Geography at the USGS, and in 2008 became Director of the World Meteorological Organization's Space Programme.

Under GEO leadership, millions of satellite images and other Earth observation data have been made available to the general public at no charge, allowing scientists, planners and policy makers to make better-informed decisions on problems that transcend political boundaries. GEO works to address critical issues in agriculture, biodiversity, climate change, disaster planning, energy, health and water.

Organizing Committee

Saibun Tjuatja
The University of Texas at Arlington

David Kunkee
The Aerospace Corporation

General Co-Chairs

Joel T. Johnson
The Ohio State University

Kun-Shan Chen
CAS Institute of Remote Sensing and Digital Earth

Technical Program Committee Co-Chairs

Jonathan Bredow
The University of Texas at Arlington
Finance Chair

Lori Mann Bruce
Mississippi State University
Outreach and Education Chair

Boon-Hwang Lim
Jet Propulsion Laboratory
Technology, Industry, and Education Forum Chair

Shannon Brown
Jet Propulsion Laboratory
Tutorials Chair

Ioannis Schizas
The University of Texas at Arlington
Local Arrangements Chair

Mingyu Lu
West Virginia University
Publications Chair

Jeremy Agor
The University of Texas at Arlington
Publicity and Exhibits Chair

Billene Cannon
Conference Management Services, Inc.
Conference Manager

Technical Program Committee

Theme Coordinators

Data Analysis Methods (Optical, Multispectral, Hyperspectral, SAR)	Mahta Moghaddam	A.1 - Electromagnetic Modelling A.4 - SAR Imaging Techniques A.8 - Subsurface Sensing / Ground Penetrating Radar
	Irena Hajnsek	A.2 - SAR Interferometry: Along and Across A.3 - Differential SAR Interferometry A.5 - POL and POLInSAR A.6 - Bistatic and digital beamforming SAR A.7 - Tomography and 3D mapping
	Jose Moreno	A.9 - Feature Extraction and Reduction A.10 - Image Segmentation A.11 - Object Detection and Recognition A.12 - Classification and Clustering
	Lorenzo Bruzzone	A.13 - Estimation and Regression A.14 - Change Detection and Multi-Temporal Analysis A.15 - Target Detection and Unmixing A.16 - Image and Data Fusion A.17 - Geographic Information Science
Cryosphere	Jiancheng Shi	C.1 - Snow Cover C.2 - Ice Sheets and Glaciers C.3 - Sea Ice C.4 - Permafrost
Data Management and Education	Josée Lévesque	D.1 - Data Management and Systems D.2 - Remote Sensing Data and Policy Decisions D.3 - Education and Remote Sensing
Land Applications	David Goodenough	L.1 - Land Use Applications L.2 - Land Cover Dynamics L.3 - Forest and Vegetation: Application and Modelling L.4 - Forest and Vegetation: Biomass and Carbon Cycle L.5 - Agriculture
	Tom Jackson	L.6 - Urban and Built Environment L.7 - Topography, Geology and Geomorphology L.8 - Soils and Soil Moisture L.9 - Wetlands L.10 - Inland Waters
Atmosphere Applications	Al Gasiewski	M.1 - Precipitation and Clouds M.2 - Numerical Weather Prediction and Data Assimilation M.3 - Atmospheric Sounding M.4 - Aerosols and Atmospheric Chemistry
Oceans	Simon Yueh	O.1 - Ocean Biology (Color) and Water Quality O.2 - Ocean Surface Winds and Currents O.3 - Ocean Temperature and Salinity O.4 - Coastal Zones O.5 - Ocean Altimetry
Mission, Sensors and Calibration	Sidharth Misra	S.1 - Satellite Missions S.5 - Microwave Radiometer Instruments and Calibration
	Irena Hajnsek	S.3 - SAR Instrument and Calibration
	Adriano Camps	S.2 - Small Satellite Technology S.4 - Scatterometer, Cloud and Rain Radar S.6 - GNSS-R Sensors S.7 - Lidar Sensors
	Paolo Gamba	S.8 - Passive Optical, Hyperspectral Sensors and Calibration S.9 - UAV and Airborne Platforms
	Joel Johnson	S.10 - Ground based Systems
Special Theme: International Cooperation for Global Awareness	Joel Johnson	ST.1 - Missions or activities involving international cooperation ST.2 - Emerging industry remote sensing activities ST.3 - Remote sensing for energy applications (solar, wind, subsurface) ST.4 - Remote sensing and the internet of things
	Jiancheng Shi	ST.5 - Remote sensing and our living environment ST.6 - Water resource management
Invited Sessions	Bertrand Le Saux, Devis Tuia	I.22 - IEEE GRSS Data Fusion Contest
Student Paper Competition	Xiuping Jia	All

Session Organizers

Tom Ainsworth
William J. Blackwell
Francesca Bovolo
Shannon Brown
Lori Mann Bruce
Lorenzo Bruzzone
Adriano Camps
Michael Cathcart
Chandrasekar V Chandra
Paul Chang
Bruce Chapman
Kun-shan Chen
Andreas Colliander
Lorenzo Crocco
Curt Davis
Paolo de Matthaeis
Fabio Dell'Acqua
Yves-Louis Desnos
Qian Du
Surya Durbha
Bill Emery
Paolo Ferrazzoli
Gianfranco Fornaro
Paolo Gamba
Al Gasiewski
David Goodenough
Irena Hajnsek
Martti Hallikainen
Scott Hensley
Akira Hirose
Tom Jackson
Xiuping Jia
Joel Johnson
Jasmeet Judge
John Kerekes
Duk-jin Kim
David Kunkee
David M. Le Vine
Josée Lévesque
Peijun Li
Shutao Li
Xiaofeng Li
Tom Lukowski
Animesh Maitra Maitra
Francesco Mattia
Sidharth Misra
Mahta Moghaddam
Alberto Moreira
Jose Moreno
Gabriele Moser
Andreas Mueller
Son Nghiem
Ferdinando Nunziata
Cindy Ong
Fabio Pacifici
Mario Parente
Nazzareno Pierdicca
Antonio Plaza
Hampapuram Ramapriyan
Steven C. Reising
Paul Rosen
Helmut Rott
Christopher Ruf
Kamal Sarabandi
Motoyuki Sato
Jiancheng Shi
Masanobu Shimada
Gail Skofronick-Jackson
Jose A. Sobrino
Salvatore Stramondo
Saibun Tjuatja
Ridha Touzi
Leung Tsang
Haipeng Wang
Fuzhong Weng
Marwan Younis
Simon Yueh

Invited Session Organizers

Mike Abrams
Tom Ainsworth
Peter Baumann
Shannon Brown
Lori Mann Bruce
Adriano Camps
Changyong Cao
Estel Cardellach
Stéphane Chalifoux
Chandrasekar V Chandra
Paul Chang
nesrine chehata
Kun-shan Chen
Clara Chew
Maria Paola Clarizia
Andreas Colliander
Malcolm Davidson
Paolo de Matthaeis
Carlos Roberto de Souza Filho
Yves-Louis Desnos
Dara Entekhabi
Lola Fatoyinbo
Raul Feitosa
Paolo Gamba
Feng Gao
Jams Garrison
Al Gasiewski
Charles K Gatebe
Scott Gleason
Mitchell Goldberg
Robert Green
Irena Hajnsek
Dorothy Hall
Martti Hallikainen
Uta Heiden
Paul Hwang
Tom Jackson
Yufang Jin
Jasmeet Judge
John Kerekes
Edward Kim
Raymond F. Kokaly
David Kunkee
Bertrand Le Saux
Jong-Sen Lee
Josée Lévesque
Boon Lim
Sanghun Lim
Fabrizio Lombardini
Carlos Lopez Martinez
Emmanuel Maggiori
Clement Mallet
Anthony Mannucci
Gary McWilliams
Elizabeth M. Middleton
Anthony Milne
Sidharth Misra
Alberto Moreira
Gabriele Moser
Andreas Mueller
Cindy Ong
Batuhan Osmanoglu
William Perrie
Anna Rita Pisani
Pierre Potin
Steven C. Reising
Marc Rodriguez-Cassola
Roland Romeiser
Stanley Rotman
Michael Schmitt
Dong-Jun Seo
Jiancheng Shi
Masanobu Shimada
Haruhisa Shimoda
Upendra Singh
Gail Skofronick-Jackson
Yuliya Tarabalka
Trevor Taylor
James Theiler
Ridha Touzi
Devis Tuia
Georgios Tzeremes
Ivan E. Villalon-Turrubiates
Jeffrey Walker
Manabu Watanabe
Xiaoxiong Xiong
Marwan Younis
Peng Yue
Simon Yueh
Biao Zhang
Yu Zhang
Xiao Xiang Zhu

Reviewers

Riadh Abdelfattah
Amr AbdElrahman
Michael J. Abrams
Aria Abubakar
Mohammad Abuzar
James G Acker
Nico Adam
Donald Adjeroh
Piyush Agram
Bruno Aiazzi
Tom Ainsworth
Ruzbeh Akbar
Md. Jaleel Akhtar
Selim Aksoy
Enner Alcantara
Thomas K Alexandridis
Carmelo Alonso-Jimenez
Werner Alpers
Jesus Alvarez-Mozos
Ziad Aly
Amen Al-Yaari
Shrinidhi Ambinakudige
Eyal Amitai
Oleg Antropov
Daniela Arnold Tisot
Mohamad M Awad
Natalia Ayuso
Markus Bachmann
Ramprasad Balasubramanian
Luca Baldini
Jerrell Ballard
Marco Balsi
Ulrich Balss
Richard Bamler
Yifang Ban
Abdou Bannari
Shaowu Bao
Teresa Barata
Adrian Barb
Arpad Barsi
Annett Bartsch
Maria Libera Battagliere
Alexandre Baussard
Yakoub Bazi
Jón Atli Benediktsson
Jérôme Benveniste
Sergi Bermejo
Monique Bernier
Yannick Berthoumieu
Rishikesh Bharti
Avik Bhattacharya
Wietske Bijker
Rajat Bindlish
Jose Bioucas Dias
Simone Bircher
William Blake
Philippe Blondel
Lionel Bombrun
Xavier Bosch-Lluis
Ada Vittoria Bosisio
Francesca Bovolo
Hans Martin Braun
Johannes Breidenbach
Helko Breit
Fábio Marcelo Breunig
Benjamin Bright
Xavier Briottet
Pietro Alessandro Brivio
Joshua Broadwater
Luca Brocca
Marco Brogioni
Antoni Broquetas
Gary Brown
Ludovic Brucker
Lorenzo Bruzzone
Christopher Buck
Joseph Buckley
Alexander Bucksch
Alessandra Budillon
Maria Budzynska
Mariko Burgin
Sylvie Buteau
James Butler
François Cabot
Pedro Cabral
Guoyin Cai
Florin Caldararu
Todd Caldwell
Antonio Caetano Caltabiano
Adriano Camps
Changyong Cao
Ying Cao
Claude Cariou
John Carranza
Gianni Casonato
Francesco Casu
Delphine Cerutti-Maori
Sabine Chabrillat
Debashish Chakravarty
Stéphane Chalifoux
Steven Chan
Chandrasekar V Chandra
Yang-Lang Chang
Jocelyn Chanussot
Laetitia Chapel
Bruce Chapman
R.S. Chatterjee
Tao Che
Kacem Chehdi
Chi-Chih Chen
Chi-Hau Chen
Chuntao Chen
Erxue Chen
Fang Chen
Gang Chen
Jin Chen
Jingming Chen
Keming Chen
Kun-shan Chen
Liangfu Chen
Shu-Ching Chen
Xuehong Chen
Yushi Chen
Zhongxin Chen
Tao Cheng
Shao-Shan Chiang
Jeganathan Chockalingam
Florent Christophe
Hean-Teik Chuah
Yi-Ching Chung
Paolo Cipollini
Maria Paola Clarizia
Josep Closa Soteras
Craig Coburn
Rene R. Colditz
Andreas Colliander
Ignasi Corbella
Lacina Coulibaly
Fabio Covello
Lorenzo Crocco
Fabrizio Cuccoli
Juan Cuenca
Xiai Cui
Mark Cutler
Mohammed Dabboor
Mauro Dalla Mura
Sylvie Daniel
Andreas Danklmayer
Mihai Datcu
Corine Davids
B. S. Daya Sagar
Giovanni De Amici
André de Andrade Bindilatti
Paolo de Matthaeis
Roger De Roo
Patricia de Rosnay
Carlos Roberto de Souza Filho
Francesco De Zan
Monique Dechambre
John Degnan
Fabio Del Frate
Fabio Dell'Acqua
Silvana Dellepiane
Begum Demir
Francois Demontoux
Leonard Denise
Chris Derksen
Benjamin Deschamps
Marco Diani
Xiaoli Ding
Emmanuel Dinnat
Xiaolong Dong
Jefersson Alex Dos Santos
Joao Roberto dos Santos
Anthony Paul Doulgeris
David Dowgiallo
Jinyang Du
Peijun Du
David Dubois
Claude Duguay
Surya Durbha
Steve Durden
Guido D'Urso
Naoto Ebuchi
Michael Eineder
Semih Ekercin
Hosam El-Ocla
Cihan Erbas
Glouagen Erwan
Hong Tat Ewe
Hongliang Fang
Gordon Farquharson
Thomas Farr
Mathieu Fauvel
Nan Feng
Jesús Fernández Gálvez
Yolanda M. Fernandez-Ordoñez
Giampaolo Ferraioli
Paolo Ferrazzoli
Alessandro Ferretti
Laurent Ferro-Famil
Eric J. Fielding
Jens Fischer
Dana Floricioiu
Nicolas Floury
Alexander Fore
Gianfranco Fornaro
Michael Förster
Samuel Foucher
Stephen Frasier
Othmar Frey
Richard Frey

Kiyotaka Fujisaki
Tania G D Casal
Todd Gaier
Paolo Gamba
Lianru Gao
Qingzhu Gao
Jams Garrison
Andrea Garzelli
Rudiger Gens
Georgi Georgiev
Dirk Geudtner
Christoph Gierull
Fanny Girard-Ardhuin
Davide Giudici
Scott Gleason
Richard Gloaguen
Alvin Goh
Kalifa Goïta
Consuelo Gonzalo-Martin
Tristan Goulden
Jim Gower
Manuel Grana
Haiyan Guan
Lei Guan
Guo Guangmeng
Stephane Guillaso
Huadong Guo
Jianping Guo
Barry N. Haack
Irena Hajnsek
Dorothy Hall
Mryka Hall-Beyer
Martti Hallikainen
Xianjun Hao
Mohammed Imamul Hassan Bhuiyan
Abdelatif Hassini
Liming He
Uta Heiden
Dennis Helder
Michael Henschel
Scott Hensley
Ross Hill
Murakami Hiroshi
Benjamin Holt
Yoshiaki Honda
Liang Hong
Wen Hong
Ye Hong
Peter Hoogeboom
Brian Hornbuckle
Jochen Horstmann
Kohtaro Hosoda
Stephen Howell
Baoxin Hu
Yongxiang Hu
Zhuowei Hu
Jingfeng Huang
Shaowu Huang
Weimin Huang
Xin Huang
Zhi Huang
Heinrich Huehnerfuss
Chih-Cheng Hung
Chunlei Huo
Toshiaki Ichinose
Eastwood Im
Keiji Imaoka
Ryoichi Imasu
Pasquale Imperatore
Michael Inggs
Antonio Iodice
Flavio Iturbide-Sanchez
Akira Iwasaki
Tom Jackson
Frederic Jacob
Sermsak Jaruwatanadilok
Byeungwoo Jeon
Gensuo Jia
Sen Jia
Xiuping Jia
Lingmei Jiang
Juan C. Jimenez-Munoz
Shuanggen Jin
Xiaoying Jin
Joel Johnson
Lee F. Johnson
Inge G.C. Jonckheere
Alicia T. Joseph
Andreea Julea
Arto Kaarna
Xudong Kang
Konstantinos Karantzalos
N. Gökhan Kasapoglu
Akira Kato
Kaan Sevki Kavak
Taskin Kavzoglu
Martin Keller
John Kerekes
Michael Kern
Stefan Kern
Yann Kerr
Siri Jodha S Khalsa
Duk-jin Kim
Hiroshi Kimura
Jacqueline Kohn
Nickolai Kolev
Gerhard Krieger
Arlin Krueger
Jun-ichi Kudoh
Manoj Kumar Kukreja
Krzysztof Kulpa
Raj Kumar
David Kunkee
Klaus Kunzi
Tatiana M. Kuplich
Mehmet Kurum
Nataliia Kussul
Andy Kwarteng
Mohand Lagha
William Lahoz
Rubens Augusto Camargo Lamparelli
Giovanni Laneve
Roger Lang
Allen Larar
Marco Lavalle
Daniel Lavigne
Minda Le
Cedric Le Bastard
Bertrand Le Saux
Thuy Le Toan
David M. Le Vine
Jong-Sen Lee
Ken Yoong Lee
Kwangjae Lee
Seung-Kuk Lee
Sebastien Lefevre
Justin Legarsky
Susanne Lehner
Liping Lei
Josée Lévesque
Gang Li
Guoqing Li
Heng-Chao Li
Jiaojiao Li
Jonathan Li
Jun Li
Kun Li
Li Li
Peijun Li
Qi Li
Shutao Li
Xiaofeng Li
Xiaoming Li
Xin Li
Xinwu Li
Xuanli Li
Yuanxiang Li
Yunsong Li
Zhao-Liang Li
Zhaoqin Li
Cunren Liang
Liang Liao
Wenzhi Liao
Renata Libonati
Veraldo Liesenberg
Boon Lim
Hwee San Lim
K S Lim
Chinsu Lin
Feng Ling
Yuei-An Liou
Jorge Lira
Jane Liu
Jian Guo Liu
Jiangui Liu
Pang-Wei Liu
Wei-Min Liu
Xiong Liu
Yan Liu
Alexander Loew
Pierfrancesco Lombardo
David Long
Nicolas Longepe
Alejandra Aurelia López-Caloca
Paco Lopez-Dekker
Juan M Lopez-Sanchez
Hui Lu
Linlin Lu
Xiaoqiang Lu
Zhong Lu
Tom Lukowski
Guido Luzi
Zhenkui Ma
Giovanni Macelloni
David G Macfarlane
Emmanuel Maggiori
Animesh Maitra Maitra
Clement Mallet
Jordi J. Mallorqui
Fanar Mansour Abed
Michele Manunta
Javier Marcello
Prashanth Reddy Marpu
Paulo Marques
Jose Marquez Martinez
Gert-Jan Marseille
Arnaud Martin
Fernando Martin-Porqueras
Nelson Delfino d'Ávila Mascarenhas
Philippa Jane Mason
Andrea Massa
Christian Massari
Karim Mattar
Francesco Mattia
Frederic Maussang
John Elton McFee

Stephen McNeill
Ronald McRoberts
Lizwe Mdakane
Peter Meadows
Massimo Menenti
Stephane MERIC
Sari Metsämäki
Franz Meyer
Rory Meyer
Nouha Mezned
Arnaud Mialon
Eckart Michaelsen
Maurizio Migliaccio
Koreen Millard
Heinrich Miller
Peter Minnett
Sidharth Misra
Josef Mittermayer
Miguel Moctezuma-Flores
Sameena Mohammed
Dmitri Moisseev
Frank Monaldo
Alejandro Monsivais-Huertero
Albert R. Monteith
Wooil M. Moon
Alberto Moreira
Jose Moreno
Gabriele Moser
Seyedmohammad Mousavi
Detlef Mueller
Makiko Nakata
Adib Nashashibi
Enrique A. Navarro
Thomas Neff
Hamid Nejati
Reza Nekovei
Son Nghiem
wenjian Ni
Allan Aasbjerg Nielsen
Edip Niver
Eni G. Njoku
Sima Noghanian
Yoo-jeong Noh
Charles Norton
Claudia Notarnicola
Jean-Francois Nouvel
Ferdinando Nunziata
Ferdinando Nunziata
Kenta Ogawa
Hakan Olsson
Dzevat Omeragic
Peggy O'Neill
Cindy Ong
Helene Oriot
Hans Ole Ørka
Roberto Orosei
Kazuo Ouchi
Sander Oude Elberink
Fabio Pacifici
Mahesh Pal
Michael Palace
Francesco Palazzo
Simonetta Paloscia
Paolo Pampaloni
Ovidiu Pancrati
Yong Pang
Konstantinos Papathanassiou
Matteo Pardini
Eulogio Pardo-Iguzquiza
Mario Parente
Filippo Parrini
Debora Pastina
Matteo Pastorino
Virendra Pathak
Chakrapani Patnaik
Swarnajyoti Patra
Markus Peichl
Antonio Pepe
Konstantinos Perakis
George Percivall
Augusto Jose Pereira Filho
Felix Perez-Martinez
Stefano Perna
William Perrie
Henrik J. Persson
Martino Pesaresi
Simone Pettinato
Norbert Pfeifer
Riccardo Piantanida
Jeffrey Piepmeier
Leland Pierce
Nazzareno Pierdicca
Stefano Pignatti Morano
Maria Piles
Pedro Pina
Zhong Ping
Bill Plant
Javier Plaza
Gennadiy P. Pochanin
Erika Podest
Scott Powell
Saurabh Prasad
Pau Prats-Iraola
Ruiliang Pu
Eldon Puckrin
Yuntao Qian
Graham Quartly
Marco Quartulli
Paul Racette
Mirco Raffetto
Atiqur Rahman
Naoufal Raissouni
Nareenart Raksuntorn
Hampapuram Ramapriyan
Keith Raney
Jon Ranson
Alberto Refice
Steven C. Reising
Philippe Richaume
Sarah Ringerud
Fabio Rocca
Marc Rodriguez-Cassola
Nemesio Rodriguez-Fernandez
Filomena Romano
Peter Romanov
Roland Romeiser
Yang Ronghao
Petri Rönnholm
Rafael Rosa
Paul Rosen
Philip Rosenkranz
Helmut Rott
Alexandre Roy
Tod Rubin
Marcos Rubinstein
Christopher Ruf
Marc Saillard
Yuji Sakuno
M.S. Salama
Nazmi Saleous
Brian Salmon
Denis Salvadeo
Alim Samat
Sergey Samsonov
Melody Sandells
Edson Sano
Veronica Santalla del Rio
Emanuele Santi
Jojene Santillan
Maurizio Santoro
Dinesh Sathyamoorthy
Motoyuki Sato
Ryoichi Sato
Martijn Schaap
Rolf Scheiber
Bernd Scheuchl
Paul Scheunders
Gilda Schirinzi
Michael Schmitt
Christiane Schmullius
Martin Schneebeli
Marcus Schwaebisch
Gabriele Schwaizer
Gottfried Schwarz
Evan Seed
Sebastiano B Serpico
Michael Seymour
Jie Shan
Yun Shao
Nimmi C. Parikh Sharma
Andrii Shelestov
Yosio Edemir Shimabukuro
Masanobu Shimada
Haruhisa Shimoda
Michal Shimoni
Fridon Shubitidze
Claudionor Silva
Jean-Robert Simard
Elizabeth L. Simms
Steven Simske
Ramesh Singh
Vern Singhroy
George Sithole
Ramesh Sivanpillai
Niels Skou
Henning Skriver
Mark Sletten
David Small
Anne Smith
Jose A. Sobrino
Maciej J. Soja
Yady Tatiana Solano-Correa
Yan Soldo
Francesco Soldovieri
Raffaele Solimene
Lin-Ping Song
Boularbah Souissi
Claudia Spinetti
Josaphat Tetuko Sri Sumantyo
Nick Stacy
Gordon Staples
Michael Starek
Uwe Stilla
Erich Stocker
Ad Stoffelen
Thomas Stone
Tazio Strozzi
Lihong Su
Martin Suess
Qingsong Sun
Wenbo Sun
Filiz Sunar
Robert Sundberg
Kaoru Tachiiri
Takeo Tadono

Tetsuya Tagawa
Wataru Takeuchi
Bingxiang TAN
Shojiro Tanaka
Yuliya Tarabalka
Trevor Taylor
Stefano Tebaldini
Fernando Lisboa Teixeira
Miguel Archanjo Telles
Jose Antonio Tenedorio
Ana Claudia Teodoro
Medhavy Thankappan
Christian Thom
Kurt Thome
James C. Tilton
Saibun Tjuatja
Mitsuhiro Tomosada
Hüseyin Topan
Konstantinos Topouzelis
Francesc Torres
Ramón Torres
Ridha Touzi
Robert Treuhaft
Emmanuel Trouvé
Maria Tsakiri-Strati
Leung Tsang
Florence Tupin
Caroline Turcotte
Ahmet Serdar Turk
Kalum Priyanath Udagepola
Lars M. H. Ulander
Silvia Liberata Ullo
Kuniaki Uto
Rajesh Kumar Vaidyanathan
David Valencia
Mercedes Vall-llossera
Enric Valor
Jan Van Aardt
Gabriel Vasile
Jorge Vazquez
Sivakumar Venkataraman
Jan Verbesselt
Niko E.C. Verhoest
Frank Veroustraete
Stefano Vignudelli
Ivan E. Villalon-Turrubiates
Massimo Vincini
Gouravaram Viswanathan
Anthony Vodacek
Peter Voelger
Ronald L Vogel
Michele Volpi
Alexander Voronovich
Wolgang Wagner
Hiroyuki Wakabayashi
Jeffrey Walker
Ingo Walterscheid
Feng Wang
Haipeng Wang
He Wang
Jinfei Wang
Liguo Wang
Robert Wang
Yanting Wang
Zhuosen Wang
Wardoyo Wardoyo
Lars T. Waser
Bjoern Waske
Shimon Wdowinski
Keith Weber
Urs Wegmüller
Matthias Weiß
David Weissman
Fuzhong Weng
Qihao Weng
James West
Joanne White
Werner Wiesbeck
Jean-Pierre Wigneron
Thomas Wilheit
Mengistu Wolde
Robert Wolfe
Joong Sun Won
Chaoyang Wu
Fan Wu
Ji Wu
Tzong-Dar Wu
Xiaoxiong Xiong
Feng Xu
Qing Xu
Xiaolan Xu
John Yackel
Hiroyoshi Yamada
Yasushi Yamaguchi
Yoshio Yamaguchi
Fumio Yamazaki
Banghua Yan
Wenli Yang
Xiaofeng Yang
Xiaohui Yang
Xiguang Yang
zutao yang
Tian Yao
Herve Yesou
Donghui Yi
Yonghong Yi
Chinatsu Yonezawa
Hiroki Yoshioka
Nicolas Younan
Marwan Younis
Qian Yu
Wenxian Yu
Xiaolei Yu
Peng Yue
Igor Zakharov
Borut Zalik
Evan Zaugg
Valery Zavorotny
Qiming Zeng
Yijian Zeng
Bing Zhang
Fengli Zhang
Junping Zhang
Lefei Zhang
Liangpei Zhang
Lifu Zhang
Lujun Zhang
Peng Zhang
Qiaoping Zhang
Xiaoyang Zhang
Xin Zhang
Ying Zhang
Yun Zhang
Kaiguang Zhao
Tianjie Zhao
Yujie Zheng
Yanfei Zhong
Guoqing Zhou
Hang Zhou
Ji Zhou
Jun Zhou
Yaping Zhou
Zheng-Shu Zhou
Xiao Xiang Zhu
Simona Zoffoli
Weibao Zou
Raul Zurita-Milla

Social Program

A ticket is required for entry to all social activities. Additional tickets to social functions can be purchased at the registration desk. If you are unable to attend a social function, please return your ticket to the registration desk.

Welcome Reception

Location: Fort Worth Water Gardens
Time: Sunday, July 23,19:30 – 21:30
Cost: Included in registration

Greet old friends and meet new ones as the convention kicks off at the Fort Worth Water Gardens, a beautiful and refreshing oasis adjacent to the Fort Worth Convention Center. Designed by Phillip Johnson, the Fort Worth Water Gardens is an architectural and engineering marvel to be enjoyed any time of the year. Visitors can experience a variety of water features as they wander through this relaxing urban park.

Tex-Mex Dinner

Location: Joe T. Garcia's Restaurant
Time: Monday, July 24; Load buses in front of the Omni Fort Worth Hotel beginning at 19:00. Dinner begins at 19:30.
Cost: $35 in advance; $45 on-site

Enjoy a mouthwatering Tex-Mex meal at Joe T. Garcia's Mexican Restaurant. Tex-Mex cuisine melds traditional Mexican flavors with spicier Texan influences. Joe T's was established on July 4, 1935, by Mr. and Mrs. Joe T. Garcia and remains in the same family today. Customers waited for hours just to try the famous enchiladas and handmade tortillas. By the 1970's Joe T. Garcia's was one of the most popular restaurants in the Dallas-Fort Worth area. With its loyal customers, the restaurant began to grow not only in popularity, but in size. Even though the restaurant continues to grow, the same style of cooking and original recipes are used, and the same determination and love for the business that was instilled by parents and grandparents is evident in the younger generation.

We are also privileged to have 3 members of the Julio Alvarez Mariachi band entertain us; part of a rich and vibrant culture; a dynamic influence and part of Texas.

Shuttle bus transportation will be available for the evening back to the Omni Fort Worth Hotel.

Texas Night at Billy Bob's

Location: Billy Bob's Texas
Time: Tuesday, July 25; Load buses in front of the Omni beginning at 19:00. Dinner begins at 19:30.
Cost: $35 in advance; $45 on-site

Billy Bob's Texas is the World's Largest Honky-Tonk – a 127,000-square-foot dancehall, complete with live indoor professional bull riding every Friday and Saturday night. Billy Bob's Texas provides live music nightly and an authentic western atmosphere. Have a delicious meal and step out with your friends as you channel your inner cowboy with line dancing or two-step lessons and have your photo taken on their signature faux bucking bull, or participate in a cowboy quick draw competition.

Shuttle bus transportation will be available for the evening back to the Omni Fort Worth Hotel.

IGARSS World Cup

Location: Campus Recreation Fields complex (CRFC), 1100 Allan Saxe Parkway (between W.Park Row drive and W. Mitchell Street off of Fielder Road)
Time: Wednesday, July 26; Load bus in front of the Omni Forth Worth Hotel beginning at 18:15. The game begins at 19:30.
Cost: $25 for participants (includes transportation and refreshment); $15 for spectators (includes transportation only)

It's your shot for athletic glory as attendees from around the world vie for bragging rights at the IGARSS World Cup! Fees cover the cost of t-shirt, transportation, and drinks. The University of Texas at Arlington is your host for this event. Located a short distance from downtown Fort Worth in the City of Arlington, UTA is a Carnegie Research-1 "highest research activity" institution. With a projected global enrollment of close to 57,000, UTA is one of the largest institutions in the state of Texas. Its College of Engineering is the third-largest in the state, with an enrollment of more than 7,000 students.

IGARSS 2017 Awards Banquet

Location: AT&T Stadium, Arlington, Texas
Time: Thursday, July 27; Load buses in front of the Omni Fort Worth Hotel from 17:30-18:30.
Cost: $60 in advance; $75 on-site

The IGARSS 2017 Awards Banquet will be held at AT&T Stadium, home of the National Football League's Dallas Cowboys. The $1.2 billion stadium is an architectural marvel. In addition to professional football, it has hosted professional soccer matches, high school sporting events, professional bowling, monster trucks and supercross, professional wrestling,

and dozens of concerts by artists such as The Rolling Stones, U2, George Strait, Tim McGraw, and One Direction. Not just a stadium or concert venue, AT&T Stadium is also home to a large collection of modern art. The collection is accessible to the public and meant to be seen by tourists and regulars alike. The Dallas Cowboys Art Collection consists of 16 site-specific works of art, along with 42 additional works that were acquired for the stadium collection. Each artist in the collection has pieces in permanent collections of prestigious museums around the world.

Once you arrive at the stadium you'll begin your "backstage" technical tour of the facility. The tour will be about 45-minutes and involves a great deal of walking, so please wear good walking shoes. Dinner will await you as you return from the tour. Please join us for this special evening – facts, fun, awards, and more!

Buses will board for the return trip to the Omni Forth Worth Hotel at 21:40.

Rodeo Night at the Stockyards

Location: Cowtown Coliseum
Time: Friday, July 28 ; Load bus in front of the Omni beginning at 19:00. Rodeo from 20:00 to 22:00.
Cost: $28 in advance; $30 on-site

The Cowtown Coliseum was built in 1908 and is one of the architectural gems of the Fort Worth Stockyards. It was the site of the first-ever indoor rodeo, and it currently hosts the world's only year-round rodeo. Grab a seat at the Stockyards Championship Rodeo, held every Friday and Saturday night at 8 p.m. You'll see thrilling, authentic rodeo – bull riding, barrel racing, tie-down roping, bronc riding and more.

Upon arrival we suggest that you begin the evening by walking in the stockyard area; another unique experience. There are plenty of places to eat before you walk into the coliseum for the rodeo. The rodeo will end around 22:00, and our bus will be waiting for you in the front yard.

Professional Events

Women in Geoscience and Remote Sensing Luncheon

Location: Omni Fort Worth Hotel, Fort Worth Ballroom 4
Time: Tuesday, July 25, 12:20 - 13:40
Cost: $25 in advance; $30 on-site

Everyone is welcome! Be sure to register for the Women in GRSS Luncheon on Tuesday July 25, 2017. This will be the sixth consecutive year for the Women in GRSS Luncheon; links to past luncheons can be found on our website. The luncheon immediately follows the Women in STEM Forum, which we hope you can attend. The luncheon provides a forum for men & women interested in supporting diversity to interact in an informal setting. After a short welcome and introductions, you'll have the opportunity to discuss & network with other participants and the Women in STEM Forum speakers over lunch.

Technical Committee and Chapter Chairs' Dinner

Location: Omni Fort Worth Hotel, Fort Worth Ballroom 4
Time: Wednesday, July 26, 19:00 – 22:00
Cost: $35 in advance; $40 on-site

This event provides a venue for discussion of GRSS Technical Committee activities accompanied by a fine meal. The best 2016 Chapters as well as the data contest winners are awarded during the evening and some other surprises will be offered. Members of GRSS Technical Committees and GRSS Chapter Chairs are especially invited, but all IGARSS delegates (and guests) are welcome to participate.

Young Professionals Luncheon

Location: Omni Fort Worth Hotel, Sundance 1
Time: Thursday, July 27, 12:20 – 13:40
Cost: $25 in advance; $30 on-site

The Young Professionals (YP) GRSS luncheon provides an informal forum for YP to interact with their peers and IEEE senior members in an informal setting. The lunch will provide a forum for discussion on career paths, skill sets beneficial to secure employment in the geosciences and remote sensing industries, as well as professional development opportunities. The event will also include invited guests selected from among the GRSS professionals with extensive careers in the field.

TIE Forum Luncheon

Location: Room 104
Time: Wednesday, July 26, 12:20 – 13:40
Cost: $25 in advance; $30 on-site

The TIE forum luncheon provides an opportunity for further interaction between all forum speakers and conference attendees. The lunch will be held on Wednesday between two sessions focusing on current topics related to the remote sensing private sector. Brief introductory remarks will be provided by the TIE forum organizer and industry session moderator.

Symposium Information

Conference Venue

Fort Worth Convention Center
1201 Houston Street
Fort Worth, TX 76102-6432
Phone: (817) 392-6338

The Fort Worth Convention Center is an 18-time "Meetings and Conventions" Gold Service Award recipient. The facility is within easy walking distance of a variety of delicious restaurants, high-quality entertainment and attraction venues, and a myriad of shopping opportunities.

The Fort Worth Convention Center features:

- 253,226 square feet of exhibit space
- 41 breakout rooms (60,000 square feet)
- 55,000 square foot Events Plaza that connects to the one-of-a-kind Fort Worth Water Gardens
- Magnificent 28,160 square foot ballroom
- 13,500 seat arena
- Free Wi-Fi in public areas

Symposium Registration

IGARSS 2017 Registration will open on Sunday, July 23 at the Omni Fort Worth Hotel, between the Forth Worth Ballroom and the Texas Ballroom. On Monday through Friday, registration will be in the Fort Worth Convention Center in the corridor outside Room 102.

Operating hours are:

Sunday, July 23 (Omni Fort Worth Hotel)	07:30 – 20:00
Monday, July 24 (Convention Center)	07:30 – 18:00
Tuesday, July 25 (Convention Center)	07:00 – 18:00
Wednesday, July 26 (Convention Center)	07:00 – 18:00
Thursday, July 27 (Convention Center)	07:30 – 18:00
Friday, July 28 (Convention Center)	07:30 – 17:00

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 2017 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 2017 attendees. Following is the login information:

Network Name: IEEE
Password: IGARSS

Mobile App

The IGARSS 2017 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, watch short (2-minute) video introductions for the poster presentations, and more.

Downloading the app is easy. Simply:

- Scan the QR Code (all device types)
- Search for IGARSS 2017 in the app store (Android and iOS)
- Type the following URL into your device's mobile browser: http://m.core-apps.com/igarss2017

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

911 – All Emergencies

Useful Phone Numbers

817-554-5378 – IGARSS Registration Desk
817-535-6664 – Omni Fort Worth Hotel

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.

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.

Exhibition

The exhibits are located in the Fort Worth Convention Center, Exhibit Hall B/C, located on the ground level near the Houston Street entrances.

Exhibition opening hours are:

Tuesday, July 25 ..... 09:00 – 17:00
Wednesday, July 26..... 09:00 – 17:00
Thursday, July 27..... 09:00 – 17:00
Friday, July 28..... 09:00 – 12:00

Meeting Rooms (Oral Sessions)

Meeting rooms for oral sessions are located on Level 2 of the Fort Worth Convention Center. Each meeting room is equipped with microphones, a laptop, a projector, and a laser pointer.

Coffee/Tea Breaks

Morning and afternoon Coffee/Tea breaks will be served in the exhibition and poster area.

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 2017 IEEE International Geoscience and Remote Sensing Symposium (IGARSS 2017), 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 2017 or related events.

The information contained in this handbook was correct at the time of printing.

Future IGARSS Symposia

- IGARSS 2018: July 22–27, Valencia, Spain
- IGARSS 2019: July 28– August 2, Yokohama, Japan
- IGARSS 2020: July 19–24, Hawaii, USA

Welcome to Fort Worth

Welcome to Fort Worth, Texas!

The City of Cowboys & Culture is the 16th-largest city in the United States and part of the No. 1 tourist destination in Texas, welcoming 6.5 million visitors annually. Fort Worth is comprised of seven primary entertainment districts each offering distinct dining, shopping, entertainment and cultural amenities.

Things to Do

Fort Worth prides itself on having dozens of experiences to suit almost any age and interest: World-class museums and live music, sports, shopping, and options for just about any cuisine you can think of.

Sundance Square and its nightlife, restaurants, shopping, and music venues are within walking distance of the convention center and surrounding hotels.
http://www.fortworth.com/about/neighborhoods-districts/downtown-sundance-square/

See what the American West was really like in the Stockyards National Historic District.
http://www.fortworth.com/about/neighborhoods-districts/stockyards-national-historic-district/

View modern, western, and classic art or learn about science and history in the Cultural District.
http://www.fortworth.com/about/neighborhoods-districts/cultural-district/

Visit the animals at the Fort Worth Zoo.
http://www.fortworth.com/things-to-do/attractions/fort-worth-zoo/

Find out more at the Fort Worth Convention and Visitors Bureau website.
http://www.fortworth.com/things-to-do/

History

In its youth, Fort Worth was a rough-and-tumble frontier town, dusty and lawless, home to the brave and the brawling, the soldier, the frontiersman, the outlaw. Originally settled in 1849 as an army outpost along the Trinity River, Fort Worth was one of eight forts assigned to protect settlers from Indian attacks on the advancing frontier.

The cattle industry was king for a generation of people working the Fort Worth leg of the historic Chisholm Trail, which ran from the 1860s to the 1870s.

Fort Worth became the heart of state's ranching industry when the Texas & Pacific Railway arrived in 1876. In the years that followed, oil and aviation brought new wealth throughout the region, and a city grew where a camp once stood.

The post-war years found Fort Worth capitalizing on its strengths as a transportation, business and military center. Cultural pursuits included the development of the city's internationally acclaimed museum district, built alongside the Will Rogers Memorial Center, which opened in 1936, and Casa Mañana Theatre.

The mid-1980s saw the start of a major revitalization of the city's downtown and the introduction of Sundance Square. In the years that followed, developers broke ground on office towers and hotels, the city remodeled the Convention Center, and Sundance Square grew to a 35-block commercial, residential, entertainment and retail district.

Fort Worth's earliest buildings endure to this day – art deco skyscrapers stand beside older redbrick stalwarts. And though the dust of the old west is gone, Fort Worth's proud Western heritage lives on, blending with thriving commerce and culture to create a destination unlike anywhere else in the world.

Transportation in Fort Worth

Fort Worth has an efficient public transportation system featuring busses and a free trolley to get around downtown. There is also train service between Fort Worth and Dallas, as well as to the airports serving the region. Find public transportation information at www.the-t.com/#/poloko/en/agency/1/search. You may also choose to take a taxi or use a ride-sharing service, or rent a bicycle.

By Car:

Fort Worth is easily accessible via several major highway systems, including Interstate 20, Interstate 30, and Interstate 35W. If you wish to rent a vehicle during your stay you'll find plenty of options at Dallas/Fort Worth International Airport, in downtown Fort Worth and throughout the city. The rental car facility at DFW Airport is serviced by 10 companies, including Enterprise Rent-A-Car, Avis, Budget and Hertz. It's located just south of the airport's south toll plaza. You can quickly catch a ride to this facility from any terminal on a rental car bus.

By Bus:

The Fort Worth Transportation Authority, known locally as The T, offers rides all over Fort Worth, including routes to popular attractions like the Stockyards National Historic District, the Fort Worth Cultural District and downtown's Sundance Square.

If you have a smart phone, download the GoPass and NextBus apps. Be ready with cash, a valid bus pass, EasyRide pass or activated GoPass for smoother boarding. Plan to bring the exact amount of cash you need because drivers aren't able to make change for cash overpayments. A local day pass is $3.50, but the FWTA has several fares structure. The complete list of fares is available at www.FWTA.org.

You may also choose to hop on Molly the Trolley, a free downtown get-around. The Molly route travels from the Fort Worth Convention Center to Sundance Square seven days a week. Service runs 10 a.m.-10 p.m., and time between trolleys is 10 minutes. Molly also serves the FWTA Intermodal Transportation Center (ITC), giving passengers access to commuter rail, Amtrak, inner-city and inter-state bus service and rental car services. Learn more at http://www.the-t.com/services/molly-the-trolley.

By Train:

The Trinity Railway Express, or TRE, provides convenient rail transportation between Fort Worth and Dallas and transfer access to DFW International Airport, in conjunction with Dallas Area Rapid Transit (DART). In downtown Fort Worth, hop aboard at either the historic T&P Station or the Intermodal Transportation Center (ITC), both a short walk from the Convention Center. Scheduled train service is provided Monday through Saturday. No service is available on Sunday. Find schedule and fare information at http://www.trinityrailwayexpress.org/index.html.

You must have a valid ticket to board the train. Tickets may be purchased at self-service machines at the train station. If you board without a valid ticket, you may be issued a citation. Fares are based on where you board and depart, not how far you travel. The fare zone divider is at CentrePort/DFW Airport Station. (At CentrePort, purchase a DART Local pass to travel east or TRE 1 Zone pass to travel west; a Regional Pass allows travel across/within all fare zones and on DCTA service.) Check the fare type to make sure the fare media you use is valid for the zones of travel you will cross.

It is good practice to arrive at the TRE platform 10-15 minutes prior to the departure time of the train to allow yourself enough time to purchase your fare media from the ticket vending machine, even if there is a line. Single-ride tickets are good for transfer to the T local bus. DART Local single-ride tickets are also good for two hours of unlimited rides on DART buses and DART Rail.

Before boarding, check destination signs, which designate the final stop.

By Bicycle:

Bike sharing is an inexpensive, healthy and environmentally friendly way to get around Fort Worth. Simply pick up a bike at any bike sharing station and ride it to any other station. You'll find more than 40 docking stations throughout the city, including downtown, the Near Southside and the Cultural District.

On Foot:

Walking is a wonderful way to experience Fort Worth's major entertainment districts, in addition to the Trinity Trails that run throughout the city and along the Trinity River. Find maps at https://www.fortworth.com/about/transportation.

Taxis and Ride Sharing:

Fort Worth is served by several taxi companies, as well as Über and Lyft.

Shopping

There are plenty of options for shopping in Fort Worth. The city boasts national department stores, one-of-a-kind boutiques, outlet shopping and upscale shops. There's something for every taste and budget including authentic Western wear, locally-made items, the Justin Boots Outlet Store, and the Dickies Outlet Store. Find more detailed options and information at www.fortworth.com/things-to-do/shopping.

Tours and Excursions

Fort Worth offers dozens of options for visitors to learn more about the city's Wild West past, current attractions, art, food and drink, and more.

For a full list, visit the "Things to Do" page at www.fortworth.com/things-to-do. Most of the activities on the list are easily accessible on foot or by public transportation.

Some highlights near the Fort Worth Convention Center and conference hotels include:

- Cowtown Segway Tours
- Cowtown Capers
- Cowtown Cycle Party
- Walking Tours

If you are interested in sampling local craft beers, visitors aged 21 and older may wish to try the Ale Trail (www.fortworth.com/aletrail). The trail is too long to travel on foot, but taxis, Uber and public transportation are options that will allow you to enjoy yourself responsibly.

If you have access to a car, you might be interested in a free tour of the Bureau of Engraving and Printing (www.moneyfactory.com), where United States currency is made.

Tipping

Tipping in the United States is customary for several categories of personal service including restaurant service and for taxis. Further information about the tipping custom in the United States can be found at http://www.immihelp.com/newcomer/tipping-tips.html

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 Fort Worth, on Tuesday morning, July 25, in room Room 202 CD. 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.L4.1: SEQUENTIAL ESTIMATOR: A NOVEL APPROACH FOR EFFICIENT HIGH-PRECISION ANALYSIS OF INTERFEROMETRIC TIME SERIES
Homa Ansari, Francesco De Zan, Richard Bamler

TU1.L4.2: Saliency-based Endmember Detection for Hyperspectral Imagery
Xinyu Wang, Yanfei Zhong, Yao Xu, Liangpei Zhang, Yanyan Xu

TU1.L4.3: Multiple Instance Hybrid Estimator for Learning Target Signatures
Changzhe Jiao, Alina Zare

TU1.L4.4: Remote Sensing Image Classification Based on Convolutional Neural Networks with two-fold Sparse Regularization
Han Liu, Lin He, Jun Li

TU1.L4.5: RADAR SCATTERING OF OCEAN SURFACES AT L BAND BASED ON NUMERICAL SOLUTIONS OF MAXWELL EQUATIONS IN THREE-DIMENSIONS (NMM3D)
Tai Qiao, Leung Tsang, Douglas Vandemark, Simon Yueh

TU2.L4.1: HYPERSPECTRAL CLOUD SHADOW REMOVAL BASED ON LINEAR UNMIXING
Yi Liu, José Manuel Bioucas-Dias, Jun Li, Antonio Plaza

TU2.L4.2: SAMPLING REQUIREMENTS FOR WIDEBAND AUTOCORRELATION RADIOMETRIC (WIBAR) REMOTE SENSING OF DRY SNOWPACK AND LAKE ICEPACK
Seyedmohammad Mousavi, Roger De Roo, Kamal Sarabandi, Anthony W. England

TU2.L4.3: DEVELOPMENT OF GPS CONSTELLATION POWER MONITOR SYSTEM FOR HIGH ACCURACY CALIBRATION/VALIDATION OF THE CYGNSS L1B DATA
Tianlin Wang, Christopher Ruf, Scott Gleason, Bruce Block, Darren McKague, Damen Provost

TU2.L4.4: DESIGN OF A FORWARD LOOKING SYNTHETIC APERTURE RADAR FOR AN AUTONOMOUS CRYOBOT FOR SUBSURFACE EXPLORATION OF EUROPA
Omkar Pradhan, Kumar Sandeep, Albin J. Gasiewski, William Stone

TU2.L4.5: MODEL-BASED ESTIMATION OF LARGE AREA FOREST CANOPY HEIGHT AND BIOMASS USING RADAR AND OPTICAL REMOTE SENSING WITH LIMITED LIDAR DATA
Michael Benson, Leland Pierce, Kamal Sarabandi

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 and meetings at IGARSS 2017

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.

TC Meeting: Monday, July 24, Room 204 A
Time: 18:00–19:00

Frequency Allocation in Remote Sensing (FARS)

The Frequency Allocations in Remote Sensing Technical Committee (FARS TC) mission is to provide technical assessments, guidance and recommendations regarding matters of frequency sharing and interference between remote sensing and other uses of the radiowave spectrum.

TC Meeting: Tuesday, July 25, Room 201 A
Time: 18:00–19:00

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.

TC Meeting: Tuesday, July 25, Room 202 CD
Time: 18:00–19:00

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.

TC Meeting: Wednesday, July 26, Room 201 A
Time: 18:00–19:00

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.

TC Meeting Monday, July 24, Room 204 B
Time: 18:00–19:00

Modeling 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.

TC Meeting Tuesday, July 25, Room 204 A
Time: 18:00–19:00

NOTE:
In addition, IGARSS participants are invited to attend the Technical Committee and Chapter Chairs Dinner at which there will be brief presentations by the Chairs of the Technical Committees. Pre-registration is required.

Technology, Industry, and Education (TIE) Forum

The theme for this year's meeting is "International Cooperation for Global Awareness," and our emphasis for the meeting will be to reinforce the value of working together to find global solutions to our most pressing problems in Earth observation and remote sensing. On behalf of the IGARSS 2017 organizing committee, we are pleased to announce the Technology, Industry and Education (TIE) Forum, a non-traditional session track that will focus on these three facets and its relation to remote sensing.

These sessions will present topics not typically covered during the conference, and we encourage audience participation through panels, and extended Q&A sessions to increase interactivity and engagement. We hope that you will join us in Room 200 at IGARSS 2017 for the TIE Forum.

Boon Lim
TIE Forum Chair, IGARSS 2017
Jet Propulsion Laboratory

Monday, July 24 | 13:40 - 15:20 | Room 200
Session MO3.TIE | Oral

GEO and Global Awareness

Session Chairs: Tony Milne and Melba Crawford

13:40 - 14:20

MO3.TIE.1 **Group on Earth Observation – GEO and Global Awareness**
Barbara Ryan, GEO Secretariat Director

14:20 - 14:40

MO3.TIE.3 **GEO BON - GEO Biodiversity Observation Network**
Gary N. Geller, GEO Secretariat

14:40 - 15:00

MO3.TIE.4 **Datacubes – Geospatial Information and the UN's Sustainable Development Goals**
Brian D. Killough, NASA Langley Research Center

15:20 - 15:40

MO3.TIE.5 **AfriGEOSS - GRSS Soil Moisture and Agricultural Support Project**
Adriano Camps and Maria Piles, Barcelona Expert Center, ICM/CSIC, UPC, Spain

Monday, July 24 | 16:20 - 18:00 | Room 200
Session MO4.TIE | Oral

Earth Observation, Sustainable Goals and the United Nations 2030 Program

Session Chairs: Melba Crawford and Tony Milne

16:20 - 17:00

MO4.TIE.1 **Sustainable Development Goals and Earth Observation**
Lawrence Friedl, Argyro Kavvada, NASA's Earth Science Division, USA

17:00 - 17:20

MO4.TIE.3 **CEOS – Earth Observation Data Provision for GEO and Sustainable Development**
Alex Held, CSIRO, Canberra, Australia

17:20 - 17:40

MO4.TIE.4 **Datacubes – Geospatial Information and the UN's Sustainable Development Goals**
Stuart Minchin, Chief, Environmental Geoscience, Geoscience Australia, Alex Held, CSIRO, Canberra, Australia

17:40 - 18:00

MO4.TIE.5 **Global Activities of the Geoscience and Remote Sensing Society (GRSS)**
Paul Rosen, Jet Propulsion Laboratory, USA; Anthony Milne, University of New South Wales, Australia and Melba Crawford, Purdue University, USA

Tuesday, July 25 | 08:00 - 09:40 | Room 200
Session TU1.TIE | Oral

Author Education: How to publish IEEE papers

Session Chairs: Alejandro C. Frery, Paolo Gamba and Antonio Plaza

There will be an official IEEE Author Education Event at IGARSS 2017 during the TIE forum, on Tuesday (TU1.TIE) and Thursday (TH1.TIE). Come and get advice and input on how IEEE publishes your papers, what to do in organizing your manuscripts, what things to avoid in your papers and what will make you paper the most acceptable. The material will be based on previous classes taught by the present VP of the IEEE Publications and Products Service Board (PSPB), Sheila Hemani and by its previous VP Gianlucca Setti.

The class will be given by one of the current editors of the GRSS publications (Geoscience and Remote Sensing Letters, Journal of Selected Topics in Applied Earth Observations and Remote Sensing, Transactions in Geoscience and Remote Sensing, and Geoscience and Remote Sensing Magazine). Come and learn how to publish your papers.

More information can be found at: https://www.ieee.org/publications_standards/publications/authors/author_education

Tuesday, July 25	10:40 - 12:20	Room 200
Session TU2.TIE		Panel

2017 IEEE GRSS Women in STEM Forum

Session Chairs: Mariko Burgin and Lori Bruce

At this year's IGARSS, for the first time, we are organizing the Technology, Industry and Education (TIE) Forum, a non-traditional session that will address themes typically absent from technical conferences. As part of the TIE Forum, the Women in STEM Forum is organized to promote diversity, inclusion, and career success in the Geoscience and Remote Sensing Society (GRSS) that benefit all IGARSS attendees, but is particularly focused on women and minority attendees.

Women remain underrepresented in the STEM workforce. While efforts have been made through education, funded initiatives, and the emergence of non-profit discussion, progress has been slow. The technical and engineering sectors are still male dominated and the pipeline for future talent is currently insufficient to meet future needs. In the US today, only 14% of all engineers and 25% of all IT professionals are women. Although women make up 55% of all college and graduate students, only 18% of computer science graduates are female, according to the US Bureau of Statistics.

The IGARSS Women in STEM Forum will feature three highly accomplished women in STEM from a mix of backgrounds and with diverse career paths. Each speaker will have the opportunity to give a short presentation of 15-20 minutes on being a woman in STEM, enabling diversity, lending privilege, and work/life balance followed by an open discussion and extended Q&A.

We are inviting you to join the Women in STEM Forum. Come to learn, be inspired, and network!

Panel Members:

- Dr. Louise Prockter, Lunar and Planetary Institute in Houston Texas
- Mrs. Sandra Alba Cauffman, National Aeronautics and Space Administration (NASA)
- Dr. Makenzie Lystrup, Ball Aerospace

Tuesday, July 25	13:40 - 15:20	Room 200
Session TU3.TIE		Oral

IEEE GRSS Membership and Technical Committees

Session Chairs: Xiaolong Dong and Irena Hajnsek

This session will showcase the IEEE Geoscience and Remote Sensing Society (GRSS) who is the sponsor of the International Geoscience and Remote Sensing Symposium. The GRSS fields of interest of 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 session will kick off with a welcome address from the president of the IEEE GRSS, Dr. Adriano Camps. A presentation will then be made by the current GRSS Membership Committee Chair, Dr. Xiaolong Dong on the various benefits of membership. Finally the Dr. Irena Hajnsek will introduce and showcase the various technical committees of the IEEE GRSS, established to actively promote discussion and advances in areas of member technical interests. Activities of the Technical Committees include networking within the scientific topic, organization of thematic workshops, education of young professionals, organization of special sessions at IGARSS along with hosting a committee meeting open to all IGARSS participants.

Tuesday, July 25	16:20 - 18:00	Room 200
Session TU4.TIE		Panel

IEEE TAB Ad Hoc Committee on Women and Under-represented Groups

Session Chairs: Linda Hayden and Melba Crawford

The session provides an opportunity craft the response of GRSS to the new 2016 IEEE - Technical Activities Board (TAB) Ad Hoc Committee on Women and Under-represented Groups (WUG) initiative. An IEEE-TAB committee member will give an overview of the charge to their committee, which includes identifying IEEE processes that are barriers to representation and inclusion and to suggest improvements.

Wednesday, July 26	10:40 - 12:20	Room 200
Session WE2.TIE		Panel

Remote Sensing Industry Panel

Session Chair: Thomas Adang

IGARSS will host a panel with members from the remote sensing industry, to discuss their ever evolving role in geoscience and remote sensing. Invitees include, but are not limited to: Airbus, Ball Aerospace, Descartes Labs, DigitalGlobe, Infoterra, Nanoracks, Planet, SPIRE and UrtheCast. Moderated by Dr. Thomas Adang of the Aerospace Corporation, the panel will discuss how their work in remote sensing addresses global challenges, and how their work 'makes a difference'. The panel will provide a unique opportunity for the audience of IGARSS – students, educators, scientists, engineers, and the general public – of the importance of industry in remote sensing.

Wednesday, July 26	13:40 - 15:20	Room 200
Session WE3.TIE		Oral

Remote Sensing Industry Session

Session Chairs: Marwan Younis and Fabio Pacifici

This session will provide members of the remote sensing industry an opportunity to showcase their products and capabilities. Invitees include, but are not limited to: Airbus, Ball Aerospace, Descartes Labs, DigitalGlobe, Infoterra, Nanoracks, Planet, SPIRE and UrtheCast.

Wednesday, July 26	16:20 - 18:00	Room 200
Session WE4.TIE		Town Hall

Remote Sensing Agency Session

Following the industry session, we have reserved time for "town-hall" discussions by agency representatives currently involved with shaping future interactions with the private sector in remote sensing. Anticipated topics include NOAA Advanced Planning activities and vision and implementation of the NASA Capability Leadership Model. Look for additional topics and details of IGARSS town hall presentations appearing on the IGARSS 2017 website, the IG17 app, and at the conference.

Thursday, July 27	08:00 - 09:40	Room 200
Session TH1.TIE		Oral

Author Education: How to publish IEEE papers

Session Chairs: Alejandro C. Frery, Paolo Gamba and Antonio Plaza

There will be an official IEEE Author Education Event at IGARSS 2017 during the TIE forum, on Tuesday (TU1.TIE) and Thursday (TH1.TIE). Come and get advice and input on how IEEE publishes your papers, what to do in organizing your manuscripts, what things to avoid in your papers and what will make you paper the most acceptable. The material will be based on previous classes taught by the present VP of the IEEE Publications and Products Service Board (PSPB), Sheila Hemani and by its previous VP Gianlucca Setti.

The class will be given by one of the current editors of the GRSS publications (Geoscience and Remote Sensing Letters, Journal of Selected Topics in Applied Earth Observations and Remote Sensing, Transactions in Geoscience and Remote Sensing, and Geoscience and Remote Sensing Magazine). Come and learn how to publish your papers.

More information can be found at: https://www.ieee.org/publications_standards/publications/authors/author_education

Thursday, July 27	10:40 - 12:20	Room 200
Session TH2.TIE		Oral

NASA ROSES Proposal Writing

Session Chair: Christina Richie

10:40 - 11:20

TH2.TIE.1 A Brief Introduction to the NASA Proposal Process

This talk and discussion will focus on an overview of the federal grant submission and selection process and will highlight tips and lessons for writing proposals to NASA's Research Opportunities in Earth and Space Sciences (ROSES).

10:40 - 11:20

TH2.TIE.2 2017 NASA ROSES Roll-Out

NASA's Science Mission Directorate (SMD) solicits its Research and Analysis (R&A) programs each year in Research Opportunities in Space and Earth Sciences (ROSES). ROSES contains the research announcements for all of SMD. Submission of ROSES proposals is done electronically via NSPIRES: http://nspires.nasaprs.com. Details on the proposal submission process to help guide younger scientists will be presented. Information on new programs will also be presented. The SARA website http://sara.nasa.gov contains information on all ROSES solicitations. There is an email address (SARA@nasa.gov) for inquiries and an area for volunteer reviewers to sign up. The peer review process is based on Scientific/Technical Merit, Relevance, and Level of Effort, and will be quickly detailed within this presentation. Changes for ROSES17, important for all those applying for funding in the SMD will be discussed. This discussion will be geared towards anyone looking to apply for funding through ROSES17 in the SMD.

Thursday, July 27	13:40 - 15:20	Room 200
Session TH3.TIE		Oral

Navigating Technology Transition

Session Chair: George Komar and Muralidharan Nair

This session will focus on the development of concepts and technology, and the various way to climb technology readiness levels. We will feature speakers from the NASA Earth Science Technology Office (ESTO) and the NSF Small Business Innovation Research (SBIR)/Small Business Technology Transfer (STTR) program to showcase the various opportunities available, host a discussion on navigating technology transition.

Thursday, July 27	16:20 - 18:00	Room 200
Session TH4.TIE		Panel

GSIS Round Table: Imaging Spectroscopy from an Industry Perspective – State of the Art/Potential/Challenges

Session Chair: Andreas Müller

Spaceborne Imaging Spectroscopy has long been recognized as an essential Earth observation technology for geoscientific research applications and Earth system sciences. The technology demonstrator mission Hyperion was operational in space for an impressive 16 years and, had stimulated a series of medium spatial resolution scientific missions such as HyspIRI in the USA, PRISMA in Italy, EnMAP in Germany, HISUI in Japan and a series of other initiatives around the globe. Despite both technical and financial challenges, much has been achieved including recent proposals of high spectral and spatial resolution spaceborne imaging spectroscopy by the private sector in USA, Canada, Japan, and Israel. Additionally, spaceborne imaging spectroscopy missions are now being considered as operational future missions by space agencies. But also imaging spectroscopy technologies in general has seen significant progress. For example, spectrometer systems have successfully been miniaturized and flown on drones and UAVs and there have been significant developments in available platforms with small/micro satellites.

In commemoration of the tenth anniversary of the GSIS TC, we would like to celebrate the achievements of the last 10 years and look forward to what might be the vision for the next 10 years. For example, the coupling of these developments to provide high spatial and high spectral resolution sensors onboard small satellites is an attractive proposition that could potentially make spaceborne imaging spectroscopy missions financially viable while closing gaps in spatial and temporal resolutions in the present suite of near-launch scientific missions.

Paanel Members:

- David Bannon, CEO Headwall Photonics, USA
- Matthew Ferraro, Planet, USA
- Jurry de la Mar, T-Systems, Germany
- Douglas Bancroft, Norstar, Canada
- Timo Stuffler, OHB, Germany
- Michael Rast, ESA
- Rob Green, NASA, USA

Tutorials

Full-Day, Sunday, July 23, 08:30 – 17:00

FD1 - Mathematical Morphology in Interpolations and Extrapolations
Daya Sagar
Location: Omni, Sundance 1

FD2 - Machine Learning in Remote Sensing - Best practice and recent developments
Ronny Hänsch, Bertrand Le Saux, Yuliya Tarabalka
Location: Omni, Sundance 2

FD3 - Hyperspectral Imaging Remote Sensing
Dimitris Manolakis, Ronald Lockwood
Location: Omni, Sundance 3

FD4 - Remote Sensing with Reflected Global Navigation Satellite System (GNSS-R) Signals
James Garrison, Estel Cardellach, Adriano Camps
Location: Omni, Sundance 4

FD5 - Design and Implementation of a Remote Sensing Program for a Continental Scale Ecological Observatory
Tristan Goulden, Nathan Leisso, John Musinsky
Location: Omni, Sundance 5

FD6 - Spaceborne Synthetic Aperture Radar (SAR): Theory, Technology and Applications
Alberto Moreira
Location: Omni, Sundance 6

Morning, Sunday, July 23, 08:30 – 12:00

HD3 - Earth Observation Big Data: The Data Science paradigm shift
Mihai Datcu
Location: Omni, Fort Worth Ballroom 8

Afternoon, Sunday, July 23, 13:30 – 17:00

HD4 - 3-/4-D SAR Tomography
Fabrizio Lombardini
Location: Omni, Fort Worth Ballroom 6

HD6 - A Tour of Patch-based Methods and their Applications in Remote Sensing
Florence Tupin, Loïc Denis
Location: Omni, Fort Worth Ballroom 8

Workshops

CEOS Open Data Cube - A new way to manage satellite data utilizing an open source platform

Presented By: Brian Killough, Sanjay Gowda, Syed R Rizvi

Sunday, July 23, 08:30 - 12:30, Fort Worth Ballroom 7

The Committee on Earth Observation Satellites (CEOS) has started the Open Data Cube (ODC) initiative to provide an open source data architecture solution that has value to its global users and increases the impact of Earth observation satellite data. The ODC is a common analytical framework that includes API development, cloud integration, a web-based user interface, and data analytics to facilitate the organization and analysis of large, gridded data collections. Based on analysis ready data from current CEOS satellite systems, the ODC is a technological solution that removes the burden of data preparation, yields rapid results, and utilizes an international global community of contributors. The ODC is currently operating in Australia, Colombia and Switzerland with several more countries in development. This workshop will provide a hands-on introduction to the Open Data Cube including the topics of data acquisition and processing, ingestion of data into a gridded time series data cube, data interoperability, application analyses, and future plans. The target audience is scientists, researchers, project managers, and students with knowledge or experience in satellite imagery interpretation. The workshop is FREE to all registrants, but space is limited and advance sign-up is required.

Geoscientific Spaceborne Imaging Spectroscopy Technical Committee organizes a Vicarious Calibration Training Course

"Reflectance-based, imaging spectrometer error budget field practicum in Nevada Rail Road Valley Test Site, USA"

July, 28 – Aug, 03 2017

This course is part of a series of training sponsored by the IEEE GRSS as part of the Geoscience Imaging Spectroscopy Technical Committee's Calibration And Validation Initiative in support spaceborne imaging spectroscopy missions. This training will focus on the practical aspects of reflectance-based imaging spectroscopy error budget and will demonstrate the complete chain of the process from the laboratory to the field.

The course will start with attendees participating in a tour of the Remote Sensing Group laboratory facilities at the University of Arizona before a field deployment to the Railroad Valley Playa test site in Nevada, USA which has been used on a long term basis as a vicarious calibration site. The training activity will include demonstration of measurement protocols for surface and atmospheric parameters that minimize uncertainties and, weather permitting, collection of data as part of the reflectance-based calibration for an on-orbit sensor. An emphasis will be placed on techniques and protocols suitable for calibration of imaging spectrometers.

The deployment will include half a day at the UofA laboratory calibration facilities and three days at the test sites. The first day at the test site consists of demonstrations of typical data collections. Participants will take part in setting up field references and collecting surface reflectance of a select area of the playa. A reflectance inter-comparison collection will take place at the site on day two along with a side trip to the Lunar Lake Playa for a discussion of the merits and impacts that different sites have on uncertainties. The third day will have participants collecting data suitable for the reflectance-based calibration of an on-orbit sensor.

The main tutors/guides for this course are Dr Jeff Czapla-Myers (University of Arizona) and Dr Kurtis Thome (NASA Goddard).

Please register your interest in attending the field practicum with Dr Cindy Ong (cindy.ong@csiro.au) or Dr Kurt Thome (kurtis.thome@nasa.gov). Please provide a biography/CV of yourself and the reasons why you believe you would be a good candidate for this course, noting that a criteria for the course is that participants have previous experience and/or formal training in optical remote sensing especially in imaging spectroscopy. Additionally, preference will be given to applicants who can demonstrate experience in calibration and validation of imaging spectroscopy sensors, particularly those who are currently working on spaceborne imaging spectroscopy teams.

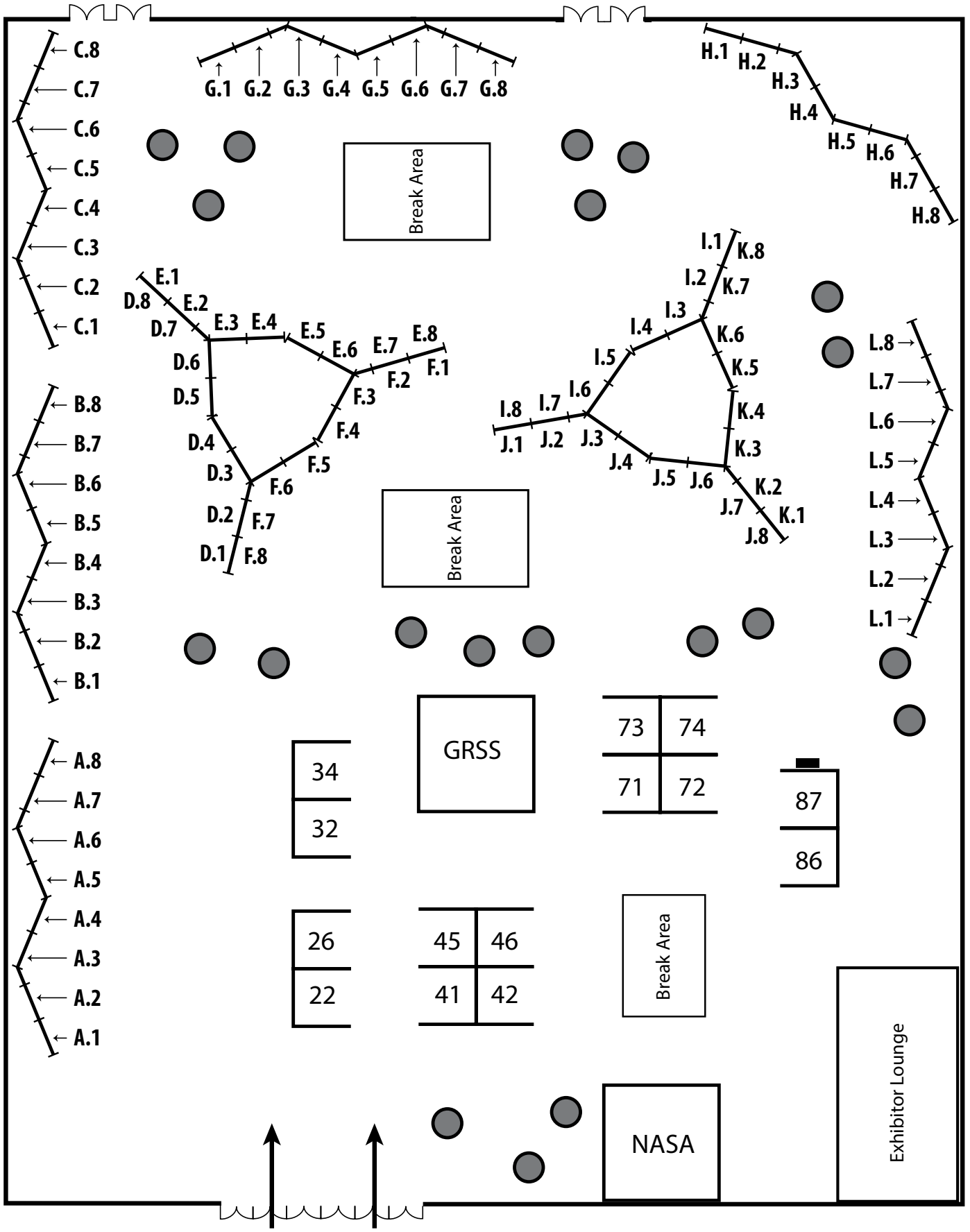
Costs: IEEE GRSS will sponsor transport (between Fort Worth, Texas and Las Vegas, Nevada) and accommodation for the duration of the course for a limited number of participants.

Logistics: The trip will start from Fort Worth, Texas, immediately following the end of IGARSS and will end at Las Vegas, Nevada. The Railroad Valley and Lunar Lake Playas are in south-central Nevada approximately 90 minutes by car from the town of Ely, Nevada and 5 hours north of Las Vegas.

Occupational health and safety The average day time high temperatures at the site in late July are 30+°C and can exceed 40 °C. There is minimal shade at the site and no toilet facilities.

We recommend a minimum personal protection of long sleeves collared shirts, long pants, wide brim hats, covered shoes, sun glasses and high SPF sun screen. Water will be provided but consider having personal water bottles.

Exhibit Hall B/C — Poster Area Detail



Presentation Instructions

Guidelines for Speakers and Oral Presenters

The official language of the Symposium is English. Each oral presentation is allocated 20 minutes. We recommend that presentation of your slides should take about 17-18 minutes, leaving 2-3 minutes for introduction, summary, and questions from the audience. Speakers are requested to respect the timing allowed to the session and to each presentation. 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.

We kindly request that session chairs adhere to the timeline and when appropriate, fill the gap resulting from an unavailable presentation with extended discussion and debate with the audience.

Presenters should locate their session room in due time and be in the room 20 minutes before the session begins to meet with the session chair, who should be near the stage/lectern.

Presentations must be uploaded to the computer in the actual lecture room during the morning or break prior to the session. All speakers are expected to produce a PowerPoint (2007 or 2010 compatible) or PDF presentation.

Guidelines for Poster Presenters

For each paper accepted within a poster session, two adjacent boards are reserved for your use. Each board has a width of 100cm (39.4 inches) and a height of 240cm (96.0 inches). You will be able to use the full width of both boards, for a total usable area of 200cm (78.8 inches) wide and 240cm (96.0 inches) high. The poster is not required to fill this entire space, but it cannot be any larger than 200cm (78.8 inches) wide and 240cm (96.0 inches) high. The poster area is located on Level 1, Exhibit Hall B/C at the Fort Worth Convention Center.

Authors for the morning poster session should have their posters in place by 8:00, stand by their poster during the 9:40-10:40 morning poster session, and remove their poster by 12:20. Authors for the afternoon poster session should have their posters in place by 13:30, stand by their poster during the 15:20-16:20 afternoon poster session, and remove their poster by 18:20.

Each board will be identified with a "board code", such as A.5, for Poster Area A, Board #5, which will identify the place to post your poster. Authors are requested to stand by their posters during the dedicated poster session. Posters should be removed by the presenter following the poster session. Poster left on the boards at the end of the session will be removed and discarded. There **MUST** be a presenter standing at the poster during the scheduled poster time. A poster that is mounted to the board, but without any person presenting it will be considered a no-show!

IGARSS 2017 Technical Program

Monday, July 24 13:40 - 15:20 Ballroom B
Session MO3.L1 Oral

Band Selection

Session Co-Chairs: Lefei Zhang, Wuhan University; Farid Melgani, Univ. of Trento

MO3.L1.1 13:40 **HYPERSPECTRAL IMAGE BAND SELECTION VIA GLOBAL OPTIMAL CLUSTERING**
Fahong Zhang, Qi Wang, Northwestern Polytechnical University; Xuelong Li, Xi'an Institute of Optics and Precision Mechanics of Chinese Academy of Sciences

MO3.L1.2 14:00 **RANDOMIZED NONLINEAR COMPONENT ANALYSIS FOR DIMENSIONALITY REDUCTION OF HYPERSPECTRAL IMAGES**
Bharath Bhushan Damodaran, Nicolas Courty, IRISA-Universite de Bretagne-Sud; Romain Tavenard, Universite Rennes 2

MO3.L1.3 14:20 **COLORS IN MULTIMODAL DATA: DOMINANT LINE EXTRACTION INSPIRED BY COMPUTER VISION TECHNIQUES**
Tomohiro Nishikawa, Yuichi Tanaka, Tokyo University of Agriculture and Technology

MO3.L1.4 14:40 **SPARSE GRAPH EMBEDDING DIMENSION REDUCTION FOR HYPERSPECTRAL IMAGE WITH A NEW SPECTRAL SIMILARITY METRIC**
Fubiao Feng, Wei Li, Beijing University of Chemical Technology; Qian Du, Mississippi State University; Qiong Ran, Beijing University of Chemical Technology

MO3.L1.5 15:00 **SPATIAL NOISE-AWARE TEMPERATURE RETRIEVAL FROM INFRARED SOUNDER DATA**
David Malmgren-Hansen, Technical University of Denmark; Valero Laparra, Universitat de València; Allan Aasbjerg Nielsen, Technical University of Denmark; Gustau Camps-Valls, Universitat de València

Monday, July 24 16:20 - 18:00 Ballroom B
Session MO4.L1 Oral

Numerical Weather Modelling and Data Assimiliation

Session Co-Chairs: Fuzhong Weng, NOAA; Flavio Iturbide-Sanchez, I.M. Systems Group at NOAA

MO4.L1.1 16:20 **WRF SIMULATION FOR A HEAVY RAINFALL EVENT OVER THE HUAIHE RIVER BASIN, CHINA - AN EVALUATION USING REMOTE SENSING AND GROUND OBSERVATIONS**
Lu Yi, Nanjing University; Wanchang Zhang, Chinese Academy of Sciences

MO4.L1.2 16:40 **A COMPARISON OF THE CLOUD DETECTION RESULTS BETWEEN THE UDTCDA MASK AND MOD35 CLOUD PRODUCTS**
Lin Sun, Xueying Zhou, Renli Wang, Jing Wei, Yikun Yang, Quan Wang, Shandong University of Science and Technology

MO4.L1.3 17:00 **SENSITIVITY EXPERIMENTS OF WRF-ARW PBL SCHEMES OVER SINGAPORE REGION: IMPACT OF LAND USE, LAND COVER AND MODEL RESOLUTION**
Srikanth Madala, Santo V Salinas, National University of Singapore; Jun Wang, University of Iowa; Soo Chin Liew, National University of Singapore

MO4.L1.4 17:20 **USING AVERAGING KERNELS TO STUDY THE VERTICAL RESOLUTION OF NUCAPS TEMPERATURE AND WATER VAPOR**
Flavio Iturbide-Sanchez, I.M. Systems Group at NOAA; Quanhua Liu, NOAA; Antonia Gambacorta, Christopher Barnet, Science and Technology Corporation; Nicholas Nalli, Changyi Tan, I.M. Systems Group at NOAA; Silvia Regina Santos Da Silva, University of Maryland

MO4.L1.5 17:40 **SIMULATION AND PREDICTION OF HURRICANE LILI DURING LANDFALL OVER THE CENTRAL GULF STATES USING MM5 MODELING SYSTEM AND SATELLITE DATA**
Remata Reddy, Duanjun Lu, Francis Tuluri, Mehri Fadavi, Jackson State University

Monday, July 24 13:40 - 15:20 Ballroom A
Session MO3.L2 Oral

Land Use Applications I

Session Chair: Sergii Skakun, University of Maryland

MO3.L2.1 13:40 **MONITORING AND MODELING TAILINGS IMPOUNDMENT SETTLEMENT NEAR GREAT SALT LAKE (UTAH) USING MULTI-PLATFORM TIME-SERIES INSAR OBSERVATIONS**
Xie Hu, Zhong Lu, Southern Methodist University; Thomas Oommen, Michigan Technological University; Teng Wang, Jin-Woo Kim, Southern Methodist University

MO3.L2.2 14:00 **EVALUATION OF THE LAND SURFACE REFLECTANCE FUNDAMENTAL CLIMATE DATA RECORD**
Jean-Claude Roger, University of Maryland; Eric Vermote, NASA Goddard Space Flight Center; Sergii Skakun, Emilie Murphy, University of Maryland; Brent Holben, NASA Goddard Space Flight Center; Christopher Justice, University of Maryland

MO3.L2.3 14:20 **SYNTHESIZING REMOTE SENSING IMAGES BY CONDITIONAL ADVERSARIAL NETWORKS**
Dao-Yu Lin, Yang Wang, Guang-Luan Xu, Kun Fu, Chinese Academy of Sciences

MO3.L2.4 14:40 **VIIRS LAND SURFACE ALBEDO PRODUCT: ALGORITHM DEVELOPMENT AND VALIDATION**
Yuan Zhou, Dongdong Wang, University of Maryland; Yunyue Yu, National Oceanic and Atmospheric Administration; Shunlin Liang, University of Maryland

MO3.L2.5 15:00 **REMOTELY SENSED SURFACE CHARACTERISTICS OF THREE DESERTS IN THE ALXA PLATEAU, INNER MONGOLIA, CHINA**
Qingsheng Liu, Gaohuan Liu, Chong Huang, Yunjie Zhang, Yushan Guo, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences

Monday, July 24 16:20 - 18:00 Ballroom A
Session MO4.L2 Oral

Land Use Applications II

Session Co-Chairs: Marco Lavalle, JPL; Junmei Tang, George Mason University

MO4.L2.1 16:20 **SPATIAL HETEROGENEITY AND SOCIOECONOMIC PATTERNS: IDENTIFYING THE IMPACT OF URBAN CENTER ON FOREST FRAGMENTATION**
Junmei Tang, Liping Di, George Mason Unversity; Jingfeng Xiao, University of New Hampshire

MO4.L2.2 16:40 **OBJECT-BASED LAND COVER MAPPING USING ADAPTIVE SCALE SEGMENTATION FROM ZY-3 SATELLITE IMAGES**
Ya'Nan Zhou, Li Feng, Yuehong Chen, Hohai University; Jun Li, China University of Mining and Technology, Beijing

MO4.L2.3 17:00 **TEMPORAL DEFORMATION OF WINK SINKHOLES IN WEST TEXAS OBSERVED BY SPACEBORNE SAR IMAGERY**
Jin-Woo Kim, Zhong Lu, Southern Methodist University

MO4.L2.4 17:20 **NEW FAULTS DETECTION BY MULTI-TEMPORAL INSAR OVER GREATER HOUSTON, TEXAS**
Feifei Qu, Zhong Lu, Jin-Woo Kim, Southern Methodist University

MO4.L2.5 17:40 **A MULTI-ANGLE ANALYSIS ON DEVELOPMENT OF MODERN PERI-URBAN AGRICULTURAL AREAS IN CHINA: A CASE STUDY OF BEIJING**
Linjun Yu, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences; Zhijun Song, Miyun Campus of Capital University of Economics and Business, Beijing 101500, China

Monday, July 24 | 13:40 - 15:20 | Ballroom C
Session MO3.L3 | Oral

Cross Track and Along Track InSAR Methods

Session Co-Chairs: Paul Rosen, NASA JPL; Charles Werner, Gamma Remote Sensing

MO3.L3.1 13:40 **TERRAIN EFFECT CORRECTION METHOD FOR INSAR ILU IMAGE**
Lei Zhao, Erxue Chen, Zengyuan Li, Institute of Forest Resources Information Technique, Chinese Academy of Forestry; Wangfei Zhang, Southwest Forestry University; Xinzhi Gu, Yaxiong Fan, Institute of Forest Resources Information Technique, Chinese Academy of Forestry

MO3.L3.2 14:00 **PROPOSAL OF PIXEL-BY-PIXEL OPTIMIZATION OF SCATTERING MECHANISM VECTORS IN POLINSAR TO GENERATE ACCURATE DIGITAL ELEVATION MODEL**
Tomoharu Shimada, Akira Hirose, The University of Tokyo

MO3.L3.3 14:20 **OPTIMUM SPLIT-BAND PARAMETERS FOR PHASE OFFSET RETRIEVAL**
Ludivine Libert, Dominique Derauw, Christian Barbier, Centre Spatial de Liège

MO3.L3.4 14:40 **AN INTERFEROMETRIC APPROACH TO OCEAN SURFACE VELOCITY IMAGING USING MULTI-CHANNEL SAR**
Mark Sletten, Jakov Toporkov, US Naval Research Laboratory

MO3.L3.5 15:00 **ANALYSIS OF VELOCITY AND ATTITUDE ERROR IN ALONG-TRACK INTERFEROMETRIC FMCW SAR**
Huazeng Deng, Gordon Farquharson, University of Washington; Mikhail Balaban, Aleksey Korovotniy, Yuriy Goncharenko, O.Ya. Usikov Institude for Radiophysics and Electronics of NASU

Monday, July 24 | 16:20 - 18:00 | Ballroom C
Session MO4.L3 | Oral

Multi-satellite Cross-track Interferometry

Session Chair: Rashmi Shah, NASA Jet Propulsion Laboratory, California Institute of Technology

MO4.L3.1 16:20 **TANDEM-X FOREST HEIGHT IN MOUNTAINOUS TERRAIN OF BC, CANADA**
Hao Chen, Pacific Forestry Centre; Shane Cloude, AELc; David G. Goodenough, University of Victoria; David Hill, Andrea Nesdoly, Pacific Forestry Centre

MO4.L3.2 16:40 **NONLOCAL INSAR FILTERING FOR HIGH RESOLUTION DEM GENERATION FROM TANDEM-X INTERFEROGRAMS**
Gerald Baier, Cristian Rossi, Marie Lachaise, Xiao Xiang Zhu, Richard Bamler, German Aerospace Center (DLR)

MO4.L3.3 17:00 **SESAME: A SINGLE-PASS INTERFEROMETRIC SENTINEL-1 COMPANION SAR MISSION FOR MONITORING GEO- AND BIOSPHERE DYNAMICS**
Helmut Rott, ENVEO IT GmbH; Paco López-Dekker, Delft University of Technology; Svein Solberg, Norwegian National Forest Inventory, NIBIO; Lars Ulander, Chalmers University of Technology; Thomas Nagler, ENVEO IT GmbH; Gerhard Krieger, Pau Prats-Iraola, Marc Rodriguez, Mariantonietta Zonno, Alberto Moreira, German Aerospace Center (DLR)

MO4.L3.4 17:20 **SAOCOM-CS BISTATIC PHASE CALIBRATION AND TOMOGRAPHIC PERFORMANCE ANALYSIS**
Mario Azcueta, Stefano Tebaldini, Politecnico di Milano

MO4.L3.5 17:40 **EXPERIMENTAL DESIGN AND DATA PROCESSING OF TWIN GEO SAR INTERFEROMETRY BASED ON BEIDOU IGSO SATELLITES**
Cheng Hu, Bin Zhang, Xichao Dong, Chang Cui, Feifeng Liu, Beijing Institute of Technology

Monday, July 24 | 13:40 - 15:20 | Room 201 BC
Session MO3.L4 | Oral-Invited

Companion SAR Missions I

Session Co-Chairs: Marc Rodriguez-Cassola, German Aerospace Center (DLR); Paco Lopez Dekker, TU Delft

MO3.L4.1 13:40 **COMPANION SAR CONSTELLATIONS FOR SINGLE-PASS INTERFEROMETRIC APPLICATIONS: THE SESAME MISSION**
Paco López-Dekker, Delft University of Technology; Helmut Rott, University of Innsbruck; Svein Solberg, Norwegian National Forest Inventory; Mariantonietta Zonno, Marc Rodriguez-Cassola, Pau Prats-Iraola, Alberto Moreira, German Aerospace Center (DLR)

MO3.L4.2 14:00 **THE SAOCOM-CS MISSION: ESA'S FIRST BISTATIC AND TOMOGRAPHIC L-BAND MISSION**
Klaus Scipal, Malcolm W. J. Davidson, European Space Agency (ESA)

MO3.L4.3 14:20 **BISTATIC RADAR WITH LARGE BASELINE FOR BIO-GEOPHYSUCAL PARAMETER RETRIEVAL**
Nazzareno Pierdicca, Sapienza University of Rome; Leila Guerriero, Tor Vergata University of Rome; Davide Comite, Sapienza University of Rome; Marco Brogioni, Simonetta Paloscia, Consiglio Nazionale delle Ricerche (CNR)

MO3.L4.4 14:40 **SPACEBORNE DEMONSTRATION OF COHERENT SAR TOMOGRAPHY FOR FUTURE COMPANION SATELLITE SAR MISSIONS**
Matteo Nannini, Michele Martone, Paola Rizzoli, Pau Prats-Iraola, Marc Rodriguez-Cassola, Alberto Moreira, German Aerospace Center (DLR)

MO3.L4.5 15:00 **SAR TOMOGRAPHY FROM BISTATIC SINGLE-PASS INTERFEROMETERS**
Stefano Tebaldini, Politecnico di Milano; Laurent Ferro-Famil, Université de Rennes 1

Monday, July 24 | 16:20 - 18:00 | Room 201 BC
Session MO4.L4 | Oral-Invited

Companion SAR Missions II

Session Chair: Saibun Tjuatja, University of Texas at Arlington

MO4.L4.1 16:20 **PASSIVE RECEIVE-ONLY SAR PAYLOAD FOR SAOCOM CS MISSION**
Andrés Solana, Albert Zurita, Fernando Monjas, Paula Saameño, Josep Closa, Isabel Martín, Airbus Defence and Space SAU

MO4.L4.2 16:40 **COMPANION SAR MISSIONS: SCIENTIFIC RATIONALE AND TECHNICAL CHALLENGES**
Paco López-Dekker, Delft Universtiy of Technology; Pau Prats-Iraola, Marc Rodriguez-Cassola, German Aerospace Center (DLR); Bernardo Carnicero-Dominguez, European Space Agency (ESA)

MO4.L4.3 17:00 **TECHNICAL ASPECTS IN SAR IMAGE FORMATION AND INTERFEROMETRIC PROCESSING OF COMPANION SATELLITE SAR MISSIONS**
Pau Prats-Iraola, Marc Rodriguez-Cassola, German Aerospace Center (DLR); Paco López-Dekker, Delft University of Technology; Mariantonietta Zonno, Nestor Yague-Martinez, Matteo Nannini, German Aerospace Center (DLR)

MO4.L4.4 17:20 **MIRRORSAR: A FRACTIONATED SPACE RADAR FOR BISTATIC, MULTISTATIC AND HIGH-RESOLUTION WIDE-SWATH SAR IMAGING**
Gerhard Krieger, Mariantonietta Zonno, Marc Rodriguez-Cassola, Paco López-Dekker, Josef Mittermayer, Marwan Younis, Sigurd Huber, Michelangelo Villano, Felipe Queiroz de Almeida, Pau Prats-Iraola, Alberto Moreira, German Aerospace Center (DLR)

MO4.L4.5 17:40 **END-TO-END PERFORMANCE ANALYSIS OF COMPANION SAR MISSIONS**
Marc Rodriguez-Cassola, Pau Prats-Iraola, Mariantonietta Zonno, Matteo Nannini, German Aerospace Center (DLR); Paco López-Dekker, TU Delft; Bernardo Carnicero-Dominguez, Bjoern Rommen, European Space Agency (ESA); Alberto Moreira, German Aerospace Center (DLR)

Monday, July 24 | 13:40 - 15:20 | Room 203 BC
Session MO3.L5 | Oral

Change Detection in Hyperspectral and Multispectral Images I

Session Co-Chairs: Francesca Bovolo, Fondazione Bruno Kessler; Sicong Liu, Tongji University

MO3.L5.1 13:40 **CHANGE DETECTION IN HYPERSPECTRAL IMAGERY BASED ON SPECTRALLY-SPATIALLY REGULARIZED LOW-RANK MATRIX DECOMPOSITION**
Zhao Chen, Donghua University; Bin Yang, Bin Wang, Fudan University; Guohua Liu, Donghua University; Wei Xia, China Transport Telecommunications & Information Center

MO3.L5.2 14:00 **A NOVEL CHANGE DETECTION METHOD FOR MULTITEMPORAL HYPERSPECTRAL IMAGES BASED ON A DISCRETE REPRESENTATION OF THE CHANGE INFORMATION**
Daniele Marinelli, University of Trento; Francesca Bovolo, Fondazione Bruno Kessler; Lorenzo Bruzzone, University of Trento

MO3.L5.3 14:20 **MONITORING DEFORESTATION AND FOREST DEGRADATION USING MULTI-TEMPORAL FRACTION IMAGES DERIVED FROM LANDSAT TM DATA IN THE BRAZILIAN AMAZON**
Yosio Edemir Shimabukuro, Egidio Arai, Erone Ghizoni dos Santos, Anderson Jorge, Instituto Nacional de Pesquisas Espaciais

MO3.L5.4 14:40 **A SPECTRAL-SPATIAL MULTISCALE APPROACH FOR UNSUPERVISED MULTIPLE CHANGE DETECTION**
Sicong Liu, Tongji University; Qian Du, Mississippi State University; Xiaohua Tong, Tongji University; Alim Samat, Chinese Academy of Sciences; Lorenzo Bruzzone, University of Trento; Francesca Bovolo, Fondazione Bruno Kessler

MO3.L5.5 15:00 **A NOVEL SEMISUPERVISED FRAMEWORK FOR MULTIPLE CHANGE DETECTION IN HYPERSPECTRAL IMAGES**
Sicong Liu, Xiaohua Tong, Tongji University; Lorenzo Bruzzone, University of Trento; Peijun Du, Nanjing University

Monday, July 24 | 16:20 - 18:00 | Room 203 BC
Session MO4.L5 | Oral

Change Detection in SAR Images I

Session Co-Chairs: Franz J. Meyer, University of Alaska Fairbanks; Allan Nielsen, Technical University of Denmark

MO4.L5.1 16:20 **DETECTION OF AUFEIS-RELATED FLOOD AREAS IN A TIME SERIES OF HIGH RESOLUTION SAR IMAGES USING CURVELET TRANSFORM AND UNSUPERVISED CLASSIFICATION**
Olaniyi A Ajadi, Franz J Meyer, University of Alaska Fairbanks; Anna Liljedahl, Water and Environmental Research Center, University of Alaska Fairbanks

MO4.L5.2 16:40 **STABLE FEATURE POINT EXTRACTION FOR ACCURATE MULTI-TEMPORAL SAR IMAGE REGISTRATION**
Huai Yu, Yan Liu, Li Li, Wen Yang, Mingsheng Liao, Wuhan University

MO4.L5.3 17:00 **CHANGE DETECTION APPROACH ON MULTITEMPORAL RADARSAT-1 SAR IMAGERY FOR PORT SURVEILLANCE**
Na Li, TianHui Satellite Center of China; Fang Liu, National University of Defense Technology; Lei Qiu, Beijing Institute of tracking and Telecommunication Technology

MO4.L5.4 17:20 **DAMAGE MAPPING BASED ON COHERENCE MODEL USING MULTI-TEMPORAL POLARIMETRIC-INTERFEROMETRIC UAVSAR DATA**
Jungkyo Jung, Duk-Jin Kim, Seoul National University; Sang-ho Yun, Marco Lavalle, Jet Propulsion Laboratory

MO4.L5.5 17:40 **IMPROVING FLOOD MAPPING IN ARID AREAS USING SENTINEL-1 TIME SERIES DATA**
Sandro Martinis, German Aerospace Center (DLR)

Monday, July 24 | 13:40 - 15:20 | Room 202 CD
Session MO3.L6 | Oral

Spectral Unmixing Techniques I

Session Co-Chairs: Mario Parente, University of Massachusetts Amherst; Rob Heylen, University of Antwerp

MO3.L6.1 13:40 **ON THE DIRECT ASSESSMENT OF ENDMEMBER FRACTIONS IN HYPERSPECTRAL IMAGES**
Andrea Marinoni, Paolo Gamba, University of Pavia

MO3.L6.2 14:00 **AN INTRODUCTION TO ABUNDANCE MAP REFERENCE DATA, WITH APPLICATIONS IN SPECTRAL UNMIXING**
Mckay Williams, Kelly Patterson, John Kerekes, Jan van Aardt, Rochester Institute of Technology

MO3.L6.3 14:20 **NONNEGATIVE SPARSE AUTOENCODER FOR ROBUST ENDMEMBER EXTRACTION FROM REMOTELY SENSED HYPERSPECTRAL IMAGES**
Yuanchao Su, Sun Yat-sen University; Andrea Marinoni, Università degli Studi di Pavia; Jun Li, Sun Yat-sen University; Antonio Plaza, University of Extremadura; Paolo Gamba, Università degli Studi di Pavia

MO3.L6.4 14:40 **SPECTRAL UNMIXING THROUGH PART-BASED NON-NEGATIVE CONSTRAINT DENOISING AUTOENCODER**
Ying Qu, Rui Guo, Hairong Qi, The University of Tennessee

MO3.L6.5 15:00 **PIXEL PURITY VERTEX COMPONENT ANALYSIS**
Rob Heylen, University of Antwerp; Mario Parente, University of Massachusetts; Paul Scheunders, University of Antwerp

Monday, July 24 | 16:20 - 18:00 | Room 202 CD
Session MO4.L6 | Oral

Spectral Unmixing Techniques II

Session Co-Chairs: Jose Bioucas-Dias, Instituto Tecnico of Lisbon; Antonio Plaza, University of Extremadura

MO4.L6.1 16:20 **FAST MULTITEMPORAL HYPERSPECTRAL UNMIXING**
Jakob Sigurdsson, Magnús Úlfarsson, Jóhannes Sveinsson, University of Iceland

MO4.L6.2 16:40 **KALMAN PARTICLE FILTERING ALGORITHM AND ITS COMPARISON TO KALMAN BASED LINEAR UNMIXING**
Sumit Chakravarty, Kennesaw state university; Madhushri Banerjee, Georgia Gwinnett College; Chih-Cheng Hung, Kennesaw state university

MO4.L6.3 17:00 **SPATIAL WEIGHTED SPARSE REGRESSION FOR HYPERSPECTRAL IMAGE UNMIXING**
Shaoquan Zhang, Jun Li, Sun Yat-sen University; Javier Plaza, University of Extremadura; Heng-Chao Li, Southwest Jiaotong University; Antonio Plaza, University of Extremadura

MO4.L6.4 17:20 **SPARSE AND LOW RANK HYPERSPECTRAL UNMIXING**
Jakob Sigurdsson, Magnús Úlfarsson, Jóhannes Sveinsson, University of Iceland

MO4.L6.5 17:40 **USING TIME SERIES TO IMPROVE ENDMEMBERS ESTIMATION ON MULTISPECTRAL IMAGES FOR SNOW MONITORING**
Théo Masson, Mauro Dalla Mura, GIPSA-lab; Marie Dumont, Météo-France-CNRS; Jocelyn Chanussot, GIPSA-lab

Monday, July 24 | 13:40 - 15:20 | Room 201 A
Session MO3.L7 | Oral

Microwave Radiometer Calibration I

Session Co-Chairs: Shannon Brown, JPL-CalTech; Sayak Biswas, USRA/NASA MSFC; Emmanuel Dinnat, Chapman University

MO3.L7.1 13:40 **THE ULTRA-WIDEBAND SOFTWARE DEFINED MICROWAVE RADIOMETER (UWBRAD) FOR ICE SHEET SUBSURFACE TEMPERATURE SENSING: CALIBRATION AND CAMPAIGN RESULTS**
Mark Andrews, Hongkun Li, Joel Johnson, Kenneth Jezek, Alexandra Bringer, Caglar Yardim, Chi-Chih Chen, Domenic Belgiovane, The Ohio State University; Vladimir Leuski, Microwave Radiometers and Antennas; Michael Durand, Yuna Duan, The Ohio State University; Giovanni Macelloni, Marco Brogioni, National Research Council (CNR); Shurun Tan, Leung Tsang, University of Michigan

MO3.L7.2 14:00 **POLARIMETRIC CALIBRATION OF THE SMAP L-BAND RADIOMETER USING COLD-SKY CALIBRATION MANEUVERS**
Sidharth Misra, Shannon T. Brown, Jet Propulsion Laboratory, California Institute of Technology

MO3.L7.3 14:20 **VALIDATE AND IMPROVE ATMS GEOLOCATION ACCURACY BY USING LUNAR OBSERVATIONS**
Jun Zhou, Hu Yang, University of Maryland; Fuzhong Weng, National Oceanic and Atmospheric Administration

MO3.L7.4 14:40 **TOWARDS DEVELOPING A LONG-TERM HIGH-QUALITY INTERCALIBRATED TRMM/GPM RADIOMETER DATASET**
Wesley Berg, Colorado State University

MO3.L7.5 15:00 **CALIBRATION OF HURRICANE IMAGING RADIOMETER C-BAND RECEIVERS**
Sayak Biswas, USRA/NASA MSFC; Daniel Cecil, Mark James, NASA Marshall Space Flight Center

Monday, July 24 | 16:20 - 18:00 | Room 201 A
Session MO4.L7 | Oral

Synthetic Aperture Microwave Radiometers II

Session Co-Chairs: Manuel Martin-Neira, European Space Agency (ESTEC); Todd Gaier, Jet Propulsion Laboratory, California Institute of Technology; Hamideh Ebrahimi, University of Florida

MO4.L7.1 16:20 **LESSONS LEARNT FROM SMOS AFTER 7 YEARS IN ORBIT**
Manuel Martín-Neira, Roger Oliva, European Space Agency (ESA); Ignasi Corbella, Francesc Torres, Nuria Duffo, Israel Durán, Universitat Politècnica de Catalunya; Juha Kainulainen, HarpTechnologies; Josep Closa, Alberto Zurita, EADS-CASA Espacio; François Cabot, Ali Khazaal, Center for the Study of the Biosphere from Space; Eric Anterrieu, IRAP; José Barbosa, RDA; Gonçalo Lopes, DEIMOS; Joseph Tenerelli, OceanDataLab; Raúl Díez-García, IDEAS; Jorge Fauste, European Space Agency (ESA); Verónica González-Gambau, Antonio Turiel, SMOS BEC & Institute of Marine Sciences; Steven Delwart, Raffaele Crapolicchio, Martin Suess, Susanne Mecklenburg, Matthias Drusch, Roberto Sabia, Elena Daganzo-Eusebio, European Space Agency (ESA); Yann Kerr, Center for the Study of the Biosphere from Space; Nicolas Reul, IFREMER

MO4.L7.2 16:40 **GEOSTATIONARY ATMOSPHERIC SOUNDING BY FORMATION FLIGHT APERTURE SYNTHESIS**
Ahmed Kiyoshi Sugihara El Maghraby, Angelo Grubisic, University of Southampton; Camilla Colombo, Politecnico di Milano; Adrian Tatnall, University of Southampton

MO4.L7.3 17:00 **FEASIBILITY OF RFI MITIGATION IN SYNTHETIC APERTURE RADIOMETERY BASED ON SUBSPACE SPATIAL FILTERING**
Hyuk Park, Adriano Camps, Universitat Politècnica de Catalunya; Verónica González-Gambau, Institute of Marine Science; Mercè Vall-llossera, Universitat Politècnica de Catalunya

MO4.L7.4 17:20 **RADIOMETER DEVELOPMENT FOR SMALL SATELLITE MICROWAVE ATMOSPHERIC REMOTE SENSING**
William Blackwell, Massachusetts Institute of Technology Lincoln Laboratory

MO4.L7.5 17:40 **STEPPED FREQUENCY MICROWAVE RADIOMETER RETRIEVAL ERROR CHARACTERIZATION**
Joseph Sapp, Suleiman Alsweiss, Zorana Jelenak, Paul Chang, National Oceanic and Atmospheric Administration

Monday, July 24 | 13:40 - 15:20 | Room 202 A
Session MO3.L8 | Oral-Invited

New GEO/LEO Mission Advanced Imagery Products: Optical Sensor Calibration and Applications I

Session Co-Chairs: Steve Goodman, NOAA/NESDIS/GOES-R; Changyong Cao, NOAA/Center for Satellite Applications and Research; Xiaoxiong Xiong, NASA GSFC

MO3.L8.1 13:40 **GOES-R ABI ON-ORBIT PERFORMANCE**
Paul Griffith, John Van Naarden, Luke Roop, Daniel Gall, Harris Corporation

MO3.L8.2 14:00 **CHARACTERIZING THE GOES-R (GOES-16) GEOSTATIONARY LIGHTNING MAPPER (GLM) ON-ORBIT PERFORMANCE**
Scott Rudlosky, NOAA/NESDIS/STAR; Steven Goodman, NOAA/NESDIS/GOES-R; William Koshak, Richard Blakeslee, NASA Marshall Space Flight Center; Dennis Buechler, University of Alabama in Huntsville; Douglas Mach, Monte Bateman, United Space Research Alliance

MO3.L8.3 14:20 **LATEST ASSESSMENT OF GOES-R (16) ADVANCED BASELINE IMAGER (ABI) DATA QUALITY FROM AN APPLICATION AND TRAINING PERSPECTIVE**
Scott Lindstrom, CIMSS; Timothy J. Schmit, NOAA; Mathew M. Gunshor, CIMSS; Jaime Daniels, NOAA; Kaba Bah, CIMSS; Steven J. Goodman, GOES-R Program Office

MO3.L8.4 14:40 **STRAY LIGHT PERFORMANCE COMPARISON BETWEEN HIMAWARI-8 AHI AND GOES-16 ABI**
Xi Shao, ERT Inc.; Xiangqian Wu, NOAA/NESDIS/STAR; Fangfang Yu, ERT Inc.

MO3.L8.5 15:00 **DIRECT ASSIMILATION OF AHI AND ABI INFRARED RADIANCES IN NWP MODELS**
Xiaolei Zou, University of Maryland; Fuzhong Weng, NOAA; Zhengkun Qin, Nanjing University of Information Science and Technology

Monday, July 24 | 16:20 - 18:00 | Room 202 A
Session MO4.L8 | Oral-Invited

New GEO/LEO Mission Advanced Imagery Products: Optical Sensor Calibration and Applications II

Session Co-Chairs: Changyong Cao, NOAA/Center for Satellite Applications and Research; Xiaoxiong Xiong, NASA Goddard Space Flight Center; Steve Goodman, NOAA/NESDIS/GOES-R

MO4.L8.1 16:20 **REPROCESSING OF SUOMI NPP VIIRS SENSOR DATA RECORDS AND IMPACTS ON ENVIRONMENTAL APPLICATIONS**
Fuzhong Weng, Satellite Meteorology and Climatology Division; Taeyoung Choi, ERT Inc; Changyong Cao, Bin Zhang, NOAA

MO4.L8.2 16:40 **CLARREO PATHFINDER: ON-ORBIT DATA MATCHING AND SENSOR INTER-CALIBRATION**
Constantine Lukashin, NASA; Danie Goldin, SSAI; Craig Hutchinson, Carlos Roithmayr, NASA; Wenbo Sun, SSAI; Kurtis Thome, Bruce Wielicki, NASA; Aisheng Wu, Sigma Space Corporation; Xiaoxiong Xiong, NASA

MO4.L8.3 17:00 **GOES-R ADVANCED BASELINE IMAGER (ABI) AND GEOSTATIONARY LIGHTNING MAPPER (GLM) CALIBRATION/VALIDATION FROM A FIELD CAMPAIGN PERSPECTIVE**
Francis Padula, GeoThinkTank LLC; Steven J. Goodman, NOAA/NESDIS GOES-R Program Office; Aaron Pearlman, GeoThinkTank LLC; Changyong Cao, NOAA/NESDIS/STAR

MO4.L8.4 17:20 **EVALUATION OF GOES-16 ABI ON-ORBIT PERFORMANCE USING GSICS**
Xiangqian Wu, Fangfang Yu, Vladimir Kondratovich, Boryana Efremova, Xi Shao, Robert Iacovazzi, Changyong Cao, NOAA/STAR

MO4.L8.5 17:40 **STATUS OF COPERNICUS' SENTINEL-2A AND SENTINEL-3A OPTICAL CALIBRATION AND VALIDATION ACTIVITIES**
Philippe Goryl, Jens Nieke, Steffen Dransfeld, Susanne Mecklenburg, Bruno Berruti, Craig Donlon, Ferran Gascon, Bianca Hoersch, European Space Agency (ESA)

Monday, July 24 | 13:40 - 15:20 | Room 203 A
Session MO3.L9 | Oral

Active/Passive Snow and Ice

Session Co-Chairs: Roger De Roo, University of Michigan; Chuan Xiong, Insiute of Remoe Senisng Applications

MO3.L9.1 13:40 **INTEGRATION OF SATELLITE-BASED PASSIVE MICROWAVE BRIGHTNESS TEMPERATURE OBSERVATIONS AND AN ENSEMBLE-BASED LAND DATA ASSIMILATION FRAMEWORK TO IMPROVE SNOW ESTIMATION IN FORESTED REGIONS**
Yuan Xue, Barton Forman, University of Maryland

MO3.L9.2 14:00 **METEOROLOGICAL INVENTORY OF RAIN-ON-SNOW EVENTS AND DETECTION ASSESSMENT IN THE CANADIAN ARCTIC ARCHIPELAGO USING PASSIVE MICROWAVE RADIOMETRY**
Caroline Dolant, Alexandre Langlois, University of Sherbrooke; Ludovic Brucker, NASA Goddard Space Flight Center; Alain Royer, Alexandre Roy, Benoit Montpetit, University of Sherbrooke

MO3.L9.3 14:20 **LONG TERM CHANGES IN NORTHERN HEMISPHERE SNOW COVER FROM SWE TIMESERIES CONSTRAINED WITH SE DATA**
Kari Luojus, Finnish Meteorological Institute; Elisabeth Ripper, ENVEO IT GmbH; Jouni Pulliainen, Juval Cohen, Jaakko Ikonen, Matias Takala, Juha Lemmetyinen, Finnish Meteorological Institute; Thomas Nagler, Gabriele Schwaizer, ENVEO IT GmbH; Chris Derksen, Environment Canada; Bojan Bojkov, EUMETSAT; Michael Kern, European Space Agency (ESA)

MO3.L9.4 14:40 **VALIDATION OF PHYSICAL MODEL AND RADAR RETRIEVAL ALGORITHM OF SNOW WATER EQUIVALENT USING SNOWSAR DATA**
Jiyue Zhu, Shurun Tan, University of Michigan; Chuan Xiong, Chinese Academy of Sciences; Leung Tsang, University of Michigan; Juha Lemmetyinen, Finnish Meteorological Institute; Chris Derksen, Joshua King, Environment and Climate Change Canada

MO3.L9.5 15:00 **MAPPING SNOW-DEPTH USING KA-BAND INSAR: CALIBRATION AND VALIDATION DURING SNOWEX**
Delwyn Moller, Remote Sensing Solutions; Scott Hensley, Kathryn Bormann, Jet Propulsion Laboratory, California Institute of Technology; Jeffrey S. Deems, National Snow and Ice Data Center; Konstantinos Andreadis, Thomas H. Painter, Jet Propulsion Laboratory, California Institute of Technology

Monday, July 24 | 16:20 - 18:00 | Room 203 A
Session MO4.L9 | Oral

Sea Ice

Session Co-Chairs: Son Nghiem, NASA/JPL; Camilla Brekke, UiT The Arctic Univeristy of Norway

MO4.L9.1 16:20 **FEATURE TRACKING FOR SEA ICE DRIFT RETRIEVAL FROM SAR IMAGES**
Denis Demchev, Vladimir Volkov, Eduard Kazakov, Nansen International Environmental and Remote Sensing Center; Stein Sandven, Nansen Environmental and Remote Sensing Center

MO4.L9.2 16:40 **SEA ICE SEGMENTATION USING TANDEM-X PURSUIT MONOSTATIC AND ALTERNATIVE BISTATIC MODES**
Temesgen Gebrie Yitayew, Anthony Paul Doulgeris, Torbjorn Eltoft, UiT The Arctic Univeristy of Norway; Wolfgang Dierking, AWI, Alfred Wegener Institute, Germany; Camilla Brekke, UiT The Arctic Univeristy of Norway; Anja Rosel, NPI, Norwegian Polar Institute

MO4.L9.3 17:00 **EVALUATION OF POLARIMETRIC FEATURES FOR SEA ICE CHARACTERIZATION AT X, C AND L- BAND SAR**
Suman Singha, German Aerospace Center (DLR)

MO4.L9.4 17:20 **HIGH RESOLUTION SEA ICE DRIFT ESTIMATION USING COMBINED TERRASAR-X AND RADARSAT-2 DATA: FIRST TESTS**
Anja Frost, Sven Jacobsen, Suman Singha, German Aerospace Center (DLR)

MO4.L9.5 17:40 **MULTI-FREQUENCY MICROWAVE BACKSCATTER INDICES FROM SALINE SNOW COVERS ON SMOOTH FIRST-YEAR SEA ICE**
Vishnu Nandan, Torsten Geldsetzer, Mallik Mahmud, John Yackel, Mark Fuller, Jagvijay Gill, Saroat Ramjan, University of Calgary

Monday, July 24 | 13:40 - 15:20 | Room 204 A
Session MO3.L10 | Oral

Special Theme: Emerging Industry Remote Sensing Activities

Session Chair: Kamal Sarabandi, The University of Michigan

MO3.L10.1 13:40 **THE PHENOMENOLOGY OF RADAR BACKSCATTERING RESPONSE OF VEHICLES AT 222 GHZ**
Abdulrahman Alaqeel, Amr Ibrahim, Adib Nashashibi, Kamal Sarabandi, The University of Michigan; Hussein Shaman, King Abdulaziz City for Science and Technology

MO3.L10.2 14:00 **FABSPACE 2.0: THE OPEN-INNOVATION NETWORK FOR GEODATA-DRIVEN INNOVATION**
Fabio Del Frate, University of Rome Tor Vergata; Josiane Mothe, University of Toulouse; Christian Barbier, University of Liège; Matthias Becker, Darmstadt Technical University; Robert Olszewski, Warsaw University of Technology; Dimitrios Soudris, Institute of Communications and Computer Systems

MO3.L10.3 14:20 **AUTOMATIC CONSTRUCTION OF AERIAL CORRIDOR FROM DISCRETE LIDAR DATA FOR UNMANNED AERIAL SYSTEMS**
Dengchao Feng, North China Institute of Aerospace Engineering; Xiaohui Yuan, University of North Texas; Xiaojing Yuan, University of Houston

MO3.L10.4 14:40 **A NOVEL TELEMETRY TECHNIQUE FOR EMPOWERING SMART DIRECTIONAL BOREHOLE DRILLING SYSTEMS**
Seyed Mohammad Amjadi, Kamal Sarabandi, The University of Michigan

MO3.L10.5 15:00 **DIELECTRIC CHARACTERIZATION OF GEOCHEMICAL PROPERTIES OF CRUDE OILS AND GAS CONDENSATE AT 25ºC**
Jose Oliverio Alvarez, David Jacobi, Greg Bernero, Aramco Services Company: Aramco Research Center - Houston

Monday, July 24 | 16:20 - 18:00 | Room 204 A
Session MO4.L10 | Oral-Invited

Intelligence for Big Geospatial Data

Session Co-Chairs: Peng Yue, Wuhan University; Peter Baumann, Jacobs University

MO4.L10.1 16:20 **CUMULUS: NASA'S CLOUD BASED DISTRIBUTED ACTIVE ARCHIVE CENTER PROTOTYPE**
Rahul Ramachandran, NASA Marshell Space Flight Center; Katie Baynes, NASA Goddard Space Flight Center; Kevin Murphy, NASA Headquarters; Alireza Jazayeri, Development Seed; Ian Shuler, Develoment Seed; Dan Pilone, Element84

MO4.L10.2 16:40 **A STREAM COMPUTING BASED APPORACH FOR UPDATING WATERLOGGING INFOMATION ON REMOTE SENSING IMAGES**
Boyi Shangguan, Peng Yue, Zhaoyan Wu, Wuhan University

MO4.L10.3 17:00 **DEEP WEB CRAWLING FOR INSIGHTS FROM POLAR DATA**
SiriJodha Khalsa, University of Colorado; Chris Mattmann, NASA; Ruth Duerr, Ronin Institute for Independent Scholarship

MO4.L10.4 17:20 **ADVANCES IN FUSION OF BIG GEOSPATIAL DATA**
George Percivall, Trevor Taylor, Open Geospatial Consortium

MO4.L10.5 17:40 **LATENCY ANALYSIS OF LARGE VOLUME SATELLITE DATA TRANSMISSIONS**
Weiguo Han, University Corporation for Atmospheric Research; Matthew Jochum, National Oceanic and Atmospheric Administration

Monday, July 24 | 13:40 - 15:20 | Room 202 B
Session MO3.L11 | Oral

Ocean Surface Wind

Session Co-Chairs: Xiaofeng Yang, RADI; Alexander Fore

MO3.L11.1 13:40 **TOWARD A COMBINED USE OF CO- AND CROSS- POLARIZED CHANNELS FOR SENTINEL-1 HIGH RESOLUTION WIND**
Alexis Mouche, LOPS/IFREMER; Biao Zhang, NUIST; Romain Husson, CLS

MO3.L11.2 14:00 **ON THE USE OF SENTINEL-1 CROSS-POLARIZATION IMAGERY FOR WIND SPEED RETRIEVAL**
Frank Monaldo, Johns Hopkins University Applied Physics Laboratory; Christopher Jackson, Xiaofeng Li, GST

MO3.L11.3 14:20 **ASYMMETRICAL WIND AND SURFACE MEAN SQUARE SLOPE CORRELATION OBSERVED IN HURRICANE IKE**
Scott Gleason, Southwest Research Institute; Valery Zavorotny, Edward J. Walsh, National Oceanic and Atmospheric Administration; Dennis Akos, Sara Hrbek, Dallas Masters, University of Colorado Boulder; Ivan PopStefanija, ProSensing Inc.; Michael Grant, NASA

MO3.L11.4 14:40 **VALIDATION OF SMAP RADIOMETER EXTREME WIND SPEED DATA PRODUCT WITH RAPID SCATTEROMETER AND STEPPED FREQUENCY MICROWAVE RADIOMETER**
Alexander Fore, Simon Yueh, Wenqing Tang, Bryan Stiles, Akiko Hayashi, Jet Propulsion Laboratory

MO3.L11.5 15:00 **ON THE IMPROVEMENT OF ASCAT WIND DATA ASSIMILATION IN GLOBAL NWP**
Wenming Lin, Marcos Portabella, Institute of Marine Sciences (ICM-CSIC); Ad Stoffelen, Royal Netherlands Meteorological Institute (KNMI); Giovanna De Chiara, European Center for Medium range Weather Forecasting (ECMWF); Justino Martínez, Institute of Marine Sciences (ICM-CSIC)

Monday, July 24 | 16:20 - 18:00 | Room 202 B
Session MO4.L11 | Oral

Ocean Surface Current and Wave

Session Co-Chairs: Frank Monaldo; Alexis Mouche

MO4.L11.1 16:20 **LEARNING MULTI-TRACER CONVOLUTIONAL MODELS FOR THE RECONSTRUCTION OF HIGH-RESOLUTION SSH FIELDS**
Ronan Fablet, Manuel Lopez-Radcenco, IMT Atlantique; Jacques Verron, LGGE; Baptiste Mourre, SOCIB; Bertrand Chapron, Ifremer, LOPS; Ananda Pascual, IMEDEA

MO4.L11.2 16:40 **NEARSHORE OCEAN SURFACE CURRENT ESTIMATION COMPARISON IN C-BAND AND KA-BAND**
Shadi Aslebagh, Gordon Farquharson, University of Washington; Ernesto Rodriguez, Dragana Perkovic-Martin, Jet Propulsion Laboratory

MO4.L11.3 17:00 **THE STUDY OF THE WIDE SWATH WAVE INVERSION FROM THE FUSION OF HY2 SCATTEROMETER AND RADAR ALTIMETER**
Jiuke Wang, Qingtao Song, Youguang Zhang, Benxia Li, Zhiyi Gao, China State Oceanic Administration

MO4.L11.4 17:20 **PASSIVE REMOTE SENSING OF OCEANIC WHITECAPS: UPDATED GEOPHYSICAL MODEL FUNCTION**
Magdalena D. Anguelova, Michael H. Bettenhausen, Naval Research Laboratory; William F. Johnston, Computational Physics, Inc; Peter W. Gaiser, Naval Research Laboratory

MO4.L11.5 17:40 **APPLICATION OF MULTI-FREQUENCY ALONG-TRACK INTERFEROMETRIC SAR TO OCEAN WIND AND CURRENT MEASUREMENT**
Gordon Farquharson, University of Washington; Evan Zaugg, Josh Bradley, ARTEMIS, Inc.

Monday, July 24 | 13:40 - 15:20 | Room 204 B
Session MO3.L12 | Oral-Invited

International Spaceborne Imaging Spectroscopy Missions: Updates and News I

Session Co-Chairs: Uta Heiden, German Aerospace Center (DLR); Cindy Ong, CSIRO

MO3.L12.1 13:40 **GLOBAL COVERAGE IMAGING SPECTROSCOPY**
Robert Green, Jet Propulsion Laboratory

MO3.L12.3 14:20 **PERSPECTIVES ON CHINESE DEVELOPMENTS IN SPACEBORNE IMAGING SPECTROSCOPY: WHAT'S NEW IN 2016**
Lifu Zhang, Changping Huang, Xuejian Sun, Hang Yang, Xun Jian, RADI, CAS

MO3.L12.4 14:40 **OVERVIEW OF THE PRISMA SPACE AND GROUND SEGMENT AND ITS HYPERSPECTRAL PRODUCTS**
Rocchina Guarini, Rosa Loizzo, Francesco Longo, Silvia Mari, Tiziana Scopa, Giancarlo Varacalli, Italian Space Agency

MO3.L12.5 15:00 **QUANTITATIVE GLOBAL MAPPING OF TERRESTRIAL VEGETATION PHOTOSYNTHESIS: THE FLUORESCENCE EXPLORER (FLEX) MISSION**
Jose Moreno, University of Valencia; Roberto Colombo, University Milano Bicocca; Alexander Damm, University of Zurich; Yves Goulas, Centre National de la Recherche Scientifique (CNRS); Elizabeth M Middleton, NASA Goddard Space Flight Center; Franco Miglietta, National Research Council - CNR/IBIMET; Gina Mohammed, P & M Technologies; Matti Möttus, University of Helsinki; Peter North, University of Swansea; Uwe Rascher, Forschungszentrum Jülich; Christiaan van der Tol, University of Twente; Matthias Drusch, European Space Agency (ESA)

Monday, July 24 | 16:20 - 18:00 | Room 204 B
Session MO4.L12 | Oral-Invited

International Spaceborne Imaging Spectroscopy Missions: Updates and News II

Session Co-Chairs: Andreas Mueller, German Aerospace Center; John Kerekes, Rochester Institute of Technology

MO4.L12.1 16:20 **PREPARATORY ACTIVITIES FOR THE GERMAN SPACEBORNE IMAGING SPECTROMETER MISSION ENMAP**
Uta Heiden, Andreas Mueller, German Aerospace Center (DLR); Luis Guanter, Helmholtz Centre Potsdam - German Research Centre for Geosciences (GFZ); Tobias Storch, Sebastian Fischer, Godela Rossner, Martin Habermeyer, German Aerospace Center (DLR); Saskia Foerster, Karl Segl, Chlebek Christian, Hermann Kaufmann, Helmholtz Centre Potsdam - German Research Centre for Geosciences (GFZ)

MO4.L12.3 17:00 **CURRENT STATUS OF HYPERSPECTRAL IMAGER SUITE (HISUI) ONBOARD INTERNATIONAL SPACE STATION (ISS)**
Tsuneo Matsunaga, National Institute for Environmental Studies; Akira Iwasaki, The University of Tokyo; Satoshi Tsuchida, Koki Iwao, National Institute of Advanced Industrial Science and Technology; Jun Tanii, Osamu Kashimura, Japan Space Systems; Ryosuke Nakamura, Hirokazu Yamamoto, Soushi Kato, Kenta Obata, National Institute of Advanced Industrial Science and Technology; Koichiro Mouri, Tetsushi Tachikawa, Japan Space Systems

MO4.L12.4 17:20 **A SPACEBORNE COASTAL AND INLAND WATER COLOR HYPERSPECTRAL IMAGER**
Shen-En Qian, Martin Bergeron, Oleg Djazovski, Michael Maszkiewicz, Ralph Girard, Canadian Space Agency; Mary Kappus, Jeffrey Bowles, Naval Research Laboratory; Antonio Mannino, Adam Matuszeski, NASA Goddard Space Flight Center; Michael Furlong, Department of Fisheries and Oceans; Jean-Pierre Ardouin, Georges Fournier, Josee Levesque, Defence Research and Development Canada; Louis Moreau, Jean-Francois Lavigne, Julie Mandar, ABB Inc. Canada; Jennifer Busler, Gary Buttner, MacDonald, Dettwiler and Associates Ltd.

MO4.L12.5 17:40 **THE NORTHSTAR SYSTEM – A NEW ERA IN EARTH OBSERVATION**
Daniel O'Connell, NorStar Space Data, Inc. (NSDI); Derek Peddle, University of Lethbridge; Stewart Bain, Douglas Bancroft, NorStar Space Data, Inc. (NSDI); Kjell Stakkestad, KinetX, Inc.

Tuesday, July 25 **08:00 - 09:40** **Ballroom B**
Session TU1.L1 **Oral**

High Resolution Classification Methods

Session Co-Chairs: Fabio Pacifici, DigitalGlobe; Claudia Paris, University of Trento; Minh-Tan Pham, Université Bretagne-Sud

TU1.L1.1 08:00 **CLASSIFICATION OF VHR REMOTE SENSING IMAGES USING LOCAL FEATURE-BASED ATTRIBUTE PROFILES**
Minh-Tan Pham, Sébastien Lefèvre, Université Bretagne Sud; Erchan Aptoula, Gebze Technical University; Bharath Bhushan Damodaran, Université Bretagne Sud

TU1.L1.2 08:20 **PRODUCTION OF A GLOBAL FOREST/NON-FOREST MAP UTILIZING TANDEM-X INTERFEROMETRIC SAR DATA**
Christopher Wecklich, Michele Martone, Paola Rizzoli, José-Luis Bueso-Bello, Carolina Gonzalez, Gerhard Krieger, German Aerospace Center (DLR)

TU1.L1.3 08:40 **NEURAL NETWORK HYPERSPECTRAL UNMIXING WITH SPECTRAL INFORMATION DIVERGENCE OBJECTIVE**
Frosti Palsson, Jakob Sigurdsson, Jóhannes Sveinsson, Magnús Úlfarsson, University of Iceland

TU1.L1.4 09:00 **FUSING DIFFERENT LEVELS OF DEEP FEATURES BY DEEP STACKED NEURAL NETWORK FOR HYPERSPECTRAL IMAGES**
Shaohui Mei, Yanfu Chen, Jingyu Ji, Northwestern Polytechnical University; Junhui Hou, City Univeristy of Hong Kong; Qian Du, Mississippi State University

TU1.L1.5 09:20 **CAUSAL INFERENCE IN GEOSCIENCES WITH KERNEL SENSITIVITY MAPS**
Adrian Perez-Suay, Gustau Camps-Valls, Universitat de València

Tuesday, July 25 **10:40 - 12:20** **Ballroom B**
Session TU2.L1 **Oral**

Data Reduction Methods

Session Co-Chairs: Farid Melgani, Univ. of Trento; Lefei Zhang, Wuhan University

TU2.L1.1 10:40 **HASHED BINARY SEARCH SAMPLING FOR CONVOLUTIONAL NETWORK TRAINING WITH LARGE OVERHEAD IMAGE PATCHES**
Dalton Lunga, Lexie Yang, Jiangye Yuan, Budhendra Bhaduri, Oak Ridge National Laboratory

TU2.L1.2 11:00 **TENSOR LOCALITY PRESERVING PROJECTION FOR HYPERSPECTRAL IMAGE CLASSIFICATION**
Yang-Jun Deng, Heng-Chao Li, Lei Pan, Southwest Jiaotong University; William J. Emery, University of Colorado Boulder

TU2.L1.3 11:20 **TREE-BASED SUPERVISED FEATURE EXTRACTION METHOD BASED ON SELF-DUAL ATTRIBUTE PROFILES**
Gabriele Cavallaro, Forschungszentrum Juelich; Mauro Dalla Mura, Grenoble Institute of Technology; Morris Riedel, Forschungszentrum Juelich; Jón Atli Benediktsson, University of Iceland

TU2.L1.4 11:40 **NON-NEGATIVE MATRIX FACTORIZATION WITH MIXTURE OF ITAKURA-SAITO DIVERGENCE FOR SAR IMAGES**
Chi Liu, Wenzhi Liao, Ghent University; Heng-Chao Li, Southwest Jiaotong University; Wilfried Philips, Ghent University

TU2.L1.5 12:00 **ONBOARD PAYLOAD-DATA DIMENSIONALITY REDUCTION**
Miguel Penalver, Fabio Del Frate, University of Rome "Tor Vergata"; Juan Mario Haut, Mercedes Eugenia Paoletti, Javier Plaza, Antonio Plaza, University of Extremadura

Tuesday, July 25 **13:40 - 15:20** **Ballroom B**
Session TU3.L1 **Oral**

SAR Image Segmentation

Session Co-Chairs: Heng-Chao Li, Southwest Jiaotong University; Fang Liu, National University of Defense Technology

TU3.L1.1 13:40 **A VARIATIONAL METHOD USING RIEMANNIAN METRIC FOR SAR IMAGE SEGMENTATION**
Na Li, TianHui Satellite Center of China; Fang Liu, National University of Defense Technology; Jing Li, Junfeng Yang, Tuanjie Zheng, TianHui Satellite Center of China

TU3.L1.2 14:00 **SCATTERING MODEL BASED SEGMENTATION OF POLARIMETRIC SAR IMAGES**
Huiguo Yi, Jie Yang, Pingxiang Li, Lei Shi, Weidong Sun, Wuhan University

TU3.L1.3 14:20 **AN UNSUPERVISED SEGMENTATION METHOD BASED ON THE VARIATIONAL MODEL FOR FULLY POLARIMETRIC SAR IMAGES**
Shiyu Luo, University of Electronic Science and Technology of China; Kamal Sarabandi, University of Michigan, Ann Arbor; Ling Tong, University of Electronic Science and Technology of China

TU3.L1.4 14:40 **FAST GRAPH-BASED SAR IMAGE SEGMENTATION VIA SIMPLE SUPERPIXELS**
Biao Hou, Xiaohua Zhang, Dezhao Gong, Shuang Wang, Xiangrong Zhang, Licheng Jiao, xidian university

TU3.L1.5 15:00 **SUPERPIXEL GENERATION FOR SAR IMAGES BASED ON DBSCAN CLUSTERING AND PROBABILISTIC PATCH-BASED SIMILARITY**
Hao Hu, Bin Liu, Weiwei Guo, Zenghui Zhang, Wenxian Yu, Shanghai Jiao Tong University

Tuesday, July 25 **16:20 - 18:00** **Ballroom B**
Session TU4.L1 **Oral**

Multisource Data Classification

Session Co-Chairs: Lori Mann Bruce, Mississippi State University; Mauro Dalla Mura, Grenoble Institute of Technology

TU4.L1.1 16:20 **MULTI-SUPERPIXELIZATION-BASED CONVEX FORMULATION FOR JOINT CLASSIFICATION OF HYPERSPECTRAL AND LIDAR DATA**
Yi Liu, Escuela Politécnica de Cáceres, University of Extremadura; José Manuel Bioucas-Dias, Instituto de Telecomunicações, Universidade de Lisboa; Jun Li, Sun Yat-sen University; Antonio Plaza, Escuela Politécnica de Cáceres, University of Extremadura

TU4.L1.2 16:40 **SAR AND OPTICAL TIME SERIES FOR CROP CLASSIFICATION**
Dimo Dimov, University of Würzburg; Fabian Löw, MapTailor Geospatial Consulting; Mirzahayot Ibrakhimov, Khorezm Rural Advisory Support Service; Galina Stulina, Scientific Information Center of the Interstate Water Commission of Central Asia; Christopher Conrad, University of Würzburg

TU4.L1.3 17:00 **URBAN FUNCTION ZONING USING GEOTAGGED PHOTOS AND OPENSTREETMAP**
Lu Wang, Fang Fang, China University of Geosciences; Xiaohui Yuan, University of North Texas; Zhongwen Luo, Yuanyuan Liu, Bo Wan, Yishi Zhao, China University of Geosciences

TU4.L1.4 17:20 **MULTI-TEMPORAL IMAGES CLASSIFICATION WITH EVIDENTIAL FUSION OF MANIFOLD ALIGNMENT**
Meiling Zhang, Tianzhu Liu, Guoming Gao, Yanfeng Gu, Harbin Institute of Technology

TU4.L1.5 17:40 **CLASSIFICATION OF FUSING SAR AND MULTISPECTRAL IMAGE VIA DEEP BIMODAL AUTOENCODERS**
Jie Geng, Hongyu Wang, Dalian University of Technology; Jianchao Fan, National Marine Environmental Monitoring Center; Xiaorui Ma, Dalian University of Technology

Tuesday, July 25 **08:00 - 09:40** **Ballroom A**
Session TU1.L2 **Oral**

Forest Monitoring Applications

Session Chair: David Goodenough, University of Victoria

TU1.L2.1 08:00 **INDIVIDUAL TREE-BASED SPECIES CLASSIFICATION FOR UNEVEN-AGED, MIXED-DECIDUOUS FORESTS USING MULTI-SEASONAL WORLDVIEW-3 IMAGES**
Jian Yang, University of Toronto; Yuhong He, University of Toronto Mississauga; John Caspersen, University of Toronto

TU1.L2.2 08:20 **DETECTION OF THERMAL ANOMALY USING SENTINEL-2A DATA**
Soushi Kato, Ryosuke Nakamura, National Institute of Advanced Industrial Science and Technology

TU1.L2.3 08:40 **MODELING AND VALIDATION OF THE ANGULAR CLUMPING INDEX OF FOREST CANOPY**
Jingjing Peng, University of Maryland; Wenjie Fan, Peking University; Lizhao Wang, Beijing Normal University; Jvcai Li, Dingfang Tian, Xiru Xu, Peking University

TU1.L2.4 09:00 **PROJECTION PURSUIT LEARNING NETWORK ALGORITHM FOR PLANT CLASSIFICATION**
Hongga Li, Institute of Remote Sensing Applications, Chinese Academy of Sciences; Yarong Zou, National Satellite Ocean Application Service; Xiaoxia Huang, Institute of Remote Sensing Applications, Chinese Academy of Sciences; Renrong Jiang, Shenzhen Research Center of Digital City Engineering; Xia Li, Xin Du, Yilan Liu, Institute of Remote Sensing Applications, Chinese Academy of Sciences

TU1.L2.5 09:20 **A REGION-BASED METHOD OF VEGETATION COVERAGE EXTRACTING IN COMPLEX TERRAIN AREAS USING POLARMETRIC SAR DATA**
Jianhao Du, Yan Chen, Ling Tong, Guang Li, Caizheng Guo, University of Electronic Science and Technology of China

Tuesday, July 25 **10:40 - 12:20** **Ballroom A**
Session TU2.L2 **Oral**

Deep Networks for Detection and Recognition I

Session Chair: Yanfei Zhong, Wuhan University

TU2.L2.1 10:40 **DEEP CONVOLUTIONAL NEURAL NETWORK BASED LARGE-SCALE OIL PALM TREE DETECTION FOR HIGH-RESOLUTION REMOTE SENSING IMAGES**
Weijia Li, Haohuan Fu, Le Yu, Tsinghua University

TU2.L2.2 11:00 **EVALUATION THE PERFORMANCE OF FULLY CONVOLUTIONAL NETWORKS FOR BUILDING EXTRACTION COMPARED WITH SHALLOW MODELS**
Youyou Li, Binbin He, Teng Long, Xiaojing Bai, University of Electronic Science and Technology of China

TU2.L2.3 11:20 **HIERARCHICAL FEATURE EXTTRATCTION FOR OBJECT RECOGITION IN COMPLEX SAR IMAGE USING MODIFIED CONVOLUTIONAL AUTO-ENCODER**
Sirui Tian, Nanjing University of Science and Technology; Chao Wang, Hong Zhang, Chinese Academy of Sciences

TU2.L2.4 11:40 **FAST MULTICLASS OBJECT DETECTION IN OPTICAL REMOTE SENSING IMAGES USING REGION BASED CONVOLUTIONAL NEURAL NETWORKS**
Zhipeng Deng, Hao Sun, Shilin Zhou, National University of Defense Technology; Juanping Zhao, Shanghai Jiao Tong University; Lin Lei, Huanxin Zou, National University of Defense Technology

TU2.L2.5 12:00 **TRAINING DEEP CONVOLUTION NEURAL NETWORK WITH HARD EXAMPLE MINING FOR AIRPORT DETECTION**
Bowen Cai, Zhiguo Jiang, Haopeng Zhang, Yuan Yao, Jie Huang, Beihang University

Tuesday, July 25 **13:40 - 15:20** **Ballroom A**
Session TU3.L2 **Oral**

Deep Networks for Detection and Recognition II

Session Co-Chairs: Jefersson A. dos Santos, Federal University of Minas Gerais; Mario Parente, University of Massachusetts Amherst

TU3.L2.1 13:40 **FAST ANIMAL DETECTION IN UAV IMAGES USING CONVOLUTIONAL NEURAL NETWORKS**
Benjamin Kellenberger, Michele Volpi, Devis Tuia, University of Zurich

TU3.L2.2 14:00 **TOWARD COUNTRY SCALE BUILDING DETECTION WITH CONVOLUTIONAL NEURAL NETWORK USING AERIAL IMAGES**
Hsiuhan Lexie Yang, Dalton Lunga, Jiangye Yuan, ORNL

TU3.L2.3 14:20 **A DEEP CONVOLUTIONAL NEURAL NETWORK, WITH PRE-TRAINING, FOR SOLAR PHOTOVOLTAIC ARRAY DETECTION IN AERIAL IMAGERY**
Jordan Malof, Leslie Collins, Kyle Bradbury, Duke University

TU3.L2.4 14:40 **DEEP SAR IMAGE GENERATIVE NEURAL NETWORK AND AUTO-CONSTRUCTION OF TARGET FEATURE SPACE**
Qian Song, Feng Xu, Ya-Qiu Jin, Fudan University

TU3.L2.5 15:00 **DETECTION AND DISCRIMINATION OF ICEBERGS AND SHIPS USING SATELLITE ALTIMETRY**
Igor Zakharov, Thomas Puestow, C-CORE; Andrew Fleming, British Antarctic Survey; Janaka Deepakumara, Desmond Power, C-CORE

Tuesday, July 25 **16:20 - 18:00** **Ballroom A**
Session TU4.L2 **Oral**

Ship and Road Detection

Session Co-Chairs: Gianni Poggi, University of Naples; Mats Pettersson, Blekinge Institute of Technology

TU4.L2.1 16:20 **A FULLY CONVOLUTIONAL NEURAL NETWORK FOR LOW-COMPLEXITY SINGLE-STAGE SHIP DETECTION IN SENTINEL-1 SAR IMAGES**
Davide Cozzolino, Gerardo Di Martino, Giovanni Poggi, Luisa Verdoliva, University of Naples Federico II

TU4.L2.2 16:40 **SHIP DETECTION USING WEIGHTED SVM AND M-CHI DECOMPOSITION IN COMPACT POLARIMETRIC SAR IMAGERY**
Kefeng Ji, Xiangguang Leng, Haibo Wang, Shilin Zhou, Huanxin Zou, National University of Defense Technology

TU4.L2.3 17:00 **TRANSDUCTIVE ATTRIBUTES FOR SHIP CATEGORY RECOGNITION**
Quentin Oliveau, Hichem Sahbi, Télécom Paristech

TU4.L2.4 17:20 **COHERENCE ESTIMATION IN THE LOW-BACKSCATTERING AREA USING MULTITEMPORAL TERRASAR-X IMAGES AND ITS APPLICATION ON ROAD DETECTION**
Fanghong Xiao, Yan Chen, Ling Tong, Xun Yang, University of Electronic Science and Technology of China

TU4.L2.5 17:40 **ROAD WIDTH MEASUREMENT FROM REMOTE SENSING IMAGES**
Zhichao Xia, Yu Zang, Cheng Wang, Jonathan Li, Xiamen University

Tuesday, July 25 | 08:00 - 09:40 | Ballroom C
Session TU1.L3 | Oral-Invited

TanDEM-X: The Earth in 3D I

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

TU1.L3.1 08:00 **THE GLOBAL TANDEM-X DEM - A UNIQUE DATA SET**
Manfred Zink, Alberto Moreira, Markus Bachmann, Paola Rizzoli, Thomas Fritz, Irena Hajnsek, Gerhard Krieger, Birgit Wessel, German Aerospace Center (DLR)

TU1.L3.2 08:20 **TANDEM-X: SCIENCE ACTIVITIES**
Irena Hajnsek, German Aerospace Center (DLR); Thomas Busche, German Aerospace Center/ ETH Zurich

TU1.L3.3 08:40 **FOREST STRUCTURE MODELING OF A CONIFEROUS FOREST USING TANDEM-X INSAR AND SIMULATED GEDI LIDAR DATA**
Wenlu Qi, Ralph Dubayah, University of Maryland College Park

TU1.L3.4 09:00 **TROPICAL FOREST STRUCTURE OBSERVATION WITH TANDEM-X DATA**
Andrea Pulella, University of Pisa; Polyanna da Conceicao Bispo, University of Leicester; Matteo Pardini, Florian Kugler, Victor Cazcarra Bes, Maria Tello Alonso, Konstantinos Papathanassiou, German Aerospace Center (DLR); Heiko Balzter, Igor Rizaev, University of Leicester; Maiza Nara Santos, Briazilian Agricultural Research Corporation (EMBRAPA); Joao Roberto dos Santos, National Institute of Space Research (INPE); Luciana Spinelli de Araujo, Brazilian Agricultural Research Corporation (EMBRAPA); Kevin Tansey, University of Leicester

TU1.L3.5 09:20 **PHASE CALIBRATION OF TANDEM-X ATI-SAR DATA FOR SEA SURFACE VELOCITY MEASUREMENTS**
Anis Elyouncha, Leif Eriksson, Chalmers University of Technology; Roland Romeiser, University of Miami; Lars Ulander, Chalmers University of Technology

Tuesday, July 25 | 10:40 - 12:20 | Ballroom C
Session TU2.L3 | Oral-Invited

TanDEM-X: The Earth in 3D II

Session Chair: Alberto Moreira, German Aerospace Center

TU2.L3.1 10:40 **INFLUENCE OF INCIDENCE ANGLE AND BASELINE ON THE RETRIEVAL OF BIOPHYSICAL PARAMETERS OF RICE FIELDS BY MEANS OF POLARIMETRIC SAR INTERFEROMETRY WITH TANDEM-X DATA**
Juan Ma Lopez-Sanchez, University of Alicante; Esra Erten, Technical University of istanbul; Fernando Vicente-Guijalba, DARES Technology; Alejandro Mestre-Quereda, Noelia Romero, University of Alicante

TU2.L3.2 11:00 **RICE PADDY HEIGHT ESTIMATION FROM SINGLE-POLARIZATION TANDEM-X SCIENCE PHASE DATA**
Sun Yong Yoon, Yonsei University; Seung-Kuk Lee, NASA Goddard Space Flight Center; Joong-Sun Won, Yonsei University

TU2.L3.3 11:20 **SINGLE PASS INSAR MISSIONS FOR MONITORING HAZARDOUS SURGING GLACIERS**
Silvan Leinss, Swiss Federal Institute of Technology in Zurich; Vanessa Round, Swiss Federal Institute for Forest, Snow and Landscape Research WSL; Irena Hajnsek, German Aerospace Center (DLR)

TU2.L3.4 11:40 **3D MAPPING OF ICEBERGS IN SEA ICE WITH TANDEM-X INTERFEROMERY**
Igor Zakharov, Desmond Power, Thomas Puestow, Mark Howell, Sherry Warren, Michael Lynch, C-CORE

Tuesday, July 25 | 13:40 - 15:20 | Ballroom C
Session TU3.L3 | Oral

Differential SAR Interferometry Applications

Session Co-Chairs: Paul Rosen, NASA JPL; Matteo Pardini, DLR

TU3.L3.1 13:40 **TIME SERIES OF P-BAND DINSAR AND DSM DIFFERENCES FOR MONITORING RIVER BANK EROSIONS**
Karlus Alexander Camara de Macedo, Thiago Barreto, Leandro Matos, Dieter Luebeck, Bradar Indústria S/A; Carlos Gamba, Daniel Albarelli, Pedro Crisma, Adalberto Azevedo, Inst. de Pesquisas Tecnológicas (IPT); João Bosco, Santo Antônio Energia; Rafael Antônio da Silva Rosa, Bradar Indústria S/A

TU3.L3.2 14:00 **FUSION OF DIFFERENT FREQUENCY SAR IMAGES FOR DINSAR-BASED LAND SUBSIDENCE MONITORING**
Junichi Susaki, Masahiro Tsujino, Kyoto University; Takuma Anahara, Japan Aerospace Exploration Agency

TU3.L3.3 14:20 **MEASUREMENT OF FAULT CREEP USING MULTI-ASPECT TERRESTRIAL RADAR INTERFEROMETRY AT COYOTE DAM**
Charles Werner, GAMMA Remote Sensing AG; Brett Baker, Santa Clara Valley Water District; Ryan Cassotto, University of New Hampshire; Christophe Magnard, Urs Wegmüller, GAMMA Remote Sensing AG; Mark Fahnestock, University of Alaska Fairbanks

TU3.L3.4 14:40 **A NEW ERA OF INSAR APPLICATIONS WITH SENTINEL-1: A CASE STUDY OF SEVERE GROUND SUBSIDENCE IN CALIFORNIA CENTRAL VALLEY**
Yuxiao Qin, Daniele Perissin, Purdue University; Pietro Milillo, California Institute of Technology

TU3.L3.5 15:00 **A STANDARDIZED APPROACH FOR THE INTEGRATION OF GEODETIC DATA FOR DEFORMATION ANALYSIS**
Freek van Leijen, Sami Samiei Esfahany, Hans van der Marel, Ramon Hanssen, Delft University of Technology

Tuesday, July 25 | 16:20 - 18:00 | Ballroom C
Session TU4.L3 | Oral

SAR Data Processing and DEM

Session Co-Chairs: Paul Rosen, NASA JPL; Tom Ainsworth, Naval Research Laboratory

TU4.L3.1 16:20 **AUTOMATIC POSITIONING OF SAR GROUND CONTROL POINTS FROM MULTI-ASPECT TERRASAR-X ACQUISITIONS**
Sina Montazeri, German Aerospace Center (DLR); Christoph Gisinger, Technische Universität München; Xiao Xiang Zhu, Michael Eineder, Richard Bamler, German Aerospace Center (DLR) and Technical University of Munich (TUM)

TU4.L3.2 16:40 **DEM EXTRACTION OF THE BASAL TOPOGRAPHY OF THE CANADIAN ARCHIPELAGO ICE CAPS VIA 2D AUTOMATED LAYER-TRACKER**
Mohanad Al-Ibadi, Jordan Sprick, Sravya Athinarapu, Theresa Stumpf, John Paden, Carl Leuschen, Fernando Rodriguez, University of Kansas; Mingze Xu, David Crandall, Geoffrey Fox, Indiana University; David Burgess, Geological Survey of Canada; Martin Sharp, University of Alberta; Luke Copland, Wesley Van Wychen, University of Ottawa

TU4.L3.3 17:00 **DEM-BASED EPIPOLAR RECTIFICATION FOR OPTIMIZED RADARGRAMMETRY**
Roland Perko, Karlheinz Gutjahr, Maria Krüger, Hannes Raggam, Mathias Schardt, Joanneum Research

TU4.L3.4 17:20 **APPLYING CHIRP-MODULATED BACK-PROJECTION TO VERY HIGH RESOLUTION SPACEBORNE SLIDING SPOTLIGHT SAR DATA PROCESSING**
Dadi Meng, Chibiao Ding, Donghui Hu, Ning Xu, Institute of Electronics, Chinese Academy of Sciences

TU4.L3.5 17:40 **INITIAL RESULT OF SINGLE CHANNEL CSAR GMTI BASED ON BACKGROUND SUBTRACTION**
Wenjie Shen, Yun Lin, Yue Zhao, Linjuan Yu, Wen Hong, Institute of Electronics, Chinese Academy of Sciences

Tuesday, July 25 **08:00 - 09:40** **Room 201 BC**
Session TU1.L4 **Oral**

Student Paper Contest Finalists I

Session Co-Chairs: Xiuping Jia, Australian Defence Force Academy; David Le Vine, NASA Goddard Space Flight Center

TU1.L4.1 08:00 **SEQUENTIAL ESTIMATOR: A NOVEL APPROACH FOR EFFICIENT HIGH-PRECISION ANALYSIS OF INTERFEROMETRIC TIME SERIES**
Homa Ansari, Francesco De Zan, Richard Bamler, German Aerospace Center (DLR)

TU1.L4.2 08:20 **SALIENCY-BASED ENDMEMBER DETECTION FOR HYPERSPECTRAL IMAGERY**
Xinyu Wang, Yanfei Zhong, Yao Xu, Liangpei Zhang, Yanyan Xu, Wuhan University

TU1.L4.3 08:40 **MULTIPLE INSTANCE HYBRID ESTIMATOR FOR LEARNING TARGET SIGNATURES**
Changzhe Jiao, University of Missouri; Alina Zare, University of Florida

TU1.L4.4 09:00 **REMOTE SENSING IMAGE CLASSIFICATION BASED ON CONVOLUTIONAL NEURAL NETWORKS WITH TWO-FOLD SPARSE REGULARIZATION**
Han Liu, Sun Yat-sen University; Lin He, South China University of Technology; Jun Li, Sun Yat-sen University

TU1.L4.5 09:20 **RADAR SCATTERING OF OCEAN SURFACES AT L BAND BASED ON NUMERICAL SOLUTIONS OF MAXWELL EQUATIONS IN THREE-DIMENSIONS (NMM3D)**
Tai Qiao, Leung Tsang, University of Michigan, Ann Arbor; Douglas Vandemark, University of New Hampshire; Simon Yueh, Jet Propulsion Laboratory

Tuesday, July 25 **10:40 - 12:20** **Room 201 BC**
Session TU2.L4 **Oral**

Student Paper Contest Finalists II

Session Co-Chairs: Xiuping Jia, Australian Defence Force Academy; David Le Vine, NASA Goddard Space Flight Center

TU2.L4.1 10:40 **HYPERSPECTRAL CLOUD SHADOW REMOVAL BASED ON LINEAR UNMIXING**
Yi Liu, Escuela Politécnica de Cáceres, University of Extremadura; José Manuel Bioucas-Dias, Instituto de Telecomunicações, Universidade de Lisboa; Jun Li, School of Geography and Planning, Sun Yat-Sen University; Antonio Plaza, Escuela Politécnica de Cáceres, University of Extremadura

TU2.L4.2 11:00 **SAMPLING REQUIREMENTS FOR WIDEBAND AUTOCORRELATION RADIOMETRIC (WIBAR) REMOTE SENSING OF DRY SNOWPACK AND LAKE ICEPACK**
Seyedmohammad Mousavi, Roger De Roo, Kamal Sarabandi, University of Michigan; Anthony W. England, University of Michigan Dearborn

TU2.L4.3 11:20 **DEVELOPMENT OF GPS CONSTELLATION POWER MONITOR SYSTEM FOR HIGH ACCURACY CALIBRATION/VALIDATION OF THE CYGNSS L1B DATA**
Tianlin Wang, Christopher Ruf, University of Michigan; Scott Gleason, Southwest Research Institute; Bruce Block, Darren McKague, Damen Provost, University of Michigan

TU2.L4.4 11:40 **DESIGN OF A FORWARD LOOKING SYNTHETIC APERTURE RADAR FOR AN AUTONOMOUS CRYOBOT FOR SUBSURFACE EXPLORATION OF EUROPA**
Omkar Pradhan, Kumar Sandeep, Albin J. Gasiewski, William Stone, University of Colorado

TU2.L4.5 12:00 **MODEL-BASED ESTIMATION OF LARGE AREA FOREST CANOPY HEIGHT AND BIOMASS USING RADAR AND OPTICAL REMOTE SENSING WITH LIMITED LIDAR DATA**
Michael Benson, Leland Pierce, Kamal Sarabandi, University of Michigan

Tuesday, July 25 **13:40 - 15:20** **Room 201 BC**
Session TU3.L4 **Oral**

Polarimetric Techniques II

Session Co-Chairs: Camilla Brekke, UiT The Arctic Univeristy of Norway; Xiaodong Huang, University of Western Ontario

TU3.L4.1 13:40 **OIL SPILL DISPERSION IN FULL-POLARIMETRIC AND HYBRID-POLARITY SAR**
Camilla Brekke, Stine Skrunes, Martine Espeseth, UiT The Arctic Univeristy of Norway

TU3.L4.2 14:00 **ASSESSMENT OF THE RISAT-1 FRS-2 MODE FOR OIL SPILL OBSERVATION**
Stine Skrunes, Camilla Brekke, Martine Espeseth, UiT The Arctic Univeristy of Norway

TU3.L4.3 14:20 **HYBRID AND DUAL LINEAR POLARIMETRIC RISAT-1 SAR DATA FOR CLASSIFICATION ASSESSMENT**
Vineet Kumar, Dipankar Mandal, Subrahmanayeswara Rao Yalamanchili, Indian Institute of Technology Bombay; Peter Meadows, BAE Systems Applied Intelligence Laboratories

TU3.L4.4 14:40 **A SIMPLE TARGET SCATTERING MODEL WITH GEOMETRIC FEATURES ON CROP CHARACTERIZATION USING POLSAR DATA**
Xiaodong Huang, Jinfei Wang, Western University; Jiali Shang, Jiangui Liu, Agriculture and Agri-Food Canada

TU3.L4.5 15:00 **BUILDING DAMAGE INFORMATION INVESTIGATION FROM A SINGLE POST-EARTHQUAKE POLSAR IMAGE BASED ON THE FUSION OF MULTIPLE TEXTURE FEATURES**
Wei Zhai, Gansu Earthquake Administration; Chunlin Huang, Wansheng Pei, Yan Li, Northwest Institute of Eco-Environment and Resources, Chinese Academy of Sciences

Tuesday, July 25 **16:20 - 18:00** **Room 201 BC**
Session TU4.L4 **Oral**

Bistatic SAR

Session Co-Chairs: Marc Rodriguez-Cassola, German Aerospace Center (DLR); Adriano Meta, MetaSensing

TU4.L4.1 16:20 **FIRST RESULTS OF THE BELSAR L BAND AIRBORNE BISTATIC FULLY POLARIMETRIC SYNTHETIC APERTURE RADAR CAMPAIGN**
Adriano Meta, Christian Trampuz, Alex Coccia, Marco Ortolani, Rocco Turtolo, MetaSensing

TU4.L4.2 16:40 **PASSIVE SAR WITH GNSS TRANSMITTERS: LATEST RESULTS AND RESEARCH PROGRESS**
Xuezhen Fan, Feifeng Liu, Tian Zhang, Taoyu Lu, Chen Hu, Weiming Tian, Beijing Institute of Technology

TU4.L4.3 17:00 **EXTENDED NONLINEAR CHIRP SCALING ALGORITHM WITH TOPOGRAPHY COMPENSATION FOR MANEUVERING-PLATFORM BISTATIC FORWARD-LOOKING SAR**
Qianghui Zhang, Junjie Wu, Jianyu Yang, Yulin Huang, Ke Du, Haiguang Yang, University of Electronic Science and Technology of China

TU4.L4.4 17:20 **PHASE SENSITIVITY ANALYSIS OF SPACEBORNE TRANSMITTER - STATIONARY GROUND-BASED RECEIVER BISTATIC SAR INTERFEROMETRY WITH ONE IMAGING CHANNEL**
Andrei Anghel, Remus Cacoveanu, University Politehnica of Bucharest; Mihai Datcu, University Politehnica of Bucharest/German Aerospace Center (DLR)

TU4.L4.5 17:40 **BISTATIC SEA CLUTTER RETURNS GENERATION WITH COMPUTATIONAL ELECTROMAGNETIC METHOD**
Weibo Huo, Yulin Huang, Jifang Pei, Jianyu Yang, Yin Zhang, University of Electronic Science and Technology of China

Tuesday, July 25 | 08:00 - 09:40 | Room 203 BC
Session TU1.L5 | Oral

Change Detection in VHR Images

Session Co-Chairs: Lori Mann Bruce, Mississippi State University; Mauro Dalla Mura, Grenoble Institute of Technology

TU1.L5.1 08:00 **CHANGE DETECTION BASED ON STRUCTURAL CONDITIONAL RANDOM FIELD FRAMEWORK FOR HIGH SPATIAL RESOLUTION REMOTE SENSING IMAGERY**
Pengyuan Lv, Yanfei Zhong, Ji Zhao, Ailong Ma, Liangpei Zhang, Wuhan University

TU1.L5.2 08:20 **SEMI-SUPERVISED DEEP GENERATIVE MODELS FOR CHANGE DETECTION IN VERY HIGH RESOLUTION IMAGERY**
Clayton Connors, Ranga Vatsavai, North Carolina State University

TU1.L5.3 08:40 **EFFECT OF THE DTM QUALITY ON THE BUNDLE BLOCK ADJUSTMENT AND ORTHORECTIFICATION PROCESS WITHOUT GCP: EXEMPLE ON A STEEP AREA**
Cyrielle Guerin, CEA (Commissariat à l'énergie atomique et aux énergies renouvelables)

TU1.L5.4 09:00 **A CFAR OPTIMIZATION FOR LOW FREQUENCY UWB SAR CHANGE DETECTION ALGORITHMS**
Ana Carolina Fabrin, Ricardo Molin Jr., Federal University of Santa Maria; Dimas Irion Alves, Federal University of Paraná – UFPR; Renato Machado, Fábio Bayer, Federal University of Santa Maria; Mats I. Pettersson, Blekinge Institute of Technology

TU1.L5.5 09:20 **A COMPARISON OF SEPARATE SEGMENTATION STRATEGIES TO REVEAL GEOMETRIC CHANGES OF BUILDINGS IN URBAN AREA**
Xueliang Zhang, Pengfeng Xiao, Xuezhi Feng, Nanjing University

Tuesday, July 25 | 10:40 - 12:20 | Room 203 BC
Session TU2.L5 | Oral

Change Detection and Analysis of Image Time Series: Techniques

Session Co-Chairs: Lorenzo Bruzzone, University of Trento; Othmar Frey, Gamma Remote Sensing / ETH Zurich

TU2.L5.1 10:40 **HYBRID ANALYSIS FOR SAR CHANGE DETECTION BASED ON TIME SERIES DATA**
Keng-Fan Lin, Daniele Perissin, Purdue University

TU2.L5.2 11:00 **SAR IMAGE TEXTURE TRACKING USING A POINTWISE GRAPH-BASED MODEL FOR GLACIER DISPLACEMENT MEASUREMENT**
Minh-Tan Pham, Université Bretagne Sud; Grégoire Mercier, TELECOM Bretagne; Emmanuel Trouvé, Polytech'Annecy-Chambéry; Sébastien Lefèvre, Université Bretagne Sud

TU2.L5.3 11:20 **A NOVEL FRAMEWORK FOR BI-TEMPORAL CHANGE DETECTION IN IMAGE TIME SERIES**
Manuel Bertoluzza, Lorenzo Bruzzone, University of Trento; Francesca Bovolo, Fondazione Bruno Kessler

TU2.L5.4 11:40 **ESTIMATION OF DYNAMIC PARAMETERS OF MODIS NDVI TIME SERIES NONLINEAR MODEL USING PARTICLE FILTERING**
Srija Chakraborty, Ayan Banerjee, Sandeep Gupta, Antonia Papandreou-Suppappola, Philip Christensen, Arizona State University

TU2.L5.5 12:00 **LANDSLIDE CHANGE DETECTION BASED ON SPATIO-TEMPORAL CONTEXT**
Qingqing Huang, Yu Meng, Jingbo Chen, Anzhi Yue, Lei Lin, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences

Tuesday, July 25 | 13:40 - 15:20 | Room 203 BC
Session TU3.L5 | Oral

Change Detection and Analysis of Image Time Series: Applications

Session Co-Chairs: Nathan Longbotham, Descartes Labs; Lars Ulander, Chalmers University of Technology

TU3.L5.1 13:40 **MAPPING BURN SCARS, FIRE SEVERITY AND SOIL EROSION SUSCEPTIBILITY IN SOUTHERN FRANCE USING MULTISENSORAL SATELLITE DATA**
Sandro Martinis, German Aerospace Center (DLR); Mathilde Caspard, Service Régional de Traitement d'Image et de la Télédétection; Simon Plank, German Aerospace Center (DLR); Stephen Clandillon, Sadri Haouet, Service Régional de Traitement d'Image et de la Télédétection

TU3.L5.2 14:00 **WIDE-AREA MAPPING OF INVASIVE SPECIES PROPAGATION AND CONTAINMENT ZONES IN SOMALILAND USING PHENOMETRIC TRENDS AND GENERALIZED LINEAR MODELLING**
Tobias Landmann, International Centre of Insect Physiology and Ecology; Olena Dubovyk, Gohar Ghazaryan, University of Bonn; Jackson Kimani, Elfatih Abdel-Rahman, International Centre of Insect Physiology and Ecology

TU3.L5.3 14:20 **PROFILE HUMAN-INDUCED VEGETATION CHANGE IN ARHORQIN BANNER OF CHINA USING TIME SERIES DATASETS**
Lili Xu, Guangming Yu, Zhenfa Tu, College of Urban and Environmental Sciences, Central China Normal University, Wuhan 430079, China; Yuke Zhou, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences

TU3.L5.4 14:40 **ESTIMATION OF FOREST DISTURBANCE INTENSITY FROM LANDSAT DATA IN NORTH CAROLINA AND SOUTH CAROLINA**
Xin Tao, Chengquan Huang, Feng Zhao, University of Maryland

TU3.L5.5 15:00 **MAPPING PROSOPIS JULIFLORA INVASION WITHIN RAINWATER HARVESTING STRUCTURES IN INDIA USING GOOGLE EARTH ENGINE**
Vicky Vanthof, Richard Kelly, University of Waterloo

Tuesday, July 25 | 16:20 - 18:00 | Room 203 BC
Session TU4.L5 | Oral-Invited

Recent Advances in Wetlands Remote Sensing

Session Co-Chairs: Clara Chew, Jet Propulsion Laboratory; Anthony Mannucci, JPL-CalTech

TU4.L5.1 16:20 **WETLAND SCIENCE AND OBSERVATIONS**
Son Nghiem, Jet Propulsion Laboratory

TU4.L5.3 17:00 **WETLAND GNSS-R MEASUREMENTS FROM AIRCRAFT**
Estel Cardellach, Fran Fabra, Weiqiang Li, Serni Ribó, Antonio Rius, Institut de Ciencies de l'Espai (ICE/CSIC-IEEC); Rashmi Shah, Clara C. Chew, Son V. Nghiem, Jet Propulsion Laboratory, California Institute of Technology (NASA/JPL); Maximilian Semmling, Helmholtz-Centre Potsdam - German Research Centre for Geoscience (GFZ)

TU4.L5.4 17:20 **GLOBAL NAVIGATION SATELLITE SYSTEM REFLECTOMETRY (GNSS-R) ALGORITHMS FOR WETLAND OBSERVATIONS**
Cinzia Zuffada, Clara Chew, Son Nghiem, Jet Propulsion Laboratory

TU4.L5.5 17:40 **APPLYING REMOTE SENSING TO URBAN ECOSYSTEM DYNAMICS: OPPORTUNITIES FOR UNDERSTANDING AND MANAGING THE BALLONA WETLAND SYSTEM IN LOS ANGELES**
Eric Strauss, Loyola Marymount University; Menas Kafatos, Seung Hee Kim, Chapman University; Son Nghiem, Jet Propulsion Laboratory; Jeremy Pal, Loyola Marymount University

Tuesday, July 25 | 08:00 - 09:40 | Room 202 CD
Session TU1.L6 | Oral

Target Detecton and Unmixing Techniques I

Session Co-Chairs: Qian Du, Mississippi State University; Paul Scheunders, University of Antwerp

TU1.L6.1 08:00 **HYPERSPECTRAL UNMIXING VIA PROJECTED MINI-BATCH GRADIENT DESCENT**
Jing Li, Xiaorun Li, Zhejiang University; Liaoying Zhao, Hangzhou Dianzi University

TU1.L6.2 08:20 **A HYBRID SPARSITY AND CONSTRAINED ENERGY MINIMIZATION DETECTOR FOR HYPERSPECTRAL IMAGES**
Yifan Zhang, Bobo Xie, Northwestern Polytechnical University; Jun Sun, Yang Peng, Shanghai Aerospace Control Technology Institute

TU1.L6.3 08:40 **LOW-RANK AND SPARSE TENSOR RECOVERY FOR HYPERSPECTRAL ANOMALY DETECTION**
Jiahui Dai, Chenwei Deng, Wenzheng Wang, Xun Liu, Beijing Institute of Technology

TU1.L6.4 09:00 **NONLINEAR HYPERSPECTRAL UNMIXING BASED ON NORMALIZED P-LINEAR ALGORITHM**
Maofeng Tang, Lianru Gao, Institute of Remote Sensing & Digital Earth Chinese Academy of Sciences; Andrea Marinoni, Dipartimento di Ingegneria Industriale e dell'Informazione Università degli Studi di Pavia; Bing Zhang, Institute of Remote Sensing & Digital Earth Chinese Academy of Sciences

TU1.L6.5 09:20 **NONNEGATIVE MATRIX FACTORIZATION WITH CONSTRAINTS ON ENDMEMBER AND ABUNDANCE FOR HYPERSPECTRAL UNMIXING**
Tongxiang Zhi, Bin Yang, Fudan University; Zhao Chen, Donghua University; Bin Wang, Fudan University

Tuesday, July 25 | 10:40 - 12:20 | Room 202 CD
Session TU2.L6 | Oral

Target Detecton and Unmixing Techniques II

Session Co-Chairs: Alina Zare, University of Florida; Yong Li, Nanjing University of Aeronautics and Astronautics

TU2.L6.1 10:40 **THE DESIGN OF SIGNAL PROCESSING ALGORITHM FOR A PRACTICAL WAS-GMTI SYSTEM**
Yong Li, He Yan, Nanjing University of Aeronautics and Astronautics

TU2.L6.2 11:00 **A MODEL BASED HIERARCHICAL METHOD FOR INSHORE SHIP DETECTION IN HIGH-RESOLUTION REMOTE SENSING IMAGES**
Fukun Bi, Jing Chen, North China University of Technology; Yin Zhuang, Chonglei Wang, Beijing Institute of Technology

TU2.L6.3 11:20 **MULTIOBJECTIVE ENDMEMBER EXTRACTION FOR HYPERSPECTRAL IMAGE**
Rong Liu, Bo Du, Liangpei Zhang, Wuhan University

TU2.L6.4 11:40 **EXPERIMENTAL STUDY ON POSSIBILITY OF EARTH SURFACE STRESS DETECTING USING SATELLITE REMOTE SENSING**
Shanjun Liu, Jianwei Huang, Wenfei Mao, Qiang Ni, Northeastern University; Lixin Wu, Central South University; Linhui Fu, Wuhan University

TU2.L6.5 12:00 **MOVING TARGET DETECTION IN HRWS MODE**
Xiaojiang Guo, Yesheng Gao, Xingzhao Liu, Shanghai Jiao Tong University

Tuesday, July 25 | 13:40 - 15:20 | Room 202 CD
Session TU3.L6 | Oral

Reconfigurable and Innovative Instruments and Satellite Mission Concepts

Session Co-Chairs: Giovanni Macelloni, IFAC -CNR; Subit Chakrabarti, University of Florida

TU3.L6.1 13:40 **ANALYSIS OF THE POTENTIAL OF SMALL SATELLITES TO COVER THE SEA ICE DATA PRODUCTS GAP**
Estefany Lancheros, Hyuk Park, Adriano Camps, Universitat Politècnica de Catalunya, BarcelonaTech and IEEC/UPC; Alessio Di Simone, Università di Napoli Federico II; Hripsime Matevosyan, Ignasi Lluch, Skolkovo Institute of Science and Technology

TU3.L6.2 14:00 **TELEDYNE'S MUSES MISSION ON THE ISS: ENABLING FLEXIBLE AND RECONFIGURABLE EARTH OBSERVATION FROM SPACE**
Ray Perkins, Paul Galloway, Randy Miller, Teledyne Brown Engineering, Inc.; Lewis Graham, GeoCue Group

TU3.L6.3 14:20 **TRADESPACE ANALYSIS TOOL FOR DESIGNING CONSTELLATIONS (TAT-C)**
Jacqueline Le Moigne, Philip Dabney, NASA; Olivier de Weck, Veronica Foreman, Massachusetts Institute of Technology; Paul Grogan, Stevens Institute of Technology; Matthew Holland, Steven Hughes, NASA; Sreeja Nag, Bay Area Environmental Research Institute

TU3.L6.4 14:40 **PRELIMINARY STUDY FOR A SPACEBORNE ULTRAWIDEBAND MICROWAVE RADIOMETER FOR THE MONITORING OF CRYOSPHERE ELEMENTS: THE CRYORAD PROJECT**
Giovanni Macelloni, Marco Brogioni, Francesco Montomoli, Marion Leduc-Leballeur, IFAC-CNR; Giacomo De Carolis, IREA - CNR; Lars Kaleschke, Universität Hamburg; Joel Johnson, Kenneth Jezek, ElectroScience Laboratory, The Ohio State University, Columbus, OH

TU3.L6.5 15:00 **GLOBAL NAVIGATION SATELLITE SYSTEM OCCULTATION SOUNDER II (GNOS II)**
Yueqiang Sun, Congliang Liu, Qifei Du, Xianyi Wang, Weihua Bai, National Space Science Center; Gottfried Kirchengast, University of Graz; Junming Xia, Xiangguang Meng, Dongwei Wang, Yuerong Cai, Danyang Zhao, Chunjun Wu, Wei Li, Cheng Liu, National Space Science Center

Tuesday, July 25 | 16:20 - 18:00 | Room 202 CD
Session TU4.L6 | Oral-Invited

IEEE GRSS Data Fusion Contest

Session Co-Chairs: Fabio Pacifici, DigitalGlobe; Gabriele Moser, University of Genoa

TU4.L6.1 16:20 **THE DATA FUSION CONTEST 2017: OPEN DATA FOR GLOBAL MULTIMODAL LAND USE CLASSIFICATION**
Devis Tuia, University of Zurich; Gabriele Moser, University of Genoa; Bertrand Le Saux, ONERA - The French Aerospace Lab; Linda See, International Institute for Applied Systems Analysis (IIASA); Benjamin Bechtel, University of Hamburg

TU4.L6.2 16:40 **MULTIMODAL, MULTITEMPORAL, AND MULTISOURCE GLOBAL DATA FUSION FOR LOCAL CLIMATE ZONES CLASSIFICATION BASED ON ENSEMBLE LEARNING**
Naoto Yokoya, The University of Tokyo; Pedram Ghamisi, German Aerospace Center (DLR); Junshi Xia, The University of Tokyo

TU4.L6.3 17:00 **MULTILEVEL ENSEMBLING FOR LOCAL CLIMATE ZONES CLASSIFICATION**
Sergey Sukhanov, Ivan Tankoyeu, Jérôme Louradour, Roel Heremans, Darya Trofimova, Christian Debes, AGT International

TU4.L6.4 17:20 **CLASSIFICATION OF URBAN ENVIRONMENTS USING FEATURE EXTRACTION AND RANDOM FOREST**
Camila Souza dos Anjos, Marielcio Goncalves Lacerda, Leidiane do Livramento Andrade, Roberto Neves Salles, Brazilian Air Force

TU4.L6.5 17:40 **A CO-TRAINING APPROACH TO THE CLASSIFICATION OF LOCAL CLIMATE ZONES WITH MULTI-SOURCE DATA**
Yong Xu, The Chinese University of Hong Kong; Fan Ma, Deyu Meng, Xi'an Jiaotong University; Chao Ren, Yee Leung, The Chinese University of Hong Kong

Tuesday, July 25 | **08:00 - 09:40** | **Room 201 A**
Session TU1.L7 | **Oral**

Current and Future Microwave Radiometer Imagers and Sounders

Session Co-Chairs: Steven C. Reising, Colorado State University; Darren McKague, University of Michigan

TU1.L7.1 08:00 **RADIOMETER PAYLOAD FOR THE TEMPORAL EXPERIMENT FOR STORMS AND TROPICAL SYSTEMS TECHNOLOGY DEMONSTRATION MISSION**
Sharmila Padmanabhan, Todd C. Gaier, Jet Propulsion Laboratory; Steven C. Reising, Colorado State University; Boon H. Lim, Robert Stachnik, Robert Jarnot, Jet Propulsion Laboratory; Wesley Berg, Christian D. Kummerow, Venkatachalam Chandrasekar, Colorado State University

TU1.L7.2 08:20 **TRMM MICROWAVE IMAGER (TMI) UPDATES FOR FINAL DATA VERSION RELEASE**
Rachael Kroodsma, University of Maryland; Stephen Bilanow, Yimin Ji, KBRwyle; Darren McKague, University of Michigan

TU1.L7.3 08:40 **ADVANCED MICROWAVE IMAGER/SOUNDER MTVZA-GY-MP FOR NEW RUSSIAN METEOROLOGICAL SATELLITE**
Igor Cherny, Grigory Cherniavsky, Scientific-Technological Center "Kosmonit", JSC "Russian Space Systems; Leonid Mitnik, Vladimir Kuleshov, Maia Mitnik, V.I. Il'ichev Pacific Oceanological Institute, Far Eastern Branch, Russian Academy of Sciences

TU1.L7.4 09:00 **AN UPDATED GEOPHYSICAL MODEL FOR WINDSAT OBSERVATIONS**
Michael Bettenhausen, Magdalena D. Anguelova, Naval Research Laboratory

TU1.L7.5 09:20 **RADIOMETRIC VALIDATION OF THE TRMM MICROWAVE IMAGER 1B11 V8 BRIGHTNESS TEMPERATURE PRODUCT**
Ruiyao Chen, Faisal Alquaied, Hamideh Ebrahimi, W. Linwood Jones, University of Central Florida

Tuesday, July 25 | **10:40 - 12:20** | **Room 201 A**
Session TU2.L7 | **Oral-Invited**

Radio Frequency Interference and Challenges for Microwave Remote Sensing I

Session Co-Chairs: Sidharth Misra, NASA Jet Propulsion Laboratory; Paolo de Matthaeis, NASA - GSFC

TU2.L7.1 10:40 **TUTORIAL: AN INTRODUCTION TO RF SPECTRUM MANAGEMENT AND ITS RELEVANCE FOR GEOSCIENCES AND REMOTE SENSING**
Sandra Cruz-Pol, UPR-Mayaguez

TU2.L7.3 11:20 **POTENTIAL IMPACTS OF WRC-2019 AGENDA ITEMS ON SCIENTIFIC SERVICES**
Jasmeet Judge, University of Florida; Liese Vanzee, Indiana University; William Blackwell, Massachusetts Institute of Technology Lincoln Laboratory; Sandra Cruz-Pol, University of Puerto Rico at Mayaguez; Todd C. Gaier, NASA Jet Propulsion Laboratory; Namir Kassim, Naval Research Laboratory; David LeVine, NASA Goddard Space Flight Center; Amy Lovell, Agnes Scott College; James Moran, Harvard-Smithsonian Center for Astrophysics; Scott Ransom, National Radio Astronomy Observatory; Gabriel Rebeiz, University of California-San Diego; Paul Siqueira, University of Massachusetts Amherst

TU2.L7.4 11:40 **DISTINGUISHING BETWEEN PULSARS AND TRANSIENT RFI IN THE TIME DOMAIN**
Daniel Czech, Amit Mishra, Michael Inggs, University of Cape Town

TU2.L7.5 12:00 **SUBTRACTION OF RADIO FREQUENCY INTERFERENCE WITH DIGITAL BEAMFORMING IN ECOSAR FLIGHT DATA**
Tobias Bollian, USRA NASA Goddard Space Flight Center; Batuhan Osmanoglu, Rafael Rincon, NASA Goddard Space Flight Center; Seung-Kuk Lee, USRA NASA Goddard Space Flight Center; Temilola Fatoyinbo, NASA Goddard Space Flight Center

Tuesday, July 25 | **13:40 - 15:20** | **Room 201 A**
Session TU3.L7 | **Oral-Invited**

Radio Frequency Interference and Challenges for Microwave Remote Sensing II

Session Co-Chairs: Paolo de Matthaeis, NASA Goddard Space Flight Center; Sidharth Misra, NASA Jet Propulsion Laboratory

TU3.L7.1 13:40 **PERFORMANCE OF SMAP RADIOMETER RFI DETECTION ALGORITHMS AND ANALYSIS OF RESIDUAL RFI SOURCES**
Alexandra Bringer, Joel Johnson, ElectroScience Laboratory; Priscilla Mohammed, Jeffrey R. Piepmeier, NASA Goddard Space Flight Center

TU3.L7.2 14:00 **SIMULATED AND MEASURED PERFORMANCE OF A REAL-TIME PROCESSOR FOR RFI DETECTION AND MITIGATION ON-BOARD SPACEBORNE MICROWAVE RADIOMETERS**
Niels Skou, Steen Savstrup Kristensen, Sten S. Søbjærg, Technical University of Denmark; Arhippa Kovanen, Janne Lahtinen, Harp Technologies

TU3.L7.3 14:20 **THE CUBESAT RADIOMETER RADIO FREQUENCY INTERFERENCE TECHNOLOGY (CUBERRT) VALIDATION MISSION: PERFORMANCE AND DEVELOPMENT OF THE DIGITAL BACKEND TECHNOLOGY**
Sidharth Misra, Jet Propulsion Laboratory, California Institute of Technology; Jonathon Kocz, Carl Felten, California Institute of Technology; Robert Jarnot, Rudi Bendig, Shannon T. Brown, Jet Propulsion Laboratory, California Institute of Technology; Joel Johnson, The Ohio State University

TU3.L7.4 14:40 **RFI MITIGATING RECEIVER BACK-END FOR RADIOMETERS**
Phaneendra Bikkina, Alphacore, Inc.; Qingjun Fan, University of Houston; Wenlan Wu, Alphacore, Inc.; Jinghong Chen, University of Houston; Esko Mikkola, Alphacore, Inc.

TU3.L7.5 15:00 **THE RADIO FREQUENCY ENVIRONMENT AT 240-270 MHZ WITH APPLICATION TO SIGNAL-OF-OPPORTUNITY REMOTE SENSING**
Jeffrey R. Piepmeier, Manuel A. Vega, NASA Goddard Space Flight Center; Matthew Fritts, Cornelis F. du Toit, AS&D, Inc.; Joseph Knuble, NASA Goddard Space Flight Center; Yao-Cheng Lin, Benjamin Nold, James Garrison, Purdue University

Tuesday, July 25 | **16:20 - 18:00** | **Room 201 A**
Session TU4.L7 | **Oral**

Microwave Remote Sensing and the Challenges of Radio Frequency Interference

Session Co-Chairs: Jeffrey Piepmeier, NASA Goddard Space Flight Center; Paolo de Matthaeis, NASA - GSFC

TU4.L7.1 16:20 **THE ULTRA-WIDEBAND SOFTWARE DEFINED MICROWAVE RADIOMETER (UWBRAD) FOR ICE SHEET SUBSURFACE TEMPERATURE SENSING: RFI ALGORITHMS AND PERFORMANCE**
Mark Andrews, Hongkun Li, Joel Johnson, Alexandra Bringer, The Ohio State University

TU4.L7.2 16:40 **A RADIO-FREQUENCY INTERFERENCE DETECTOR FOR GNSS NAVIGATION AND GNSS-REFLECTOMETRY APPLICATIONS**
Jorge Querol, Raul Onrubia, Daniel Pascual, Hyuk Park, Adriano Camps, UPC-BarcelonaTech

TU4.L7.3 17:00 **RADIO FREQUENCY INTERFERENCE DETECTION FOR PASSIVE REMOTE SENSING USING EIGENVALUE ANALYSIS**
Adam Schoenwald, Seung-Jun Kim, University of Maryland, Baltimore County; Priscilla Mohammed, NASA Goddard Space Flight Center

TU4.L7.4 17:20 **A METHOD TO DETECT AND MITIGATE RADIO FREQUENCY INTERFERENCE OF AQUARIUS DATA**
Zhongjun Zhang, Beijing Normal University; Tianjie Zhao, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences

TU4.L7.5 17:40 **FAST RFI LOCALIZATION USING VIRTUAL ARRAY IN SYNTHETIC APERTURE INTERFEROMETRIC RADIOMETERS**
Hao Hu, Fei Hu, Feng He, Jun Li, Tao Zheng, Xiaohui Peng, Huazhong University of Science and Technology

Tuesday, July 25 | 08:00 - 09:40 | Room 202 A
Session TU1.L8 | Oral-Invited

New GEO/LEO Mission Advanced Imagery Products: Optical Sensor Calibration and Applications III

Session Co-Chairs: Xiaoxiong Xiong, NASA GSFC; Steve Goodman, NOAA/NESDIS/GOES-R; Changyong Cao, NOAA/Center for Satellite Applications and Research

TU1.L8.1 08:00 **OVERVIEW OF CAL VAL AND ENVIRONMENT DATA PRODUCT PERFORMANCE DERIVED FROM VISIBLE INFRARED IMAGING RADIOMETER SUITE (VIIRS)**
Lihang Zhou, NOAA; Murty Divakarla, Xingpin Liu, IMSG; Fuzhong Weng, Changyong Cao, Ivan Csiszar, Mitchell Goldberg, NOAA

TU1.L8.2 08:20 **EXCEPTIONAL EVENTS MONITORING USING S-NPP VIIRS AEROSOL PRODUCTS**
Shobha Kondragunta, Istvan Laszlo, Pubu Ciren, Hai Zhang, Hongqing Liu, Jingfeng Huang, National Oceanic and Atmospheric Administration; Amy Huff, Pennsylvania State University

TU1.L8.3 08:40 **MONITORING SURFACE TYPE CHANGES WITH S-NPP/JPSS VIIRS OBSERVATIONS**
Xiwu Zhan, NOAA/NESDIS; Rui Zhang, Panshi Wang, Chengquan Huang, University of Maryland College Park; Ivan Csiszar, Lihang Zhou, Fuzhong Weng, NOAA/NESDIS

TU1.L8.4 09:00 **VIIRS MISSION-LONG OCEAN COLOR DATA REPROCESSING: EVALUATIONS OF DATA PRODUCT AND SENSOR PERFORMANCE**
Menghua Wang, Lide Jiang, Xiaoming Liu, SeungHyun Son, Junqiang Sun, Wei Shi, Karlis Mikelsons, Liqin Tan, Xiaolong Wang, Mike Chu, Veronica Lance, NOAA

TU1.L8.5 09:20 **THE IMPACT AND MITIGATION OF AIRGLOW ON VIIRS DNB CALIBRATION AND GEOPHYSICAL RETRIEVALS**
Stephen Mills, Renaissance Man Engineering; Sirish Uprety, NOAA/NESDIS

Tuesday, July 25 | 10:40 - 12:20 | Room 202 A
Session TU2.L8 | Oral

Lidar Processing

Session Co-Chairs: John Kerekes, Rochester Institute of Technology; Michael Cathcart, Georgia Tech Research Institute

TU2.L8.1 10:40 **THE TEMPERATURE RETRIEVAL METHOD FOR A MULTI-WAVELENGHT CO2 DETECTION DIFFERENTIAL ABSORPTION LIDAR**
Xin Ma, Song Li, Yanni Dong, Yue Ma, Wuhan University; Zhongmin Zhu, Wuchang Shouyi University; Wei Gong, Wuhan University

TU2.L8.2 11:00 **RAPID CHANGE DETECTION IN A SINGLE PASS OF A MULTICHANNEL AIRBORNE LIDAR**
Juan Carlos Fernandez-Diaz, Jennifer Telling, Craig Glennie, Ramesh Shrestha, William Carter, University of Houston

TU2.L8.3 11:20 **A NEW APPROACH TO MINIMIZE BORDER EFFECT FOR TERRESTRIAL LASER SCANNING**
Fabrício Galhardo Müller, Luiz Gonzaga Jr., Fabiane Bordin, Mauricio Roberto Veronez, UNISINOS; Fernando Pinho Marson, Unisinos University; Marco Scaioni, POLIMI

TU2.L8.4 11:40 **STUDY OF THE HETEROGENEOUS MATCHING POTENTIAL BETWEEN 3D LIDAR POINT CLOUDS AND 2D SAL IMAGES**
Parvin Kalantari, Sylvie Daniel, Laval University; Simon Turbide, Linda Marchese, Alain A Bergeron, Institut National d'Optique

TU2.L8.5 12:00 **LIDAR FULL WAVEFORM INVERSION TO ESTIMATE MAIZE AND WHEAT CROPS BIOPHYSICAL PROPERTIES**
Sahar Ben Hmida, Advanced Technologies for Medecine and Signals, Centre d'Etudes Spatiales de la Biosphère, Digital Research Center of Sfax; Abdelaziz Kallel, Advanced Technologies for Medecine and Signals, Digital Research Center of Sfax; Jean-Philippe Gastellu-Etchegorry, Centre d'Etudes Spatiales de la Biosphère (CESBIO); Jean-louis Roujean, Centre National de Recherches Météorologiques; Mehrez Zribi, Centre d'Etudes Spatiales de la Biosphère (CESBIO)

Tuesday, July 25 | 13:40 - 15:20 | Room 202 A
Session TU3.L8 | Oral-Invited

Hyperspectral Target Detection I

Session Co-Chairs: Stanley Rotman, Ben-Gurion University of the Negev; Amanda Ziemann, Los Alamos National Laboratory

TU3.L8.1 13:40 **SPECTRAL TARGET DETECTION CONSIDERATIONS FROM A PHYSICAL MODELING PERSPECTIVE**
Emmett Ientilucci, Rochester Institute of Technology

TU3.L8.3 14:20 **OBJECT CLASSIFICATION IN HYPERSPECTRAL IMAGERY BASED ON NORMALIZED, WHITENED REFLECTANCE**
Steven Adler-Golden, Robert Sundberg, Benjamin St. Peter, Spectral Sciences, Inc.

TU3.L8.4 14:40 **TARGET DETECTION EXPERIMENTS WITH A NON-PARAMETRIC DETECTOR ON A NEW HYPERSPECTRAL DATA SET**
Stefania Matteoli, National Research Council (CNR); Marco Diani, Italian Naval Academy; Giovanni Corsini, University of Pisa

TU3.L8.5 15:00 **PLUME DETECTION WITH EMPHASIS ON PHENOMENOLOGY, SIGNAL MODELS, AND EXPLOITATION ALGORITHMS**
Eric Truslow, Dimitris Manolakis, Massachusetts Institute of Technology Lincoln Laboratory

Tuesday, July 25 | 16:20 - 18:00 | Room 202 A
Session TU4.L8 | Oral-Invited

Hyperspectral Target Detection II

Session Chair: James Theiler, Los Alamos National Laboratory

TU4.L8.1 16:20 **GLOBAL AND ADAPTIVE K-NEAREST NEIGHBOR GRAPHS IN A SPECTRAL TARGET DETECTOR BASED ON SCHROEDINGER EIGENMAPS**
Leidy Dorado-Munoz, David Messinger, Rochester Institute of Technology

TU4.L8.2 16:40 **ENHANCED DETECTION OF SOLIDS FROM GAUSSIAN SPECTRAL FEATURES**
Cory Lanker, Milton Smith, Lawrence Livermore National Laboratory

TU4.L8.3 17:00 **BACKGROUND CHARACTERIZATION FOR SUBPIXEL TARGET DETECTION**
Stanley R. Rotman, Sapir Ben-Yakar, Dan G. Blumberg, Ben-Gurion University of the Negev

TU4.L8.4 17:20 **VARIABLE TARGET DETECTION USING SIMPLEX ACE**
Amanda Ziemann, James Theiler, Los Alamos National Laboratory

Tuesday, July 25 | 08:00 - 09:40 | Room 203 A
Session TU1.L9 | Oral-Invited

Active/Passive Microwave Remote Sensing of Terrestrial Snow I

Session Chair: Martti Hallikainen, Aalto University

TU1.L9.1 08:00 **SNOW WATER EQUIVALENT ESTIMATION USING HIGH RESOLUTION SAR DATA**
Monique Bernier, Institut national de la recherche scientifique; Jean-Pierre Dedieu, University of Grenoble Alpes; Yannick Duguay, Institut national de la recherche scientifique; Guy Séguin, INSARSAT Inc.

TU1.L9.2 08:20 **EXPLORING THE INFLUENCE OF SNOW MICROSTRUCTURE ON DUAL-FREQUENCY RADAR MEASUREMENTS**
Joshua King, Chris Derksen, Peter Toose, Environment and Climate Change Canada

TU1.L9.3 08:40 **SNOW WATER EQUIVALENT MONITORING FROM DUAL-FREQUENCY SCATTEROMETER ON WCOM**
Jiancheng Shi, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences; Xiaolong Dong, Di Zhu, National Space Science Center, Chinese Academy of Sciences; Chuan Xiong, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences; Gang Wang, Liling Liu, National Space Science Center, Chinese Academy of Sciences; Yurong Cui, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences

TU1.L9.4 09:00 **ESTIMATION OF SNOW WETNESS BY A DUAL-FREQUENCY RADAR**
Yurong Cui, Chuan Xiong, Jiancheng Shi, Institute of Remote Sensing and Digital Earth

TU1.L9.5 09:20 **REMOTE SENSING OF TERRESTRIAL SNOW USING SIGNALS OF OPPORTUNITY**
Rashmi Shah, Simon Yueh, Xiaolan Xu, NASA Jet Propulsion Laboratory, California Institute of Technology; Kelly Elder, USDA Forest Service; Chad Baldi, NASA Jet Propulsion Laboratory, California Institute of Technology

Tuesday, July 25 | 10:40 - 12:20 | Room 203 A
Session TU2.L9 | Oral-Invited

Active/Passive Microwave Remote Sensing of Terrestrial Snow II

Session Co-Chairs: Jiancheng Shi, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences; Martti Hallikainen, Aalto University

TU2.L9.1 10:40 **FUTURE MISSION CONCEPTS FOR MEASURING SNOW MASS**
Juha Lemmetyinen, Kimmo Rautiainen, Kari Luojus, Finnish Meteorological Institute; Helmut Rott, Thomas Nagler, ENVEO IT GmbH; Giuseppe Parrella, Irena Hajnsek, German Aerospace Center (DLR); Chris Derksen, Environment and Climate Change Canada; Giovanni Macelloni, Marco Brogioni, Institute of Applied Physics; Andreas Wiesmann, Christian Mätzler, GAMMA Remote Sensing AG; Michael Kern, European Space Agency (ESA)

TU2.L9.2 11:00 **MICROWAVE EMISSION FROM ALPINE SNOW: EXPERIMENTAL DATA AND ELECTROMAGNETIC MODELS**
Emanuele Santi, Simone Pettinato, Simonetta Paloscia, Paolo Pampaloni, Enrico Palchetti, IFAC-CNR; Chuan Xiong, RADI-CAS; Andrea Crepaz, Avalanche Center, Arabba, Italy

TU2.L9.3 11:20 **MICROWAVE BRIGHTNESS TEMPERATURE OF SNOW ON TERRAIN AND LAKE ICE REVISITED: DATA AND SIMULATIONS**
Martti Hallikainen, Aalto University

TU2.L9.4 11:40 **FULL WAVE SIMULATION OF SNOWPACK APPLIED TO MICROWAVE REMOTE SENSING OF SEA ICE**
Shurun Tan, Jiyue Zhu, Leung Tsang, University of Michigan; Son Nghiem, California Institute of Technology

TU2.L9.5 12:00 **SNOWPACK TIME-SERIES GROUND TRUTH VIA A LOW-POWER DATALOGGER**
Roger De Roo, Steve Rogacki, University of Michigan; Eric Haengel, Leidos, Inc.; Chandler Ekins, University of Michigan

Tuesday, July 25 | 13:40 - 15:20 | Room 203 A
Session TU3.L9 | Oral-Invited

NASA's SnowEx Campaign: Preliminary Results I

Session Co-Chairs: Charles Gatebe, NASA; Edward Kim, NASA

TU3.L9.1 13:40 **NASA'S SNOWEX CAMPAIGN: OBSERVING SEASONAL SNOW IN A FORESTED ENVIRONMENT**
Edward Kim, NASA; Charles Gatebe, NASA and USRA; Dorothy Hall, NASA and ATA Aerospace; Jerry Newlin, ATA Aerospace; Amy Misakonis, NASA and Aerospace Crop; Kelly Elder, US Forest Service; Hans-Peter Marshall, Boise State University; Christopher Hiemstra, US Army Corp of Engineers; Ludovic Brucker, NASA Goddard Space Flight Center / USRA GESTAR; Eugenia De Marco, NASA and ATA Aerospace; Chris Crawford, USGS; Do Hyuk Kang, NASA and Univ. of Maryland; Jared Entin, NASA

TU3.L9.3 14:20 **A FIRST OVERVIEW OF SNOWEX GROUND-BASED REMOTE SENSING ACTIVITIES DURING THE WINTER 2016-2017**
Ludovic Brucker, NASA Goddard Space Flight Center / USRA GESTAR; Christopher Hiemstra, CRREL; Hans-Peter Marshall, Boise State University; Kelly Elder, US Forest Service; Roger De Roo, Mohammad Mousavi, University of Michigan; Francis Bliven, NASA Wallops Flight Facility; Walt Peterson, NASA Marshell Space Flight Center; Jeffrey S. Deems, NSIDC; Peter Gadomski, Arthur Gelvin, CRREL; Lucas Spaete, Boise State University; Theodore Barnhart, University of Colorado; Ty Brandt, UCSB; John Burkhart, University of Oslo; Christopher Crawford, University of Maryland; Tri Datta, Columbia University; Havard Erikstrod, University of Oslo; Nancy Glenn, Boise State University; Katherine Hale, University of Colorado; Brent Holben, NASA Goddard Space Flight Center; Paul Houser, George Mason University; Keith Jennings, University of Colorado; Richard Kelly, University of Waterloo; Jason Kraft, NASA Goddard Space Flight Center; Alexandre Langlois, University of Sherbrooke; Daniel Mcgrath, Colorado State University; Chelsea Merriman, Boise State University; Noah Molotch, University of Colorado; Anne Nolin, Oregon State Uni.; Chris Polashenski, Dartmouth College; Mark Raleigh, Karl Rittger, University of Colorado; Chago Rodriguez, Boise State University; Alexandre Roy, University of Sherbrooke; McKenzie Skiles, Utah State University; Eric Small, University of Colorado; Marco Tedesco, Columbia University; Chris Tennant, Berckley; Aaron Thompson, University of Waterloo; Liuxi Tian, The University of Texas; Zach Uhlmann, Boise State University; Ryan Webb, University of Colorado; Matt Wingo, NASA Marshell Space Flight Center

TU3.L9.4 14:40 **SUPPORTING NASA SNOWEX REMOTE SENSING STRATEGIES AND REQUIREMENTS FOR L-BAND INTERFEROMETRIC SNOW DEPTH AND SNOW WATER EQUIVALENT ESTIMATION**
Elias Deeb, Cold Regions Research and Engineering Laboratory; Hans-Peter Marshall, Boise State University; Richard Forster, University of Utah; Cathleen Jones, Jet Propulsion Laboratory; Christopher Hiemstra, Cold Regions Research and Engineering Laboratory; Paul Siqueira, University of Massachusetts Amherst

TU3.L9.5 15:00 **IMPACT OF FORESTS ON SNOW ALBEDO: LESSONS FROM THE SNOWEX CAMPAIGN**
Charles Gatebe, USRA; Rajesh Poudyal, SSAI

Tuesday, July 25 | 16:20 - 18:00 | Room 203 A
Session TU4.L9 | Oral-Invited

NASA's SnowEx Campaign: Preliminary Results II

Session Chair: Edward Kim, NASA

TU4.L9.1 16:20 **THE AIRBORNE SNOW OBSERVATORY DURING NASA SNOW EXPERIMENT (SNOWEX) YEAR 1: MAPPING OF SNOW WATER EQUIVALENT AND SNOW ALBEDO AND CONSTRAINING UNDERSTANDING OF THE PHYSICAL ENVIRONMENT**
Thomas H. Painter, Kathryn Bormann, NASA Jet Propulsion Laboratory; Jeffrey S. Deems, University of Colorado; Daniel F. Berisford, NASA Jet Propulsion Laboratory

TU4.L9.3 17:00 **DEPLOYMENT OF THE SNOWSAR SENSOR IN THE SNOWEX CAMPAIGN BY NASA AND PRELIMINARY RESULTS**
Alex Coccia, Christian Trampuz, Marco Ortolani, Rocco Turtolo, Tom Wieffering, Adriano Meta, MetaSensing BV

TU4.L9.4 17:20 **THE INFRARED SENSOR SUITE FOR SNOWEX 2017**
Dorothy Hall, Michigan State University; Chris Chickadel, University of Washington; Christopher Crawford, University of Maryland; Eugenia DeMarco, ATA Aerospace; Donald Jennings, Murzy Jhabvala, Edward Kim, NASA; Jessica Lundquist, University of Washington; Allen Lunsford, Catholic University of America

TU4.L9.5 17:40 **SATELLITE DETECTED SNOW PHENOLOGY ON THE TIBETAN PLATEAU AND ITS RESPONSE TO CLIMATE CHANGE DURING 2000–2015**
Xiaoyue Wang, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences; Chaoyang Wu, Institute of Geographical Sciences and Natural Resources Research, Chinese Academy of Sciences

Tuesday, July 25 | 08:00 - 09:40 | Room 204 A
Session TU1.L10 | Oral-Invited

Physical Models for Microwave Remote Sensing in Honor of Professor Adrian K. Fung I

Session Co-Chairs: Kun-Shan Chen, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences; Jiancheng Shi, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences

TU1.L10.1 08:00 **MICROWAVE REMOTE SENSING OF SOIL, OCEAN, SNOW AND VEGETATION BASED ON 3D NUMERICAL SOLUTIONS OF MAXWELL EQUATIONS (NMM3D)**
Leung Tsang, Tien-Hao Liao, Shurun Tan, Huanting Huang, Tai Qiao, University of Michigan

TU1.L10.3 08:40 **RETRIEVAL OF PERMAFROST ACTIVE LAYER PROPERTIES USING P-BAND AIRMOSS AND L-BAND UAVSAR DATA**
Richard H. Chen, Alireza Tabatabaeenejad, Mahta Moghaddam, University of Southern California

TU1.L10.4 09:00 **SCATTERING FROM A LAYER OF VEGETATION: ENHANCEMENT EFFECTS**
Roger Lang, George Washington University; Avinash Sharma, Johns Hopkins Applied Physics Laboratory; Michael H. Cosh, USDA-ARS

TU1.L10.5 09:20 **A SCATTERING MODEL FOR INHOMOGENEOUS LAYER WITH VERTICAL PROFILE: APPLICATION TO SOIL SCATTERING**
Saibun Tjuatja, The University of Texas at Arlington

Tuesday, July 25 | 10:40 - 12:20 | Room 204 A
Session TU2.L10 | Oral-Invited

Physical Models for Microwave Remote Sensing in Honor of Professor Adrian K. Fung II

Session Co-Chairs: Kun-Shan Chen, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences; Jiancheng Shi, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences

TU2.L10.1 10:40 **A STUDY OF WIND DIRECTION EFFECTS ON GNSS-R DELAY DOPPLER MAPS NEAR THE SPECULAR POINT**
Jeonghwan Park, Joel Johnson, The Ohio State University

TU2.L10.2 11:00 **NUMERICAL STUDY OF POLARIMETRIC BISTATIC SCATTERING DEPENDENCE ON SEA SPECTRUM AT LOW WIND SPEED AT L- AND C BANDS**
Jingsong Yang, Second Institute of Oceanography; Yang Du, Zhejiang University; J.C. Shi, Institute of Remote Sensing Applications; Ruitao Gao, Zhejiang University

TU2.L10.3 11:20 **AN ANALYSIS OF SCATTERING FROM SNOW WITH RELAXED HIERACHICAL EQUIVALENT SOURCE ALGORITHM**
Chan Fai Lum, Hong Tat Ewe, Universiti Tunku Abdul Rahman; Xin Fu, Li Jun Jiang, University of Hong Kong; Hean Teik Chuah, Universiti Tunku Abdul Rahman

TU2.L10.4 11:40 **REFLECTIVITY MODELING OF SIGNALS OF OPPORTUNITY FOR REMOTE SENSING OF SNOW AND SOIL MOISTURE**
Xiaolan Xu, Rashmi Shah, Simon Yueh, Jet Propulsion Laboratory; Kelly Elder, United States Forest Service

TU2.L10.5 12:00 **ROUGH SOIL SURFACE SCATTERING AND EMISSION MODELING: A COMPREHENSIVE REAPPRAISAL OF THE AIEM MODEL BY USING NUMERICAL AND EXPERIMENTAL DATA**
Jiangyuan Zeng, Kun-Shan Chen, Peng Xu, Ming Jin, Yu Liu, Ying Yang, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences

Tuesday, July 25 | 13:40 - 15:20 | Room 204 A
Session TU3.L10 | Oral-Invited

Optical Modeling in Remote Sensing I

Session Co-Chairs: John Kerekes, Rochester Institute of Technology; Jiancheng Shi, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences

TU3.L10.1 13:40 **PLUGIN-DRIVEN SENSOR MODELING OF REMOTE SENSING IMAGING SYSTEMS**
Scott Brown, Adam Goodenough, Rochester Institute of Technology

TU3.L10.3 14:20 **LIMB-VIEWING HYPERSPECTRAL IMAGE SIMULATION BASED ON A POLYGONAL EARTH CROSS-SECTION (PEX) MODEL**
Alexander Berk, Steven Richtsmeier, Robert Sundberg, Spectral Sciences, Inc.

TU3.L10.4 14:40 **MODTRAN® SCATTERING: EXTRACTING SPHERICAL-REFRACTIVE PATH CONTRIBUTIONS FROM PLANE-PARALLEL DISORT**
Alexander Berk, Spectral Sciences, Inc.; Knut Stamnes, Zhenyi Lin, Stevens Institute of Technology

TU3.L10.5 15:00 **AUTOMATIC EMULATOR AND OPTIMIZED LOOK-UP TABLE GENERATION FOR RADIATIVE TRANSFER MODELS**
Luca Martino, Jorge Vicent, Gustau Camps-Valls, University of Valencia

Tuesday, July 25 | 16:20 - 18:00 | Room 204 A
Session TU4.L10 | Oral-Invited

Optical Modeling in Remote Sensing II

Session Co-Chairs: Jiancheng Shi, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences; John Kerekes, Rochester Institute of Technology

TU4.L10.1 16:20 **RECENT ADVANCES OF MODELING LIDAR DATA USING DART AND RADIOMETRIC CALIBRATION COEFFICIENT FROM LVIS WAVEFORMS COMPARISON**
Tiangang Yin, Singapore-MIT alliance for research and technology; Jean-Philippe Gastellu-Etchegorry, University of Toulouse; Leslie Norford, Massachusetts Institute of Technology

TU4.L10.2 16:40 **A 3D JOINT SIMULATION PLATFORM FOR MULTIBAND REMOTE SENSING**
Qinhuo Liu, Yang Zhang, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences; Wenhan Qin, Guoqing Sun, NASA Goddard Space Flight Center

TU4.L10.3 17:00 **MODIFYING HYBRID GORT MODEL FOR HIGH-PRECISION FOREST LAI INVERSION**
Jinling Song, Bo Yu, Jindi Wang, Qiaoli Wu, Beijing Normal University

TU4.L10.4 17:20 **A NEW SNOW LIGHT SCATTERING MODEL AND ITS APPLICATION IN SNOW PARAMETER RETRIEVAL FROM SATELLITE REMOTE SENSING**
Chuan Xiong, Jiancheng Shi, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences

TU4.L10.5 17:40 **INVERTING A RADIATIVE TRANSFER MODEL FOR SEDIMENT DENSITY RETRIEVAL FROM HYPERSPECTRAL BRDF DATA**
Charles Bachmann, Rehman Eon, Brittany Ambeau, Justin Harms, Gregory Badura, Carrie Griffo, Emily Myers, Rochester Institute of Technology

Tuesday, July 25 | 08:00 - 09:40 | Room 202 B
Session TU1.L11 | Oral-Invited

40 Years of Ocean Remote Sensing - a Session to Honor W. Alpers on the Occasion of his 80th Birthday I

Session Co-Chairs: Roland Romeiser, University of Miami RSMAS; Jochen Horstmann, Helmholtz-Zentrum Geesthacht

TU1.L11.1 08:00 **DETECTION OF MARINE SLICKS WITH SAR: SCIENTIFIC AND EXPERIMENTAL LEGACY OF WERNER ALPERS, HIS STUDENTS AND COLLEAGUES**
Benjamin Holt, Cathleen Jones, Jet Propulsion Laboratory

TU1.L11.3 08:40 **A JOINT ACTIVE/PASSIVE PHYSICAL MODEL OF SEA SURFACE MICROWAVE SIGNATURES**
William Plant, University of Washington; Vladimir Irisov, ZelTech LLC

TU1.L11.4 09:00 **FROM RESEARCH TO OPERATIONS BASED ON CONTRIBUTIONS FROM WERNER ALPERS**
Frank Monaldo, Johns Hopkins University Applied Physics Laboratory; Christopher Jackson, Xiaofeng Li, GST

TU1.L11.5 09:20 **STUDIES OF THE EFFECTS OF RAIN ON THE PERFORMANCE OF THE SMAP RADIOMETER SURFACE SALINITY ESTIMATES AND APPLICATIONS TO REMOTE SENSING OF RIVER PLUMES**
David Weissman, Hofstra University; Steven Morey, Florida State University

Tuesday, July 25 | 10:40 - 12:20 | Room 202 B
Session TU2.L11 | Oral-Invited

40 Years of Ocean Remote Sensing - a Session to Honor W. Alpers on the Occasion of his 80th Birthday II

Session Co-Chairs: Roland Romeiser, University of Miami RSMAS; Jochen Horstmann, Helmholtz-Zentrum Geesthacht

TU2.L11.1 10:40 **OCEAN SENSING WITH DECAMETER AND MICROWAVE RADAR: CORRESPONDENCE AND CONTRAST OVER 40 YEARS**
John Vesecky, University of California Santa Cruz

TU2.L11.2 11:00 **SAR IMAGING OF INTERNAL GRAVITY WAVES: FROM ATMOSPHERE TO OCEAN**
Xiaofeng Li, GST at NOAA NESDIS

TU2.L11.3 11:20 **INVESTIGATION OF BISTATIC RADAR SCATTERING FROM SEA SURFACES WITH BREAKING WAVES**
Xiaofeng Yang, Yanlei Du, Ziwei Li, Kun-Shan Chen, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences

TU2.L11.4 11:40 **NUMERICAL SIMULATIONS OF RANGE-RESOLVED RADAR BACKSCATTER FROM AN EVOLVING SEA SURFACE WITH FLOATING TARGETS**
Jakov Toporkov, Mark Sletten, US Naval Research Laboratory

TU2.L11.5 12:00 **SURFACE CURRENTS RETRIEVED FROM AIRBORNE VIDEO**
Jochen Horstmann, Michael Stresser, Ruben Carrasco, Helmholtz-Zentrum Geesthacht

Tuesday, July 25 | 13:40 - 15:20 | Room 202 B
Session TU3.L11 | Oral-Invited

Retrievals of Coupled Variables from Satellite Remotely Sensed Imagery I

Session Chair: Paul Hwang, Naval Research Laboratory

TU3.L11.1 13:40 **TYPHOON OBSERVATION BY ACTIVE RADAR AND PASSIVE RADIOMETER**
Biao Zhang, Nanjing University of Information Science and Technology; William Perrie, Bedford Institute of Oceanography; Alexis Mouche, IFREMER; Jun Zhang, University of Miami; Jingsong Yang, Second Institute of Oceanography, State Oceanic Administration; Yijun He, Nanjing University of Information Science and Technology

TU3.L11.2 14:00 **X-BAND RADAR CROSS-SECTION AT GALE FORCE WINDS: TOWARDS CROSS-POLARIZATION GMF FOR RETRIEVAL OF HURRICANE WIND SPEED AND SURFACE STRESS**
Yulia Troitskaya, Victor Abramov, Alexey Ermoshkin, Emma Zuikova, Vassilii Kazakov, Daniil Sergeev, Alexander Kandaurov, Olga Ermakova, Georgy Baidakov, Nikita Rusakov, Evgenii Poplavsky, Maxim Vdovin, Institute of Applied Physics Russian Academy of Sciences

TU3.L11.3 14:20 **COUPLED NATURE OF HURRICANE WIND AND WAVE PROPERTIES DERIVED FROM SIMULTANEOUS MEASUREMENTS IN HURRICANE HUNTER MISSIONS**
Paul Hwang, Yalin Fan, U.S. Naval Research Laboratory

TU3.L11.4 14:40 **OIL SPILL DETECTION BY IMAGING RADARS: CHALLENGES AND PITFALLS**
Werner Alpers, University of Hamburg; Benjamin Holt, Jet Propulsion Laboratory; Kan Zeng, Ocean University of China

TU3.L11.5 15:00 **SURFACTANT-ASSOCIATED BACTERIA IN THE NEAR-SURFACE LAYER OF THE OCEAN FROM IN-SITU DNA SAMPLING AND SAR IMAGING**
Alexander Soloviev, Kathryn Howe, Cayla Dean, Aurelien Tartar, Mahmood Shivji, Nova Southeastern University; Brian Haus, University of Miami; William Perrie, Bedford Institute of Oceanography; Susanne Lehner, German Aerospace Center (DLR)

Tuesday, July 25 | 16:20 - 18:00 | Room 202 B
Session TU4.L11 | Oral-Invited

Retrievals of Coupled Variables from Satellite Remotely Sensed Imagery II

Session Chair: Paul Hwang, Naval Research Laboratory

TU4.L11.1 16:20 **AN EVALUATION OF THE HF/VHF SYNTHETIC APERTURE RADAR SYSTEM FOR OCEAN WAVE SPECTRA MEASUREMENT**
Alexander Voronovich, Valery Zavorotny, NOAA Earth System Research Laboratory

TU4.L11.2 16:40 **AN ASSESSMENT OF MARINE OIL POLLUTION IN INDONESIA BASED ON SAR IMAGERY**
Martin Gade, Bernhard Mayer, Carolin Meier, Thomas Pohlmann, Universität Hamburg; Mutiara Putri, Institute Technology of Bandung; Agus Setiawan, Ministry of Marine Affairs and Fisheries

TU4.L11.3 17:00 **EMPIRICAL APPROACH FOR C-BAND VV-POLARIZATION WIND VECTOR RETRIEVAL FROM SENTINEL-1 IMAGES**
Tran Vu La, Ali Khenchaf, Fabrice Comblet, ENSTA Bretagne; Carole Nahum, Direction Générale de l'Armement

TU4.L11.4 17:20 **SIGNIFICANT WAVEHEIGHT RETRIEVAL FROM SAR IMAGERY IN TYPHOON MEGI**
Astrid Werkmeister, Roland Romeiser, Hans Graber, Rosenstiel School of Marine and Atmospheric Science - University of Miami

Tuesday, July 25 **08:00 - 09:40** **Room 204 B**
Session TU1.L12 **Oral**

Radar and Thermal Data for Urban Monitoring

Session Co-Chairs: Jaya Sreevalsan-Nair, International Institute of Information Technology Bangalore; Panshi Wang, University of Maryland

TU1.L12.1 08:00 **BLOCK-BASED DAMAGE ASSESSMENT OF THE 2012 AHAR-VARZAGHAN, IRAN, EARTHQUAKE THROUGH SAR REMOTE SENISNG DATA**
Sadra Karimzadeh, Tokyo Institute of Technology; Sergey Samsonov, Canada Centre for Mapping and Earth Observation; Masashi Matsuoka, Tokyo Institute of Technology

TU1.L12.2 08:20 **ESTIMATING THREE DIMENSIONAL POSITIONS OF PERSISTENT SCATTERERS AND DEVELOPING A PS-INSAR ANALYSIS SYSTEM**
Hisatoshi Toriya, Kenta Senzaki, Masato Tsukada, Minoru Murata, NEC Corporation

TU1.L12.3 08:40 **CHARACTERIZATION OF URBAN HEAT ISLAND (UHI) CHANGES FROM MODIS TIMES SERIES USING PRINCIPAL COMPONENT ANALYSIS (PCA): CASE OF DAR ES SALAAM CITY TANZANIA**
Kamara Gombe, Ichio Asanuma, Jonggeol Park, Tokyo University of Information Sciences

TU1.L12.4 09:00 **NETWORK-SCALE PAVEMENT ROUGHNESS MAPPING USING SPACEBORNE HIGH-RESOLUTION X-BAND SAR DATA**
Franz J Meyer, Olaniyi A Ajadi, University of Alaska Fairbanks; Edward Hoppe, Virginia Transportation Research Council

TU1.L12.5 09:20 **HOTEX: AN APPROACH FOR GLOBAL MAPPING OF HUMAN BUILT-UP AND SETTLEMENT EXTENT**
Panshi Wang, Chengquan Huang, University of Maryland; James C. Tilton, NASA Goddard Space Flight Center; Bin Tan, Science Systems and Applications, Inc.; Eric C. Brown de Colstoun, NASA Goddard Space Flight Center

Tuesday, July 25 **10:40 - 12:20** **Room 204 B**
Session TU2.L12 **Oral**

SMOS Soil Moisture II

Session Co-Chairs: Rajat Bindlish, NASA Goddard Space Flight Center; Marco L. Carrera, Environment and Climate Change Canada

TU2.L12.1 10:40 **FIRST GLANCE ON A REVISED SMOS SOIL MOISTURE RETRIEVAL ALGORITHM: EVALUATION WITH RESPECT TO ECMWF SOIL MOISTURE SIMULATIONS**
Amen Al-Yaari, Roberto Fernandez-Moran, Jean-Pierre Wigneron, INRA; Arnaud Mialon, Alireza Mahmoodi, Ahmad Al Bitar, Yann Kerr, Centre d'Etudes Spatiales de la Biosphère (CESBIO)

TU2.L12.2 11:00 **SMOS-IC: A REVISED SMOS PRODUCT BASED ON A NEW EFFECTIVE SCATTERING ALBEDO AND SOIL ROUGHNESS PARAMETERIZATION**
Roberto Fernandez-Moran, Jean-Pierre Wigneron, INRA; Gabrielle De Lannoy, KU Leuven; Ernesto Lopez-Baeza, University of Valencia; Marie Parrens, Arnaud Mialon, Alireza Mahmoodi, Centre d'Etudes Spatiales de la Biosphère (CESBIO); Amen Al-Yaari, INRA; Simone Bircher, Ahmad Al Bitar, Philippe Richaume, Yann Kerr, Centre d'Etudes Spatiales de la Biosphère (CESBIO)

TU2.L12.3 11:20 **SOIL MOISTURE RETRIEVAL USING SMOS BRIGHTNESS TEMPERATURES AND A NEURAL NETWORK TRAINED ON IN SITU MEASUREMENTS**
Nemesio Rodriguez-Fernandez, Veronica de Souza, Yann Kerr, Philippe Richaume, Ahmad Al Bitar, Centre National de la Recherche Scientifique (CNRS)

TU2.L12.4 11:40 **IMPACTS OF SOIL SURFACE ROUGHNESS CHANGES ON SMOS SOIL MOISTURE RETRIEVALS**
Victoria Walker, Brian Hornbuckle, Iowa State University; Michael H. Cosh, USDA Agricultural Research Service

TU2.L12.5 12:00 **GLOBAL RETRIEVAL OF SOIL MOISTURE USING NEURAL NETWORKS TRAINED WITH SYNTHETIC RADIOMETRIC DATA**
Nemesio Rodriguez-Fernandez, Philippe Richaume, Centre National de la Recherche Scientifique (CNRS); Yann Kerr, Centre National d'Etudes Spatiales (CNES); Filipe Aires, Catherine Prigent, Centre National de la Recherche Scientifique (CNRS); Jean-Pierre Wigneron, Intitut National de Recherches Agronomiques (INRA)

Tuesday, July 25 **13:40 - 15:20** **Room 204 B**
Session TU3.L12 **Oral**

Hydrologic Applications

Session Co-Chairs: Jeff Walker, Monash University; Tianjie Zhao, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences

TU3.L12.1 13:40 **POTENTIAL OF WORLDVIEW-3 FOR SOIL SALINITY MODELING AND MAPPING IN AN ARID ENVIRONMENT**
Abdou Bannari, Arabian Gulf University; Shabbir, A. Shahid, International Center for Biosaline Agriculture - ICBA; Ali El-Battay, Arabian Gulf University; Abdullah Alshankiti, International Center for Biosaline Agriculture - ICBA; Nadir Hameid, Fadia, M. Tashtoush, Arabian Gulf University

TU3.L12.2 14:00 **ASSIMILATION OF SMAP BRIGHTNESS TEMPERATURES IN ENVIRONMENT AND CLIMATE CHANGE CANADA'S NEW LAND SURFACE PARAMETERIZATION SCHEME**
Marco L. Carrera, Stephane Belair, Bernard Bilodeau, Maria Abrahamowicz, Nasim Alavi, Albert Russell, Xihong Wang, Environment and Climate Change Canada

TU3.L12.3 14:20 **TEMPORAL UPSCALING OF REMOTE SENSING INSTANTANEOUS EVAPOTRANSPIRATION ESTIMATED AT TWO SATELLITE OVERPASS TIMES**
Tong Wang, University of Chinese Academy of Sciences; Ronglin Tang, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences; Zhao-Liang Li, Chinese Academy of Agricultural Sciences; Bohui Tang, Hua Wu, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences

TU3.L12.4 14:40 **VALIDATION OF THE SMAP FREEZE/THAW PRODUCT USING CATEGORICAL TRIPLE COLLOCATION**
Xinlu Li, Tsinghua University; Kaighin McColl, Harvard University; Haobo Lyu, Tsinghua University; Xiaolan Xu, California Institute of Technology; Chris Derksen, Environment Canada; Hui Lu, Tsinghua University; Dara Entekhabi, Massachusetts Institute of Technology

TU3.L12.5 15:00 **IMPROVEMENT ON SOIL FREEZE/THAW DISCRIMINANT ALGORITHM UNDER COMPLEX SURFACE CONDITIONS IN COLD REGIONS**
Wenxing Hu, Linna Chai, Shaojie Zhao, Beijing Normal University; Tianjie Zhao, Chinese Academy of Sciences; Zheng Lu, Beijing Normal University

Tuesday, July 25 **16:20 - 18:00** **Room 204 B**
Session TU4.L12 **Oral**

Remote Sensing for Energy Applications

Session Co-Chairs: Kyle Bradbury, Duke University; Miguel Gutierrez-Antuñano, Universitat Politècnica de Catalunya (UPC)

TU4.L12.1 16:20 **ESTIMATING THE ELECTRICITY GENERATION CAPACITY OF SOLAR PHOTOVOLTAIC ARRAYS USING ONLY COLOR AERIAL IMAGERY**
Brenda So, Cory Nezin, Vishnu Kaimal, Sam Keene, The Cooper Union; Leslie Collins, Kyle Bradbury, Jordan Malof, Duke University

TU4.L12.2 16:40 **A WIND-LIDAR BUOY FOR OFFSHORE WIND MEASUREMENTS: FIRST COMMISSIONING TEST-PHASE RESULTS**
Miguel Angel Gutiérrez-Antuñano, Jordi Tiana-Alsina, Francesc Rocadenbosch, Joaquim Sospedra, Universitat Politècnica de Catalunya; Rajai Aghabi, EOLOS Floating Lidar Solutionjs; Daniel Gonzalez-Marco, International Centre for Coastal Resources Research

TU4.L12.3 17:00 **SAR-BASED WIND FIELDS OVER OFFSHORE WIND FARMS – A VALUABLE TOOL FOR PLANNING, MONITORING AND OPTIMIZATION**
Sven Jacobsen, Andrey Pleskachevsky, Suman Singha, Anja Frost, Domenico Velotto, German Aerospace Center (DLR)

TU4.L12.4 17:20 **VERTICAL AZIMUTH DISPLAY SIMULATOR FOR WIND-DOPPLER LIDAR ERROR ASSESSMENT**
Jordi Tiana-Alsina, Francesc Rocadenbosch, Miguel Angel Gutiérrez-Antuñano, Universitat Politècnica de Catalunya

TU4.L12.5 17:40 **ASSESSING THE POTENTIAL FOR GLOBAL SOLAR ENERGY UTILIZATION**
Hongguo Zhang, Binbin He, Yuwei Guan, Minjie Ma, Youyou Li, University of Electronic Science and Technology of China; Shujun Song, Chengdu Engineering Corporation Limited

Wednesday, July 26 **08:00 - 09:40** **Ballroom B**
Session WE1.L1 **Oral**

Clustering and Unsupervised Methods

Session Co-Chairs: James Tilton, NASA Goddard Space Flight Center; Ioannis Schizas, University of Texas at Arlington

WE1.L1.1 08:00 **FAULT TOLERANT UNSUPERVISED KERNEL-BASED INFORMATION CLUSTERING IN HYPERSPECTRAL IMAGES**
Akshay Malhotra, Kazi Shahid, Ioannis Schizas, Saibun Tjuatja, The University of Texas at Arlington

WE1.L1.2 08:20 **POWER SPECTRAL CLUSTERING ON HYPERSPECTRAL DATA**
Aditya Challa, Sravan Danda, Daya Sagar B S, Indian Statistical Institute; Laurent Najman, University Paris-Est

WE1.L1.3 08:40 **PRIMITIVE CLUSTER SENSITIVE HASHING FOR SCALABLE CONTENT-BASED IMAGE RETRIEVAL IN REMOTE SENSING ARCHIVES**
Thomas Reato, Begüm Demir, Lorenzo Bruzzone, University of Trento

WE1.L1.4 09:00 **SPARSE REPRESENTATION-BASED ARCHETYPAL GRAPHS FOR SPECTRAL CLUSTERING**
Ribana Roscher, Lukas Drees, Susanne Wenzel, University of Bonn

WE1.L1.5 09:20 **A NOVEL AUTOMATIC APPROACH TO THE UPDATE OF LAND-COVER MAPS BY UNSUPERVISED CLASSIFICATION OF REMOTE SENSING IMAGES**
Claudia Paris, Lorenzo Bruzzone, University of Trento; Diego Fernández-Prieto, European Space Agency (ESA)

Wednesday, July 26 **10:40 - 12:20** **Ballroom B**
Session WE2.L1 **Oral**

Kernel-based Classification

Session Chair: Lorenzo Bruzzone, University of Trento

WE2.L1.1 10:40 **GABOR FEATURE BASED SUPPORT VECTOR GUIDED DICTIONARY LEARNING FOR HYPERSPECTRAL IMAGE CLASSIFICATION**
Sen Jia, Huimin Xie, Lin Deng, Qiang Huang, College of Computer Science and Software Engineering, Shenzhen University; Jun Li, School of Geography and Planning, Sun Yat-sen University

WE2.L1.2 11:00 **A DOMAIN-TRANSFER SUPPORT VECTOR MACHINE FOR MULTI-TEMPORAL REMOTE SENSING IMAGERY CLASSIFICATION**
Yiqing Guo, Xiuping Jia, David Paull, The University of New South Wales

WE2.L1.3 11:20 **HYPERSPECTRAL IMAGE CLASSIFICATION VIA KERNEL FULLY CONSTRAINED LEAST SQUARES**
Jianjun Liu, Jiangnan University; Zebin Wu, Nanjing University of Science and Technology; Zhiyong Xiao, Jinlong Yang, Jiangnan University

WE2.L1.4 11:40 **MULTIPLE COMPOSITE KERNEL LEARNING FOR HYPERSPECTRAL IMAGE CLASSIFICATION**
Peijun Du, Nanjing University; Junshi Xia, The University of Tokyo; Pedram Ghamisi, German Aerospace Center (DLR); Akira Iwasaki, The University of Tokyo; Jón Atli Benediktsson, University of Iceland

WE2.L1.5 12:00 **EFFICIENT REMOTE SENSING IMAGE CLASSIFICATION WITH GAUSSIAN PROCESSES AND FOURIER FEATURES**
Pablo Morales, University of Granada; Adrian Perez-Suay, Universitat de València; Rafael Molina, University of Granada; Gustau Camps-Valls, Universitat de València

Wednesday, July 26 **13:40 - 15:20** **Ballroom B**
Session WE3.L1 **Oral**

Deep and Convolutional Nneural Betworks

Session Co-Chairs: Claudio Persello, University of Twente; Wendi Pan, University of Alabama in Huntsville

WE3.L1.1 13:40 **CLASSIFICATION OF MULTITEMPORAL SAR IMAGES USING CONVOLUTIONAL NEURAL NETWORKS AND MARKOV RANDOM FIELDS**
Carolyne Danilla, Claudio Persello, Valentyn Tolpekin, John Ray Bergado, University of Twente

WE3.L1.2 14:00 **HYPERSPECTRAL IMAGES CLASSIFICATION WITH HYBRID DEEP RESIDUAL NETWORK**
Weiwei Song, Shutao Li, Yi Li, Hunan University

WE3.L1.3 14:20 **GOLOMB-RICE CODING PARAMETER LEARNING USING DEEP BELIEF NETWORK FOR HYPERSPECTRAL IMAGE COMPRESSION**
Hongda Shen, David Pan, Yuhang Dong, Zhuocheng Jiang, University of Alabama in Huntsville

WE3.L1.4 14:40 **REAL-TIME SCENE UNDERSTANDING FOR UAV IMAGERY BASED ON DEEP CONVOLUTIONAL NEURAL NETWORKS**
Clay Sheppard, Maryam Rahnemoonfar, Texas A&M University-Corpus Christi

WE3.L1.5 15:00 **MULTICORE IMPLEMENTATION OF THE MULTI-SCALE ADAPTIVE DEEP PYRAMID MATCHING MODEL FOR REMOTELY SENSED IMAGE CLASSIFICATION**
Mercedes Eugenia Paoletti, Juan Mario Haut, Javier Plaza, Antonio Plaza, University of Extremadura; Qingshan Liu, Renlong Hang, Nanjing University of Information Science and Technology

Wednesday, July 26 **16:20 - 18:00** **Ballroom B**
Session WE4.L1 **Oral**

Spatial Feature Detection and Extraction

Session Chair: Björn Waske, Freie Universität Berlin

WE4.L1.1 16:20 **CLOUD DETECTION MACHINE LEARNING ALGORITHMS FOR PROBA-V**
Luis Gómez-Chova, Gonzalo Mateo-García, Jordi Muñoz-Marí, Gustau Camps-Valls, University of Valencia

WE4.L1.2 16:40 **CONVOLUTIONAL NEURAL NETWORKS FOR MULTISPECTRAL IMAGE CLOUD MASKING**
Gonzalo Mateo-García, Luis Gómez-Chova, Gustau Camps-Valls, University of Valencia

WE4.L1.3 17:00 **AUTOMATED EXTRACTION OF INLAND SURFACE WATER EXTENT FROM SENTINEL-1 DATA**
Wenli Huang, Ben DeVries, Chengquan Huang, University of Maryland; John Jones, U.S. Geological Survey; Megan Lang, United States Fish and Wildlife Survey; Irena Creed, University of Western Ontario

WE4.L1.4 17:20 **SYNTHETIC APERTURE RADAR SHIP DISCRIMINATION, GENERATION AND LATENT VARIABLE EXTRACTION USING INFORMATION MAXIMIZING GENERATIVE ADVERSARIAL NETWORKS**
Colin Schwegmann, Waldo Kleynhans, Council for Scientific and Industrial Research; Brian Salmon, University of Tasmania; Lizwe Mdakane, Rory Meyer, Council for Scientific and Industrial Research

WE4.L1.5 17:40 **HYPERSPECTRAL IMAGES CLASSIFICATION BY FUSING EXTINCTION PROFILES FEATURE**
Nanjun He, Leyuan Fang, Shutao Li, Hunan University; Pedram Ghamisi, German Aerospace Center (DLR) and and Signal Processing in Earth Observation; Jón Atli Benediktsson, University of Iceland

Wednesday, July 26 **08:00 - 09:40** **Ballroom A**
Session WE1.L2 **Oral**

SAR Target Detection and Recognition

Session Co-Chairs: Tom Ainsworth, Naval Research Laboratory; Mario Costantini, e-GEOS - ASI/ Telespazio

WE1.L2.1 08:00 **AUTOMATIC RECOGNITION OF TARGETS ON VERY HIGH RESOLUTION SAR IMAGES**
Corrado Avolio, e-GEOS - Italian Space Agency / Telespazio; Miguel Ángel Molero Armenta, Freelance; Antonio Jurado Lucena, INTA; María José Fuertes Suárez, INDRA; Patrick Vaughan Martín-Mateo, Francisco López González, Berta Lucas Verdoy, INTA; Andrea Bucarelli, Mario Costantini, e-GEOS - Italian Space Agency / Telespazio

WE1.L2.2 08:20 **AN EFFICIENT OBJECT-ORIENTED METHOD OF AZIMUTH AMBIGUITIES REMOVAL FOR SHIP DETECTION IN SAR IMAGES**
Cheng Zhang, Chao Wang, Hong Zhang, Bo Zhang, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences; Sirui Tian, Nanjing University of Science and Technology

WE1.L2.3 08:40 **AN ITERATIVE METHOD FOR SHADOW ENHANCEMENT IN HIGH RESOLUTION SAR IMAGES**
Yueting Zhang, Institute of Electronics, Chinese Academy of Sciences; Qi Liu, Alibaba Group; Jiayi Guo, Zongxu Pan, Lei Liu, Fangfang Li, Chibiao Ding, Bin Lei, Institute of Electronics, Chinese Academy of Sciences

WE1.L2.4 09:00 **DOUBLE MRF FOR WATER CLASSIFICATION IN SAR IMAGES BY JOINT DETECTION AND REFLECTIVITY ESTIMATION**
Sylvain Lobry, Télécom ParisTech; Loïc Denis, Univ Lyon, UJM-Saint-Etienne, CNRS, Institut d Optique Graduate School; Florence Tupin, Télécom ParisTech; Roger Fjørtoft, CNES

WE1.L2.5 09:20 **FLAT-ROOFED BUILDING RECONSTRUCTION BASED ON LAYOVER MODELLING AND MCMC METHOD**
Yue Zhang, Xian Sun, Kun Fu, Kaiqiang Chen, Hongqi Wang, Institute of Electronics, Chinese Academy of Sciences

Wednesday, July 26 **10:40 - 12:20** **Ballroom A**
Session WE2.L2 **Oral**

RADAR Target Detection

Session Co-Chairs: Nazzareno Pierdicca, Sapienza University of Rome; Igor Zakharov, C-CORE

WE2.L2.1 10:40 **IMPROVED MEAN CLUSTERING ALGORITHM OF TARGET DETECTION WITH GNSS FORWARD-SCATTERING RADAR**
Chaoqun Gao, Dongkai Yang, Beihang University; Xuejing Qiu, China University of Geosciences; Lei Yang, Yao Xu, Yunlong Zhu, Beihang University

WE2.L2.2 11:00 **IMPROVED DETECTION OF ICEBERGS IN SEA ICE WITH RADARSAT-2 POLARIMETRIC DATA**
Igor Zakharov, Desmond Power, Mark Howell, Sherry Warren, C-CORE

WE2.L2.3 11:20 **ICEBERG DETECTION IN OPEN WATER AND SEA ICE USING C-BAND RADAR POLARIMETRY**
Vahid Akbari, Camilla Brekke, UiT The Arctic Univeristy of Norway

WE2.L2.4 11:40 **A FRAMEWORK FOR PREDICTING UNDERWATER OBJECT RECOGNITION PERFORMANCE WITH FLUORESCENCE LIDAR**
Stefania Matteoli, National Research Council (CNR); Laura Zotta, University of Pisa; Marco Diani, Italian Naval Academy; Giovanni Corsini, University of Pisa

WE2.L2.5 12:00 **TARGET RECOGNITION ALGORITHM BASED ON MORPHOLOGICAL AND SPATIAL FEATURES FOR HIGH-SPEED FORWARD-LOOKING SCANNING RADAR**
Pengfan Zhao, Yongchao Zhang, Yin Zhang, Junjie Wu, Yulin Huang, Jianyu Yang, University of Electronic Science and Technology of China

Wednesday, July 26 **13:40 - 15:20** **Ballroom A**
Session WE3.L2 **Oral**

RADAR Imaging

Session Co-Chairs: Stefano Tebaldini, Politecnico di Milano; Shannon Brown, JPL-CalTech

WE3.L2.1 13:40 **OPTIMAL COGNITIVE RADAR TRANSMIT-RECEIVER DESIGN FOR EXTENDED TARGET WITH UNKNOWN TARGET IMPULSE RESPONSE**
Xiaowen Zhang, Kaizhi Wang, Xingzhao Liu, Lei Liu, Shanghai Jiao Tong University

WE3.L2.2 14:00 **A REGULARIZATION IMAGING METHOD FOR FORWARD-LOOKING SCANNING RADAR VIA JOINT L1-L2 NORM CONSTRAINT**
Ke Tan, Wenchao Li, Yulin Huang, Jianyu Yang, University of Electronic Science and Technology of China

WE3.L2.3 14:20 **CHARACTERIZATION AND IDENTIFICATION OF ACTIVE ELECTRONICALLY SCANNED ARRAY RADAR**
Xiangqian Zhang, University of Electronic Science and Technology of China; Caiyong Hao, Shenzhen Station of State Radio Monitoring Center; Shunsheng Zhang, Lifang Zheng, University of Electronic Science and Technology of China

WE3.L2.4 14:40 **NEAR-GRAZING RADAR BACKSCATTERING MEASUREMENTS OF ROAD SURFACES AT 222 GHZ**
Abdulrahman Alaqeel, Amr Ibrahim, Adib Nashashibi, The university of Michigan, Ann Arbor; Hussein Shaman, King Abdulaziz City for Science and Technology; Kamal Sarabandi, The university of Michigan, Ann Arbor

WE3.L2.5 15:00 **AN AZIMUTH AMBIGUITIES REMOVAL METHOD BASED ON POLARIMETRIC NOTCH FILTER**
Tao Zhang, Shanghai Jiao Tong University; Armando Marino, The Open University; Weilin Zhong, Huilin Xiong, Shanghai Jiao Tong University

Wednesday, July 26 **16:20 - 18:00** **Ballroom A**
Session WE4.L2 **Oral**

Object Detection and Recognition I

Session Co-Chairs: Begum Demir, University of Trento; Fabio Pacifici, DigitalGlobe

WE4.L2.1 16:20 **PLANETARY CRATER DETECTION AND REGISTRATION USING MARKED POINT PROCESSES, GRAPH CUT ALGORITHMS, AND WAVELET TRANSFORMS**
Alberto Gotelli, University of Genoa; Jacqueline Le Moigne, NASA Goddard Space Flight Center; Gabriele Moser, Sebastiano Bruno Serpico, University of Genoa

WE4.L2.2 16:40 **3D LUNAR CRATERS DETECTION BASED ON STEREO MATCHING**
Hongmei Zhu, Jihao Yin, Ding Yuan, Beihang University

WE4.L2.3 17:00 **PLANETARY CRATER DETECTION AND REGISTRATION USING MARKED POINT PROCESSES, MULTIPLE BIRTH AND DEATH ALGORITHMS, AND REGION-BASED ANALYSIS**
David Solarna, Gabriele Moser, University of Genoa; Jacqueline Le Moigne, NASA; Sebastiano Bruno Serpico, University of Genoa

WE4.L2.4 17:20 **ACCURATE EXTRACTION OF CRACKS ON THE UNDERSIDE OF CONCRETE BRIDGES**
Heng Zhang, Huai Yu, Haijian Zhang, Wen Yang, Wuhan University

WE4.L2.5 17:40 **MULTISCALE DIRECTIONAL BILATERAL FILTER BASED CLUTTER REMOVAL IN GPR IMAGE ANALYSIS**
Deniz Kumlu, Isin Erer, Istanbul Technical University

Wednesday, July 26 **08:00 - 09:40** **Ballroom C**
Session WE1.L3 **Oral**

SAR Speckle Filtering

Session Co-Chairs: Rakesh Bhan, Indian Space Research Organisation; Gerardo Di Martino, University of Naples Federico II

WE1.L3.1 08:00 **A NEW SPECKLE REDUCTION ALGORITHM OF POLSAR IMAGES BASED ON A COMBINED GAUSSIAN RANDOM FIELD MODEL AND WAVELET EDGE DETECTION APPROACH**
Masoud Mahdianpari, Bahram Salehi, Fariba Mohammadimanesh, C-CORE and Department of Electrical Engineering, Memorial University of Newfoundland, Canada, A1B 3X5.

WE1.L3.2 08:20 **SPECKLE REDUCING FOR SENTINEL-1 SAR DATA**
Sergey Abramov, Oleksii Rubel, Vladimir Lukin, Ruslan Kozhemiakin, National Aerospace University – KhAI; Nataliia Kussul, Andrii Shelestov, Mykola Lavreniuk, Space Research Institute

WE1.L3.3 08:40 **BMINSAR: A NOVEL APPROACH FOR INSAR PHASE DENOISING BY CLUSTERING AND BLOCK MATCHING**
Thiago Luiz Morais Barreto, UNIFESP; Rafael Antônio da Silva Rosa, Christian Wimmer, João Roberto Moreira Neto, Bradar Indústria S/A; Leonardo Sant'Anna Bins, INPE; Jurandy Almeida, Fábio Augusto Menocci Cappabianco, UNIFESP

WE1.L3.4 09:00 **A NEW APPROACH FOR SUPPRESSING SIDELOBE BY DECOMPOSING CHIRP SIGNAL IN CFM SPACE**
Mingxuan Mei, Ze Yu, Youming Wu, Su Yu, Beihang University

WE1.L3.5 09:20 **A COMPARATIVE SENSITIVITY ANALYSIS OF SCATTERING-BASED DESPECKLING ALGORITHMS**
Gerardo Di Martino, Alessio Di Simone, Antonio Iodice, Daniele Riccio, Giuseppe Ruello, University of Naples Federico II

Wednesday, July 26 **10:40 - 12:20** **Ballroom C**
Session WE2.L3 **Oral**

SAR Moving Target Imaging

Session Chair: David Garren, Naval Postgraduate School

WE2.L3.1 10:40 **AN ADAPTIVE NLCS TECHNIQUE FOR LARGE-SIZE MOVING TARGET IMAGING WITH BISTATIC FORWARD-LOOKING SAR**
Zhongyu Li, Junjie Wu, Zhichao Sun, Yulin Huang, Haiguang Yang, Jianyu Yang, University of Electronic Science and Technology of China

WE2.L3.2 11:00 **SPARSE NON-AMBIGUOUS IMAGING OF SAR MOVING TARGETS**
Gang Xu, Wei Hong, Yingrui Yu, Southeast University

WE2.L3.3 11:20 **EFFECTS OF SPEED DIFFERENCE ON ACCELERATING TARGET IMAGERY SIGNATURES FOR BROADSIDE SAR**
David Garren, Naval Postgraduate School

WE2.L3.4 11:40 **A NEW POLSAR DECOMPOSITION ALGORITHM TO DELINEATE URBAN TARGETS**
Dingfeng Duan, Yong Wang, Haitao Lv, University of Electronic Science and Technology of China; Hong Li, East Carolina University; Yuanyuan Yang, University of Electronic Science and Technology of China

WE2.L3.5 12:00 **THE BEST OF A BAD SITUATION: OPTIMISING AN ALGORITHM TO MATCH COURSE RESOLUTION SAR VESSEL DETECTIONS TO SPARSE AIS DATA**
Rory Meyer, Colin Schwegmann, Waldo Kleynhans, Council for Scientific and Industrial Research

Wednesday, July 26 **13:40 - 15:20** **Ballroom C**
Session WE3.L3 **Oral**

SAR Image Formation and Compressive Sensing

Session Co-Chairs: Mahta Moghaddam, University of Southern California; Adele Fusco, IREA-CNR

WE3.L3.1 13:40 **SENTINEL-1 TOPS DATA FOCUSING BASED ON A MODIFIED TWO-STEP PROCESSING APPROACH**
Adele Fusco, Antonio Pepe, Riccardo Lanari, National Research Council (CNR)

WE3.L3.2 14:00 **3D IMAGE RECONSTRUCTION ALGORITHM FOR A SPARSE ARRAY RADAR SYSTEM BASED ON COMPRESSIVE SENSING**
Iakov Chernyak, Motoyuki Sato, Tohoku University

WE3.L3.3 14:20 **WAVENUMBER DOMAIN IMAGING ALGORITHM FOR HYPERSONIC PLATFORM SAR WITH CURVED TRAJECTORY**
Rui Zhou, Jinping Sun, Jinbin Fu, Jun Wang, Beihang University

WE3.L3.4 14:40 **A SYNTHETIC BANDWIDTH METHOD BASED ON FREQUENCY-DOMAIN BACK PROJECTION FOR STEPPED-FREQUENCY SAR**
Xiaoling Zhang, Kebin Hu, Jun Shi, Shunjun Wei, University of Electronic Science and Technology of China

WE3.L3.5 15:00 **ISAR IMAGING USING FILTERED COMPRESSIVE SENSING**
Jon Mitchell, Saibun Tjuatja, The University of Texas at Arlington

Wednesday, July 26 **16:20 - 18:00** **Ballroom C**
Session WE4.L3 **Oral**

SAR Imaging Systems

Session Chair: Charles Werner, Gamma Remote Sensing

WE4.L3.1 16:20 **AIRBORNE PASSIVE SAR IMAGING BASED ON DVB-T SIGNALS**
Lars Ulander, Per-Olov Frölind, Anders Gustavsson, Rolf Ragnarsson, Gunnar Stenström, Swedish Defence Research Agency

WE4.L3.2 16:40 **MULTISTATIC WAVENUMBER TESSELLATION: IDEAS FOR HIGH RESOLUTION P-BAND SAR MISSIONS**
Stefano Tebaldini, Fabio Rocca, Politecnico di Milano

WE4.L3.3 17:00 **ALL-DIRECTIONS THROUGH THE WALL IMAGING USING A SMALL NUMBER OF MOVING OMNIDIRECTIONAL TRANSCEIVERS**
Behzad Yektakhah, Kamal Sarabandi, University of Michigan

WE4.L3.4 17:20 **SIMULATION OF MULTI-STATION ISAR IMAGING FOR MONITORING A SPACE TARGET: A CASE OF ENVISAT**
Feng Wang, Feng Xu, Ya-Qiu Jin, Fudan University

WE4.L3.5 17:40 **AN NOVEL AIRBORNE MIMO-SAR SYSTEM BUILT IN IECAS**
Chibiao Ding, Xingdong Liang, Jie Wang, Longyong Chen, Institute of Electronics, Chinese Academy of Sciences

Wednesday, July 26 **08:00 - 09:40** **Room 201 BC**
Session WE1.L4 **Oral-Invited**

ALOS/ALOS-2/ALOS-2 Follow-on (SAR) Mission I

Session Co-Chairs: Masanobu Shimada, Tokyo Denki University & JAXA; Manabu Watanabe, Tokyo Denki University

WE1.L4.1 08:00 **STATUS OF THE ADVANCED LAND OBSERVING SATELLITE-2 (ALOS-2) AND ITS FOLLOW-ON L-BAND SAR MISSION**
Takeshi Motohka, Yukihiro Kankaku, Shinichi Suzuki, Japan Aerospace Exploration Agency; Masanobu Shimada, Tokyo Denki University

WE1.L4.3 08:40 **POLARIMETRIC SYSTEM CALIBRATION IN THE PRESENCE OF FARADAY ROTATION**
Konstantinos Papathanassiou, Jun-Su Kim, German Aerospace Center (DLR)

WE1.L4.4 09:00 **PERFORMANCE OF ALOS-2 PALSAR-2 FOR DISASTER RESPONSE**
Ryo Natsuaki, The University of Tokyo; Masato Ohki, Hiroto Nagai, Takeshi Motohka, Takeo Tadono, Japan Aerospace Exploration Agency; Masanobu Shimada, Tokyo Denki University; Shinichi Suzuki, Japan Aerospace Exploration Agency

WE1.L4.5 09:20 **INTER-SENSOR ANALYSIS OF PERSISTENT SCATTERER L-BAND SAR INTERFEROMETRY**
Takuma Anahara, Japan Aerospace Exploration Agency; Masanobu Shimada, Tokyo Denki University

Wednesday, July 26 **10:40 - 12:20** **Room 201 BC**
Session WE2.L4 **Oral-Invited**

ALOS/ALOS-2/ALOS-2 Follow-on (SAR) Mission II

Session Co-Chairs: Masanobu Shimada, Tokyo Denki University & JAXA; Manabu Watanabe, Tokyo Denki University

WE2.L4.1 10:40 **RICE PADDY MONITORING BY L-BAND MIMP SAR APPROACH**
Motofumi Arii, Mitsubishi Electric Corporation; Hiroyoshi Yamada, Niigata University

WE2.L4.2 11:00 **DEVELOPMENT OF EARLY-STAGE DEFORESTATION DETECTION ALGORITHM (ADVANCED) WITH PALSAR-2/SCANSAR FOR JICA-JAXA PROGRAM (JJ-FAST)**
Manabu Watanabe, Christian Koyama, Tokyo Denki University; Masato Hayashi, Yutaka Kaneko, Japan Aerospace Exploration Agency; Masanobu Shimada, Tokyo Denki University

WE2.L4.3 11:20 **THE EFFECT OF PRECIPITATION AND SOIL MOISTURE VARIATIONS ON (PARTIAL) POLARIMETRIC L-BAND SAR BACKSCATTER IN TROPICAL FOREST REGIONS**
Christian Koyama, Manabu Watanabe, Tokyo Denki University; Masato Hayashi, Japan Aerospace Exploration Agency; Masanobu Shimada, Tokyo Denki University

WE2.L4.4 11:40 **REGENERATED ALOS-2/PALSAR-2 GLOBAL MOSAICS 2016 AND 2014/2015 FOR FOREST OBSERVATIONS**
Masanobu Shimada, Tokyo Denki University & JAXA; Takuya Itoh, Remote sensing technology of Japan; Takeshi Motooka, Japan Aerospace Exploration Agency

WE2.L4.5 12:00 **PALSAR-2 POLARIMETRIC IMAGE MOSAIC AND ITS APPLICATION TO LAND COVER MONITORING**
Masato Ohki, Japan Aerospace Exploration Agency; Masanobu Shimada, Tokyo Denki University

Wednesday, July 26 **13:40 - 15:20** **Room 201 BC**
Session WE3.L4 **Oral-Invited**

3-/4-D Computational Radar Imaging Advancements, System, and User Applications I

Session Chair: Stefano Tebaldini, PoliMi

WE3.L4.1 13:40 **MULTIDIMENSIONAL SAR TOMOGRAPHY: METHODS AND APPLICATIONS**
Fabrizio Lombardini, University of Pisa; Stefano Tebaldini, Politecnico di Milano

WE3.L4.3 14:20 **OBSERVING FOREST STRUCTURE AT MULTIPLE SAR FREQUENCIES: AN ANALYSIS BASED ON TOMOSAR VERTICAL REFLECTIVITY PROFILES**
Matteo Pardini, Konstantinos Papathanassiou, German Aerospace Center (DLR)

WE3.L4.4 14:40 **ASSESSMENT OF SAOCOM CS DATA PROCESSING FOR THE CHARACTERIZATION OF FORESTED AREAS USING POLARIMETRIC SAR TOMOGRAPHY**
Laurent Ferro-Famil, Yue Huang, University of Rennes 1; Stefano Tebaldini, Politecnico di Milano; Marc Azcueta, Conae

WE3.L4.5 15:00 **SPATIO-TEMPORAL INVERSION OF SNOW STRUCTURE PARAMETERS FROM TIME SERIES OF TOMOGRAPHIC MEASUREMENTS WITH SNOWSCAT**
Othmar Frey, Gamma Remote Sensing / ETH Zurich; Charles Werner, Rafael Caduff, Andreas Wiesmann, GAMMA Remote Sensing AG

Wednesday, July 26 **16:20 - 18:00** **Room 201 BC**
Session WE4.L4 **Oral-Invited**

3-/4-D Computational Radar Imaging Advancements, System, and User Applications II

Session Chair: Stefano Tebaldini, PoliMi

WE4.L4.1 16:20 **IMPACT OF NON-LOCAL FILTERING ON 3D RECONSTRUCTION FROM TOMOGRAPHIC SAR DATA**
Olivier D'Hondt, Technische Universität Berlin; Carlos López-Martínez, Universitat Politècnica de Catalunya; Stéphane Guillaso, Institut polytechnique de Grenoble; Olaf Hellwich, Technische Universität Berlin

WE4.L4.2 16:40 **ANALYSIS OF BISTATIC TOMOGRAPHY FOR SAOCOM-CS AND SENTINEL-1 CS MISSIONS**
Giosue Andrey Giardino, Paolo Pasquali, John Peter Merryman Boncori, Sarmap SA; Josep Rosello, Christopher Buck, European Space Agency (ESA)

WE4.L4.3 17:00 **DETECTION OF HOMOGENEOUS OBJECTS IN MULTI-DIMENSIONAL SAR TOMOGRAPHY**
Peifeng Ma, Guoqiang Shi, Hui Lin, Jili Wang, The Chinese University of Hong Kong; Weixi Wang, Shenzhen Research Center of Digital City Engineering

WE4.L4.4 17:20 **TOMOGRAPHIC IMAGING WITH UAVSAR: CURRENT STATUS AND NEW RESULTS FROM THE 2016 AFRISAR CAMPAIGN**
Marco Lavalle, Brian Hawkins, Scott Hensley, NASA Jet Propulsion Laboratory

WE4.L4.5 17:40 **LRT DETECTION AND COMPRESSING SENSING IN SAR TOMOGRAPHY: APPLICATION TO IMAGING AND MONITORING OF BUILDINGS**
Gianfranco Fornaro, Antonio Pauciullo, Diego Reale, CNR; Matthias Weiss, Fraunhofer; Alessandra Budillon, Gilda Schirinzi, University Parthenope

Wednesday, July 26 08:00 - 09:40 Room 203 BC
Session WE1.L5 Oral-Invited

Methodologies for High Resolution Soil Moisture from Microwave Observations I

Session Co-Chairs: Jasmeet Judge, University of Florida; Jeff Walker, Monash University

WE1.L5.1 08:00 **HIGH-RESOLUTION ENHANCED PRODUCT BASED ON SMAP ACTIVE-PASSIVE APPROACH USING SENTINEL 1 DATA AND ITS APPLICATIONS**
Narendra N Das, Jet Propulsion Laboratory, NASA; Dara Entekhabi, Massachusetts Institute of Technology; Seungbum Kim, Jet Propulsion Laboratory, NASA; Thomas Jagdhuber, German Aerospace Center (DLR); Roy Scott Dunbar, Simon Yueh, Andreas Colliander, Jet Propulsion Laboratory, NASA

WE1.L5.2 08:20 **A SPATIO-TEMPORAL DATA FUSION ALGORITHM FOR ESTIMATING HIGH-RESOLUTION SOIL MOISTURE IN AGRICULTURAL REGIONS**
Subit Chakrabarti, Pang-Wei Liu, Jasmeet Judge, Anand Rangarajan, University of Florida; Roger De Roo, University of Michigan; Rajat Bindlish, USDA-ARS; Andreas Colliander, Sidharth Misra, Scott Tripp, Barron Latham, Ross Williamson, Isaac Ramos Perez, Jet Propulsion Laboratory; Thomas J. Jackson, USDA-ARS; Anthony W. England, University of Michigan; Sanjay Ranka, University of Florida; Simon Yueh, Jet Propulsion Laboratory

WE1.L5.3 08:40 **ENHANCED-RESOLUTION SMAP SOIL MOISTURE USING IMAGE RECONSTRUCTION**
David G. Long, Brigham Young University; Mary J. Brodzik, Molly A. Hardman, CIRES/University of Colorado, Boulder

WE1.L5.4 09:00 **SOIL MOISTURE DOWNSCALING USING A SIMPLE THERMAL BASED PROXY**
Jian Peng, Max Planck Institute for Meteorology; Alexander Loew, Ludwig-Maximilians-Universität München

WE1.L5.5 09:20 **EVAPORATION-BASED DISAGGREGATION OF SURFACE SOIL MOISTURE DATA: THE DISPATCH METHOD, THE CATDS PRODUCT AND ON-GOING RESEARCH**
Olivier Merlin, Luis Olivera-Guerra, Centre d'Etudes Spatiales de la Biosphère, Université de Toulouse, IRD/CNRS/UPS/CNES; Bouchra Aït Hssaine, Abdelhakim Amazirh, University of Cadi Ayyad, Marrakech; Yoann Malbéteau, Vivien Stefan, Beatriz Molero, Centre d'Etudes Spatiales de la Biosphère, Université de Toulouse, IRD/CNRS/UPS/CNES; Zoubair Rafi, University of Cadi Ayyad, Marrakech; Maria José Escorihuela, isardSAT; Jamal Ezzahar, Saïd Khabba, University of Cadi Ayyad, Marrakech; Jeffrey Walker, Monash University; Yann Kerr, Centre d'Etudes Spatiales de la Biosphère, Université de Toulouse, CNES/UPS/CNRS/IRD; Vincent Simonneaux, Centre d'Etudes Spatiales de la Biosphère, Université de Toulouse, IRD/CNES/CNRS/UPS; Salah Er-Raki, University of Cadi Ayyad, Marrakech

Wednesday, July 26 13:40 - 15:20 Room 203 BC
Session WE3.L5 Oral-Invited

Observations by the NASA Soil Moisture Active Passive Mission I

Session Co-Chairs: Dara Entekhabi, Massachusetts Institute of Technology; Simon Yueh, California Institute of Technology

WE3.L5.1 13:40 **NASA SOIL MOISTURE ACTIVE PASSIVE MISSION STATUS AND SCIENCE HIGHLIGHTS**
Simon Yueh, California Institute of Technology; Dara Entekhabi, Massachusetts Institute of Technology; Peggy E. O'Neill, Goddard Space Flight Center; Jared Entin, NASA Headquarters

WE3.L5.2 14:00 **BACKUS-GILBERT OPTIMAL INTERPOALTION APPLIED TO ENHANCE SMAP DATA: IMPLEMENTATION AND ASSESSMENT**
Julian Chaubell, Steven Chan, Roy Scott Dunbar, Jet Propulsion Laboratory; Dara Entekhabi, Massachusetts Institute of Technology; Jinzheng Peng, Jeffrey R. Piepmeier, Goddard Space Flight Center; Simon Yueh, Jet Propulsion Laboratory

WE3.L5.3 14:20 **RECALIBRATION AND VALIDATION OF THE SMAP L-BAND RADIOMETER**
Jinzheng Peng, NASA Goddard Space Flight Center / Universities Space Research Association; Sidharth Misra, NASA Jet Propulsion Laboratory; Jeffrey R. Piepmeier, NASA Goddard Space Flight Center; Emmanuel Dinnat, NASA Goddard Space Flight Center / Chapman University; Thomas Meissner, Remote Sensing Systems; David Le Vine, NASA Goddard Space Flight Center; Rajat Bindlish, USDA ARS Hydrology and Remote Sensing Lab / Science Systems and Applications Inc; Giovanni De Amici, NASA Goddard Space Flight Center; Priscilla Mohammed, NASA Goddard Space Flight Center / Morgan State University; Simon Yueh, NASA Jet Propulsion Laboratory

WE3.L5.4 14:40 **DEVELOPMENT AND VALIDATION OF THE SMAP ENHANCED PASSIVE SOIL MOISTURE PRODUCT**
Steven Chan, NASA Jet Propulsion Laboratory; Rajat Bindlish, Peggy E. O'Neill, NASA Goddard Space Flight Center; Thomas J. Jackson, USDA; Julian Chaubell, NASA Jet Propulsion Laboratory; Jeffrey R. Piepmeier, NASA Goddard Space Flight Center; Roy Scott Dunbar, Andreas Colliander, NASA Jet Propulsion Laboratory; Fan Chen, USDA; Dara Entekhabi, Massachusetts Institute of Technology; Simon Yueh, NASA Jet Propulsion Laboratory; Michael H. Cosh, USDA; Todd Caldwell, The Univeristy of Texas; Jeffrey Walker, Xiaoling Wu, Monash University; Aaron Berg, Tracy Rowlandson, University of Guelph; Anna Pacheco, Heather McNairn, AAFC; Marc Thibeault, CONAE; José Martínez-Fernández, Ángel González-Zamora, CIALE; Ernesto Lopez-Baeza, University of Valencia; Frederik Uldall, Tech. U. Denmark; Mark Seyfried, David Bosch, Patrick Starks, Chandra Holifield Collins, John Prueger, USDA; Z. Su, R. van der Velde, University of Twente; Jun Asanuma, University of Tsukuba; Michael Palecki, NOAA; Eric Small, University of Colorado; Marek Zreda, University of Arizona; Jean-Christophe Calvet, CNRM-GAME; Wade Crow, USDA; Yann Kerr, Centre d'Etudes Spatiales de la Biosphère (CESBIO) - CNES

WE3.L5.5 15:00 **HIGH-RESOLUTION ENHANCED PRODUCT BASED ON SMAP ACTIVE-PASSIVE APPROACH USING SENTINEL 1A AND 1B SAR DATA**
Narendra N Das, Jet Propulsion Laboratory, NASA; Dara Entekhabi, Massachusetts Institute of Technology; Seungbum Kim, Jet Propulsion Laboratory, NASA; Thomas Jagdhuber, German Aerospace Center (DLR); Roy Scott Dunbar, Simon Yueh, Andreas Colliander, Jet Propulsion Laboratory, NASA

Wednesday, July 26 10:40 - 12:20 Room 203 BC
Session WE2.L5 Oral-Invited

Methodologies for High Resolution Soil Moisture from Microwave Observations II

Session Co-Chairs: Jeff Walker, Monash University; Jasmeet Judge, University of Florida

WE2.L5.1 10:40 **STATISTICAL DOWNSCALING OF REMOTELY-SENSED SOIL MOISTURE**
Seyed Hamed Alemohammad, Columbia University; Jana Kolassa, NASA Goddard Space Flight Center; Catherine Prigent, Filipe Aires, Observatoire de Paris; Pierre Gentine, Columbia University

WE2.L5.2 11:00 **L-BAND BRIGHTNESS TEMPERATURE DISAGGREGATION BY USING S-BAND C-BAND RADIOMETER DATA**
Jiancheng Shi, Panpan Yao, Tianjie Zhao, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences

WE2.L5.3 11:20 **FUSING MICROWAVE AND OPTICAL SATELLITE OBSERVATIONS FOR HIGH RESOLUTION SOIL MOISTURE DATA PRODUCTS**
Xiwu Zhan, Li Fang, Jicheng Liu, NOAA/NESDIS; Christopher Hain, NASA Marshell Space Flight Center; Jifu Yin, Mitch Schull, NOAA/NESDIS; Mike Cosh, USDA-ARS; Jun Wen, Chinese Academy of Sciences; Tarendra Lakhankar, NOAA-CREST City University of New York; Kun Yang, Chinese Academy of Sciences; Jeffrey Walker, Monash University

WE2.L5.4 11:40 **COMPARISON OF DOWNSCALING TECHNIQUES FOR HIGH RESOLUTION SOIL MOISTURE MAPPING**
Sabah Sabaghy, Jeffrey Walker, Monash University; Luigi Renzullo, Commonwealth Scientific and Industrial Research Organisation (CSIRO); Ruzbeh Akbar, University of Southern California; Steven Chan, Julian Chaubell, Narendra N Das, Roy Scott Dunbar, Jet Propulsion Laboratory; Dara Entekhabi, Massachusetts Institute of Technology; Anouk Gevaert, VU University Amsterdam; Thomas J. Jackson, U.S. Department of Agriculture, Agricultural Research Service (USDA ARS); Olivier Merlin, Centre d'Etudes Spatiales de la Biosphère (CESBIO); Mahta Moghaddam, University of Southern California; Jinzheng Peng, Jeffrey R. Piepmeier, Goddard Space Flight Center; María Piles, Universitat de València; Gerard Portal, Universitat Politècnica de Catalunya; Christoph Rüdiger, Monash University; Vivien Stefan, Centre d'Etudes Spatiales de la Biosphère (CESBIO); Xiaoling Wu, Nan Ye, Monash University; Simon Yueh, Jet Propulsion Laboratory

Wednesday, July 26 16:20 - 18:00 Room 203 BC
Session WE4.L5 Oral-Invited

Observations by the NASA Soil Moisture Active Passive Mission II

Session Co-Chairs: Simon Yueh, California Institute of Technology; Dara Entekhabi, Massachusetts Institute of Technology

WE4.L5.1 16:20 **INTEGRATION OF SMAP AND SMOS L-BAND OBSERVATIONS**
Rajat Bindlish, NASA Goddard Space Flight Center; Thomas J. Jackson, USDA-ARS HRSL; Steven Chan, Andreas Colliander, NASA Jet Propulsion Laboratory; Yann Kerr, Comisión Nacional de Actividades Espaciales

WE4.L5.2 16:40 **LANDSCAPE FREEZE/THAW STANDERD AND ENHANCED PRODUCTS FROM SOIL MOISTURE ACTIVE/PASSIVE (SMAP) RADIOMETER DATA**
Xiaolan Xu, Jet Propulsion Laboratory; Chris Derksen, Environment Canada; Roy Scott Dunbar, Andreas Colliander, Jet Propulsion Laboratory; John S Kimball, Youngwook Kim, University of Montana

WE4.L5.3 17:00 **SMAP-BASED RETRIEVAL OF VEGETATION OPACITY AND ALBEDO**
Dara Entekhabi, Massachusetts Institute of Technology; Alexandra G. Konings, Stanford University; María Piles, Universitat de València; Narendra N Das, Jet Propulsion Laboratory

WE4.L5.4 17:20 **MONITORING ECOSYSTEM-ATMOSPHERE CO2 EXCHANGE RESPOSE TO RECENT (2015-2016) CLIMATE VARIABILITY USING THE SMAP L4 CARBON PRODUCT**
John S Kimball, Lucas Jones, Joe Glassy, Nima Madani, Numerical Terradynamic Simulation Group; Rolf H Reichle, Global Modeling and Assimilation Office

WE4.L5.5 17:40 **VALIDATING SMAP SSS WITH IN SITU MEASUREMENTS**
Wenqing Tang, Alexander Fore, Simon Yueh, Tong Lee, Akiko Hayashi, Jet Propulsion Laboratory; Alejandra Sanchez-Franks, National Oceanography Centre; Dariusz Baranowski, Jet Propulsion Laboratory

Wednesday, July 26 **08:00 - 09:40** **Room 202 CD**
Session WE1.L6 **Oral-Invited**

Data Fusion I

Session Chair: Gabriele Moser, University of Genoa

WE1.L6.1 08:00 **INTRODUCTION TO REMOTE SENSING IMAGE REGISTRATION**
Jacqueline Le Moigne, NASA

WE1.L6.3 08:40 **DEEP LEARNING FOR SEMANTIC SEGMENTATION OF REMOTE SENSING IMAGES WITH RICH SPECTRAL CONTENT**
Amina Ben Hamida, Alexandre Benoit, Patrick Lambert, Laboratoire d'Informatique, Systèmes, Traitement de l'Information et de la Connaissance (LISTIC), Université Savoie Mont Blanc; Chokri Ben Amar, Research Lab on intelligent machines (REGIM), Université de Sfax; Louis Klein, Laboratoire d'Informatique, Systèmes, Traitement de l'Information et de la Connaissance (LISTIC), Université Savoie Mont Blanc; Nicolas Audebert, ONERA; Sébastien Lefèvre, IRISA/UBS

WE1.L6.4 09:00 **EMPLOYING SPACEBORNE MULTISPECTRAL STEREO PAIRS AND PEDESTRIAN FLOW MODELING TO SUPPORT DISASTER RESPONSE ACTIVITIES IN URBAN ENVIRONMENTS**
Dave Kelbe, Devin White, David Page, Kristin Safi, Andrew Hardin, Amy Rose, Oak Ridge National Laboratory

WE1.L6.5 09:20 **CLOUD REMOVAL BY FUSING MULTI-SOURCE AND MULTI-TEMPORAL IMAGES**
Chengyue Zhang, Zhiwei Li, Qing Cheng, Xinghua Li, Huanfeng Shen, Wuhan University

Wednesday, July 26 **10:40 - 12:20** **Room 202 CD**
Session WE2.L6 **Oral-Invited**

Data Fusion II

Session Chair: Gabriele Moser, University of Genoa

WE2.L6.1 10:40 **A SPACE-TIME DATA CUBE: MULTI-TEMPORAL FOREST STRUCTURE MAPS FROM LANDSAT AND LIDAR**
Giona Matasci, Txomin Hermosilla, Integrated Remote Sensing Studio, University of British Columbia; Michael A. Wulder, Joanne C. White, Geordie W. Hobart, Pacific Forestry Centre, Canadian Forest Service; Harold S. J. Zald, Department of Forestry and Wildland Resources, Humboldt State University; Nicholas C. Coops, Integrated Remote Sensing Studio, University of British Columbia

WE2.L6.2 11:00 **REGISTRATION OF TEXTURED REMOTE SENSING IMAGES USING DIRECTIONAL GABOR FRAMES**
Hannah Olson, Wojciech Czaja, University of Maryland; Jacqueline Le Moigne, NASA Goddard Space Flight Center

WE2.L6.3 11:20 **A HIERARCHICAL APPROACH TO SUPERRESOLUTION OF MULTISPECTRAL IMAGES WITH DIFFERENT SPATIAL RESOLUTIONS**
Claudia Paris, University of Trento; José Manuel Bioucas-Dias, Instituto Superior Técnico - Universidade de Lisboa; Lorenzo Bruzzone, University of Trento

WE2.L6.4 11:40 **SPARSE UNMIXING WITH ADAPTIVE BACKGROUND**
Yuki Itoh, Mario Parente, University of Massachusetts Amherst

WE2.L6.5 12:00 **COLLABORATIVE TOTAL VARIATION FOR HYPERSPECTRAL PANSHARPENING**
Paolo Addesso, University of Salerno; Mauro Dalla Mura, Laurent Condat, University of Grenoble Alpes; Rocco Restaino, Gemine Vivone, Daniele Picone, University of Salerno; Jocelyn Chanussot, University of Grenoble Alpes

Wednesday, July 26 **13:40 - 15:20** **Room 202 CD**
Session WE3.L6 **Oral**

Accuracy and Quality Assessment of Data Analysis Algorithms

Session Co-Chairs: John Kerekes, Rochester Institute of Technology; Gabriele Moser, University of Genoa

WE3.L6.1 13:40 **THE IEEE GRSS DATA AND ALGORITHM STANDARD EVALUATION (DASE) WEBSITE: INCREMENTALLY BUILDING A STANDARDIZED ASSESSMENT FOR ALGORITHM PERFORMANCE**
Fabio Dell'Acqua, University of Pavia; Gianni Cristian Iannelli, Ticinum Aerospace srl; John Kerekes, Rochester Institute of Technology; Gabriele Moser, Università di Genova; Leland Pierce, University of Michigan; Emanuele Goldoni, Independent consultant

WE3.L6.2 14:00 **BLIND HYPERSPECTRAL IMAGE QUALITY ASSESSMENT VIA QUALITY-SENSITIVE FEATURES EXTRACTION**
Jingxiang Yang, Yongqiang Zhao, Northwestern Polytechnical University; Jonathan Cheung-Wai Chan, Vrije Universiteit Brussel

WE3.L6.3 14:20 **A NOVEL TWO-STAGE GUIDED FILTERING BASED PANSHARPENING METHOD**
Yiming Zhang, Xu Li, Ang Gao, Lixin Li, Northwestern Polytechnical University; Shigang Yue, University of Lincoln

WE3.L6.4 14:40 **PARALLEL GLOBAL ATMOSPHERIC CORRECTION FOR FY3/MERSI DATA OVER LAND ON MULTI-CORE AND MANY-CORE ARCHITECTURES**
Jia Liu, National University of Defense Technology; Jie Guang, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences; Kaijun Ren, Heng Wang, Junqiang Song, National University of Defense Technology; Yong Xue, Cheng Fan, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences; Shuchang Wang, National University of Defense Technology

WE3.L6.5 15:00 **COLOR-GUIDED ENHANCEMENT OF AIRBORNE LASER SCANNING DATA**
Göksu Keskin, Wolfgang Gross, Wolfgang Middelmann, Fraunhofer Institute of Optronics, System Technologies and Image Exploitation

Wednesday, July 26 **16:20 - 18:00** **Room 202 CD**
Session WE4.L6 **Oral**

Image and Data Fusion II

Session Co-Chairs: Nick Younan, Mississippi State University; Maryam Rahnemoonfar, Texas A&M University-Corpus Christi

WE4.L6.1 16:20 **FEATURE FUSION OF HYPERSPECTRAL AND LIDAR DATA USING EXTINCTION PROFILES AND TOTAL VARIATION**
Pedram Ghamisi, German Aerospace Center (DLR) and Technical University of Munich (TUM); Behnood Rasti, Ubiversity of Iceland; Xiao Xiang Zhu, German Aerospace Center (DLR) and Technical University of Munich (TUM)

WE4.L6.2 16:40 **FUSION OF MICROWAVE AND INFRARED DATA FOR ENHANCING ITS SPATIAL RESOLUTION**
Igor Yanovsky, Ali Behrangi, Mathias Schreier, Van Dang, Berry Wen, Bjorn Lambrigtsen, Jet Propulsion Laboratory

WE4.L6.3 17:00 **VESSEL CLASSIFICATION FEATURES USING SPATIAL BAYESIAN INFERENCE FROM HISTORICAL AIS DATA**
Rory Meyer, Colin Schwegmann, Waldo Kleynhans, Council for Scientific and Industrial Research

WE4.L6.4 17:20 **ON THE POSSIBILITY OF CONDITIONAL ADVERSARIAL NETWORKS FOR MULTI-SENSOR IMAGE MATCHING**
Nina Merkle, Peter Fischer, Stefan Auer, Rupert Müller, German Aerospace Center (DLR)

WE4.L6.5 17:40 **A SAR KNOWLEDGE BASE SYSTEM INTEGRATED MODEL, MEASUREMENT AND IMAGERY FOR INTERPRETATION**
Zhen Li, Quan Chen, Bangseng Tian, Ping Zhang, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences

Wednesday, July 26 08:00 - 09:40 Room 201 A
Session WE1.L7 Oral-Invited

Global Navigation Satellite System Reflectometry Spaceborne Missions I

Session Co-Chairs: Christopher Ruf, University of Michigan; Andrew O'Brien, The Ohio State University

WE1.L7.1 08:00 **THE NASA CYGNSS MISSION: OVERVIEW AND STATUS UPDATE**
Christopher Ruf, University of Michigan; Scott Gleason, Southwest Research Institute; Aaron Ridley, University of Michigan; Randall Rose, John Scherrer, Southwest Research Institute

WE1.L7.2 08:20 **CALIBRATION AND VALIDATION OF THE CYGNSS LEVEL 1 DATA PRODUCTS**
Scott Gleason, Southwest Research Institute; Christopher Ruf, Maria Paola Clarizia, University of Michigan; Joel Johnson, Andrew O'Brien, The Ohio State University; Paul Chang, Zorana Jelenek, National Oceanic and Atmospheric Administration; Faozi Said, National Oceanic and Atmospheric Administration, Global Science & Technology, Inc.; Seubson Soisuvarn, National Oceanic and Atmospheric Administration

WE1.L7.3 08:40 **GENERATION OF CYGNSS LEVEL 2 WIND SPEED DATA PRODUCTS**
Maria Paola Clarizia, Christopher Ruf, University of Michigan; Scott Gleason, Southwest Research Institute; Rajeswari Balasubramaniam, Darren McKague, University of Michigan

WE1.L7.4 09:00 **EVALUATION OF CYGNSS GNSS-R SIGNAL SENSITIVITY TO OCEAN PARAMETERS AND WIND RETRIEVAL ASSESMENT**
Paul Chang, NOAA/NESDIS; Seubson Soisuvarn, UCAR; Faozi Said, Global Science & Technology, Inc.; Zorana Jelenak, UCAR

WE1.L7.5 09:20 **CYGNSS CONSTELLATION INTERCALIBRATION**
Darren McKague, Christopher Ruf, University of Michigan

Wednesday, July 26 10:40 - 12:20 Room 201 A
Session WE2.L7 Oral-Invited

Global Navigation Satellite System Reflectometry Spaceborne Missions II

Session Co-Chairs: Scott Gleason, Southwest Research Institute; Maria-Paola Clarizia, University of Michigan

WE2.L7.1 10:40 **COMPARING THE CYGNSS SIMULATOR FORWARD SCATTERING MODEL WITH TDS-1 AND CYGNSS ON-ORBIT DDMS**
Andrew O'Brien, Joel Johnson, The Ohio State University

WE2.L7.2 11:00 **INVESTIGATING "RAPID REVISIT" OBSERVATIONS OF CYGNSS**
Jeonghwan Park, Joel Johnson, Andrew O'Brien, Yuchan Yi, The Ohio State University

WE2.L7.3 11:20 **THE SENSITIVITY OF GROUND-REFLECTED GNSS SIGNALS TO NEAR-SURFACE SOIL MOISTURE, AS RECORDED BY SPACEBORNE RECEIVERS**
Clara Chew, Andreas Colliander, Rashmi Shah, Cinzia Zuffada, Mariko S. Burgin, Jet Propulsion Laboratory

WE2.L7.4 11:40 **GNSS-R DELAY-DOPPLER MAPS OF OCEAN SURFACE AT WEAK WINDS**
Valery Zavorotny, Alexander Voronovich, National Oceanic and Atmospheric Administration, Earth System Research Laboratory

WE2.L7.5 12:00 **WIND RETRIEVAL FOR GNSS REFLECTOMETRY FROM TECHDEMOSAT-1**
Giangregorio Generoso, Università del Sannio; Pia Addabbo, Università Giustino Fortunata; Carmela Galdi, Maurizio di Bisceglie, Università del Sannio

Wednesday, July 26 13:40 - 15:20 Room 201 A
Session WE3.L7 Oral-Invited

Instrumentation Advances for Reflectometry with GNSS and Signals of Opportunity (GNSS+R) I

Session Co-Chairs: Estel Cardellach, Institut de Ciencies de l'Espai (CSIC-IEEC); Jams Garrison, Purdue University; Steven C. Reising, Colorado State University

WE3.L7.1 13:40 **INVERSE MODELING OF GROUND-BASED GNSS-R – RESULTS AND NEW POSSIBILITIES**
Thomas Hobiger, Joakim Strandberg, Rüdiger Haas, Chalmers University of Technology

WE3.L7.3 14:20 **MULTI-GNSS MULTIPATH REFLECTOMETRY FOR SNOW DEPTH ESTIMATION: OPTIMAL GPS/GLONASS COMBINATION (PRELIMINARY RESULTS)**
Sajad Tabibi, University of Luxembourg; Felipe G. Nievinski, Federal University of Rio Grande do Sul (UFRGS); Tonie van Dam, University of Luxembourg

WE3.L7.4 14:40 **RESULTS FROM THE GLORIE GNSS-R AIRBORNE CAMPAIGN: FOREST AREAS**
Erwan Motte, Centre d'Etudes Spatiales de la Biosphère (CESBIO); Dominique Guyon, INRA; Mehrez Zribi, Pascal Fanise, Centre d'Etudes Spatiales de la Biosphère (CESBIO); Sylvia Dayau, Jean-Pierre Wigneron, INRA

WE3.L7.5 15:00 **IMPROVED MODELLING OF IONOSPHERIC DISTURBANCES FOR REMOTE SENSING AND NAVIGATION**
Adriano Camps, Universitat Politècnica de Catalunya; José Barbosa, RDA -Research and Development in Aerospace GmbH; Jose Miguel Juan, Universitat Politècnica de Catalunya; Estefania Blanch, David Altadill, Observatori de l'Ebre, CSIC - Universitat Ramon Llull; Guillermo Gonzalez, Gregori Vazquez, Jaume Riba, Universitat Politècnica de Catalunya; Raul Orus, European Space Agency - ESTEC

Wednesday, July 26 16:20 - 18:00 Room 201 A
Session WE4.L7 Oral-Invited

Instrumentation Advances for Reflectometry with GNSS and Signals of Opportunity (GNSS+R) II

Session Co-Chairs: Estel Cardellach, Institut de Ciencies de l'Espai (CSIC-IEEC); Jams Garrison, Purdue University; Steven C. Reising, Colorado State University

WE4.L7.1 16:20 **HIGH-VALUE REMOTE SENSING FOR THE GEOSCIENCES: OPPORTUNISTIC USE OF NAVIGATION SATELLITE SIGNALS**
Anthony Mannucci, Stephen Lowe, Jeffrey Dickson, Lawrence Young, Garth Franklin, Thomas Meehan, Stephan Esterhuizen, Chi Ao, Panagiotis Vergados, Clara Chew, Seungbum Kim, Son Nghiem, Joseph Turk, Cinzia Zuffada, Rashmi Shah, Attila Komjathy, Jet Propulsion Laboratory, California Institute of Technology

WE4.L7.2 16:40 **OCEAN ALTIMETRY USING WIDEBAND SIGNALS OF OPPORTUNITY**
Rashmi Shah, NASA Jet Propulsion Laboratory, California Institute of Technology; James Garrison, Soon Chye Ho, Purdue University; Priscilla Mohammed, Jeffrey R. Piepmeier, Adam Schoenwald, NASA Goddard Space Fight Center; Randeep Pannu, Morgan State University; Asmita Korde-Patel, Damon Bradley, NASA Goddard Space Flight Center

WE4.L7.3 17:00 **PREDICTION OF GNSS-R ALTIMETRY PRECISION BASED ON WAVEFORM STATISTICS**
Weiqiang Li, Antonio Rius, Fran Fabra, Estel Cardellach, Serni Ribó, Institute of Space Sciences (CSIC/IEEC); Manuel Martín-Neira, European Space Agency (ESA)

WE4.L7.4 17:20 **CHALLENGES IN GRAZING ALTIMETRY USING REFLECTED GNSS SIGNALS**
Maximilian Semmling, Jan Saynisch, Florian Zus, Luis Peraza, Jens Wickert, Helmholtz Centre Potsdam GFZ

WE4.L7.5 17:40 **ADVANCES IN GNSS-R ALTIMETRY**
Manuel Martín-Neira, Michael Kern, Salvatore D'addio, Jason Hatton, European Space Agency (ESA); Antonio Rius, Weiqiang Li, Serrni Ribo, Fran Fabra, Estel Cardellach, Institut de Ciencies de l'Espai; Jens Wickert, Maximilian Semmling, GeoForschungZentrum

Wednesday, July 26 08:00 - 09:40 Room 202 A
Session WE1.L8 Oral-Invited

Global Precipitation Measurement Instruments and Algorithms I

Session Co-Chairs: Gail Skofronick-Jackson, NASA Goddard Space Flight Center; Chandra.V Chandrasekar, Colorado State University

WE1.L8.1 08:00 **THREE YEARS OF THE GLOBAL PRECIPITATION MEASUREMENT (GPM) MISSION**
Gail Skofronick-Jackson, George Huffman, NASA Goddard Space Flight Center; Walter Petersen, NASA Marshall Space Flight Center

WE1.L8.3 08:40 **PRIME MISSION RESULTS OF THE DUAL-FREQUENCY PRECIPITATION RADAR ON THE GLOBAL PRECIPITATION MEASUREMENT CORE SPACECRAFT**
Kinji Furukawa, Tomomi Nio, Riko Oki, Takuji Kubota, Japan Aerospace Exploration Agency; Toshio Iguchi, National Institute of Information and Communications Technology

WE1.L8.4 09:00 **RECENT PROGRESS IN GLOBAL SATELLITE MAPPING OF PRECIPITATION (GSMAP) PRODUCT**
Takuji Kubota, Japan Aerospace Exploration Agency; Kazumasa Aonashi, Japan Meteorological Agency; Tomoo Ushio, Osaka University; Shoichi Shige, Kyoto University; Yukari Takayabu, University of Tokyo; Yoriko Arai, Tomoko Tashima, Remote Sensing Technology Center of Japan; Misako Kachi, Riko Oki, Japan Aerospace Exploration Agency

WE1.L8.5 09:20 **REVIEW OF DUAL-FREQUENCY PROFILE CLASSIFICATION MODULE AND FURTHER IMPROVEMENTS**
Minda Le, Venkatachalam Chandrasekar, Colorado State University

Wednesday, July 26 10:40 - 12:20 Room 202 A
Session WE2.L8 Oral-Invited

Global Precipitation Measurement Instruments and Algorithms II

Session Co-Chairs: Gail Skofronick-Jackson, NASA Goddard Space Flight Center; Chandra.V Chandrasekar, Colorado State University

WE2.L8.1 10:40 **INTER-CALIBRATION OF MHS AND AMSU-B MICROWAVE RADIOMETERS FROM TRMM TO GPM ERA**
Hamideh Ebrahimi, Ruiyao Chen, W. Linwood Jones, University of Central Florida

WE2.L8.2 11:00 **FALLING SNOW ESTIMATES FROM THE GLOBAL PRECIPITATION MEASUREMENT (GPM) MISSION**
Gail Skofronick-Jackson, Stephen (Joe) Munchak, Sarah Ringerud, NASA Goddard Space Flight Center; Walter Petersen, NASA Marshall Space Flight Center; Benjamin Lott, University of North Dakota

WE2.L8.3 11:20 **IMPROVEMENT OF THE MINIMUM DETECTABLE PRECIPITATION ECHOES WITH THE TRMM PRECIPITATION RADAR AND THE GPM DUAL-FREQUENCY PRECIPITATION RADAR**
Toshio Iguchi, National Institute of Information and Communications Technology

WE2.L8.4 11:40 **A COMPARISON OF RADIO FREQUENCY INTERFERENCE WITHIN AND OUTSIDE OF ALLOCATED PASSIVE EARTH EXPLORATION BANDS AT 10.65 GHZ AND 18.7 GHZ USING THE GPM MICROWAVE IMAGER AND WINDSAT**
David Draper, Ball Aerospace; Erich Stocker, NASA Goddard Space Flight Center

WE2.L8.5 12:00 **METEOROLOGICAL OBSERVATIONS AND SYSTEM PERFORMANCE FROM THE NASA D3R'S FIRST 5 YEARS**
Venkatachalam Chandrasekar, Robert M. Beauchamp, Manuel A. Vega, Haonan Chen, Mohit Kumar, Shashank S. Joshil, Colorado State University; Mathew Schwaller, NASA Goddard Space Flight Center; Walter Petersen, NASA Marshall Space Flight Center; David Wolff, NASA Wallops Flight Facility

Wednesday, July 26 13:40 - 15:20 Room 202 A
Session WE3.L8 Oral

Small Satellite Technology I

Session Co-Chairs: Todd Gaier, Jet Propulsion Laboratory, California Institute of Technology; Martti Hallikainen, Aalto University

WE3.L8.1 13:40 **TEMPORALLY RESOLVED OBSERVATIONS AND IMPLICATIONS FOR OBSERVING ARCHITECTURES: GEO VS LEO**
Todd C. Gaier, Vritika Singh, Casey Heeg, Jet Propulsion Laboratory, California Institute of Technology

WE3.L8.2 14:00 **MICRONIMBUS: A CUBESAT TEMPERATURE PROFILOMETER FOR THE EARTH'S ATMOSPHERE USING A SINGLE-CHIP 60 GHZ SIGE RADIOMETER**
Wyman Williams, Georgia Tech Research Institute; Christopher Coen, Milad Frounchi, Georgia Institute of Technology; Nelson Lourenco, Georgia Tech Research Institute; John Cressler, Georgia Institute of Technology

WE3.L8.3 14:20 **COMMAND AND DATA HANDLING (C&DH) SUBSYSTEM FOR THE TROPOSPHERIC WATER AND CLOUD ICE (TWICE) 6U-CLASS SATELLITE INSTRUMENT**
Mehmet Ogut, Xavier Bosch-Lluis, Steven C. Reising, Yuriy Goncharenko, Colorado State University; Pekka Kangaslahti, Erich Schlecht, Richard Cofield, Nacer Chahat, Sharmila Padmanabhan, Jonathan Jiang, Shannon T. Brown, California Institute of Technology; William Deal, Alex Zamora, Kevin Leong, Sean Shih, Gerry Mei, Northrop Grumman Corporation

WE3.L8.4 14:40 **TURNING A TWO-DIMENSIONAL IMAGE SENSOR TO AN ATTITUDE SENSOR: IMAGE MATCHING FOR DETERMINING SATELLITE ATTITUDES**
Atsunori Kanemura, Toru Kouyama, Soushi Kato, Nevrez Imamoglu, National Institute of Advanced Industrial Science and Technology; Tetsuya Fukuhara, Rikkyo University; Ryosuke Nakamura, National Institute of Advanced Industrial Science and Technology

WE3.L8.5 15:00 **3CAT-3/MOTS, AN EXPERIMENTAL NANOSATELLITE FOR MULTISPECTRAL AND GNSS-R EARTH OBSERVATION: MISSION CONCEPT AND ANALYSIS**
Jordi Castellví, Univetsitat Politècnica de Catalunya (UPC) and Institut Cartogràfic i Geològic de Catalunya (ICGC); Adriano Camps, Univetsitat Politècnica de Catalunya (UPC); Jordi Corbera, Ramon Alamús, Institut Cartogràfic i Geològic de Catalunya (ICGC)

Wednesday, July 26 16:20 - 18:00 Room 202 A
Session WE4.L8 Oral-Invited

Advanced Methods for Lidar Data Processing

Session Chair: Melba Crawford, Purdue University

WE4.L8.1 16:20 **CLASSIFICATION OF MULTISPECTRAL LIDAR POINT CLOUDS**
Nima Ekhtari, Craig Glennie, Juan Carlos Fernandez-Diaz, University of Houston

WE4.L8.2 16:40 **SUBDOMINANT TREE DETECTION IN MULTI-LAYERED FORESTS BY A LOCAL PROJECTION OF AIRBORNE LIDAR DATA**
Aravind Harikumar, Francesca Bovolo, Fondazione Bruno Kessler; Lorenzo Bruzzone, University of Trento

WE4.L8.3 17:00 **REGISTRATION OF MULTIPLE LOW RESOLUTION NASA AIRBORNE SNOW OBSERVATORY (ASO) LIDAR DATA FOR FOREST VEGETATION STRUCTURE CHARACTERIZATION**
António Ferraz, Kathryn Bormann, Sassan Saatchi, Thomas H. Painter, NASA Jet Propulsion Laboratory

WE4.L8.4 17:20 **COMPARISON OF BELIEF PROPAGATION AND GRAPH-CUT APPROACHES FOR CONTEXTUAL CLASSIFICATION OF 3D LIDAR POINT CLOUD DATA**
Loïc Landrieu, Clément Mallet, Institut National de l'Information Géographique et Forestière; Martin Weinmann, Karlsruhe Institute of Technology

WE4.L8.5 17:40 **HOW TO COMBINE LIDAR AND VERY HIGH RESOLUTION MULTISPECTRAL IMAGES FOR FOREST STAND SEGMENTATION?**
Clément Dechesne, Clément Mallet, Arnaud Le-Bris, Valérie Gouet-Brunet, IGN

Wednesday, July 26 08:00 - 09:40 Room 203 A
Session WE1.L9 Oral-Invited

The Joint Polar Satellite System: NOAA's New Global Operational Capability to Monitor the Planet I

Session Chair: Al Gasiewski, University of Colorado at Boulder

WE1.L9.1 08:00 **THE JOINT POLAR SATELLITE SYSTEM - OVERVIEW, INSTRUMENTS, PROVING GROUND AND RISK REDUCTION ACTIVITIES**
Mitchell Goldberg, National Oceanic Atmospheric Administration; Lihang Zhou, Center for Satellite Applications and Research

WE1.L9.3 08:40 **THE JOINT POLAR SYSTEM: TOWARDS THE SECOND GENERATION EUMETSAT POLAR SYSTEM**
Kenneth Holmlund, Bojan Bojkov, Dieter Klaes, Peter Schlüssel, EUMETSAT

WE1.L9.4 09:00 **JPSS SUPPORT TO THE NOAA ARCTIC INITIATIVE AND TESTBED**
Arron Layns, NOAA JPSS; Eugene Petrescu, NWS

WE1.L9.5 09:20 **VIIRS RSBAUTOCAL REFINEMENTS TO ALLOW DNB DARK SIGNALS & GAIN RATIOS TRANSITION TO AUTOMATED OPERATION MODE**
Ziping Sun, Frank De Luccia, Gabriel Moy, The Aerospace Corporation

Wednesday, July 26 10:40 - 12:20 Room 203 A
Session WE2.L9 Oral-Invited

The Joint Polar Satellite System: NOAA's New Global Operational Capability to Monitor the Planet II

Session Chair: Fuzhong Weng, NOAA

WE2.L9.1 10:40 **APPLICATION OF SUOMI-NPP/VIIRS DATA IN NEAR REAL TIME FLOOD DETECTION**
Mike DeWeese, NOAA - National Weather Service; Sanmei Li, Donglian Sun, Mitchell Goldberg, Bill Sjoberg, George Mason University

WE2.L9.2 11:00 **APPLICATIONS OF SATELLITE OCEAN COLOR PRODUCTS**
Menghua Wang, Cara Wilson, NOAA

WE2.L9.3 11:20 **ADVANCES IN VOLCANO MONITORING: THE ROLE OF JPSS INSTRUMENTS**
David Schneider, USGS Alaska Volcano Observatory; Michael Pavolonis, NOAA Cooperative Institute for Meteorological Satellite Studies

WE2.L9.4 11:40 **SUPPORTING INTERNATIONAL EFFORTS FOR DETECTING ILLEGAL FISHING AND GAS FLARING USING VIIRS**
Christopher D Elvidge, NOAA; Kimberly Baugh, Mikhail Zhizhin, Feng-Chi Hsu, Tilottama Ghosh, University of Colorado

WE2.L9.5 12:00 **USING VIIRS FIRE RADIATIVE POWER DATA TO SIMULATE BIOMASS BURNING EMISSIONS, PLUME RISE AND SMOKE TRANSPORT IN A REAL-TIME AIR QUALITY MODELING SYSTEM**
Ravan Ahmadov, Georg Grell, Eric James, NOAA Earth System Research Laboratory; Ivan Csiszar, Marina Tsidulko, Brad Pierce, NOAA/NESDIS; Stuart McKeen, Stan Benjamin, Curtis Alexander, NOAA Earth System Research Laboratory; Gabriel Pereira, Saulo Freitas, NASA Goddard Space Flight Center; Mitchell Goldberg, NOAA/NESDIS

Wednesday, July 26 13:40 - 15:20 Room 203 A
Session WE3.L9 Oral

Ice Sheets and Glaciers II

Session Co-Chairs: Giovanni Macelloni, IFAC -CNR; Leung Tsang, University of Michigan, Ann Arbor

WE3.L9.1 13:40 **RETRIEVAL OF ICE SHEET TEMPERATURE PROFILE IN ANTARCTICA BY USING SMOS DATA: A COMBINATION OF GLACIOLOGICAL AND MICROWAVE EMISSION MODELS**
Giovanni Macelloni, Francesco Montomoli, Marion Leduc-Leballeur, Marco Brogioni, IFAC-CNR; Catherine Ritz, Ghislain Picard, LGGE

WE3.L9.2 14:00 **REMOTE SENSING OF THE CRYOSPHERE IN HIGH MOUNTAIN ASIA**
Batuhan Osmanoglu, NASA; Thomas H. Painter, Jet Propulsion Laboratory, NASA; David Shean, University of Washington; Anthony Arendt, Polar Science Center; Jeffrey Kargel, University of Arizona; Steven A. Margulis, University of California Los Angeles

WE3.L9.3 14:20 **AUTOMATIC GLACIER CALVING FRONT DELINEATION ON TERRASAR-X AND SENTINEL-1 SAR IMAGERY**
Lukas Krieger, Dana Floricioiu, German Aerospace Center (DLR)

WE3.L9.4 14:40 **RECENT SURFACE ELEVATION CHANGES OF PATAGONIAN GLACIERS DERIVED WITH TANDEM-X**
Wael Abdel Jaber, Dana Floricioiu, Erling Johnson, German Aerospace Center (DLR); Helmut Rott, ENVEO IT GmbH

WE3.L9.5 15:00 **SMOS BRIGHTNESS DATA INDICATE ICE THICKNESS HENCE BEDROCK TOPOGRAPHY IN EAST ANTARCTICA**
Niels Skou, Steen Savstrup Kristensen, Technical University of Denmark

Wednesday, July 26 16:20 - 18:00 Room 203 A
Session WE4.L9 Oral

Ice Sheets and Glaciers III

Session Chair: Marco Brogioni, IFAC -CNR

WE4.L9.1 16:20 **SNOWMELT IN ANTARCTICA AS DERIVED FROM SMOS OBSERVATIONS**
Marion Leduc-Leballeur, IFAC-CNR; Ghislain Picard, University Grenoble Alpes; Giovanni Macelloni, Marco Brogioni, IFAC-CNR

WE4.L9.2 16:40 **A PARTIAL COHERENT MODEL OF BRIGHTNESS TEMPERATURES OF POLAR ICE SHEETS AT L BAND INCORPORATING MULTI-LAYER ROUGHNESS EFFECTS BASED ON SPM2 THEORY**
Mohammadreza Sanamzadeh, Leung Tsang, University of Michigan; Joel Johnson, The Ohio State University

WE4.L9.3 17:00 **ESTIMATION OF ICE BASAL REFLECTIVITY OF BYRD GLACIER USING RES DATA**
Santhosh Kumar Malyala, Jilu Li, Manjish Adhikari, Fernando Rodriguez Morales, University of Kansas

WE4.L9.4 17:20 **AN INTEGRATED FIELD AND REMOTE SENSING BASED APPROACH FOR ESTIMATING INFLUENCE OF DEBRIS THICKNESS ON GLACIER SURFACE ELEVATION CHANGES**
Purushottam Kumar Garg, Aparna Shukla, Wadia Institute of Himalayan Geology; Avtar Singh Jasrotia, University of Jammu

WE4.L9.5 17:40 **INCREASING SPATIAL RESOLUTION OF SEA ICE MOTION ESTIMATION**
Zisis Petrou, City College of New York, The City University of New York; Yang Xian, The Graduate Center, The City University of New York; Yingli Tian, City College of New York, The City University of New York

Wednesday, July 26 **08:00 - 09:40** **Room 204 A**
Session WE1.L10 **Oral**

Forest Monitoring by LIDAR

Session Co-Chairs: Tristan Goulden, National Ecological Observatory Network; Qingwang Liu, Institute of Forest Resource Information Techniques, Chinese Academy of Forestry

WE1.L10.1 08:00 **UNCERTAINTY IN LIDAR DERIVED CANOPY HEIGHT MODELS IN THREE UNIQUE FOREST ECOSYSTEMS**
Tristan Goulden, Bridget Hass, Nathan Leisso, National Ecological Observatory Network

WE1.L10.2 08:20 **DERIVING A DISTRIBUTION MODEL OF FOREST CANOPY HEIGHT AT STAND LEVEL USING ICESAT GLAS FULL-WAVEFORM DATA**
Chinsu Lin, National Chiayi University

WE1.L10.3 08:40 **FOREST CANOPY HEIGHT ESTIMATION AT FOOTPRINT SCALE BASED ON AIRBORNE LIDAR METRIC IN THE HETEROGENEOUS LANDSCAPE**
Kailong Hu, China University of Mining and Technology, Beijing; Qingwang Liu, Chinese Academy of Forestry

WE1.L10.4 09:00 **FOREST HEIGHT ESTIMATION BASED ON UAV LIDAR SIMULATED WAVEFORM**
Bowei Chen, Zengyuan Li, Yong Pang, Qingwang Liu, Institute of Forest Resource Information Techniques, Chinese Academy of Forestry; Xianlian Gao, Jinping Gao, Anmin Fu, Academy of Forest Inventory and Planning, State Forestry Administration

WE1.L10.5 09:20 **FOREST CANOPY COVER ANALYSIS USING UAS LIDAR**
Qingwang Liu, Shiming Li, Kailong Hu, Yong Pang, Zengyuan Li, Research Institute of Forest Resource Information Techniques, Chinese Academy of Forestry

Wednesday, July 26 **10:40 - 12:20** **Room 204 A**
Session WE2.L10 **Oral**

Forest Monitoring by LIDAR and other Measurements

Session Co-Chairs: Yang Lei, Jet Propulsion Laboratory; Roland Perko, JOANNEUM RESEARCH Forschungsgesellschaft mbH

WE2.L10.1 10:40 **UPDATING LIDAR-DERIVED CROWN COVER DENSITY PRODUCTS WITH SENTINEL-2**
Janik Deutscher, Klaus Granica, Martin Steinegger, Manuela Hirschmugl, Roland Perko, Mathias Schardt, Joanneum Research Forschungsgesellschaft mbH

WE2.L10.2 11:00 **IMPROVING CARBON ESTIMATION OF LARGE TROPICAL TREES BY LINKING AIRBORNE LIDAR CROWN SIZE TO FIELD INVENTORY**
António Ferraz, Sassan Saatchi, NASA Jet Propulsion Laboratory; James Kellner, Brown University; David Clark, University of Missouri-St. Louis

WE2.L10.3 11:20 **LARGE-SCALE PRODUCT OF FOREST HEIGHT USING A NEW APPROACH FROM SPACBORNE REPEAT-PASS SAR INTERFEROMETRY AND LIDAR**
Yang Lei, Jet Propulsion Laboratory; Paul Siqueira, University of Massachusetts Amherst; Nathan Torbick, Diya Chowdhury, William Salas, Applied GeoSolutions; Robert Treuhaft, Jet Propulsion Laboratory

WE2.L10.4 11:40 **FUSION OF MULTI-SCALE HYPERSPECTRAL AND LIDAR FEATURES FOR TREE SPECIES MAPPING**
Wenzhi Liao Liao, Frieke Coillie, Ghent University; Liwei Li, Bin Zhao, Lianru Gao, Chinese Academy of Sciences; Wilfried Philips, Ghent University; Bing Zhang, Chinese Academy of Sciences

WE2.L10.5 12:00 **TROPICAL FOREST DISASTER MONITORING WITH MULTI-SCALE SENSORS FROM TERRESTRIAL LASER, UAV, TO SATELLITE RADAR**
Akira Kato, Chiba University; Hiroyuki Wakabayashi, Nihon University; Yuichi Hayakawa, University of Tokyo; Matt Bradford, CSIRO, Land and Water; Manabu Watanabe, Tokyo Denki University; Yoshio Yamaguchi, Niigata University

Wednesday, July 26 **13:40 - 15:20** **Room 204 A**
Session WE3.L10 **Oral**

Microwave Remote Sensing of Dense Vegetation

Session Co-Chairs: Dara Entekhabi, Massachusetts Institute of Technology; Mehrez Zribi, CNRS

WE3.L10.1 13:40 **MAPPING AND MODELING OF BOREAL FOREST CHANGE IN TANDEM-X DATA WITH THE TWO-LEVEL MODEL**
Maciej Soja, Chalmers University of Technology; Henrik Persson, Swedish University of Agricultural Sciences; Lars Ulander, Chalmers University of Technology

WE3.L10.2 14:00 **ESTIMATION OF VEGETATION LOSS COEFFICIENTS AND CANOPY PENETRATION DEPTHS FROM SMAP RADIOMETER AND ICESAT LIDAR DATA**
Martin Baur, University of Bayreuth; Thomas Jagdhuber, Moritz Link, German Aerospace Center (DLR); María Piles, Consejo Superior de Investigaciones Científicas; Dara Entekhabi, Massachusetts Institute of Technology; Anita Fink, University of Augsburg

WE3.L10.3 14:20 **BRAZILIAN AMAZON LAND MAPPING PROJECT: STATUS AND PERSPECTIVES**
Carlos Alberto Pires Castro-Filho, Brazilian Army; Rafael Antônio da Silva Rosa, Embraer Defesa & Segurança

WE3.L10.4 14:40 **ESTIMATION OF VEGETATION DYNAMICS USING LOW-COST GPS RECEIVER**
Mehrez Zribi, Erwan Motte, CNRS; Pascal Fanise, IRD; Walid Zouaoui, Sfax University; Nicolas Baghdadi, IRSTEA

WE3.L10.5 15:00 **A NEW VEGETATION MODEL BASED ON NUMERICAL 3D SOLUTIONS OF MAXWELL EQUATIONS**
Huanting Huang, Leung Tsang, University of Michigan; Eni Njoku, Andreas Colliander, Jet Propulsion Laboratory, California Institute of Technology

Wednesday, July 26 **16:20 - 18:00** **Room 204 A**
Session WE4.L10 **Oral**

Forest Monitoring by Optical Radiometry I

Session Co-Chairs: Joel Johnson, Ohio State University; Lori Mann Bruce, Mississippi State University

WE4.L10.1 16:20 **SIMULATION OF FOREST CARBON FLUXES OVER GREATER KHINGAN**
Min Yan, Chinese Academy of Sciences; Zengyuan Li, Chinese Academy of Forestry; Li Zhang, Chinese Academy of Sciences; Xin Tian, Chinese Academy of Forestry

WE4.L10.2 16:40 **SPATIAL AND TEMPORAL VARIATIONS OF HABITAT IN TYPICAL NATURE RESERVES, CHINA**
Ping Zhu, Lin Huang, Institute of Geographic Sciences and Natural resources Research; Tong Xiao, Ministry of Environmental Protection; Junbang Wang, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences

WE4.L10.3 17:00 **LEAF CHLOROPHYLL CONTENT ESTIMATION FROM SENTINEL-2 MSI DATA**
Qingmiao Ma, Jiangsu Normal University; Jing M. Chen, University of Toronto; Yingjie Li, Jiangsu Normal University; Holly Croft, Xiangzhong Luo, Ting Zheng, Sophia Zamaria, University of Toronto

WE4.L10.4 17:20 **APPLYING GEOGRAPHIC OBJECT-BASED IMAGE ANALYSIS (GEOBIA) AND DATA MINING TO IDENTIFY SECONDARY FORESTS SUCCESSION ON SANTAREM REGION, PARA, BRAZIL**
Diego Pinheiro de Menezes, Waldir Mantovani, Homero Fonseca Filho, Luis Amércio Conti, University of Sao Paulo; Clayton Bittencourt Jr, Independent Consultant

WE4.L10.5 17:40 **OPTIMIZATION TECHNIQUE OF ASYMMETRIC-ORDER VEGETATION ISOLINE EQUATIONS**
Munenori Miura, Aichi Prefectural University; Kenta Obata, National Institute of Advanced Industrial Science and Technology; Kenta Taniguchi, Hiroki Yoshioka, Aichi Prefectural University

Wednesday, July 26 **08:00 - 09:40** **Room 202 B**
Session WE1.L11 **Oral**

Ocean Salinity

Session Co-Chairs: Simon Yueh, California Institute of Technology; David Le Vine, NASA Goddard Space Flight Center

WE1.L11.1 08:00 **L-BAND MICROWARE SIGNATURE VARIATION WITH SEA SURFACE TEMPERATURE AND ITS IMPLICATION ON AQUARIUS SEA SURFACE SALINITY RETRIEVAL**
Wenqing Tang, Simon Yueh, Alexander Fore, Akiko Hayashi, Jet Propulsion Laboratory

WE1.L11.2 08:20 **BLENDED SMOS-SMAP SSS PRODUCT IN MARGINAL SEAS**
Justino Martínez, Estrella Olmedo, Verónica González-Gambau, Antonio Turiel, Institute of Marine Sciences, Spanish National Research Council; Simon Yueh, California Institute of Technology

WE1.L11.3 08:40 **A L-BAND PHASED ARRAY RADIOMETER FOR SEA SURFACE SALINITY**
Hailiang Lu, Yinan Li, Rui Yu, Anzhong Jin, Rongchuan Lv, Xian Institute of Space Radio Technology

WE1.L11.4 09:00 **SALINITY RAIN IMPACT MODEL (RIM) OPTIMIZATION: PRELIMINARY RESULTS**
Maria Jacob, Facultad de Matematica, Astronomia y Fisica, Universidad Nacional de Cordoba; W. Linwood Jones, Central Florida Remote Sensing Lab, University of Central Florida; Kyla Drushka, Applied Physics Laboratory, University of Washington; Andrea Santos-Garcia, Central Florida Remote Sensing Lab, University of Central Florida; William Asher, Applied Physics Laboratory, University of Washington; Marcelo Carlos Scavuzzo, Facultad de Matematica, Astronomia y Fisica, Universidad Nacional de Cordoba

WE1.L11.5 09:20 **SEA SURFACE SALINITY: INTER-COMPARISON OF SATELLITE PRODUCTS, IN SITU MEASUREMENTS, AND IMPACT OF DIFFERENCES IN RETRIEVAL ALGORITHM**
Emmanuel Dinnat, Chapman University; David Le Vine, NASA Goddard Space Flight Center; Jacqueline Boutin, LOCEAN/IPSL/UPMC; Thomas Meissner, Remote Sensing System (RSS)

Wednesday, July 26 **10:40 - 12:20** **Room 202 B**
Session WE2.L11 **Oral**

Ocean Temperature

Session Co-Chairs: Emmanuel Dinnat, Chapman University; Wenqing Tang, Jet Propulsion Laboratory

WE2.L11.1 10:40 **INVESTIGATION OF UPPER OCEAN RESPONSE TO TYPHOON KALMAEGI (2014) USING MULTIPLE SATELLITES OBSERVATION AND NUMERICAL SIMULATION**
Xinxin Yue, Biao Zhang, Yijun He, Zhaohui Han, Nanjing University of Information Science and Technology

WE2.L11.2 11:00 **MODELING THE HABITAT SUITABILITY INDEX OF SKIPJACK TUNA (KATSUWONUS PELAMIS) IN THE WESTERN AND CENTRAL PACIFIC OCEAN**
Tung-Yao Hsu, Yi Chang, National Cheng Kung University

WE2.L11.3 11:20 **EVALUATION OF THE PRECISION IN LEVEL-2 AVHRR SEA SURFACE TEMPERATURE FIELDS**
Fan Wu, Ocean University of China; Peter Cornillon, University of Rhode Island; Lei Guan, Lele Li, Ocean University of China

WE2.L11.4 11:40 **MONITORING THE THERMAL DISCHARGE OF HONGYANHE NUCLEAR POWER PLANT WITH AERIAL REMOTE SENSING TECHNOLOGY USING A UAV PLATFORM**
Xiang Wang, Xinxin Wang, Jianhua Zhao, Jianchao Fan, Xiu Su, National Marine Environmental Monitoring Center; Dejun Zou, Dalian Aerospace Beidou Technology Co., Ltd

WE2.L11.5 12:00 **IMPROVED ICE FRACTION MODEL FOR L-BAND REMOTE SENSING**
Emmanuel Dinnat, Chapman University; Ludovic Brucker, Universities Space Research Association

Wednesday, July 26 **13:40 - 15:20** **Room 202 B**
Session WE3.L11 **Oral**

Ocean Wave and Sea State: Coastal Imacts

Session Co-Chairs: Xiaofeng Li; Paul Hwang, Naval Research Laboratory

WE3.L11.1 13:40 **SEA STATE PARAMETERS IN HIGHLY VARIABLE ENVIRONMENT OF BALTIC SEA FROM SATELLITE RADAR IMAGES**
Sander Rikka, Tallinn University of Technology; Andrey Pleskachevsky, German Aerospace Center (DLR); Rivo Uiboupin, Tallinn University of Technology; Sven Jacobsen, German Aerospace Center (DLR)

WE3.L11.2 14:00 **WAVE MONITORING BASED ON A DOPPLERIZED MARINE RADAR**
Jochen Horstmann, Ruben Carrasco, Joerg Seemann, Michael Stresser, Helmholtz-Zentrum Geesthacht; Jose Carlos Nieto Borge, Universidad de Alcala

WE3.L11.3 14:20 **ESTIMATION OF THE LIKELIHOOD FUNCTION FOR NON-LINEAR OPTIMIZATION PROBLEMS: APPLICATIONS TO THE RADIATIVE TRANSFER MODEL IN SHALLOW WATER**
Guillaume Sicot, Jordan Ninin, ENSTA Bretagne; Marc Lennon, Hytech-imaging; Audrey Minghelli, Université de Toulon; Adrien Deschamps, CNES

WE3.L11.4 14:40 **STORM SURGE PREDICTION WITH CYGNSS WINDS**
April Warnock, SRI International; Christopher Ruf, University of Michigan; Mary Morris, NASA Jet Propulsion Laboratory

WE3.L11.5 15:00 **SPATIO-TEMPORAL INTERPOLATION OF ALTIMETER-DERIVED SSH FIELDS USING ANALOG DATA ASSIMILATION: A CASE-STUDY IN THE SOUTH CHINA SEA**
Redouane Lguensat, IMT Atlantique; Miao Sun, Ge Chen, Fenglin Tian, Ocean University of China; Ronan Fablet, IMT Atlantique

Wednesday, July 26 **16:20 - 18:00** **Room 202 B**
Session WE4.L11 **Oral**

Ocean Monitoring with Satellite Altimetry and SAR

Session Chair: Jochen Horstmann, Helmholtz-Zentrum Geesthacht

WE4.L11.1 16:20 **ISLAND-BUILDING ACTIVITIES DETECTED BY DNB ON SOUTH CHINA SEA**
Kenneth J. Mackin, Ichio Asanuma, Takashi Yamaguchi, Jonggeol Park, Tokyo University of Information Sciences; John Mittleman, Naval Research Laboratory

WE4.L11.2 16:40 **INTERTIDAL FLAT TOPOGRAPHIES MEASURED BY LONG-BASELINE AIRBORNE SAR AND TANDEM-X**
Duk-Jin Kim, Changhyun Choi, Jungkyo Jung, Ki-mook Kang, Seung Hee Kim, Ji-Hwan Hwang, Seoul National University

WE4.L11.3 17:00 **PERFORMANCE OF GRIDDED AND ALONG-TRACK ALTIMETRY PRODUCTS IN EDDY MANIFESTATION IN THE WESTERN MEDITERRANEAN**
Svetlana Karimova, University of Liège

WE4.L11.4 17:20 **A HIGH PERFORMANCE AUTOMATIC OCEAN SURFACE OIL SPILL MONITORING SYSTEM BY SPACEBORNE SAR IMAGES**
Kan Zeng, Liuyang Wan, Xingtao Ding, Mingxia He, Tao Du, Ocean University of China

WE4.L11.5 17:40 **FUSION OF UAS-BASED STRUCTURE-FROM-MOTION AND OPTICAL INVERSION FOR SEAMLESS TOPO-BATHYMETRIC MAPPING**
Michael Starek, Justin Giessel, Texas A&M University-Corpus Christi

Wednesday, July 26 08:00 - 09:40 Room 204 B
Session WE1.L12 Oral-Invited

Latin America Activities in Remote Sensing I

Session Chair: Edson Mitishita, Federal University of Paraná

WE1.L12.1 08:00 **METHODS AND FRAMEWORKS FOR SAMPLING GIO DATA**
Débora Chan, Profesor Titular; Andrea Rey, Profesor Adjunto; Juliana Gambini, Titular Professor; Julia Cassetti, Profesor Adjunto; Alejandro Cesar Frery, Profesor Titular

WE1.L12.3 08:40 **SPATIAL-TEMPORAL CONDITIONAL RANDOM FIELD BASED MODEL FOR CROP RECOGNITION IN TROPICAL REGIONS**
Pedro Achanccaray, Raul Feitosa, Pontifical Catholic University of Rio de Janeiro; Franz Rottensteiner, Leibniz Universität Hannover; Ieda Sanches, Brazilian National Institute for Space Research; Christian Heipke, Leibniz Universität Hannover

WE1.L12.4 09:00 **POLARIMETRIC TECHNIQUES TO KNOW THE CARACTERISTICS OF ANTARCTIC SEA ICE**
Ismael Escobar, Armada de Chile; Carlos Cárdenas, Universidad de Magallanes. UMAG; Carlos López-Martínez, Universitat Politècnica de Catalunya; Dana Floricioiu, IMF- DLR; Erling Johnson, IMF-DLR / Universidad de Magallanes

WE1.L12.5 09:20 **DEFORESTATION DETECTION IN AMAZON RAINFOREST WITH MULTITEMPORAL X-BAND AND P-BAND SAR IMAGES USING CROSS-COHERENCES AND SUPERPIXELS**
Rafael Antônio da Silva Rosa, Bradar Indústria S/A; David Fernandes, Instituto Tecnológico de Aeronáutica - ITA; Thiago Barreto, Christian Wimmer, Bradar Indústria S/A; João Nogueira Jr., Santo Antônio Energia S/A

Wednesday, July 26 10:40 - 12:20 Room 204 B
Session WE2.L12 Oral-Invited

Latin America Activities in Remote Sensing II

Session Chair: Pedro Achanccaray Diaz, LVC/PUC-Rio

WE2.L12.1 10:40 **IDENTIFICATION MODEL FOR LARGE REMOTE SENSING DATASETS APPLIED TO ENVIRONMENTAL ANALYSIS WITHIN MEXICO**
Ivan E. Villalon-Turrubiates, Instituto Tecnológico y de Estudios Superiores de Occidente (ITESO)

WE2.L12.2 11:00 **IMPROVEMENTS IN THE INTEGRATION OF LIDAR AND PHOTOGRAMMETRIC DATASETS BY IN SITU CAMERA CALIBRATION**
Edson Aparecido Mitishita, Marlo Martins, Felipe Costa, Jorge Centeno, Federal University of Paraná – UFPR

WE2.L12.3 11:20 **DEEP CONTEXTUAL DESCRIPTION OF SUPERPIXELS FOR AERIAL URBAN SCENES CLASSIFICATION**
Tiago Santana, Keiller Nogueira, Universidade Federal de Minas Gerais; Alexei Machado, PUC Minas; Jefersson Alex dos Santos, Universidade Federal de Minas Gerais

WE2.L12.4 11:40 **CROP DISCRIMINATION USING REMOTE SENSING DATA IN A REGION OF HIGH MARGINALIZATION**
Jesus Soria-Ruiz, National Institute of Research for Forestry Agricutural and Livestok (INIFAP); Yolanda M. Fernandez-Ordoñez, Postgraduate College in Agricultural Sciences (COLPOS)

WE2.L12.5 12:00 **MAIZE CROP YIELD ESTIMATION WITH REMOTE SENSING AND EMPIRICAL MODELS**
Yolanda M. Fernandez-Ordoñez, Colegio de Postgraduados; Jesus Soria-Ruiz, Instituto Nacional de Investigaciones Forestales, Agrícolas y Pecuarias

Wednesday, July 26 13:40 - 15:20 Room 204 B
Session WE3.L12 Oral-Invited

Global Scale Spectroscopy from Space for the Health of Planet Earth I

Session Co-Chairs: Uta Heiden, German Aerospace Center (DLR); Jose Moreno, University of Valencia

WE3.L12.1 13:40 **HYPERION: THE FIRST GLOBAL ORBITAL SPECTROMETER, EARTH OBSERVING-1 (EO-1) SATELLITE (2000-2017)**
Elizabeth M Middleton, NASA Goddard Space Flight Center; Petya K.E. Campbell, University of Maryland, Baltimore County; Lawrence Ong, Science Systems and Applications, Inc.; David Landis, Global Science & Technology, Inc.; Qingyuan Zhang, Universities Space Research Association; Christopher Neigh, NASA Goddard Space Flight Center; Karl Fred Huemmrich, University of Maryland, Baltimore County; Stephen Ungar, Universities Space Research Association; Daniel Mandl, NASA Goddard Space Flight Center; Stuart Frye, SGT Inc.; Vuong Ly, NASA Goddard Space Flight Center; Patrice Cappelaere, Arctic Slope Technical Services, Inc.; Steve Chien, NASA Jet Propulsion Laboratory; Shannon Franks, SGT Inc.; Nathan Pollack, Science Systems and Applications, Inc.

WE3.L12.3 14:20 **REMOTE SENSING SPECTROSCOPY TO DISCRIMINATE PLANT FUNCTIONAL TYPES AND PHYSIOLOGICAL FUNCTION**
Philip Townsend, Adam Chlus, Zhihui Wang, University of Wisconsin-Madison; Aditya Singh, University of Florida

WE3.L12.4 14:40 **TIME SERIES FROM HYPERION TO TRACK PRODUCTIVITY IN PIVOT AGRICULTURE IN SAUDI ARABIA**
Rasmus Houborg, Matthew F McCabe, Yoseline Angel, King Abdullah University of Science and Technology; Elizabeth M Middleton, NASA Goddard Space Flight Center

WE3.L12.5 15:00 **SPECTROSCOPY FOR GLOBAL OBSERVATION OF COASTAL AND INLAND AQUATIC HABITATS**
Kevin Turpie, University of Maryland, Baltimore County; Steven Ackleson, Naval Research Laboratory; Thomas Bell, University of California, Santa Barbara; Heidi Dierssen, University of Connecticut; James Goodman, HySpeed Computing LLC; Robert Green, California Institute of Technology NASA Jet Propulsion Laboratory; Liane Guild, NASA Ames Research Center; Eric Hochberg, Bermuda Institute for Ocean Science; Victor Klemas, University of Delaware; Samantha Lavender, Pixalytics, Ltd.; Christine Lee, California Institute of Technology NASA Jet Propulsion Laboratory; Tiffany Moisan, NASA Wallops Flight Facility; Frank Muller-Karger, University of South Florida; Joseph Ortiz, Kent State University; Sherry Palacios, Bay Area Environmental Research Institute; David Thompson, California Institute of Technology NASA Jet Propulsion Laboratory; Richard Zimmerman, Old Dominion University

Wednesday, July 26 16:20 - 18:00 Room 204 B
Session WE4.L12 Oral-Invited

Global Scale Spectroscopy from Space for the Health of Planet Earth II

Session Co-Chairs: Lifu Zhang, RADI, CAS; Andreas Mueller, German Aerospace Center

WE4.L12.1 16:20 **IMPORTANCE OF CALIBRATION/VALIDATION TRACEABILITY FOR MULTI-SENSOR IMAGING SPECTROMETRY APPLICATIONS**
Kurtis Thome, NASA Goddard Space Flight Center

WE4.L12.2 16:40 **COMPOSITIONAL CHARACTERISATION OF THE PINNACLES VICARIOUS CALIBRATION SITE**
Cindy Ong, Michael Caccetta, Ian Lau, CSIRO; Lawrence Ong, Elizabeth M Middleton, NASA

WE4.L12.3 17:00 **ON OPTIMAL ESTIMATION THEORY FOR ATMOSPHERIC CORRECTION IN VSWIR IMAGING SPECTROSCOPY**
David Thompson, Brian Bue, Robert Green, Vijay Natraj, Jet Propulsion Laboratory, California Institute of Technology

WE4.L12.4 17:20 **NEW MEASUREMENTS OF THE EARTH'S SPECTROSCOPIC DIVERSITY ACQUIRED DURING THE AVIRIS-NG CAMPAIGN TO INDIA**
Robert Green, Jet Propulsion Laboratory

WE4.L12.5 17:40 **IMAGING SPECTROSCOPY TO UNDERSTAND THE CONTROLS ON CRYOSPHERIC MELTING IN A CHANGING WORLD**
Thomas H. Painter, S. McKenzie Skiles, Robert Green, Felix Seidel, Jet Propulsion Laboratory; Anne Nolin, Oregon State University

Thursday, July 27 **08:00 - 09:40** **Ballroom B**
Session TH1.L1 **Oral**

Hyperspectral Image Classification II

Session Co-Chairs: Melba Crawford, Purdue University; Paolo Gamba, University of Pavia

TH1.L1.1 08:00 **BENCHMARK ANALYSIS FOR HYPERSPECTRAL IMAGE CLASSIFICATION**
Xudong Kang, Shutao Li, Hunan University; Jón Atli Benediktsson, University of Iceland

TH1.L1.2 08:20 **JOINT SPARSE DICTIONARY AND CLASSIFIER LEARNING FOR HYPERSPECTRAL IMAGE CLASSIFICATION**
Biplab Banerjee, Indian Institute of Technology Roorkee; Shakti Sharma, Krishna Mohan Buddhiraju, Indian Institute of Technology Mumbai

TH1.L1.3 08:40 **TRANSFORMATION LEARNING BASED DOMAIN ADAPTATION FOR ROBUST CLASSIFICATION OF DISPARATE HYPERSPECTRAL DATA**
Xiong Zhou, Saurabh Prasad, University of Houston

TH1.L1.4 09:00 **A NEW CLASSIFICATION-ORIENTED ENDMEMBER EXTRACTION AND SPARSE UNMIXING APPROACH FOR HYPERSPECTRAL DATA**
Yanli Sun, University of Chinese Academy of Sciences; José Manuel Bioucas-Dias, University of Lisbon; Xia Zhang, Chinese Academy of Sciences; Yi Liu, Antonio Plaza, University of Extremadura

TH1.L1.5 09:20 **COMBINATION TECHNIQUES FOR HYPERSPECTRAL IMAGE INTERPRETATION**
Andrey Santos, Arnaldo de A. Araújo, Jefersson A. dos Santos, William Schwartz, Federal University of Minas Gerais; David Menotti, Federal University of Paraná – UFPR

Thursday, July 27 **10:40 - 12:20** **Ballroom B**
Session TH2.L1 **Oral**

Hyperspectral Image Classification III

Session Co-Chairs: Antonio Plaza, University of Extremadura; Mario Parente, University of Massachusetts Amherst

TH2.L1.1 10:40 **HYPERSPECTRAL IMAGE CLASSIFICATION WITH PARTIAL LEAST SQUARE FOREST**
Junshi Xia, Naoto Yokoya, Akira Iwasaki, The University of Tokyo

TH2.L1.2 11:00 **TENSOR-BASED OFFSET-SPARSITY DECOMPOSITION FOR HYPERSPECTRAL IMAGE CLASSIFICATION**
Long Tian, Qian Du, Nicolas Younan, Mississippi State University; Ivica Kopriva, Ruder Boškovic Institute

TH2.L1.3 11:20 **A NEW HYPERSPECTRAL BAND SELECTION APPROACH BASED ON CONVOLUTIONAL NEURAL NETWORK**
Ying Zhan, Haifeng Tian, Wei Liu, Zhaoying Yang, Kang Wu, Guian Wang, Ping Chen, Xianchuan Yu, Beijing Normal University

TH2.L1.4 11:40 **ITERATIVE CLUSTERING BASED ACTIVE LEARNING FOR HYPERSPECTRAL IMAGE CLASSIFICATION**
Ting Lu, Shutao Li, Hunan University; Jón Atli Benediktsson, University of Iceland

TH2.L1.5 12:00 **HYPERSPECTRAL IMAGE CLASSIFICATION BASED ON STACKED MARGINAL DISCRIMINATIVE AUTOENCODER**
Jie Feng, Liguo Liu, Xiangrong Zhang, Rongfang Wang, Hongying Liu, Xidian University

THURSDAY ORAL

Thursday, July 27 **13:40 - 15:20** **Ballroom B**
Session TH3.L1 **Oral**

Image Classification I

Session Chair: Francesca Bovolo, Fondazione Bruno Kessler

TH3.L1.1 13:40 **CORRECT AND STILL WRONG: THE RELATIONSHIP BETWEEN SAMPLING STRATEGIES AND THE ESTIMATION OF THE GENERALIZATION ERROR**
Ronny Hänsch, Andreas Ley, Olaf Hellwich, Technische Universität Berlin

TH3.L1.2 14:00 **NEW ITERATIVE LEARNING STRATEGY TO IMPROVE CLASSIFICATION SYSTEMS BY USING OUTLIER DETECTION TECHNIQUES**
Charlotte Pelletier, Silvia Valero, Jordi Inglada, Gérard Dedieu, Centre d'Etudes Spatiales de la Biosphère (CESBIO); Nicolas Champion, IGN Espace - Matis

TH3.L1.3 14:20 **FACILITATING EFFICIENT DATA ANALYSIS OF REMOTELY SENSED IMAGES USING STANDARDS-BASED PARAMETER SWEEP MODELS**
Shahbaz Memon, Gabriele Cavallaro, Morris Riedel, Forschungszentrum Jülich; Helmut Neukirchen, University of Iceland

TH3.L1.4 14:40 **COMPARISON OF ADABOOST.M2 AND PERSPECTIVE BASED MODEL ENSEMBLE IN MULTISPECTRAL IMAGE CLASSIFICATION**
Laxmi Eeti, Krishna Mohan Buddhiraju, Indian Institute of Technology Bombay

TH3.L1.5 15:00 **POST CLASSIFICATION SMOOTHING IN SUB-DECIMETER RESOLUTION IMAGES WITH SEMI-SUPERVISED LABEL PROPAGATION**
John Edgar Vargas Muñoz, University of Campinas; Devis Tuia, University of Zurich; Jefersson Alex dos Santos, Universidade Federal de Minas Gerais; Alexandre Xavier Falcão, University of Campinas

Thursday, July 27 **16:20 - 18:00** **Ballroom B**
Session TH4.L1 **Oral**

Image Classification II

Session Co-Chairs: Qian Du, Mississippi State University; Fabio Del Frate, University of Rome Tor Vergata

TH4.L1.1 16:20 **USING BAYESIAN OPTIMIZATION TO JOINTLY TUNE THE CLASSIFIER AND THE RANDOM FIELD FOR SPATIAL-SPECTRAL HYPERSPECTRAL CLASSIFICATION**
Utsav Gewali, Sildomar Monteiro, Rochester Institute of Technology

TH4.L1.2 16:40 **LARGE SCALE CROP CLASSIFICATION USING GOOGLE EARTH ENGINE PLATFORM**
Andrii Shelestov, Mykola Lavreniuk, Nataliia Kussul, Space Research Institute; Alexei Novikov, National Technical University of Ukraine "Igor Sikorsky Kiev Polytechnic Institute"; Sergii Skakun, University of Maryland

TH4.L1.3 17:00 **SUPERPIXEL-BASED CLASSIFICATION USING SEMANTIC INFORMATION FOR POLARIMETRIC SAR IMAGERY**
Shuai Yang, China University of Geosciences, Wuhan; Qianqian Zhang, State Bureau of Surveying and Mapping of China; Xiaohui Yuan, University of North Texas; Qihao Chen, Xiuguo Liu, China University of Geosciences, Wuhan

TH4.L1.4 17:20 **MAXIMUM VARIANCE UNFOLDING BASED CO-LOCATION DECISION TREE FOR REMOTE SENSING IMAGE CLASSIFICATION**
Rongting Zhang, Tianjin University; Guoqing Zhou, Guilin University of Technology; Jingjin Huang, Xiang Zhou, Tianjin University

TH4.L1.5 17:40 **DYNAMIC GRANULAR NEURAL NETWORKS FOR REMOTE SENSING IMAGE CLASSIFICATION**
Arun Kumar Dasari, Padma Kumari K, Jawaharlal Nehru Technological University, Kakinada; Saroj Kumar Meher, INDIAN STATISTICAL INSTITUTE BANGALORE CENTER

Thursday, July 27 **08:00 - 09:40** **Ballroom A**
Session TH1.L2 **Oral**

Object Detection and Recognition II

Session Co-Chairs: Marco Chini, Luxembourg Institute of Science and Technology; Shutao Li, Hunan University

TH1.L2.1 08:00 **SEISMIC PATTERN RECOGNITION USING CELLULAR NEURAL NETWORK**
Kou-Yuan Huang, Wen-Hsuan Hsieh, National Chiao Tung University

TH1.L2.2 08:20 **TRADING SPATIAL RESOLUTION FOR IMPROVED ACCURACY WHEN USING DETECTION ALGORITHMS ON REMOTE SENSING IMAGERY**
Shengxin Qian, Sravya Chelikani, Duke University; Patrick Wang, CoVar Applied Technologies; Leslie Collins, Kyle Bradbury, Jordan Malof, Duke University

TH1.L2.3 08:40 **UNSUPERVISED DETECTION OF THIN WATER SURFACES IN SWOT IMAGES BASED ON SEGMENT DETECTION AND CONNECTION**
Sylvain Lobry, Florence Tupin, Télécom ParisTech; Roger Fjørtoft, CNES

TH1.L2.4 09:00 **SPECTRAL-SPATIAL ONLINE DICTIONARY LEARNING FOR HYPERSPECTRAL IMAGE CLASSIFICATION**
Wei Fu, Shutao Li, Leyuan Fang, Hunan University; Jón Atli Benediktsson, University of Iceland

TH1.L2.5 09:20 **A SEMI AUTOMATIC OFF-ROADS AND TRAILS EXTRACTION METHOD FROM SENTINEL-1 DATA**
Riadh Abdelfattah, University of Carthage, Higher School of Communications of Tunis; Karem Chokmani, National Institute for Scientific Research,

Thursday, July 27 **10:40 - 12:20** **Ballroom A**
Session TH2.L2 **Oral**

GPR System and Data Processing I

Session Co-Chairs: Motoyuki Sato, Tohoku University; Yang Du, Zhejiang U

TH2.L2.1 10:40 **ANALYSIS OF DOUBLE-D INDUCTION COIL PERFORMANCE IN MAGNETIC SOILS USING NEW COIL METRICS**
Mark Reed, Waymond Scott, Georgia Institute of Technology

TH2.L2.2 11:00 **A METHOD FOR OBTAING FULLY POLARIMETRIC SCATTERING DATA FROM SINGLE-POLARIZATION GROUND PENETRATING RADARS (GPR)**
Yue Yu, Chi-Chih Chen, The Ohio State University

TH2.L2.3 11:20 **A TECHNIQUE BASED ON ADAPTIVE WINDOWS FOR THE CLASSIFICATION OF RADAR SOUNDER DATA**
Mahdi Khodadadzadeh, Ana-Maria Ilisei, Lorenzo Bruzzone, University of Trento

TH2.L2.4 11:40 **AUTOMATIC ICE THICKNESS ESTIMATION IN RADAR IMAGERY BASED ON CHARGED PARTICLES CONCEPT**
Maryam Rahnemoonfar, Texas A&M University-Corpus Christi; Amin Abbasi Habashi, University of Isfahan; John Paden, University of Kansas; Geoffrey Fox, Indiana University

TH2.L2.5 12:00 **A MIXED L2 - L1 NORM MINIMIZATION PROCEDURE FOR THE DATA PROCESSING OF GROUND PENETRATING RADAR**
Michele Ambrosanio, Gilda Schirinzi, Vito Pascazio, University of Napoli Parthenope

Thursday, July 27 **13:40 - 15:20** **Ballroom A**
Session TH3.L2 **Oral**

Multispectral/Hyperspectral Image Segmentation

Session Co-Chairs: Antonio Plaza, University of Extremadura; Qian Du, Mississippi State University

TH3.L2.1 13:40 **MAP-GUIDED HYPERSPECTRAL IMAGE SUPERPIXEL SEGMENTATION USING PROPORTION MAPS**
Hao Sun, University of Missouri; Alina Zare, University of Florida

TH3.L2.2 14:00 **TOTAL VARIATION REGULARIZED COLLABORATIVE REPRESENTATION CLUSTERING WITH A LOCALLY ADAPTIVE DICTIONARY FOR HYPERSPECTRAL REMOTE SENSING IMAGERY**
Han Zhai, Hongyan Zhang, Liangpei Zhang, Pingxiang Li, Wuhan University

TH3.L2.3 14:20 **A CLASS-WISE SPATIAL-CONTEXTUAL APPROACH BASED ON A FREE DISCONTINUITY MODEL FOR CHANGE DETECTION IN MULTISPECTRAL IMAGES**
Massimo Zanetti, Lorenzo Bruzzone, University of Trento

TH3.L2.4 14:40 **PYRAMID INTEGRAL IMAGE RECONSTRUCTION ALGORITHM FOR INFRARED REMOTE SENSING SEA-LAND SEGMENTATION**
Penglin Wang, Yin Zhuang, He Chen, Liang Chen, Beijing Institute of Technology; Hao Shi, Department of Electronic Engineering; Fukun Bi, North China University of Technology

TH3.L2.5 15:00 **A HIERARCHICAL SUPERPIXEL AGGREGATION MODEL FOR HYPERSPECTRAL IMAGE**
Bingnan Han, Jihao Yin, Xiaoyan Luo, Hui Qv, Beihang University

Thursday, July 27 **16:20 - 18:00** **Ballroom A**
Session TH4.L2 **Oral**

Image Segmentation and Detection

Session Chair: Shutao Li, Hunan University

TH4.L2.1 16:20 **GRADUALLY EVOLVED FUZZY ACTIVE CONTOUR MODEL FOR AURORAL OVAL SEGMENTATION**
Jiao Shi, Yu Lei, Northwestern Polytechnical University; Jing Bai, Jiaji Wu, Xidian University

TH4.L2.2 16:40 **SHADOW DETECTION IN VERY HIGH-RESOLUTION SATELLITE IMAGES BY EXTENDED RANDOM WALKER**
Yufan Huang, Xudong Kang, Shutao Li, Ting Lu, Hui Lin, Hunan University

TH4.L2.3 17:00 **EXPLOITING CONVOLUTIONAL REPRESENTATIONS FOR MULTISCALE HUMAN SETTLEMENT DETECTION: PRELIMINARY RESULTS**
Dalton Lunga, Dilip Patlolla, Lexie Yang, Jeanette Weaver, Budhendra Bhaduri, Oak Ridge National Laboratory

TH4.L2.4 17:20 **SEGMENTATION BASED BUILDING DETECTION IN HIGH RESOLUTION SATELLITE IMAGES**
Prajowal Manandhar, Dr. Zeyar Aung, Dr. Prashanth Marpu, Masdar Institute, A Part of Khalifa University of Science and Technology

TH4.L2.5 17:40 **SEMANTIC SEGMENTATION OF VEGETATION IMAGES ACQUIRED BY UNMANNED AERIAL VEHICLES USING AN ENSEMBLE OF CONVNETS**
Keiller Nogueira, Jefersson Alex dos Santos, Universidade Federal de Minas Gerais; Leonardo Cancian, Bruno Borges, Thiago Silva, Leonor Patricia Morellato, Universidade Estadual Paulista; Ricardo Torres, University of Campinas

Thursday, July 27 08:00 - 09:40 Ballroom C
Session TH1.L3 Oral

Differential SAR Interferometry Techniques I

Session Co-Chairs: Franz Meyer, University of Alaska; Scott Hensley, NASA JPL; Antonio Pepe, National Council Research of Italy (CNR)

TH1.L3.1 08:00 **ON THE USE OF DIRECTIONAL STATISTICS FOR THE ADAPTIVE SPATIAL MULTI-LOOKING OF SEQUENCES OF DIFFERENTIAL SAR INTERFEROGRAMS**
Antonio Pepe, National Council Research of Italy (CNR); Pietro Mastro, Università degli Studi della Basilicata

TH1.L3.2 08:20 **SIMPLIFIED COHERENCE NETWORK PHASE RECONSTRUCTION METHOD AND ITS APPLICATIONS ON SENTINEL-1 DATA**
Kui Zhang, Di Wu, Hui Wang, Chongqing University; Ruiqing Song, Guojie Meng, China Earthquake Administration

TH1.L3.3 08:40 **DEM CORRECTION AND MEAN SURFACE DISPLACEMENT RATE RETRIEVAL FROM A STACK OF WRAPPED MULTI-TEMPORAL DINSAR INTERFEROGRAMS**
Antonio Pepe, Riccardo Lanari, National Council Research of Italy (CNR)

TH1.L3.4 09:00 **AN ANALYTIC EXPRESSION FOR THE PHASE NOISE PROPERTIES OF THE GOLDSTEIN-WERNER POWER SPECTRAL FILTER**
Scott Hensley, Jet Propulsion Laboratory, California Institute of Technology

TH1.L3.5 09:20 **MODELING IONOSPHERIC PHASE NOISE FOR NISAR MISSION DATA**
Franz J Meyer, University of Alaska Fairbanks; Piyush Agram, Jet Propulsion Laboratory

Thursday, July 27 10:40 - 12:20 Ballroom C
Session TH2.L3 Oral

Differential SAR Interferometry Techniques II

Session Co-Chairs: Debashish Chakravarty, Indian Institute of Technology Kharagpur; Yuanyuan Wang, Technical University of Munich; Andrei Anghel, University Politehnica of Bucharest

TH2.L3.1 10:40 **ROBUST BLIND SCATTERER SEPARATION IN MULTIBASELINE INSAR**
Yuanyuan Wang, Technische Universität München; Xiao Xiang Zhu, German Aerospace Center & Technical University of Munich

TH2.L3.2 11:00 **INVESTIGATION OF DISPLACEMENT MEASUREMENTS PERFORMED WITH A GROUND-BASED FIXED RECEIVER BISTATIC SAR SIMULATOR**
Ovidiu Moaca, Andrei Anghel, UPB; Mihai Datcu, UPB/DLR

TH2.L3.3 11:20 **EVALUATION OF DETECTION CAPABILITY OF CRUSTAL MOVEMENT BY AIRBORNE SAR (PI-SAR-L2) REPEAT-PASS INTERFEROMETRY**
Masanori Miyawaki, Tomoko Ishii, NEC Aerospace Systems, Ltd; Shouhei Ohno, Takashi Fujimura, Tsunekazu Kimura, NEC Corporation; Kenya Harada, Masato Ohki, Japan Aerospace Exploration Agency

TH2.L3.4 11:40 **PRECISE THREE-DIMENSIONAL MAPPING OF THE 2016 KUMAMOTO EARTHQUAKE THROUGH THE INTEGRATION OF SAR INTERFEROMETRY AND OFFSET TRACKING**
Won-Kyung Baek, Hyung-Sup Jung, Sung-Ho Chae, University Of Seoul

TH2.L3.5 12:00 **A CONVEX HULL ALGORITHM BASED FAST LARGE-SCALE TWO-DIMENSIONAL PHASE UNWRAPPING METHOD**
Hanwen Yu, Hyongki Lee, University of Houston

THURSDAY ORAL

Thursday, July 27 13:40 - 15:20 Ballroom C
Session TH3.L3 Oral-Invited

Emerging Spaceborne SAR Instruments and Missions I

Session Co-Chairs: Marwan Younis, German Aerospace Center (DLR); Paco Lopez Dekker, TU Delft

TH3.L3.1 13:40 **MULTI-CHANNEL SYNTHETIC APERTURE RADAR IN EUROPE**
Michael Ludwig, Jean-Christophe Angevain, Christopher Buck, Daniele Petrolati, European Space Agency - ESTEC

TH3.L3.2 14:00 **THE NASA-ISRO SAR (NISAR) MISSION DUAL-BAND RADAR INSTRUMENT PRELIMINARY DESIGN**
Paul Rosen, Scott Hensley, Scott Shaffer, Wendy Edelstein, Yunjin Kim, Jet Propulsion Laboratory; Raj Kumar, Tapan Misra, Rakesh Bhan, Raju Sagi, Indian Space Research Organisation

TH3.L3.3 14:20 **THE BIOMASS MISSION - ESA'S P-BAND POLARIMETRIC, INTERFEROMTRIC SAR MISSION**
Klaus Scipal, European Space Agency (ESA)

TH3.L3.4 14:40 **NEXT GENERATION P-BAND PLANETARY SYNTHETIC APERTURE RADAR**
Rafael Rincon, NASA Goddard Space Flight Center; Lynn Carter, University of Arizona; Daniel Lu, NASA

TH3.L3.5 15:00 **AIRBORNE X-BAND SAR FOR DEMONSTRATING TWO-DIMENSIONAL DIGITAL BEAMFORMING**
Robert Wang, Yunkai Deng, Pei Wang, Nan Wang, Institute of Electronics, Chinese Academy of Sciences

Thursday, July 27 16:20 - 18:00 Ballroom C
Session TH4.L3 Oral-Invited

Emerging Spaceborne SAR Instruments and Missions II

Session Chair: David Kunkee, Aerospace Corp.

TH4.L3.1 16:20 **INTRODUCTION TO A NEW WIDE AREA SAR MODE USING THE F-SCAN PRINCIPLE**
Christian Roemer, Airbus Defence and Space

TH4.L3.2 16:40 **NEXT GENERATION LOW COST SAR PAYLOADS: NOVASAR-S AND BEYOND**
Sam Doody, Jose Marquez-Martinez, Martin Cohen, Pedro Lau Semedo, Andrew Larkins, Airbus Defence and Space

TH4.L3.3 17:00 **ANTENNA TECHNOLOGY DEVELOPMENTS FOR A BI-STATIC PASSIVE RECEIVE-ONLY SYNTHETIC APERTURE RADAR COMPANION SATELLITE**
Paula Saameño, Fernando Monjas, Josep Closa, Andrés Solana, Albert Zurita, Isabel Martín, Airbus Defence and Space; Bernardo Carnicero-Dominguez, European Space Agency (ESA)

TH4.L3.4 17:20 **TESTING C-BAND CONVOY MISSION FOR FOREST MONITORING**
Svein Solberg, Norwegian institutre of bioeconomy research; Lars Ulander, Johan Fransson, Chalmers University of Technology

TH4.L3.5 17:40 **INNOVATIVE TECHNOLOGICAL ADVANCEMENTS IN THE DEVELOPMENT AND EXPLOITATION OF A DUAL-BAND SPACEBORNE SAR-XL SYSTEM**
Keith Beckett, George Tyc, Peter Fox, UrtheCast Corporation

Thursday, July 27 | 08:00 - 09:40 | Room 201 BC
Session TH1.L4 | Oral

Forest Monitoring by Optical Radiometry II

Session Co-Chairs: Siheng Wang, The State Key Laboratory of Remote Sensing Science, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences; University of Chinese Academy of Sciences; Gaofei Yin, Chinese Academy of Sciences

TH1.L4.1 08:00 **GROUND-BASED LONG-TERM REMOTE SENSING OF SOLAR-INDUCED CHLOROPHYLL FLUORESCENCE: METHODS, CHALLENGES AND OPPORTUNITIES**
Siheng Wang, The State Key Laboratory of Remote Sensing Science, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences; University of Chinese Academy of Sciences; Lifu Zhang, Changping Huang, The State Key Laboratory of Remote Sensing Science, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences; Na Qiao, The State Key Laboratory of Remote Sensing Science, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences; University of Chinese Academy of Sciences

TH1.L4.2 08:20 **PLC-P: A CANOPY REFLECTANCE MODEL FOR SLOPING TERRAIN BASED ON PATH LENGTH CORRECTION AND P-THEORY**
Gaofei Yin, Ainong Li, Institute of Mountain Hazards and Environment, Chinese Academy of Sciences

TH1.L4.3 08:40 **APPLYING A LOGISTIC-GAUSSIAN COMPLEX SIGNAL MODEL TO RESTORE SURFACE HYPERSPECTRAL REFLECTANCE OF AN OLD-GROWTH TREE SPECIES IN COOL TEMPERATE FOREST**
Chinsu Lin, National Chiayi University

TH1.L4.4 09:00 **MODELING ANISOTROPIC BIDIRECTIONAL REFLECTANCE OF SLOPING FOREST**
Shengbiao Wu, Jianguang Wen, Yong Tang, Dongqin You, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences; Jun Zhao, Qingdao Geotechnical Investigation and Surveying Research Institute

TH1.L4.5 09:20 **A GENERALIZED FPAR RETRIEVAL METHOD FROM DIFFERENT SATELLITE SENSORS**
Rongyuan Liu, China Aero Geophysical Survey and Remote Sensing Center for Land and Resources; Huazhong Ren, Peking University; Suhong Liu, Beijing Normal University; Bokun Yan, Fuping Gan, China Aero Geophysical Survey and Remote Sensing Center for Land and Resources

Thursday, July 27 | 10:40 - 12:20 | Room 201 BC
Session TH2.L4 | Oral

Polarimetric SAR Interferometry

Session Co-Chairs: Kostas Papathanassiou, DLR; Manuele Pichierri, Simon Fraser University

TH2.L4.1 10:40 **SINGLE-BASELINE POLARIMETRIC SAR INTERFEROMETRY FOR CHARACTERIZING THE BIOPHYSICAL PROPERTIES OF AGRICULTURAL CROPS**
Manuele Pichierri, Bernhard Rabus, Simon Fraser University; Irena Hajnsek, ETH Zurich

TH2.L4.2 11:00 **MULTI-CHROMATIC ANALYSIS POLARIMETRIC INTERFEROMETRIC SYNTHETIC APERTURE RADAR (MCA-POLINSAR) FOR URBAN CLASSIFICATION**
Pietro Milillo, NASA Jet Propulsion Laboratory; Filippo Biondi, University of L'Aquila; Giovanni Milillo, Italian Space Agency

TH2.L4.3 11:20 **BACKSCATTERING ANALYSIS OF OFFSHORE PLATFORMS IN GULF OF MEXICO VIA MULTI-POLARIZATION TERRASAR-X/TANDEM-X DATA**
Domenico Velotto, German Aerospace Center (DLR); Armando Marino, The Open University; Ferdinando Nunziata, Università Parthenope

TH2.L4.4 11:40 **STRUCTURE PARAMETER ESTIMATION OF NATURAL SCATTERES BY MEANS OF MULTI-BASELINE POL-INSAR TECHNIQUES: STATUS AND CHALLENGES**
Konstantinos Papathanassiou, German Aerospace Center (DLR)

TH2.L4.5 12:00 **SHIP DETECTION WITH COSMO-SKYMED PINGPONG DATA USING THE DUAL-POL RATIO ANOMALY DETECTOR**
Armando Marino, The Open University; Pasquale Iervolino, The University of Surrey

Thursday, July 27 | 13:40 - 15:20 | Room 201 BC
Session TH3.L4 | Oral

Polarimetric Classification

Session Co-Chairs: Huadong Guo, Institute of Remote Sensing and Digital Earth, CAS; Allan Nielsen, Technical University of Denmark

TH3.L4.1 13:40 **CHANGE DETECTION IN MULTI-TEMPORAL DUAL POLARIZATION SENTINEL-1 DATA**
Allan Nielsen, Technical University of Denmark; Mort Canty, Jülich Research Center; Henning Skriver, Knut Conradsen, Technical University of Denmark

TH3.L4.2 14:00 **POLSAR ADAPTIVE MODEL-BASED DECOMPOSITION WITHOUT ASSUMPTION OF REFLECTION SYMMETRY**
Hongzhong Li, Shenzhen Institute of Advanced Technology ,CAS/Shenzhen University; Jinsong Chen, Shenzhen Institute of Advanced Technology ,CAS; Qingquan Li, Guofeng Wu, Shenzhen University

TH3.L4.3 14:20 **TEMPORAL ANALYSIS OF TOUZI PARAMETERS FOR WHEAT CROP CHARACTERIZATION USING L-BAND AGRISAR 2006 DATA**
Soumyashree Kar, Dipankar Mandal, Avik Bhattacharya, J. Adinarayana, Indian Institute of Technology Bombay

TH3.L4.4 14:40 **COMBINATION USE OF MULTIPLE WINDOW SIZES FOR STOKES VECTOR BASED POLSAR DATA INTERPRETATION**
Fang Shang, University of Electro-Communications; Akira Hirose, The University of Tokyo

TH3.L4.5 15:00 **A FULLY POLARIMETRIC SAR RAW SIGNAL SIMULATOR**
Gerardo Di Martino, Antonio Iodice, Davod Poreh, Daniele Riccio, Università di Napoli Federico II

Thursday, July 27 | 16:20 - 18:00 | Room 201 BC
Session TH4.L4 | Oral

Polarimetric Techniques I

Session Chair: Jong-Sen Lee, NRL

TH4.L4.1 16:20 **POLSAR IMAGE CLASSIFICATION BASED ON THREE-DIMENSIONAL WAVELET TEXTURE FEATURES AND MARKOV RANDOM FIELD**
Haixia Bi, Xi'an Jiaotong University; Lin Xu, New York University, Abu Dhabi; Xiangyong Cao, Zongben Xu, Xi'an Jiaotong University

TH4.L4.2 16:40 **ANALYSIS OF DECOMPOSITION TECHNIQUES USING SIMULATED HYBRID-POL S BAND SAR DATA**
Sanid Chirakkal, Dipanwita Haldar, Arundhati Misra, Space Applications Centre

TH4.L4.3 17:00 **COMPARATIVE ANALYSIS OF CLASSIFICATION RESULTS BETWEEN COMPACT AND FULLY POLARIMETRIC SAR IMAGES IN RANDOM FOREST CLASSIFIER**
Lu Xu, Hong Zhang, Chao Wang, Institute of Remote Remote Sensing and Digital Earth

TH4.L4.4 17:20 **QUAD-POL RECONSTRUCTION WITH WISHART-BAYESIAN REGULARIZATION**
Dong-Xiao Yue, Feng Xu, Zhi-Mian Zhang, Ya-Qiu Jin, Fudan University

TH4.L4.5 17:40 **SEMI-SUPERVISED POLSAR CLASSIFICATION BASED ON IMPROVED TRI-TRAINING**
Wenqiang Hua, Shuang Wang, Xidian University; Yang Zhao, Institute of Tacking and Telecommunications Technology; Bo Yue, Yanhe Guo, Xidian University

Thursday, July 27 | 08:00 - 09:40 | Room 203 BC
Session TH1.L5 | Oral

SMAP Soil Moisture I

Session Co-Chairs: Amen Al-Yaari, INRA; Peggy O'Neill, NASA Goddard Space Flight Center

TH1.L5.1 08:00 **ASSESSMENT OF VERSION 4 OF THE SMAP PASSIVE SOIL MOISTURE STANDARD PRODUCT**
Peggy E. O'Neill, NASA Goddard Space Flight Center; Steven Chan, Jet Propulsion Laboratory; Rajat Bindlish, NASA Goddard Space Flight Center; Thomas J. Jackson, USDA-ARS; Andreas Colliander, Roy Scott Dunbar, Jet Propulsion Laboratory; Fan Chen, USDA-ARS; Jeffrey R. Piepmeier, NASA Goddard Space Flight Center; Simon Yueh, Jet Propulsion Laboratory; Dara Entekhabi, Massachusetts Institute of Technology; Michael H. Cosh, USDA-ARS; Todd Caldwell, The University of Texas; Jeffrey Walker, X. Wu, Monash University; Aaron Berg, Tracy Rowlandson, University of Guelph; Anna Pacheco, Heather McNairn, AAFC; Marc Thibeault, CONAE; José Martínez-Fernández, Ángel Gonzalez-Zamora, CIALE; Ernesto Lopez-Baeza, University of Valencia; F. Udall, Technical University of Denmark; Mark Seyfried, David Bosch, Patrick Starks, C. Holifield, John Prueger, USDA-ARS; Z. Su, R. van der Velde, University of Twente; Jun Asanuma, University of Tsukuba; Michael Palecki, NOAA; Eric Small, University of Colorado; Marek Zreda, University of Arizona; Jean-Christophe Calvet, CNRM-GAME; W. Crow, USDA-ARS; Yann Kerr, Centre d'Etudes Spatiales de la Biosphère (CESBIO) - CNES

TH1.L5.2 08:20 **MULTI-FREQUENCY RADIOMETER-BASED SOIL MOISTURE RETRIEVAL ALGORITHM PARAMETRIZATION USING IN SITU VALIDATION SITES**
Ying Gao, Monash University; Andreas Colliander, Mariko S. Burgin, NASA; Jeffrey Walker, Monash University; Chun Sik Chae, Emmanuel Dinnat, NASA; Michael H. Cosh, USDA

TH1.L5.3 08:40 **SOIL MOISTURE RETRIEVAL WITH AIRBORNE PALS INSTRUMENT OVER AGRICULTURAL AREAS IN SMAPVEX16**
Andreas Colliander, Jet Propulsion Laboratory, California Institute of Technology; Thomas J. Jackson, Michael H. Cosh, United States Department of Agriculture, Agriculture Research Service; Sidharth Misra, Jet Propulsion Laboratory, California Institute of Technology; Rajat Bindlish, United States Department of Agriculture, Agriculture Research Service; Jarrett Powers, Heather McNairn, Agriculture and Agri-Food Canada; Paul Bullock, University of Manitoba; Aaron Berg, University of Guelph; Ramata Magagi, University of Sherbrooke; Peggy E. O'Neill, NASA Goddard Space Flight Center; Simon Yueh, Jet Propulsion Laboratory, California Institute of Technology

TH1.L5.4 09:00 **SPATIAL VARIABILITY IN MICROWAVE RADIOMETRIC SIGNATURES OF GROWING CORN AND SOYBEAN DURING SMAPVEX16-MICROWEX**
Pang-Wei Liu, Jasmeet Judge, Subit Chakrabarti, University of Florida; Roger DeRoo, University of Michigan, Ann Arbor; Susan Steele-Dunne, Delft University of Technology; Brian Hornbuckle, Iowa State University; Andreas Colliander, Sidharth Misra, Scott Tripp, Barron Latham, Ross Williamson, Issac Ramos Perez, Simon Yueh, NASA; Anthony W. England, University of Michigan Dearborn

TH1.L5.5 09:20 **COSMIC-RAY NEUTRON PROBES FOR SATELLITE SOIL MOISTURE VALIDATION**
Carsten Montzka, Heye Bogena, Forschungszentrum Jülich; Marek Zreda, University of Arizona; Alessandra Monerris, Formerly at Monash University; Ross Morrison, Centre for Ecology & Hydrology; Sekhar Muddu, Indian Institute of Science; Harry Vereecken, Forschungszentrum Jülich

Thursday, July 27 | 10:40 - 12:20 | Room 203 BC
Session TH2.L5 | Oral

Land Surface Temperature

Session Co-Chairs: Shunlin Liang, University of Maryland; Guoqing Zhou, Guilin University of Technology

TH2.L5.1 10:40 **CONSISTENT ESTIMATIONS OF LAND SURFACE TEMPERATURE, EMISSIVITY AND UPWELLING LONGWAVE RADIATION FROM SUOMI NPP VIIRS DATA**
Han Ma, Shunlin Liang, Beijing Normal University

TH2.L5.2 11:00 **COMPLEMENT ANALYSIS FOR THE WAVELET TRANSFORM METHOD FOR SEPARATING TEMPERATURE AND EMISSIVITY**
Yu-Ze Zhang, University of Chinese Academy of Sciences; Si-Bo Duan, Chinese Academy of Agricultural Sciences; Xiao-Guang Jiang, University of Chinese Academy of Sciences; Hua Wu, Chinese Academy of Sciences; Ya-Zhen Jiang, University of Chinese Academy of Sciences; Zhao-Xia Liu, Chinese Academy of Sciences; Cheng Huang, University of Chinese Academy of Sciences

TH2.L5.3 11:20 **LAND SURFACE TEMPERATURE RETRIEVED FROM COMBINED MID-INFRARED AND THERMAL INFRARED DATA**
Yonggang Qian, Kun Li, Ning Wang, Lingling Ma, Yaokai Liu, Wei Li, Lu Ren, Shi Qiu, Gao Caixia, Chuanrong Li, Lingli Tang, Academy of Opto-Electronics, Chinese Academy of Sciences

TH2.L5.4 11:40 **A DATA ASSIMILATION APPROACH FOR SIMULTANEOUSLY ESTIMATING A SUITE OF LAND SURFACE VARIABLES FROM SATELLITE DATA**
Shunlin Liang, University of Maryland; Zhiqiang Xiao, Hanyu Shi, Han Ma, Beijing Normal University

TH2.L5.5 12:00 **AN ALGORITHM FOR RETRIEVING LAND SURFACE TEMPERATURE FROM AMSR-E DATA OVER THE DESERT REGIONS**
Fang-Cheng Zhou, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences; Zhao-Liang Li, Ministry of Agriculture/Institute of Agricultural Resources and Regional Planning, Chinese Academy of Agricultural Sciences; Hua Wu, Bo-Hui Tang, Ronglin Tang, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences; Xiaoning Song, University of Chinese Academy of Sciences; Guangjian Yan, School of Geography, Beijing Normal University; Si-Bo Duan, Key Laboratory of Agri-informatics, Ministry of Agriculture/Institute of Agricultural Resources and Regional Planning, Chinese Academy of Agricultural Sciences

Thursday, July 27 | 13:40 - 15:20 | Room 203 BC
Session TH3.L5 | Oral

Estimation and Regression Techniques I

Session Co-Chairs: James Theiler, Los Alamos National Laboratory; Gabriel Martín Hernandez, Instituto de Telecomunicaçoes

TH3.L5.1 13:40 **JOINT GAUSSIAN PROCESSES FOR INVERSE MODELING**
Daniel Heestermans Svendsen, Luca Martino, Manuel Campos-Taberner, Gustau Camps-Valls, University of Valencia

TH3.L5.2 14:00 **SEGMENTED REGRESSION FOR SPATIO-SPECTRAL BACKGROUND ESTIMATION**
James Theiler, Amanda Ziemann, Los Alamos National Laboratory

TH3.L5.3 14:20 **SPATIAL-SPECTRAL HYPERSPECTRAL IMAGE COMPRESSIVE SENSING**
Gabriel Martín, José Manuel Bioucas-Dias, Instituto de Telecomunicações

TH3.L5.4 14:40 **MULTIPLE OUTPUT GAUSSIAN PROCESS REGRESSION ALGORITHM FOR MULTI-FREQUENCY SCATTERED DATA INTERPOLATION**
Weitong Ruan, Tufts University; Adam Milstein, William Blackwell, Massachusetts Institute of Technology Lincoln Laboratory; Eric Miller, Tufts University

TH3.L5.5 15:00 **MICROWAVE COVARIATION MODELING AND RETRIEVAL FOR THE DUAL-FREQUENCY ACTIVE-PASSIVE COMBINATION OF SENTINEL-1 AND SMAP**
Thomas Jagdhuber, German Aerospace Center (DLR); Dara Entekhabi, Massachusetts Institute of Technology; Narendra N Das, Jet Propulsion Laboratory; Moritz Link, German Aerospace Center (DLR); Carsten Montzka, Research Centre Jülich; Seungbum Kim, Simon Yueh, Jet Propulsion Laboratory

Thursday, July 27 | 16:20 - 18:00 | Room 203 BC
Session TH4.L5 | Oral

Estimation and Regression Applications

Session Co-Chairs: Luca Pulvirenti, CIMA Research Foundation; Nathan Longbotham, Descartes Labs

TH4.L5.1 16:20 **WATER STRESS DETECTION AS AN INDICATOR OF RED PALM WEEVIL ATTACK USING WORLDVIEW-3 DATA**
Abdou Bannari, Abdulaziz, M.A. Mohamed, Ali El-Battay, Arabian Gulf University

TH4.L5.2 16:40 **ESTIMATION OF DAILY EVAPOTRANSPIRATION USING MODIS DATA TO CALCULATE INSTANTANEOUS DECOUPLING COEFFICIENT AND RESISTANCES**
Yazhen Jiang, University of Chinese Academy of Sciences; Xiaoguang Jiang, University of Chinese Academy of Sciences;Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences;Academy of Opto-Electronics, Chinese Academy of Sciences; Ronglin Tang, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences;University of Chinese Academy of Sciences; Zhao-Liang Li, Institute of Agricultural Resources and Regional Planning, Chinese Academy of Agricultural Sciences; Yuze Zhang, Cheng Huang, Chen Ru, University of Chinese Academy of Sciences

TH4.L5.3 17:00 **DETECTION OF ALGAL BLOOMS IN A EUTROPHIC RESERVOIR BASED ON CHLOROPHYLL-A TIME SERIES DATA FROM MODIS.**
Alba German, Carolina Tauro, Marcelo Carlos Scavuzzo, Anabella Ferral, Mario Gulich Institute. CONAE. UNC

TH4.L5.4 17:20 **ESTIMATION OF THE ANTHROPOGENIC HEAT FLUX DISTRIBUTION IN BEIJING-TIANJIN-HEBEI REGION BASED ON SUOMI-NPP/VIIRS NIGHTTIME LIGHT IMAGE**
Deyong Hu, Shanshan Chen, Fuzhou Duan, Capital Normal University

TH4.L5.5 17:40 **ESTIMATION OF LEAF WATER CONTENT USING NEW VEGETATION INDICES COMBINED BY NEAR- AND MIDDLE INFRARED SPECTRAL REFLECTANCES**
Ziyang Zhang, Bo-Hui Tang, Zhao-Liang Li, Ronglin Tang, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences; Ruofei Zhong, Capital Normal University

Thursday, July 27 **08:00 - 09:40** **Room 202 CD**
Session TH1.L6 **Oral**

Image and Data Fusion IV

Session Chair: Ramona-Maria Pelich, Luxembourg Institute of Science and Technology

TH1.L6.1 08:00 **IMAGE-BASED 3D MODEL AND HYPERSPECTRAL DATA FUSION FOR IMPROVED SCENE UNDERSTANDING**
Anthony Ortiz, The University of Texas at El Paso; Dalton Rosario, U.S. Army Research Laboratory; Olac Fuentes, The University of Texas at El Paso; Blair Simon, Headwall Photonics

TH1.L6.2 08:20 **TOWARDS A GLOBAL FLOOD FREQUENCY MAP FROM SAR DATA**
Ramona Pelich, Marco Chini, Renaud Hostache, Patrick Matgen, Luxembourg Institute of Science and Technology; Jose Manuel Delgado, Giovanni Sabatino, European Space Agency (ESA)

TH1.L6.3 08:40 **OBJECT BASED FUSION OF MULTI-SENSOR IMAGERY WHILE PRESERVING SPECTRALLY SIGNIFICANT INFORMATION**
Mayank Goyal, K S Rajan, International Institute of Information Technology, Hyderabad

TH1.L6.4 09:00 **CORRELATED PROBABILITIES BASED DECISION FUSION METHOD FOR MULTI-SENSOR DATA**
Abeer Mazher, Peijun Li, Peking University

TH1.L6.5 09:20 **MISS DATA RECONSTRUCTION IN REMOTE SENSING IMAGES WITH A DOUBLE WEIGHTED TENSOR LOW RANK MODEL**
Qiangqiang Yuan, Wuhan University; Michael Ng, HKBU; Huanfeng Shen, Liangpei Zhang, Jie Li, Wuhan University

Thursday, July 27 **10:40 - 12:20** **Room 202 CD**
Session TH2.L6 **Oral**

Ocean Surface Remote Sensing Missions

Session Co-Chairs: Hamideh Ebrahimi, University of Florida; Yongjun Jia, National Satellite Ocean Application Service

TH2.L6.1 10:40 **PRELIMINARY RETRIEVAL OF OCEAN WINDS AND WAVES FROM CHINESE NEWLY LAUNCHED SPACEBORNE MICROWAVE SENSORS**
Jingsong Yang, Lin Ren, Juan Wang, Gang Zheng, Xiaohui Li, Second Institute of Oceanography, State Oceanic Administration

TH2.L6.2 11:00 **CURRENT STATUS AND FUTURE PERSPECTIVE OF OCEANIC SATELLITE IN CHINA**
Mingsen Lin, National Satellite Ocean Application Center

TH2.L6.3 11:20 **SENTINEL-3A: MISSION STATUS AND PERFORMANCE AFTER ONE YEAR IN ORBIT**
Susanne Mecklenburg, Jens Nieke, Philippe Goryl, Bruno Berruti, European Space Agency (ESA)

TH2.L6.4 11:40 **CURRENT STATUS OF THE HY-2A SATELLITE ALTIMETER AND ITS PROSPECT**
Yongjun Jia, Mingsen Lin, Youguang Zhang, National Satellite Ocean Application Service

TH2.L6.5 12:00 **ARCTIC MARITIME SURVEILLANCE WITH SENTINEL-1 DATA USING A NORWEGIAN COLLABORATIVE GROUND SEGMENT**
Tonje Nanette Arnesen Hannevik, Kjell O. Viken, Richard B. Olsen, Øyvind K. Lensjø, Norwegian Defence Research Establishment

Thursday, July 27 **13:40 - 15:20** **Room 202 CD**
Session TH3.L6 **Oral**

Calibration and Validation of S-NPP and GOES-R Instruments

Session Co-Chairs: James Tilton, NASA, GSFC; Spencer Farrar, Aerospace Corp.

TH3.L6.1 13:40 **ON-ORBIT MEASUREMENT OF THE FOCAL LENGTH OF THE SNPP VIIRS INSTRUMENT**
James Tilton, Robert Wolfe, NASA Goddard Space Flight Center; Guoqing (Gary) Lin, Zhangshi (Albert) Yin, Science Systems and Applications, Inc.

TH3.L6.2 14:00 **S-NPP VIIRS THERMAL EMISSIVE BAND THERMAL CALIBRATION ERRORS AND THEIR IMPACT ON BLACKBODY WARM UP AND COOL DOWN F FACTORS**
David Moyer, Frank De Luccia, Gabriel Moy, The Aerospace Corporation

TH3.L6.3 14:20 **DEVELOPMENT OF LEVEL 1B CALIBRATION AND VALIDATION READINESS, IMPLEMENTATION AND MANAGEMENT PLANS FOR GOES-R**
David Kunkee, Robert Farley, Betty Kwan, James Hecht, Richard Walterscheid, Seth Claudepierre, Rebecca Bishop, Lynette Gelinas, Tamitha Skov, Frank De Luccia, The Aerospace Corporation

TH3.L6.4 14:40 **IMPROVEMENTS IN VIIRS REFLECTIVE BAND CALIBRATION ACCURACY AND STABILITY PROVIDED BY RSBAUTOCAL**
Evan Haas, Frank De Luccia, The Aerospace Corporation

TH3.L6.5 15:00 **S-NPP VIIRS DAY-NIGHT BAND CALIBRATION AND STATUS UPDATE**
Spencer Farrar, Tim Wilkinson, Frank De Luccia, The Aerospace Corporation

Thursday, July 27 **16:20 - 18:00** **Room 202 CD**
Session TH4.L6 **Oral**

Techniques and Applications of Active Microwave Remote Sensing Instruments

Session Co-Chairs: Subit Chakrabarti, University of Florida; Christopher Williams, University of Colorado, Boulder

TH4.L6.1 16:20 **NEW APPLICATIONS OF SPACEBORNE IMAGING RADAR-C (SIR-C) DATA**
Valeria Gracheva, Franz J Meyer, Scott Arko, University of Alaska; Paul Rosen, California Institute of Technology

TH4.L6.2 16:40 **PHASE AMBIGUITY RESOLUTION FOR ORBIT DETERMINATION INTERFEROMETRY**
Marc Fernández Usón, Roger Martin Fuster, Antoni Broquetas Ibars, Universitat Politècnica de Catalunya

TH4.L6.3 17:00 **EXPERIMENTAL PERFORMANCE ANALYSIS OF THE DBF TECHNIQUE ON MICAP SCATTEROMETER DEMONSTARTOR**
Caiyun Wang, Hao Liu, Xiangkun Zhang, Di Zhu, Xin Zhao, Chinese Academy of Sciences

TH4.L6.4 17:20 **TANDEM-X HEIGHT PERFORMANCE AND DATA COVERAGE**
Christopher Wecklich, Carolina Gonzalez, Paola Rizzoli, German Aerospace Center (DLR)

TH4.L6.5 17:40 **PRECIPITATION VARIABILITY ACROSS SATELLITE FIELD-OF-VIEWS DERIVED FROM GROUND-BASED RADAR OBSERVATIONS**
Christopher Williams, University of Colorado Boulder

Thursday, July 27 08:00 - 09:40 Room 201 A
Session TH1.L7 Oral

Global Navigation Satellite Systems Reflectometry / GNSS-R Sensors II

Session Co-Chairs: Hugo Carreno-Luengo, NASA Jet Propulsion Laboratory; Estel Cardellach, Institut d'Estudis Espacials de Catalunya

TH1.L7.1 08:00 **SPACEBORNE GNSS-R FROM THE SMAP MISSION: FIRST ASSESSMENT OF POLARIMETRIC SCATTEROMETRY**
Hugo Carreno-Luengo, Stephen Lowe, Cinzia Zuffada, Stephan Esterhuizen, Shadi Oveisgharan, NASA Jet Propulsion Laboratory

TH1.L7.2 08:20 **INVESTIGATION OF SPACEBORNE POLARIMETRIC GNSS-R USING THE SMAP RADAR INSTRUMENT**
Matthew Buchanan, Andrew O'Brien, The Ohio State University

TH1.L7.3 08:40 **OCEAN TARGET MONITORING WITH IMPROVED REVISIT TIME USING CONSTELLATIONS OF GNSS-R INSTRUMENTS**
Alessio Di Simone, University of Naples Federico II; Hyuk Park, Polytechnic University of Catalonia; Daniele Riccio, University of Naples Federico II; Adriano Camps, Polytechnic University of Catalonia

TH1.L7.4 09:00 **RESULTS FROM THE GLORIE GNSS-R AIRBORNE CAMPAIGN: AGRICULTURAL AREAS**
Erwan Motte, Mehrez Zribi, CNRS; Pascal Fanise, IRD; Nicolas Baghdadi, IRSTEA; Frederic Baup, Sahar Ben Hmida, Toulouse University; Sylvia Dayau, INRA; Remy Fieuzal, Toulouse University; Dominique Guyon, Jean-Pierre Wigneron, INRA

TH1.L7.5 09:20 **SEA ICE DETECTION USING GNSS-R DELAY-DOPPLER MAPS FROM UK TECHDEMOSAT-1**
Yongchao Zhu, Kegen Yu, Jingui Zou, School of Geodesy and Geomatics, Wuhan University; Jens Wickert, GFZ German Research Centre for Geosciences

Thursday, July 27 10:40 - 12:20 Room 201 A
Session TH2.L7 Oral-Invited

Global Navigation Satellite Systems Reflectometry / GNSS-R Sensors III

Session Co-Chairs: Estel Cardellach, Institut d'Estudis Espacials de Catalunya; Hugo Carreno-Luengo, NASA Jet Propulsion Laboratory

TH2.L7.1 10:40 **CALIBRATION ASPECTS OF THE SOFTWARE PARIS INTERFEROMETRIC RECEIVER**
Serni Ribó, Fran Fabra, Estel Cardellach, Weiqiang Li, Antonio Rius, Institute of Space Sciences (CSIC/IEEC)

TH2.L7.2 11:00 **CALIBRATION AND VALIDATION PROCESSING FOR THE CYGNSS WIND SPEED RETRIEVAL ALGORITHM**
Rajeswari Balasubramaniam, Christopher Ruf, Darren McKague, Maria Paola Clarizia, University of Michigan, Ann Arbor; Scott Gleason, Southwest Research Institute

TH2.L7.3 11:20 **STATISTICAL MODELING AND SIMULATION OF DELAY-DOPPLER MAPS IN THE TIME-VARYING REGIME**
Stefano Principe, Tiziana Beltramonte, Maurizio Di Bisceglie, Carmela Galdi, Università degli Studi del Sannio

TH2.L7.4 11:40 **WAVPY: A GNSS-R OPEN SOURCE SOFTWARE LIBRARY FOR DATA ANALYSIS AND SIMULATION**
Fran Fabra, Estel Cardellach, Weiqiang Li, Antonio Rius, Institute of Space Sciences (CSIC/IEEC)

TH2.L7.5 12:00 **A MODIFIED IMAGING FORMATION ALGORITHM FOR BISTATIC SAR BASED ON GPS-L5 SIGNAL**
Hong-cheng Zeng, Jie Chen, Beihang University; Hao-jie Zhang, Beijing Institute of Electronic System Engineering; Wei Yang, Peng-bo Wang, Beihang University

THURSDAY ORAL

Thursday, July 27 13:40 - 15:20 Room 201 A
Session TH3.L7 Oral

Soil Moisture From Active and Active/Passive Sensors

Session Co-Chairs: S. Chan, Jet Propulsion Lab; Alejandro Monsivais-Huertero, Instituto Politecnico Nacional, Mexico

TH3.L7.1 13:40 **DECOMPOSITION OF SMAP POLARIZATION RATIO INTO SURFACE SOIL MOISTURE AND VEGETATION DYNAMICS**
Shangnan Li, Jilin University; Ruzbeh Akbar, Parsons Laboratory for Environmental Science and Engineering, Massachusetts Institute of Technology ; Tianjie Zhao, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences; Hui Lu, Tsinghua University; Somayyeh Talebi, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences; Haiteng Weng, Beijing Normal University; Zengyan Wang, Northwest Institute of Eco-Environment and Resources, Chinese Academy of Sciences; Kaighin Mccoll, Parsons Laboratory for Environmental Science and Engineering, Massachusetts Institute of Technology ; Jiancheng Shi, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences; Dara Entekhabi, Parsons Laboratory for Environmental Science and Engineering, Massachusetts Institute of Technology

TH3.L7.2 14:00 **REGRESSION-BASED SOIL MOISTURE ESTIMATION FROM SMAP POLARIMETRIC RADAR DATA WITH AQUARIUS DERIVED COEFFICIENTS**
Mariko S. Burgin, Jakob J. Van Zyl, NASA Jet Propulsion Laboratory

TH3.L7.3 14:20 **NEW EMPIRICAL MODEL FOR RADAR SCATTERING FROM BARE SOILS**
Nicolas Baghdadi, Mohammad Choker, IRSTEA; Mehrez Zribi, Centre d'Etudes Spatiales de la Biosphère (CESBIO); Mohammad El Hajj, IRSTEA; Simonetta Paloscia, CNR-IFAC; Niko Verhoest, Hans Lievens, Laboratory of Hydrology and Water Management, Ghent University, Ghent B-9000, Belgium; Frédéric Baup, Centre d'Etudes Spatiales de la Biosphère (CESBIO); Francesco Mattia, CNR-ISSIA

TH3.L7.4 14:40 **SIMULATING L/L-BAND AND C/L-BAND ACTIVE-PASSIVE MICROWAVE COVARIATION OF CROPS WITH THE TOR VERGATA SCATTERING AND EMISSION MODEL FOR A SMAP-SENTINEL 1 COMBINATION**
Moritz Link, Ludwig-Maximilian University of Munich (LMU); Dara Entekhabi, Massachusetts Institute of Technology; Thomas Jagdhuber, German Aerospace Center (DLR); Paolo Ferrazzoli, Leila Guerriero, Tor Vergata University of Rome; Martin Baur, University of Bayreuth; Ralf Ludwig, Ludwig-Maximilian University of Munich (LMU)

TH3.L7.5 15:00 **COMPARISON OF TWO METHODS FOR SOIL MOISTURE MAPPING AT 1KM RESOLUTION FROM SENTINEL-1 AND MODIS SYNERGY**
Qi Gao, isardSAT; Mehrez Zribi, Centre d'Etudes Spatiales de la Biosphère (CESBIO); Maria José Escorihuela, isardSAT; Nicolas Baghdadi, IRSTEA, UMR TETIS

Thursday, July 27 16:20 - 18:00 Room 201 A
Session TH4.L7 Oral

Soil Moisture Remote Sensing

Session Co-Chairs: Jasmeet Judge, University of Florida; Jiangyuan Zeng, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences

TH4.L7.1 16:20 **A SPATIALLY CONSISTENT DOWNSCALING APPROACH FOR SMOS USING AN ADAPTIVE MOVING WINDOW**
Gerard Portal, Mercè Vall-llossera, Universitat Politècnica de Catalunya, IEEC/UPC and Barcelona Expert Centre; Piles Maria, Universitat de València; Camps Adriano, David Chaparro, Universitat Politècnica de Catalunya, IEEC/UPC and Barcelona Expert Centre; Miriam Pablos, Instituto Hispano-Luso de Investigaciones Agrarias and University of Salamanca; Rossato Luciana, Universitat Politècnica de Catalunya, IEEC/UPC and Barcelona Expert Centre

TH4.L7.2 16:40 **ERROR CHARACTERIZATION OF SMOS, ASCAT, SMAP, ERA AND ISMN SOIL MOISTURE PRODUCTS: AUTOMATIC DETECTION OF CROSS-CORRELATION ERROR THROUGH EXTENDED QUADRUPLE COLLOCATION**
Fabio Fascetti, Nazzareno Pierdicca, Sapienza; Luca Pulvirenti, CIMA Research Foundation; Raffaele Crapolicchio, Serco SpA

TH4.L7.3 17:00 **REMOTE SENSING OF SOIL MOISTURE USING P-BAND SIGNALS OF OPPORTUNITY (SOOP): INITIAL RESULTS**
James Garrison, Yao-Cheng Lin, Benjamin Nold, Purdue University; Jeffrey R. Piepmeier, Manuel A. Vega, Matthew Fritts, Cornelis F. du Toit, Joseph Knuble, NASA Goddard Space Flight Center

TH4.L7.4 17:20 **EVALUATE SENTINEL-1A SOIL MOISTURE FROM GLOBAL PRODUCTS AND GROUND MEASUREMENTS AT SITE DAHRA IN SENEGAL**
Zhiqu Liu, Pingxiang Li, Jie Yang, Wuhan University; Minyi Li, Deqing iSpatial Co., Ltd

TH4.L7.5 17:40 **COVARIATION OF SMAP ACTIVE AND PASSIVE MEASUREMENTS WITH RESPECT TO VEGETATION AND SURFACE ROUGHNESS**
Jiangyuan Zeng, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences; Ruzbeh Akbar, Massachusetts Institute of Technology; Kun-Shan Chen, Tianjie Zhao, Panpan Yao, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences; Huizhen Cui, Beijing Normal University; Hui Lu, Tsinghua University; Dara Entekhabi, Massachusetts Institute of Technology

Thursday, July 27 | 08:00 - 09:40 | Room 202 A
Session TH1.L8 | Oral

Calibration and Registration for Optical Sensors II

Session Co-Chairs: Fuzhong Weng, NOAA; Rajendra Bhatt, SSAI/NASA LaRC

TH1.L8.1 08:00 **CONSISTENT RADIOMETRIC SCALING OF THE MULTI-TEMPORAL AVHRR SATELLITE RECORD**
Rajendra Bhatt, Science Systems and Applications, Inc.; David Doelling, NASA Langley Research Center; Benjamin Scarino, Arun Gopalan, Science Systems and Applications, Inc.; Patrick Minnis, Kristopher Bedka, NASA Langley Research Center; Conor Haney, Science Systems and Applications, Inc.

TH1.L8.2 08:20 **AQUA MODIS ELECTRONIC CROSSTALK ON SMWIR BANDS 20 TO 26**
Graziela Keller, Zhipeng Wang, Aisheng Wu, Science Systems and Applications, Inc.; Xiaoxiong Xiong, NASA Goddard Space Flight Center

TH1.L8.3 08:40 **REPROCESSING OF SUOMI NPP CRIS SENSOR DATA RECORDS AND IMPACTS ON RADIOMETRIC AND SPECTRAL LONG-TERM ACCURACY AND STABILITY**
Yong Chen, University of Maryland; Yong Han, Fuzhong Weng, NOAA Center for Satellite Application and Research

TH1.L8.4 09:00 **AN UPDATE ON NAST-I RESULTS FROM SNPP AIRBORNE CAMPAIGN UNDERFLIGHTS**
Allen Larar, Daniel Zhou, Xu Liu, J. Tian, NASA Langley Research Center; William Smith, SSAI / UW

TH1.L8.5 09:20 **SIMULTANEOUS EMPIRICAL LINE CALIBRATION OF MULTIPLE SPECTRAL IMAGES**
Fadi Kizel, University of Iceland; Lorenzo Bruzzone, University of Trento; Jón Atli Benediktsson, University of Iceland

Thursday, July 27 | 10:40 - 12:20 | Room 202 A
Session TH2.L8 | Oral

Calibration and Registration for Optical Sensors I

Session Co-Chairs: Fuzhong Weng, NOAA; Youkyung Han, Kyungpook National University, Korea

TH2.L8.1 10:40 **FINE GEOMETRIC ALIGNMENT OF VERY HIGH RESOLUTION OPTICAL IMAGES USING REGISTRATION NOISE AND QUADTREE STRUCTURE**
Youkyung Han, Kyungpook National University, Korea

TH2.L8.2 11:00 **HYPERSPECTRAL IMAGE DENOISING VIA SPECTRAL AND SPATIAL LOW-RANK APPROXIMATION**
Yi Chang, Luxin Yan, Sheng Zhong, Huazhong University of Science and Technology

TH2.L8.3 11:20 **VIIRS THERMAL EMISSIVE BANDS L1B CALIBRATION UNCERTAINTY**
Jeffrey McIntire, Kwofu Chiang, Science Systems and Applications, Inc.; Xiaoxiong Xiong, NASA

TH2.L8.4 11:40 **INTERCALIBRATION OF ADVANCED HIMAWARI-8 IMAGER'S INFRARED CHANNELS WITH IASI/METOP-B 1C DATA**
Geng-Ming Jiang, Fudan University; Guicai Li, National Satellite Meteorological Center; Wen-Xia Li, Fudan University

TH2.L8.5 12:00 **LANDSAT-8 OPERATIONAL LAND IMAGER ON-ORBIT RADIOMETRIC CALIBRATION**
Brian Markham, NASA Goddard Space Flight Center; Julia Barsi, SSAI/GSFC

Thursday, July 27 | 13:40 - 15:20 | Room 202 A
Session TH3.L8 | Oral-Invited

Space Lidar: Missions, Technologies and Observations I

Session Co-Chairs: Upendra Singh, NASA Langley Research Center; Georgios Tzeremes, European Space Agency

TH3.L8.1 13:40 **TECHNOLOGY ADVANCEMENT AND CHALLENGES IN SPACEBORNE LIDAR FOR EARTH SCIENCE**
George Komar, NASA

TH3.L8.2 14:00 **TRIPLE-PULSE INTEGRATED PATH DIFFERENTIAL ABSORPTION LIDAR FOR CARBON DIOXIDE MEASUREMENT– NOVEL LIDAR TECHNOLOGIES AND TECHNIQUES WITH PATH TO SPACE**
Upendra Singh, Tamer Refaat, Mulugeta Petros, NASA Langley Research Center

TH3.L8.3 14:20 **RECENT PROGRESS ON UV LASERS FOR AIRBORNE AND SPACE-BASED APPLICATIONS**
Floyd Hovis, Michael Albert, Fran Fitzpatrick, Kent Puffenburger, Tom Schum, Darrell Jones, Joe Rudd, Slava Litvinovitch, Fibertek, Inc.

TH3.L8.4 14:40 **INTEGRATING A DOPPLER WIND LIDAR INTO A NETWORK OF WIND OBSERVING SYSTEMS: CAPITALIZING ON SYNERGISMS WITH A HIGH PRECISION, CLOUD SCENE PENETRATING LIDAR**
David Emmitt, Simpson Weather Associates; Michael Kavaya, Upendra Singh, NASA Langley Research Center

TH3.L8.5 15:00 **A SPACEBORNE ADAPTIVE LIDAR FOR EARTH IMAGING**
Carl Weimer, Mike Lieber, Reuben Rohrschneider, Lyle Ruppert, Ball Aerospace & Technologies Corporation

Thursday, July 27 | 16:20 - 18:00 | Room 202 A
Session TH4.L8 | Oral-Invited

Space Lidar: Missions, Technologies and Observations II

Session Co-Chairs: Georgios Tzeremes, European Space Agency; Upendra Singh, NASA Langley Research Center

TH4.L8.1 16:20 **THE OVERVIEW AND STATUS OF VEGETATION LIDAR MISSION, MOLI**
Toshiyoshi Kimura, Tadashi Imai, Daisuke Sakaizawa, Jumpei Murooka, Rei Mitsuhashi, Japan Aerospace Exploration Agency

TH4.L8.2 16:40 **ESA SPACE WIND LIDAR MISSION: APPROACHING LAUNCH**
Linda Mondin, Denny Wernham, Anders Elfving, Anne-Grete Straume, Alain Culoma, Thomas Kanitz, European Space Agency (ESA); Olivier LeCrenier, Jean-Claude Barthes, Dominique Thibault, Phil McGoldrick, Airbus Defence and Space

TH4.L8.3 17:00 **THE ESA EARTHCARE MISSION DEVELOPMENT STATUS**
Alain Lefebvre, Arnaud Hélière, Kotska Wallace, European Space Agency (ESA); Hirotaka Nakatsuka, Eiichi Tomita, Japan Aerospace Exploration Agency

TH4.L8.4 17:20 **STUDY ON MEASUREMENT PERFORMANCE OF FUTURE SPACE-BASED DOPPLER WIND LIDAR IN JAPAN**
Shoken Ishii, National Institute of Information and Communications Technology; Kozo Okamoto, Meteorological Research Institute; Philippe Baron, National Institute of Information and Communications Technology; Toshiyuki Ishibashi, Taichu Tanaka, Tsuyoshi Sekiyama, Takashi Maki, Meteorological Research Institute; Takuji Kubota, Yohei Satoh, Daisuke Sakaizawa, Japan Aerospace Exploration Agency; Koji Yamashita, Japan Meteorological Agency; Kyoka Gamo, Fujitsu FIP Corporation; Satoshi Ochiai, Motoaki Yasui, National Institute of Information and Communications Technology; Riko Oki, Japan Aerospace Exploration Agency; Masaki Satoh, The University of Tokyo; Toshiki Iwasaki, Tohoku University

TH4.L8.5 17:40 **FEASIBILITY STUDY ON MEASURING ATMOSPHERIC XCO2 IN URBAN AREA BY USING SPACEBORNE CO2-IPDA**
Ge Han, Wuhan University; Miao Zhang, Nanyang Normal University; Hang Su, Wuhan Huagong Laser Engineering Co.,Ltd; Ailin Liang, Wei Gong, Wuhan University

Thursday, July 27 | 08:00 - 09:40 | Room 203 A
Session TH1.L9 | Oral

Snow and Freeze/Thaw

Session Co-Chairs: Tianjie Zhao, RADI; Emanuele Santi, CNR-IFAC

TH1.L9.1 08:00 **EVALUATION OF NORTHERN HEMISPHERE AND REGIONAL SNOW EXTENT PRODUCTS WITHIN ESA SNOWPEX-PROJECT**
Sari Metsämäki, Finnish Environment Institute; Elisabeth Ripper, ENVEO IT GmbH; Olli-Pekka Mattila, Finnish Environment Institute; Richard Fernandes, Canada Centre for Remote sensing; Gabriele Schwaizer, ENVEO IT GmbH; Kari Luojus, Finnish Meteorological Institute; Thomas Nagler, ENVEO IT GmbH; Bojan Bojkov, EUMETSAT; Michael Kern, European Space Agency - ESTEC

TH1.L9.2 08:20 **THE EFFECT OF SCALE AND SNOW FRAGMENTATION ON THE ACCURACY OF FRACTIONAL SNOW COVER DATA OVER THE TIBETAN PLATEAU**
Shirui Hao, Lingmei Jiang, Gongxue Wang, Xiaojing Liu, Beijing Normal University

TH1.L9.3 08:40 **INVESTIGATION OF ALPINE SNOW FEATURES USING COSMO-SKYMED IMAGES**
Simone Pettinato, Emanuele Santi, Simonetta Paloscia, IFAC-CNR; Mauro Valt, ARPAV

TH1.L9.4 09:00 **MULTI-FREQUENCY MICROWAVE RADIOMETRIC MEASUREMENTS OF SOIL FREEZE-THAW PROCESS OVER SEASONALLY FROZEN GROUND**
Tianjie Zhao, Jiancheng Shi, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences; Shaojie Zhao, Beijing Normal University; Pingkai Wang, Shangnan Li, Chuan Xiong, Qing Xiao, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences

TH1.L9.5 09:20 **QUANTIFYING C-BAND SCATTERING MECHANISMS FROM SNOW-COVERED FIRST-YEAR SEA ICE AT THE WINTER-SPRING TRANSITION**
Alexander Komarov, Environment and Climate Change Canada; Jack Landy, Sergey Komarov, David Barber, University of Manitoba

Thursday, July 27 | 10:40 - 12:20 | Room 203 A
Session TH2.L9 | Oral

Land Cover Dynamics III

Session Co-Chairs: Olena Dubovyk, Universität Bonn; Joel Johnson, Ohio State University

TH2.L9.1 10:40 **EVALUATION OF DAMAGE AND VOLCANIC HAZARD IN KUCHINOERABU ISLAND, JAPAN, BY USING HIGH–RESOLUTION SATELLITE IMAGES**
Masashi Sonobe, Hideki Hashiba, Nihon University

TH2.L9.2 11:00 **BUSH ENCROACHMENT DETECTION IN AFRICA – A MULTI-SCALE APPROACH**
Valerie Graw, Carsten Oldenburg, Olena Dubovyk, Ruben Piroska, University of Bonn

TH2.L9.3 11:20 **A NORMALISED DIFFERENCE ALPHA-ANGLE APPROACH TO BURN SCAR EXTRACTION ON MULTIPLE-POLARISATION SAR DATA**
Jeanine Engelbrecht, Andre Theron, Lufuno Vhengani, Council for Scientific and Industrial Research

TH2.L9.4 11:40 **PHENOLOGICAL NDVI TIME SERIES FOR THE DYNAMIC DERIVATION OF SOIL COVERAGE INFORMATION**
Markus Möller, Henning Gerstmann, Martin Luther University Halle-Wittenberg; Thorsten Christian Dahms, Julius Maximilians University Würzburg

TH2.L9.5 12:00 **AUTOMATIC LAND COVER MAPPING FOR LANDSAT DATA BASED ON THE TIME-SERIES SPECTRAL IMAGE DATABASE**
Liangyun Liu, Xiao Zhang, Yong Hu, Yingjie Wang, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences

Thursday, July 27 | 13:40 - 15:20 | Room 203 A
Session TH3.L9 | Oral-Invited

Active Airborne Remote Sensing of Forest Ecosystems I

Session Chair: Irena Hajnsek, ETH/DLR

TH3.L9.1 13:40 **THE 2016 NASA AFRISAR CAMPAIGN: AIRBORNE SAR AND LIDAR MEASUREMENTS OF TROPICAL FOREST STRUCTURE AND BIOMASS IN SUPPORT OF FUTURE SATELLITE MISSIONS**
Lola Fatoyinbo, Naiara Pinto, NASA; Michelle Hofton, University of Maryland; Marc Simard, Bryan Blair, Sassan Saatchi, Yunling Lou, NASA; Ralph Dubayah, University of Maryland; Scott Hensley, NASA; John Armston, University of Maryland; Laura Duncanson, USRA/NASA; Marco Lavalle, NASA

TH3.L9.2 14:00 **HEIGHT AND 3-D STRUCTURE ESTIMATION OF AFRICAN TROPICAL FORESTS WITH MULTI-BASELINE SAR: RESULTS FROM THE AFRISAR CAMPAIGN**
Matteo Pardini, Jun Su Kim, Konstantinos Papathanassiou, Irena Hajnsek, German Aerospace Center (DLR)

TH3.L9.3 14:20 **3D FOREST STRUCTURE PARAMETER RETRIEVAL: POLARIMETRIC SAR INTERFEROMETRY AND WAVEFORM LIDAR AIRBORNE DATA**
Seung-Kuk Lee, Temilola Fatoyinbo, Batuhan Osmanoglu, David Lagomasino, Emanuelle Feliciano, NASA Goddard Space Flight Center

TH3.L9.4 14:40 **CANOPY HEIGHT AND STRUCTURE MEASUREMENTS OF GABON FROM MEDIUM-FOOTPRINT WAVEFORM LIDAR**
Michelle Hofton, University of Maryland; James Blair, David Rabine, NASA; Colleen Brooks, SSAI Inc.; Helen Cornejo, SGT Inc.

TH3.L9.5 15:00 **FOREST STRUCTURE RETRIEVAL FROM ECOSAR P-BAND SINGLE-PASS INTERFEROMETRY**
Batuhan Osmanoglu, Rafael Rincon, Seung-Kuk Lee, NASA Goddard Space Flight Center; Tobias Bollian, Temilola Fatoyinbo Agueh, USRA NASA Goddard Space Flight Center

Thursday, July 27 | 16:20 - 18:00 | Room 203 A
Session TH4.L9 | Oral-Invited

Active Airborne Remote Sensing of Forest Ecosystems II

Session Chair: Irena Hajnsek, ETH/DLR

TH4.L9.1 16:20 **ASSESSMENT OF UAVSAR ESTIMATION OF TROPICAL FOREST STRUCTURE AND BIOMASS USING AFRISAR GROUND AND AIRBORNE LIDAR MEASUREMENTS**
Sassan Saatchi, Carlos Silva, António Ferraz, Marc Simard, Naiara Pinto, Yunling Lou, Brian Hawkins, Victoria Meyer, Michael Denbina, Zheng Yang, Scott Hensley, California Institute of Technology; John Poulsen, Duke University; Lee White, Kathryn White, National Parks of Gabon; Nicolas Labriere, Jerome Chave, CNRS, Universite Paul Sabatier; Simon Lewis, University of Leeds; Alfonso Alonso, David Kenfack, Stuart Davies, Center for Tropical Forest Research, Smithsonian

TH4.L9.2 16:40 **MAPPING TROPICAL FOREST ABOVEGROUND BIOMASS FROM LIDAR AND UAVSAR DATA**
Carlos Silva, Sassan Saatchi, NASA Jet Propulsion Laboratory; Mariano Garcia Alonso, University of Leicester; Lee White, National Parks of Gabon; John Poulsen, Nicholas School of the Environment; Nicolas Labrier, CNRS, Universite Paul Sabatier; Simon Lewis, University of Leeds; Jerome Chave, CNRS, Universite Paul Sabatier; Andrew Hudak, USDA Forest Service; Lee Vierling, University of Idaho; António Ferraz, NASA Jet Propulsion Laboratory

TH4.L9.3 17:00 **PREDICTION OF FOREST CANOPY STRUCTURE FROM POLINSAR DATASET**
Guillaume Brigot, ONERA; Marc Simard, Jet Propulsion Laboratory; Elise Koeniguer, ONERA; Cédric Taillandier, TOTAL

TH4.L9.4 17:20 **TIME SERIES OF P- AND L-BAND FOREST BACKSCATTER FROM BOREALSCAT**
Lars Ulander, Albert Monteith, Chalmers University of Technology

TH4.L9.5 17:40 **KAPOK: AN OPEN SOURCE PYTHON LIBRARY FOR POLINSAR FOREST HEIGHT ESTIMATION USING UAVSAR DATA**
Michael Denbina, Marc Simard, NASA Jet Propulsion Laboratory, California Institute of Technology

Thursday, July 27 **08:00 - 09:40** **Room 204 A**
Session TH1.L10 **Oral**

Land Cover Dynamics I

Session Chair: Thomas Jagdhuber, German Aerospace Center

TH1.L10.1 08:00 **LARGE-SCALE FINE-RESOLUTION PRODUCTS OF FOREST DISTURBANCE USING NEW APPROACHES FROM SPACBORNE SAR INTERFEROMETRY**
Yang Lei, Robert Treuhaft, Jet Propulsion Laboratory; Richard Lucas, University of New South Wales; Paul Siqueira, University of Massachusetts Amherst; Michael Keller, Jet Propulsion Laboratory; Michael Schmidt, Queensland Department of Science, Information Technology and Innovation

TH1.L10.2 08:20 **PHYSICS-BASED RETRIEVAL OF SCATTERING ALBEDO AND VEGETATION OPTICAL DEPTH USING MULTI-SENSOR DATA INTEGRATION**
Thomas Jagdhuber, German Aerospace Center (DLR); Martin Baur, University of Bayreuth; Moritz Link, German Aerospace Center (DLR); María Piles, Universitat de València; Dara Entekhabi, Massachusetts Institute of Technology; Carsten Montzka, Research Centre Jülich; Jaakko Seppänen, Oleg Antropov, Jaan Praks, Aalto University; Alexander Löw, Ludwig-Maximilians-Universität

TH1.L10.3 08:40 **RECENT TRENDS IN THE LAND SURFACE PHENOLOGY OF AFRICA OBSERVED AT A FINE SPATIAL SCALE**
Tracy Adole, Jadunandan Dash, University of Southampton; Peter M. Atkinson, Lancaster University

TH1.L10.4 09:00 **INTEGRATION OF SAR AND OPTICAL DENSE TIME SERIES FOR LAND COVER MONITORING**
Ramses Molijn, Lorenzo Iannini, Ramon Hanssen, Freek van Leijen, Delft University of Technology; Rubens Lamparelli, UniCamp; Alexandre Coutinho, Embrapa

TH1.L10.5 09:20 **ESTIMATION OF UNDERLYING SUBMERGE BASED ON MICROWAVE MODEL AND DYNAMIC PROGRAMMING ALGORITHM**
Longfei Tan, Ling Tong, Yan Chen, University of Electronic Science and Technology of China; Yalin Zhu, Chongdi Duan, Xi' an Institute of space Radio Technology, China Aerospace Science and Technology Corporation

Thursday, July 27 **10:40 - 12:20** **Room 204 A**
Session TH2.L10 **Oral**

Agriculture Applications III

Session Co-Chairs: Michael Starek, Texas A&M University-Corpus Christi; Ana Belen Ruescas, University of Valencia

TH2.L10.1 10:40 **MULTI-PLATFORM UAS IMAGING FOR CROP HEIGHT ESTIMATION: PERFORMANCE ANALYSIS OVER AN EXPERIMENTAL MAIZE FIELD**
Tianxing Chu, Michael Starek, Texas A&M University-Corpus Christi; Michael Brewer, Texas A&M AgriLife Research and Extension Center; Seth Murray, Texas A&M University

TH2.L10.2 11:00 **A NEW METHOD OF LEAF AREA INDEX MEASUREMENT BASED ON THE DIGITAL IMAGES**
Chuanqi Zhong, Yunping Chen, Ling Tong, Jia Huang, Jiaming Liang, University of Electronic Science and Technology of China

TH2.L10.3 11:20 **REMOTE SENSING OF VEGETATION DYNAMICS IN AGRO-ECOSYSTEMS USING SMAP VEGETATION OPTICAL DEPTH AND OPTICAL VEGETATION INDICES**
María Piles, Universitat de València; David Chaparro, Universitat Politècnica de Catalunya; Dara Entekhabi, Massachusetts Institute of Technology; Alexandra G. Konings, Stanford University; Thomas Jagdhuber, German Aerospace Center (DLR); Gustau Camps-Valls, Universitat de València

TH2.L10.4 11:40 **SORGHUM PANICLE EXTRACTION FROM UNMANNED AERIAL SYSTEM DATA**
Anjin Chang, Jinha Jung, Junho Yeom, Texas A&M University-Corpus Christi; Murilo Maeda, Juan Landivar, Texas A&M AgriLife Research and Extension Center at Corpus christi

TH2.L10.5 12:00 **ESTIMATING LEAF WATER STATUS FROM VIS-NIR REFLECTANCE AND TRANSMITTANCE**
Vern C. Vanderbilt, NASA; Craig S. T. Daughtry, USDA-ARS; Robert P. Dahlgren, NASA

Thursday, July 27 **13:40 - 15:20** **Room 204 A**
Session TH3.L10 **Oral**

Agriculture Applications II

Session Co-Chairs: Subit Chakrabarti, University of Florida; Heather McNairn, Agriculture and Agri-Food Canada

TH3.L10.1 13:40 **COMPACT POLARIMETRIC SYNTHETIC APERTURE RADAR FOR MONITORING CROP CONDITION**
Heather McNairn, Agriculture and Agri-Food Canada; Saeid Homayouni, University of Ottawa; Mehdi Hosseini, Natural Resources Canada; Jarrett Powers, Agriculture and Agri-Food Canada; Keith Beckett, William Parkinson, UrtheCast

TH3.L10.2 14:00 **SMAP MULTI-TEMPORAL VEGETATION OPTICAL DEPTH RETRIEVAL AS AN INDICATOR OF CROP YIELD TRENDS AND CROP COMPOSITION**
David Chaparro, Universitat Politècnica de Catalunya; María Piles, Universitat de València; Mercè Vall-llossera, Adriano Camps, Universitat Politècnica de Catalunya; Alexandra G. Konings, Dara Entekhabi, Massachusetts Institute of Technology

TH3.L10.3 14:20 **DETECTION OF THE LODGED AREA OF WHEAT BY THE USE OF RADARSAT-2 POLARIMETRIC SAR IMAGERY**
Lingli Zhao, Jie Yang, Pingxiang Li, Jinqi Zhao, Lei Shi, Wuhan University; Zhaoxiang Yuan, State Power Economic Research Institute

TH3.L10.4 14:40 **AGRICULTURAL BIOMASS MAPS BASED ON POLARIMETRIC DIFFERENTIAL SAR INTERFEROMETRY**
Virginia Brancato, Irena Hajnsek, ETH Zurich

TH3.L10.5 15:00 **DERIVATION OF BIOPHYSICAL PARAMETERS FROM FUSED REMOTE SENSING DATA**
Thorsten Christian Dahms, Julius-Maximilians-Universität-Wuerzburg; Dinesh Kumar Babu, University Bochum; Erik Borg, DLR Neustrelitz; Marco Schmidt, University Bochum; Christopher Conrad, Julius-Maximilians-Universität-Wuerzburg

Thursday, July 27 **16:20 - 18:00** **Room 204 A**
Session TH4.L10 **Oral**

Agriculture Applications VII

Session Co-Chairs: Giovanni Laneve, University of Rome 'La Sapienza'; Zhengwei Yang, USDA National Agricultural Statsistics Service

TH4.L10.1 16:20 **EVALUATING THE IMPACT OF TRAINING DATA PIXEL LEVEL BUFFERING ON AREA SAMPLING FRAME STRATIFICATION RESULTS AND CROP ESTIMATES**
Claire Boryan, Zhengwei Yang, Robert Seffrin, Patrick Willis, USDA National Agricultural Statsistics Service

TH4.L10.2 16:40 **PREDICTING MODIS EVI FROM SAR PARAMETERS USING RANDOM FORESTS ALGORITHMS**
Shelley Haupt, Council for Scientific and Industrial Research/University of Stellenbosch; Jeanine Engelbrecht, Council for Scientific and Industrial Research; Jaco Kemp, University of Stellenbosch

TH4.L10.3 17:00 **IMAPCTS OF LEAF SURFACES ON THE ESTIMATION OF LEAF CHLOROPHYLL CONTENT USING SPECTRAL INDICES**
Shan Lu, Northeast Normal University

TH4.L10.4 17:20 **CROP SPECIES CLASSIFICATION: A PHENOLOGY BASED APPROACH**
Roberto Luciani, Giovanni Laneve, Sapienza University of Rome; Munzer Jahjah, ASI, Italian Space Agency; Mito Collins, University of Nairobi

TH4.L10.5 17:40 **MAPPING DAILY EVAPOTRANSPIRATION USING ASTER AND MODIS IMAGES BASED ON DATA FUSION OVER IRRIGATED AGRICULTURAL AREAS**
Yan Li, Chunlin Huang, Northwest Institute of Eco-Environment and Resources, Chinese Academy of Sciences; Juan Gu, Lanzhou University

Thursday, July 27 08:00 - 09:40 Room 202 B
Session TH1.L11 Oral

Wind and Precipitation Radar

Session Co-Chairs: Friedhelm Rostan, AIRBUS; Venkatachalam Chandrasekar, Colorado State University

TH1.L11.1 08:00 **METOP-SG SCA WIND SCATTEROMETER: DEVELOPMENT STATUS AND RESULTS**
Friedhelm Rostan, Dieter Ulrich, Sebastian Riegger, Airbus Defence and Space GmbH; Allan Østergaard, European Space Agency - ESRIN

TH1.L11.2 08:20 **THE GROUND VALIDATION REQUIREMENTS AND METHOD FOR THE PRECIPITATION MEASUREING RADAR OF THE FY-3 RM**
Honggang Yin, Jian Shang, Qiong Wu, Fangli Dou, Songyan Gu, National Satellite Meteorological Center

TH1.L11.3 08:40 **WIVERN: STATUS OF THE DOPPLER WIND AND PRECIPITATION CONCEPT**
Christopher Buck, Rolv Midthassel, Damiano Trenta, European Space Agency (ESA)

TH1.L11.4 09:00 **HIGH RESOLUTION ROTATING FAN-BEAM SCATTEROMETER IMAGING BASED ON SPARSE RECOVERY**
Taoli Yang, Yong Wang, University of Electronic Science and Technology of China; Haitao Wang, Yan Jiang, Shanghai Institute of Satellite Engineering

TH1.L11.5 09:20 **RECENT ADVANCEMENTS ON RANGE AMBIGUITY CHARACTERIZATION AND MITIGATION FOR THE NASA D3R**
Shashank S. Joshil, Robert M. Beauchamp, Venkatachalam Chandrasekar, Colorado State University

Thursday, July 27 10:40 - 12:20 Room 202 B
Session TH2.L11 Oral

Atmospheric Sounding and Ionospheric Effects

Session Co-Chairs: Ya-Qiu Jin, Fudan University; Volkan Akgul, Bulent Ecevit University

TH2.L11.1 10:40 **ASSESSMENT OF HIGH-ORDER IONOPSHERIC EFFECTS ON GPS-ESTIMATED PRECIPITABLE WATER VAPOR**
Volkan Akgul, Shuanggen Jin, Gokhan Gurbuz, Bulent Ecevit University

TH2.L11.2 11:00 **IMPACT OF VERTICAL ELECTRON DENSITY DISTRIBUTION ON IONOSPHERIC TOTAL ELECTRON CONTENT MEASUREMENTS BASED ON SPACEBORNE LOW-FREQUENCY SAR**
Wei Guo, Jie Chen, Beihang University; Shaun Quegan, University of Sheffield; Wei Yang, Beihang University

TH2.L11.3 11:20 **STATISTICAL ANALYSIS OF THE OCCURRENCES OF MSTIDS OBSERVED BY ALL-SKY IMAGER IN LOW MAGNETIC LATITUDE**
Ednofri Ednofri, Falin Wu, Beihang University; Otsuka Yuichi, Nagoya University; Ishii Mamoru, National Institute of Information and Communications Technology; Dessi Marlia, Zhao Yan, Beihang University

TH2.L11.4 11:40 **RETRIEVAL OF SEA SURFACE BAROMETRIC PRESSURE UNDER CLEAR SKY BY PASSIVE MICROWAVE MEASUREMENTS**
Zijin Zhang, Xiaolong Dong, The CAS Key Laboratory of Microwave Remote Sensing, National Space Science Center, Chinese Academy of Sciences

TH2.L11.5 12:00 **DETERMINING THE REFRACTIVITY AT THE BOTTOM OF THE ATMOSPHERE USING RADIO OCCULTATION**
Thomas Sievert, Blekinge Institute of Technology; Joel Rasch, Molflow; Anders Carlström, RUAG Space AB; Mats I. Pettersson, Viet Thuy Vu, Blekinge Institute of Technology

Thursday, July 27 13:40 - 15:20 Room 202 B
Session TH3.L11 Oral

Microwave Models for Ocean

Session Co-Chairs: Xiaofeng Yang, RADI; Yang Du, Zhejiang U

TH3.L11.1 13:40 **INTRODUCTION TO OIL QUANTIFICATION ON SEA SURFACE FROM MICROWAVES POLARIMETRIC SAR MEASUREMENTS**
Olivier Boisot, Sébastien Angelliaume, ONERA - Office National d'Etudes en Aérospatiales; Charles-Antoine Guérin, Université de Toulon; Véronique Miegebielle, TOTAL E&P

TH3.L11.2 14:00 **RESEARCH ON THE SPATIAL-TEMPORAL CORRELATION OF SEA CLUTTER BASED ON A REFINED SCATTERING MODEL**
Jinxing Li, Min Zhang, Wenna Fan, Ding Nie, Xidian University

TH3.L11.3 14:20 **DIFFUSE BISTATIC SCATTERING IN THE CASE OF SMALL-TO-MODERATE OCEAN SURFACE ROUGHNESS**
Alexander Voronovich, Valery Zavorotny, NOAA Earth System Research Laboratory

TH3.L11.4 14:40 **AN EFFICIENT FACET SCATTERING MODEL FOR THE SAR IMGAING SIMULATION OF MARITIME SCENE WITH SHIP WAKES**
Min Zhang, Jinxing Li, Wenna Fan, Wangqiang Jiang, Xidian University

TH3.L11.5 15:00 **MULTIFREQUENCY ANALYSIS OF RADAR SEA CLUTTER DIRECTIONNAL ASYMMETRIES**
Zaynab Guerraou, Sébastien Angelliaume, ONERA; Charles-Antoine Guérin, MIO (UM 110, UTLN/AMU/CNRS/IRD)

Thursday, July 27 16:20 - 18:00 Room 202 B
Session TH4.L11 Oral

Models for Radar Applications

Session Co-Chairs: Kamal Sarabandi, University of Michigan; Xiaolan Xu, JPL

TH4.L11.1 16:20 **ELECTROMAGNETIC SCATTERING FULL-WAVE SOLVER FOR SNOWPACKS**
Mostafa Zaky, Kamal Sarabandi, University of Michigan

TH4.L11.2 16:40 **AN UPDATE OF AIEM MODEL WITH MULTIPLE SCATTERING OF ROUGH SURFACE**
Ying Yang, Kun-Shan Chen, Peng Xu, Yu Liu, Chinese Academy of Sciences

TH4.L11.3 17:00 **APPLICATION OF DISCRETE SCATTERER TECHNIQUE FOR SCENE RESPONSE ESTIMATION IN FOPEN RADAR SIMULATIONS**
DaHan Liao, U.S. Army Research Laboratory

TH4.L11.4 17:20 **THE REGULARIZATION METHOD BASED ON TSVD FOR FORWARD-LOOKING RADAR ANGULAR SUPERRESOLUTION**
Yang Wu, Yin Zhang, Yongchao Zhang, Deqing Mao, Yulin Huang, University of Electronic Science and Technology of China; Yuebo Zha, China Electronics Technology Group Corporation No.38 Research Institute

TH4.L11.5 17:40 **EFFICIENT CALCULATION OF ORIENTATIONALLY AVERAGED SCATTERING FROM COMPLEX-GEOMETRY ICE PARTICLES**
Ines Fenni, Ziad S. Haddad, Jet Propulsion Laboratory; Hélène Roussel, Université Pierre et Marie Curie (UPMC); Raj Mittra, University of Central Florida

Thursday, July 27 | 08:00 - 09:40 | Room 204 B
Session TH1.L12 | Oral-Invited

Geoscience Remote Sensing in Support of the New GEO Energy and Minerals Societal Benefit Area I

Session Co-Chairs: Mike Abrams, NASA; Cindy Ong, CSIRO

TH1.L12.1 08:00 **THE GEO COMMUNITY ACTIVITY "EARTH OBSERVATIONS FOR MANAGING MINERAL AND NON-RENEWABLE ENERGY RESOURCES": HISTORY, PRESENT AND FUTURE ACTIVITIES**
Stéphane Chevrel, MinPol GmbH; Michael Abrams, Jet Propulsion Laboratory; Cindy Ong, CSIRO

TH1.L12.3 08:40 **GLOBAL GEOSCIENCE MAPS FROM ASTER DATA**
Michael Abrams, Jet Propulsion Laboratory

TH1.L12.4 09:00 **DIRECT IMAGING OF SHALE GAS LEAKS USING PASSIVE THERMAL INFRARED HYPERSPECTRAL IMAGING**
Marc-André Gagnon, Pierre Tremblay, Simon Savary, Vince Morton, Vincent Farley, Martin Chamberland, Telops

TH1.L12.5 09:20 **THE ACQUISITION AND PROCESSING OF VOLUMINOUS SPECTRAL REFLECTANCE MEASUREMENTS OF SOILS AND POWDERS FOR NATIONAL DATASETS**
Ian Lau, Cindy Ong, Carsten Laukamp, CSIRO; Patrice de Caritat, Matilda Thomas, Geoscience Australia

Thursday, July 27 | 10:40 - 12:20 | Room 204 B
Session TH2.L12 | Oral-Invited

Geoscience Remote Sensing in Support of the New GEO Energy and Minerals Societal Benefit Area II

Session Co-Chairs: Mike Abrams, NASA; Cindy Ong, CSIRO

TH2.L12.1 10:40 **DETERMINATION OF SPECTRA CHARACTERISTICS OF LATERITE DRILL-CORE FOR "ON LINE-ON SITE" REAL-TIME AUTOMATED MINERALOGY DETECTION**
Laure Capar, Anne Bourguignon, Cédric Duee, Xavier Bourrat, Stéphane Chevrel, Valérie Laperche, Nicolas Maubec, Sébastien Montech, BRGM; Beate Orberger, GEOPS/Université Paris Sud; Beate Orberger, Anne Salaün, Céline Rodriguez, ERAMET GROUP

TH2.L12.2 11:00 **HYPERSPECTRAL AND GEOPHYSICAL SURVEY FOR THE DEVELOPMENT OF NEW EXPLORATION APPROACHES IN THE IBERIAN PYRITE BELT/SPAIN**
Anne Papenfuß, Michaela Frei, Uwe Meyer, Malte Ibs-von Seht, Bundesanstalt für Geowissenschaften und Rohstoffe

TH2.L12.3 11:20 **NEW METHOD TO INTEGRATE REMOTELY SENSED HYDROTHERMAL ALTERATION MAPPING INTO QUANTITATIVE MINERAL RESOURCE ASSESSMENTS**
John Mars, Jane Hammarstrom, Gilpin Robinson, Steve Ludington, Lukas Zurcher, Helen Folger, Mark Gettings, Federico Solano, Tom Kress, U.S. Geological Survey

TH2.L12.4 11:40 **THE LANDSAT SOIL COMPOSITE MAPPING PROCESSOR (SCMAP): AN OPUS PRODUCT**
Derek Rogge, Julian Zeidler, Agnes Bauer, Andreas Müller, Thomas Esch, Uta Heiden, German Remote Sensing Data Center

TH2.L12.5 12:00 **DESERTIFICATION MONITORING USING THE ASTER GLOBAL EMISSIVITY DATASET**
Pilong Shi, Bihong Fu, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences; Thomas Cudahy, CSIRO Mineral Resources; Qiang Guo, Huan Xu, Xiuyan Chen, Yuanxu Ma, Guoliang Xue, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences

Thursday, July 27 | 13:40 - 15:20 | Room 204 B
Session TH3.L12 | Oral

Clouds and Precipitation I

Session Co-Chairs: Stephen Frasier, U. Massachusetts; Al Gasiewski, University of Colorado at Boulder

TH3.L12.1 13:40 **RAINFALL RETRIEVALS USING 118GHZ AND 183GHZ CHANNELS OF MWHS-II ON FY-3C METEOROLOGICAL SATELLITE**
Na Li, Jieying He, Shengwei Zhang, National Space Science Centre; Naimeng Lu, National Satellite Meteorological Center

TH3.L12.2 14:00 **THE FEASIBILITY OF DETECTING SUPERCOOLED LIQUID WITH A FORWARD-LOOKING RADIOMETER**
Ian Adams, NASA Goddard Space Flight Center; Justin Bobak, U.S. Naval Research Laboratory

TH3.L12.3 14:20 **SYMMETRY ANALYSIS OF DDSCAT-BASED PHASE MATRIX FOR 3-D MICROWAVE RT MODEL DEVELOPMENT**
Kun Zhang, Albin J. Gasiewski, University of Colorado Boulder

TH3.L12.4 14:40 **STUDY ON THE CLOUD MASKING METHOD OF GEOSTATIONARY OCEAN COLOR IMAGER UTILIZING A MODEL-BASED SURFACE REFLECTANCE OVER LAND SURFACE**
Hye-Won Kim, Jong-Min Yeom, Sun-Hee Woo, Korea Aerospace Research Institute (KARI)

TH3.L12.5 15:00 **INTEGRATION OF REAL-TIME WEATHER RADAR DATA AND INTERNET OF THINGS WITH CLOUD-HOSTED REAL-TIME DATA SERVICES FOR THE GEOSCIENCES (CHORDS)**
Ryan Gooch, Venkatachalam Chandrasekar, Colorado State University

Thursday, July 27 | 16:20 - 18:00 | Room 204 B
Session TH4.L12 | Oral

Clouds and Precipitation II

Session Co-Chairs: Stephen Frasier, U. Massachusetts; Al Gasiewski, University of Colorado at Boulder

TH4.L12.1 16:20 **SUB-DAILY RAINFALL VARIABILITY ON THE WEST OF PUERTO RICO USING TRMM AND GOES SATELLITE AND TROPINET GROUND-BASED RADAR DATA**
Abel Morales-Fernandez, Sandra Cruz-Pol, University of Puerto Rico at Mayaguez

TH4.L12.2 16:40 **S-BAND FMCW BOUNDARY LAYER PROFILER: SYSTEM UPGRADES AND RESULTS**
Joseph Waldinger, Thomas Hartley, William Heberling, Stephen Frasier, University of Massachusetts; Robin Tanamachi, Purdue University

TH4.L12.3 17:00 **THE MICROWAVE TEMPERATURE AND HUMIDITY PROFILER INSTRUMENT AIRBORNE SHAKEOUT PERFORMANCE**
Boon H. Lim, Rudi Bendig, Richard Denning, Prashanth Pandian, William Read, Alan Tanner, Jet Propulsion Laboratory

TH4.L12.4 17:20 **COMPARISON OF EXTREME PRECIPITATION ESTIMATION FROM GPM DUAL-FREQUENCY RADAR AND GROUND-BASED RADAR NETWORK IN SOUTHERN CHINA**
Asi Zhang, Sheng Chen, Shaojia Fan, Sun Yat-sen University

TH4.L12.5 17:40 **CHARACTERIZATION AND ESTIMATION OF PRECIPITATION OVER THE OLYMPIC MOUNTAINS EXPERIMENT (OLYMPEX) REGION**
Haonan Chen, Venkatachalam Chandrasekar, Colorado State University

Friday, July 28 **08:00 - 09:40** **Ballroom B**
Session FR1.L1 **Oral**

Pansharpening Techniques

Session Chair: Chiman Kwan, Signal Processing, Inc.

FR1.L1.1 08:00 **PANSHARPENING OF MASTCAM IMAGES**
Chiman Kwan, Bence Budavari, Minh Dao, Bulent Ayhan, Applied Research LLC; James Bell, Arizona State University

FR1.L1.2 08:20 **A SCALE-AWARE PANSHARPENING METHOD WITH ROLLING GUIDANCE FILTER**
Yanan Gao, Xu Li, Ang Gao, Lixin Li, Northwestern Polytechnical University; Shigang Yue, University of Lincoln

FR1.L1.3 08:40 **A NEW HYPERSPECTRAL PANSHARPENING METHOD BASED ON GUIDED FLITER**
Jiahui Qu, Yunsong Li, Wenqian Dong, Xidian University

FR1.L1.4 09:00 **A SPATIAL CONSTRAINT AND DEEP LEARNING BASED HYPERSPECTRAL IMAGE SUPER-RESOLUTION METHOD**
Jing Hu, Yunsong Li, Xi Zhao, Weiying Xie, State Key Laboratory of Integrated Service Network

FR1.L1.5 09:20 **PAN-SHARPENING VIA RESIDUAL DEEP LEARNING**
Nie Li, Nan Huang, Liang Xiao, Nanjing University of Science and Technology

Friday, July 28 **10:40 - 12:20** **Ballroom B**
Session FR2.L1 **Oral**

Image Registration and Matching Techniques

Session Co-Chairs: James Tilton, NASA Goddard Space Flight Center; Jacqueline Le Moigne, NASA

FR2.L1.1 10:40 **AUTOMATED FEATURE-BASED REGISTRATION TECHNIQUES FOR SATELLITE IMAGERY**
Azubuike Okorie, Sokratis Makrogiannis, Delaware State University

FR2.L1.2 11:00 **FAST AND ROBUST STRUCTURE-BASED MULTIMODAL GEOSPATIAL IMAGE MATCHING**
Yuanxin Ye, Southwest Jiaotong University; Lorenzo Bruzzone, University of Trento; Jie Shan, Purdue University; Li Shen, Southwest Jiaotong University

FR2.L1.3 11:20 **A ROBUST POINT PATTERN MATCHING METHOD BASED ON LOCAL SIMILARITY TRANSFORMATIONS**
Huanxin Zou, Fang Guo, Wanxia Deng, Shilin Zhou, Lin Lei, National University of Defense Technology

FR2.L1.4 11:40 **FAST MUTUAL INFORMATION-BASED MAP MODEL MATCHING**
Pierre Minvielle, CEA

FR2.L1.5 12:00 **A NOVEL LOCAL PETTERN BASED SELF-SIMILARITY DESCRIPTOR FOR MULTISOURCE REMOTE SENSING IMAGE REGISTRATION**
Shuhan Chen, Xiaorun Li, Zhejiang University; Liaoying Zhao, HangZhou Dianzi University

FRIDAY ORAL

Friday, July 28 **13:40 - 15:20** **Ballroom B**
Session FR3.L1 **Oral-Invited**

Deep Learning using High Resolution Optical Imagery

Session Co-Chairs: Yuliya Tarabalka, Inria Sophia Antipolis-Méditerranée; Emmanuel Maggiori, Inria Sophia Antipolis-Méditerranée

FR3.L1.1 13:40 **HIGH-RESOLUTION IMAGE CLASSIFICATION WITH CONVOLUTIONAL NETWORKS**
Emmanuel Maggiori, Yuliya Tarabalka, Inria Sophia Antipolis Mediterranee; Guillaume Charpiat, Inria Saclay; Pierre Alliez, Inria Sophia Antipolis Mediterranee

FR3.L1.2 14:00 **URBAN LAND COVER CLASSIFICATION WITH MISSING DATA USING DEEP CONVOLUTIONAL NEURAL NETWORKS**
Michael Kampffmeyer, UiT The Arctic Univeristy of Norway; Arnt-Børre Salberg, Norwegian Computing Center; Robert Jenssen, UiT The Arctic Univeristy of Norway

FR3.L1.3 14:20 **SEMANTIC SEGMENTATION OF AERIAL IMAGES WITH EXPLICIT CLASS-BOUNDARY MODELING**
Dimitrios Marmanis, German Aerospace Center (DLR); Konrad Schindler, Jan Dirk Wegner, ETH Zurich; Mihai Datcu, German Aerospace Center (DLR); Uwe Stilla, TU Munich

FR3.L1.4 14:40 **DETECTION OF INFORMAL SETTLEMENTS FROM VHR SATELLITE IMAGES USING CONVOLUTIONAL NEURAL NETWORKS**
Nicholus Mboga, Claudio Persello, John Ray Bergado, Alfred Stein, University of Twente

FR3.L1.5 15:00 **JOINT HEIGHT ESTIMATION AND SEMANTIC LABELING OF MONOCULAR AERIAL IMAGES WITH CNNS**
Shivangi Srivastava, Michele Volpi, Devis Tuia, University of Zurich

Friday, July 28 **15:50 - 17:30** **Ballroom B**
Session FR4.L1 **Oral-Invited**

Deep Learning using Hyperspectral and SAR Imagery

Session Co-Chairs: Emmanuel Maggiori, Inria Sophia Antipolis-Méditerranée; Yuliya Tarabalka, Inria Sophia Antipolis-Méditerranée

FR4.L1.1 15:50 **TRANSFERRED DEEP LEARNING FOR HYPERSPECTRAL TARGET DETECTION**
Wei Li, Guodong Wu, Beijing University of Chemical Technology; Qian Du, Mississippi State University

FR4.L1.2 16:10 **FULLY CONV-DECONV NETWORK FOR UNSUPERVISED SPECTRAL-SPATIAL FEATURE EXTRACTION OF HYPERSPECTRAL IMAGERY VIA RESIDUAL LEARNING**
Lichao Mou, Pedram Ghamisi, Xiao Xiang Zhu, German Aerospace Center; Technical University of Munich

FR4.L1.3 16:30 **HYPERSPECTRAL DATA CLASSIFICATION USING CONVOLUTIONAL RECURRENT NEURAL NETWORKS**
Hao Wu, Saurabh Prasad, University of Hosuton

FR4.L1.4 16:50 **UNMIXING IN THE PRESENCE OF NUISANCES WITH DEEP GENERATIVE MODELS**
Mario Parente, Ian Gemp, Ishan Durugkar, University of Massachusetts Amherst

FR4.L1.5 17:10 **A NOVEL CHANGE DETECTION FRAMEWORK BASED ON DEEP LEARNING FOR THE ANALYSIS OF MULTI-TEMPORAL POLARIMETRIC SAR IMAGES**
Shaunak De, Indian Institute of Technology Bombay; Davide Pirrone, Francesca Bovolo, Fondazione Bruno Kessler; Lorenzo Bruzzone, University of Trento; Avik Bhattacharya, Indian Institute of Technology Bombay

Friday, July 28 | **08:00 - 09:40** | **Ballroom A**
Session FR1.L2 | **Oral**

Data Management and Systems I

Session Co-Chairs: Mary J. Brodzik, University of Colorado; Leland Pierce, University of Michigan

FR1.L2.1 08:00 **LEVERAGING METADATA CONVENTIONS TO IMPROVE USABILITY OF AN EASE-GRID 2.0 PASSIVE MICROWAVE DATA PRODUCT**
Mary J. Brodzik, Molly A. Hardman, University of Colorado; David G. Long, Brigham Young University

FR1.L2.2 08:20 **NASA WRANGLER: AUTOMATED CLOUD-BASED DATA ASSEMBLY IN THE RECOVER WILDFIRE DECISION SUPPORT SYSTEM**
John Schnase, Mark Carroll, Roger Gill, Margaret Wooten, NASA; Keith Weber, Kindra Blair, Jeffrey May, William Toombs, Idaho State University

FR1.L2.3 08:40 **A DEEP LEARNING BASED APPROACH WITH ADVERSARIAL REGULARIZATION FOR DOPPLER WEATHER RADAR ECHO PREDICTION**
Sonam Singh, Sudeshna Sarkar, Pabitra Mitra, Indian Institute of Technology Kharagpur

FR1.L2.4 09:00 **MOSIS – MULTI-OUTCROP SHARING & INTERPRETATION SYSTEM**
Luiz Gonzaga Jr., Mauricio Roberto Veronez, Demetrius Alves, Fabiane Bordin, Gabriel Lanzer, UNISINOS; Fernando Pinho Marson, Unisinos University; Francisco Tognoli, Leonardo Inocencio, UNISINOS

FR1.L2.5 09:20 **A SPATIO-TEMPORAL ONTOLOGICAL MODEL FOR FLOOD DISASTER MONITORING**
Kuldeep Kurte, Surya Durbha, Indian Institute of Technology Bombay; Roger King, Nicolas Younan, Mississippi State University; Abhishek Potnis, Indian Institute of Technology Bombay

Friday, July 28 | **10:40 - 12:20** | **Ballroom A**
Session FR2.L2 | **Oral**

Data Management and Systems III

Session Co-Chairs: John Schnase, National Aeronautics and Space Administration; Weixin Zhai, Peking University

FR2.L2.1 10:40 **SPATIAL DATA MANAGEMENT METHOD WITH GEOSOT GRID**
Weixin Zhai, Chengyu Qi, Chengqi Cheng, Shuang Li, Peking University

FR2.L2.2 11:00 **AN INTEGRATED DISASTER RAPID CLOUD SERVICE PLATFORM USING REMOTE SENSING DATA**
Quan Zou, Southwest University; Guoqing Li, Wenyang Yu, Chinese Academy of Sciences

FR2.L2.3 11:20 **COMPARISON OF DISTRIBUTED GPU COMPUTING FRAMEWORKS FOR SAR RAW DATA SIMULATION**
Xiaojie Yao, Xiong Sun, Fan Zhang, Qiang Yin, Wei Li, Beijing University of Chemical Technology

FR2.L2.4 11:40 **PREPARATION OF ANALYSIS READY POLSAR DATA FOR THE AUSTRALIAN GEOSCIENCE DATA CUBE**
Zheng-Shu Zhou, Peter Caccetta, Drew Devereux, Michael Caccetta, Robert Woodcock, Matt Paget, Alex Held, CSIRO

FR2.L2.5 12:00 **RESEARCH ON THE IMPLEMENTATION OF MULTI - SOURCE REMOTE SENSING IMAGE MANAGEMENT SYSTEM BASED ON B/S ARCHITECTURE**
Qiang Zhu, Fang Huang, Jun Lu, University of Electronic Science and Technology of China; Jian Tao, Louisiana State University; Jinjun Zhen, Li Li, Bo Lan, University of Electronic Science and Technology of China

FRIDAY ORAL

Friday, July 28 | **13:40 - 15:20** | **Ballroom A**
Session FR3.L2 | **Oral-Invited**

Understanding the synergistic use of COSMO-SkyMed and RADARSAT-2

Session Co-Chairs: Anna Rita Pisani, Italian Space Agency; Stéphane Chalifoux, Canadian Space Agency

FR3.L2.1 13:40 **COSMO-SKYMED AND RADARSAT IMAGE INTEGRATION FOR SOIL MOISTURE AND VEGETATION BIOMASS MONITORING**
Simonetta Paloscia, Simone Pettinato, Emanuele Santi, IFAC-CNR; Claudia Notarnicola, Felix Greifeneder, Giovanni Cuozzo, EURAC

FR3.L2.2 14:00 **A MULTIFREQUENCY SAR STUDY OF THE HAUGHTON IMPACT STRUCTURE, ARCTIC CANADA**
Byung-Hun Choe, Gordon Osinski, Catherine Neish, Michael Zanetti, Livio Tornabene, Jinfei Wang, University of Western Ontario

FR3.L2.3 14:20 **RADAR MULTISPECTRAL AND POLARIMETRIC SIGNATURE OF RICE FIELDS: AN INVESTIGATION ON THE DOUBLE BOUNCE MECHANISM IN FLOODED VEGETATION**
Nazzareno Pierdicca, Sapienza University of Rome; Luca Pulvirenti, Giorgio Boni, Giuseppe Squicciarino, CIMA Research Foundation; Marco Chini, Luxembourg Institute of Science and Technology

FR3.L2.4 14:40 **ON NEURAL NETWORKS ALGORITHMS FOR OIL SPILL DETECTION WHEN APPLIED TO C- AND X-BAND SAR**
Fabio Del Frate, Daniele Latini, Valentina Scappiti, Tor Vergata University of Rome

FR3.L2.5 15:00 **ROBUST CHANGE DETECTION FROM COSMO-SKYMED AND RADARSAT-2 MULTITEMPORAL IMAGES**
Andrea Garzelli, University of Siena; Gabriele Moser, Sebastiano Bruno Serpico, University of Genoa

Friday, July 28 | **15:50 - 17:30** | **Ballroom A**
Session FR4.L2 | **Oral**

Ground-based Radar, Lidar, and Optical Systems

Session Co-Chairs: Clara Chew, Jet Propulsion Laboratory; Venkatachalam Chandrasekar, Colorado State University

FR4.L2.1 15:50 **ANALYSIS OF SPATIALLY AND TEMPORALLY DISJOINT PRECIPITATION DATASETS TO ESTIMATE THE 3D DISTRIBUTION OF RAIN**
Larry Schneider, W. Linwood Jones, University of Central Florida

FR4.L2.2 16:10 **PERFORMANCE TRADE-OFFS AND UPGRADE OF NASA D3R WEATHER RADAR**
Mohit Kumar, Shashank S. Joshil, Venkatachalam Chandrasekar, Colorado State University; Manuel A. Vega, John Zebley, NASA Goddard Space Flight Center; Robert M. Beauchamp, Colorado State University

FR4.L2.3 16:30 **COMBINED APPLICATION OF 3D SPECTRAL FEATURES FROM MULTISPECTRAL LIDAR FOR CLASSIFICATION**
Jia Sun, Shuo Shi, Biwu Chen, Lin Du, Jian Yang, Wei Gong, Wuhan University

FR4.L2.4 16:50 **DEVELOPMENT OF DIFFERENTIAL ABSORPTION LIDAR SYSTEM AT 1.57 μM FOR SENSING CARBON DIOXIDE IN CHINA**
Ailin Liang, Ge Han, Xin Ma, Chengzhi Xiang, Yuxin Zheng, Teng Zhang, Hao Xu, Wei Gong, Wuhan University

FR4.L2.5 17:10 **AUTOMATIC CO-REGISTRATION OF MULTI-TEMPORAL LANDSAT-8/OLI AND SENTINEL-2A/MSI IMAGES**
Sergii Skakun, Jean-Claude Roger, University of Maryland; Eric Vermote, NASA; Christopher Justice, University of Maryland; Jeffrey Masek, NASA

Friday, July 28 | 08:00 - 09:40 | Ballroom C
Session FR1.L3 | Oral-Invited

SAR Polarimetry: Theory and Applications I

Session Chair: Tom Ainsworth, Naval Research Laboratory

FR1.L3.1 08:00 **FIRST DEMONSTRATION OF SPACE-BORNE TOMOSAR USING TERRASAR-X/TANDEM-X FULL-POLARIMETRIC ACQUISITIONS**
Unmesh Khati, Indian Institute of Technology Bombay; Laurent Ferro-Famil, University of Rennes 1; Gulab Singh, Indian Institute of Technology Bombay

FR1.L3.2 08:20 **APPLICATION OF POLARIMETRIC SAR TO MONITORING PERMAFROST ECOSYSTEM IN CENTRAL YAKUTIA, EASTERN SIBERIA**
Sang-Eun Park, Sejong University

FR1.L3.3 08:40 **POLSAR IMAGE FACTORIZATION AND ITS EXTENDED APPLICATIONS**
Feng Xu, Fudan University

FR1.L3.4 09:00 **TARGET DECOMPOSITION IN POLARIMETRIC INTERFEROMETRIC SAR**
Yi Cui, Stanford University; Yoshio Yamaguchi, Hiroyoshi Yamada, Niigata University; Jian Yang, Tsinghua University

FR1.L3.5 09:20 **ROBUSTNESS OF MODEL-BASED POLSAR DECOMPOSITION TECHNIQUES**
Thomas Ainsworth, Naval Research Laboratory; Jong-Sen Lee, Naval Research Laboratory / Computational Physics, Inc.; Yanting Wang, Naval Research Laboratory

Friday, July 28 | 10:40 - 12:20 | Ballroom C
Session FR2.L3 | Oral-Invited

SAR Polarimetry: Theory and Applications II

Session Chair: Tom Ainsworth, Naval Research Laboratory

FR2.L3.1 10:40 **MRF MODELING OF TEXTURED SPECKLE FOR POLARIMETRIC SAR IMAGE CLASSIFICATION**
Yanting Wang, Thomas Ainsworth, Jong-Sen Lee, U.S. Naval Research Laboratory

FR2.L3.2 11:00 **SPEEDING UP NON-GAUSSIAN POLSAR IMAGE ANALYSIS**
Anthony Paul Doulgeris, UiT The Arctic Univeristy of Norway; Dingsheng Hu, Chinese Academy of Sciences

FR2.L3.3 11:20 **DECISION HIERARCHICAL CLASSIFICATION BY FLD FOR VEGETATION APPLICATION USING POLSAR FEATURES**
Wen Hong, Luyi Shao, Institute of Electronics, Chinese Academy of Sciences; Qiang Yin, Beijing University of Chemical Technology

FR2.L3.4 11:40 **A NEW AUTOMATED ALGORITHM FOR DETECTING FOREST DISTURBANCES WITH THE DUAL-POLARIMETRIC SAR ALPHA ANGLE**
Marco Lavalle, NASA Jet Propulsion Laboratory

FRIDAY ORAL

Friday, July 28 | 13:40 - 15:20 | Ballroom C
Session FR3.L3 | Oral-Invited

Advanced Methods for Polarimetric SAR Information Extraction I

Session Co-Chairs: Jong-Sen Lee, NRL, USA; Yoshio Yamaguchi, Niiagata U., Japan

FR3.L3.1 13:40 **A REVIEW OF POLARIMETRIC SAR SPECKLE FILTERING**
Jong-Sen Lee, Thomas Ainsworth, Yanting Wang, Naval Research Laboratory

FR3.L3.3 14:20 **INFORMATION CONTENT IN SAR IMAGES: A CLASSIFICATION ACCURACY VIEWPOINT**
Maria Gabriela Palacio, Susana Beatriz Ferrero, Universidad Nacional de Rio Cuarto; Alejandro Cesar Frery, Universidad Federal de Alagoas

FR3.L3.4 14:40 **DEEP SPECKLE NOISE FILTERING**
Samuel Foucher, Mario Beaulieu, Mohamed Dahmane, Computer Research Institute of Montreal; François Cavayas, Université de Montréal

FR3.L3.5 15:00 **AN OPTIMIZATION OF THE DIFFERENCE OF COVARIANCE MATRICES FOR POLSAR CHANGE DETECTION**
Armando Marino, The Open University; Alberto Alonso-Gonz´alez, German Aerospace Center (DLR)

Friday, July 28 | 15:50 - 17:30 | Ballroom C
Session FR4.L3 | Oral-Invited

Advanced Methods for Polarimetric SAR Information Extraction II

Session Co-Chairs: Jong-Sen Lee, NRL, USA; Yoshio Yamaguchi, Niigata U., Japan

FR4.L3.1 15:50 **MODEL-BASED AND SIX COMPONENT SCATTERING POWER DECOMPOSITION**
Gulab Singh, Indian Institute of Technology Bombay; Yoshio Yamaguchi, Niigata University

FR4.L3.2 16:10 **MODEL-BASED POLARIMETRIC SCATTERING DECOMPOSITION FOR TOMOSAR**
Hiroyoshi Yamada, Masanori Gocho, Niigata University; Motofumi Arii, Mitsubishi Electric Corporation; Shoichiro Kojima, National Institute of Information and Communications Technology; Ryoichi Sato, Yoshio Yamaguchi, Niigata University

FR4.L3.3 16:30 **INFORMATION EXTRACTION BY BLIND SOURCE SEPARATION FROM POLARIMETRIC SAR DATA**
Leandro Pralon, Brazilian Army Technological Center; Gabriel Vasile, CNRS; Mauro Dalla Mura, Jocelyn Chanussot, Grenoble INP

FR4.L3.4 16:50 **POLARIMETRIC CHARACTERISTICS OF L-BAND SAR IMAGES OF EARLY-STAGE DEFORESTATION AREAS**
Manabu Watanabe, Christian Koyama, Masanobu Shimada, Tokyo Denki University

FR4.L3.5 17:10 **A CHANGE DETECTOR BASED ON THE OPTIMIZATION OF POLARIMETRIC CONTRAST**
Junjun Yin, University Science & Technology Beijing; Jian Yang, Tsinghua University

Friday, July 28 **08:00 - 09:40** **Room 201 BC**
Session FR1.L4 **Oral**

SAR Image Processing and Analysis

Session Co-Chairs: Masanobu Shimada, Tokyo Denki University & JAXA; Mahta Moghaddam, University of Southern California

FR1.L4.1 08:00 **DIRECT EVIDENCE AND IMPLICATIONS OF BREWSTER'S ANGLE DAMPING OBSERVED BY SYNTHETIC APERTURE RADAR IMAGES**
Kazuo Ouchi, IHI Corporation; Chan-Su Yang, Korea Institute of Ocean Science & Technology

FR1.L4.2 08:20 **TIME SERIES ANALYSIS OF L-BAND SAR FOR AGRICULTURAL LANDCOVER CLASSIFICATION**
Tracy Whelen, Paul Siqueira, University of Massachusetts Amherst

FR1.L4.3 08:40 **IMPACTS OF FLOWING IONOSPHERIC IRREGULARITIES ON L-BAND GEOSYNCHRONOUS SAR AZIMUTH IMAGING**
Yifei Ji, Qilei Zhang, Yongsheng Zhang, Zhen Dong, National University of Defense Technology

FR1.L4.4 09:00 **IMPROVED LLM METHODS USING LINEAR REGRESSION**
Zihang Zhao, Wenhui Lang, Hefei University of Technology; Anthony Paul Doulgeris, University of Tromsø-The Arctic University of Norway; Lu Chen, Hefei University of Technology

FR1.L4.5 09:20 **CHANGE DETECTION USING POLARIMETRIC L BAND SYNTHETIC APERTURE RADAR DATA**
Mariane S. Reis, Sidnei J. S. Sant'Anna, Brazilian National Institute for Space Research; Eliana Pantaleão, Federal University of Uberlândia

Friday, July 28 **10:40 - 12:20** **Room 201 BC**
Session FR2.L4 **Oral**

SAR Imaging Algorithms I

Session Chair: Takehiro Hoshino, Mitsubishi Electric

FR2.L4.1 10:40 **A COMPLEX SPECTRUM BASED SAR IMAGE RESAMPLING METHOD WITH RESTRICTED TARGET SIDELOBES AND STATISTICS PRESERVATION**
Rémy Abergel, Saïd Ladjal, Florence Tupin, Jean-Marie Nicolas, Télécom ParisTech, Université Paris Saclay

FR2.L4.2 11:00 **NEAR RANGE RADAR IMAGING BY SFCW LINEAR SPARSE ARRAY BASED ON BLOCK SPARSITY**
Weike Feng, Li Yi, Motoyuki Sato, Tohoku University

FR2.L4.3 11:20 **EXPERIMENTAL STUDIES OF COMPRESSIVE SENSING FOR SAR WITH KA-BAND CHAMBER ROOM AND KU-BAND AIRPLANE SAR DATA**
Takehiro Hoshino, Teruyuki Hara, Yuya Yokota, Hideki Hasegawa, Yu Okada, Mitsubishi Electric Corporation

FR2.L4.4 11:40 **SAR 3-D IMAGING ALGORITHM VIA THRESHOLD GRADIENT PURSUIT**
Lindian Zuo, Xiaoling Zhang, Shunjun Wei, Liwei Dang, University of Electronic Science and Technology of China

FR2.L4.5 12:00 **A NEW METHOD OF HIGH RESOLUTION SAR IMAGE SYNTHESIS REDUCING SPECKLE NOISE**
Evgeny Shiro, Edge Consulting

FRIDAY ORAL

Friday, July 28 **13:40 - 15:20** **Room 201 BC**
Session FR3.L4 **Oral**

Advances in SAR Instrumentation and Calibration I

Session Co-Chairs: Marwan Younis, German Aerospace Center (DLR); Manabu Watanabe, Tokyo Denki University

FR3.L4.1 13:40 **INSTRUMENT PRE-DEVELOPMENT ACTIVITIES FOR L-BAND SAR**
Nicolas Gebert, Dennis Schobert, Bernardo Carnicero-Dominguez, European Space Agency (ESA); Mike Gibbons, Airbus Defence and Space Ltd.; Elia Di Salvo, Thales Alenia Space Italia S.p.A.; Fernando Monjas, Airbus Defence and Space SAU

FR3.L4.2 14:00 **L BAND CIRCULARLY POLARIZED SAR ONBOARD MICROSATELLITE**
Josaphat Tetuko Sri Sumantyo, Nobuyoshi Imura, Chiba University; Shunsuke Onishi, Tetsuo Yasaka, Institute for Q-shu Pioneers of Space; Robertus Heru Triharjanto, Indonesian National Institute of Aeronautics and Space; Koichi Ito, Chiba University; Steven Gao, University of Kent; Kazuteru Namba, Katsumi Hattori, Fumio Yamazaki, Chiharu Hongo, Akira Kato, Chiba University; Daniele Perissin, Purdue University

FR3.L4.3 14:20 **INVESTIGATIONS ON THE INTERNAL CALIBRATION OF MULTI-CHANNEL SAR**
Marwan Younis, Tobias Rommel, Felipe Queiroz de Almeida, Sigurd Huber, Michele Martone, Michelangelo Villano, Gerhard Krieger, German Aerospace Center (DLR)

FR3.L4.4 14:40 **IONOSPHERIC EFFECTS ON THE LUNAR-BASED RADAR IMAGING**
Zhen Xu, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences; University of Chinese Academy of Sciences; Kun-Shan Chen, Peng Xu, Huadong Guo, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences

FR3.L4.5 15:00 **N-SAR: A NEW MULTI-CHANNEL MULTI-MODE POLARIMETRIC AIRBORNE SAR**
Aifang Liu, Fan Wang, Hui Xu, Nanjing Research Institue of Electronic Technology

Friday, July 28 **15:50 - 17:30** **Room 201 BC**
Session FR4.L4 **Oral**

Advances in SAR Instrumentation and Calibration II

Session Co-Chairs: Hongda Chen, Science Systems and Applications, Inc.; Mohammad El Hajj, Irstea

FR4.L4.1 15:50 **CALIBRATION UNCERTAINTY OF RETRIEVED TOA RADIANCE FOR SUOMI-NPP VIIRS DAY-NIGHT BAND**
Hongda Chen, Ning Lei, Science Systems and Applicaitons, Inc; Chengbo Sun, Global Science Technology, Inc; Xiaoxiong Xiong, Sciences and Exploration Directorate

FR4.L4.2 16:10 **APPLYING THE POINT TARGET-BASED CALIBRATION APPROACH TO GROUND-BASED CIRCULARLY POLARIZED SYNTHETIC APERTURE RADAR**
Yuta Izumi, Chiba university; Sevket Demirci, Mersin University; Mohd Zafri Bafaruddin, Universiti Tenaga Nasional; Josaphat Tetuko Sri Sumantyo, Chiba university

FR4.L4.3 16:30 **ASSESSMENT OF SENTINEL-1 RADIOMETRIC STABILITY AND QUALITY**
Mohammad El Hajj, Nicolas Baghdadi, IRSTEA; Mehrez Zribi, CNRS, CESBIO; Sébastien Angelliaume, ONERA

FR4.L4.4 16:50 **PRECISE AMBIGUITY ANALYSIS METHOD FOR SPACEBORNE SAR**
Xiaolei Han, Qingjun Zhang, Jie Liu, Beijing Institute of Spacecraft System Engineering

FR4.L4.5 17:10 **ESTIMATION OF PHASE NOISE BY TIME SERIES ANALYSIS OF ALOS-2 PALSAR-2 DATA**
Takashi Nonaka, Tomohito Asaka, Keishi Iwashita, Nihon University; Fumitaka Ogushi, EXELIS VIS KK.

Friday, July 28 | 08:00 - 09:40 | Room 203 BC
Session FR1.L5 | Oral

Estimation and Regression Techniques II

Session Co-Chairs: Madhuri Nagare, NEC Corporation; Zisis Petrou, The City College of New York

FR1.L5.1 08:00 **A UNIFIED METHOD OF CLOUD DETECTION AND REMOVAL ROBUST TO SPECTRAL VARIABILITY**
Madhuri Nagare, Hirofumi Aoki, Eiji Kaneko, NEC Corporation

FR1.L5.2 08:20 **PREDICTION OF SEA ICE MOTION WITH RECURRENT NEURAL NETWORKS**
Zisis Petrou, Yingli Tian, City College of New York, The City University of New York

FR1.L5.3 08:40 **A NOVEL METHOD FOR ESTIMATING THE BASEBAND DOPPLER CENTROID OF CONVENTIONAL SYNTHETIC APERTURE RADAR**
Linjian Zhang, Yesheng Gao, Xingzhao Liu, Lei Liu, Shanghai Jiao Tong University

FR1.L5.4 09:00 **A NOVEL LAI RETRIEVAL METHOD BASED ON THE COMBINATION OF 2 VEGETATION INDEXES**
Yuanheng Sun, Huazhong Ren, Tianyuan Zhang, Juan Sui, Zihao Wang, Qiming Qin, Peking University

FR1.L5.5 09:20 **A NOVEL BAYESIAN LASSO MODEL BASED ON SPATIAL-CORRELATED SPARSITY FOR SEMISUPERVISED HYPERSPECTRAL UNMIXING**
Huiyun Jiao, Risheng Huang, Xiaorun Li, Zhejiang University; Liaoying Zhao, Hangzhou Dianzi University

Friday, July 28 | 10:40 - 12:20 | Room 203 BC
Session FR2.L5 | Oral

Denoising and Estimation

Session Co-Chairs: Gianni Poggi, University of Naples; Luis Gómez-Chova, University of Valencia

FR2.L5.1 10:40 **SAR IMAGE DESPECKLING THROUGH CONVOLUTIONAL NEURAL NETWORKS**
Giovanni Chierchia, Université Paris Est; Davide Cozzolino, Giovanni Poggi, Luisa Verdoliva, University Federico II of Naples

FR2.L5.2 11:00 **HYPERSPECTRAL IMAGE DENOISING WITH MULTISCALE LOW-RANK MATRIX RECOVERY**
Zhihong Huang, Shutao Li, Fang Hu, Hunan University

FR2.L5.3 11:20 **SIMULTANEOUS RETRIEVAL OF LEAF AREA INDEX AND FRACTIONAL CANOPY COVER USING SAIL MODEL AND PSO ALGORITHM**
Tianyuan Zhang, Huazhong Ren, Yuanheng Sun, Chengye Zhang, Qiming Qin, Peking University

FR2.L5.4 11:40 **NONLINEAR STATISTICAL RETRIEVAL OF SURFACE EMISSIVITY FROM IASI DATA**
Valero Laparra, Jordi Muñoz-Marí, Luis Gómez-Chova, Universitat de València; Xavier Calbet, AEMET; Gustau Camps-Valls, Universitat de València

FR2.L5.5 12:00 **SEMANTIC SEGMENTATION OF REMOTE SENSING DATA USING GAUSSIAN PROCESSES AND HIGHER ORDER CRFS**
Yansong Liu, Sankaranarayanan Piramanayagam, Sildomar Monteiro, Eli Saber, Rochester Institute of Technology

FRIDAY ORAL

Friday, July 28 | 13:40 - 15:20 | Room 203 BC
Session FR3.L5 | Oral-Invited

Fusion of SAR and Optical Remote Sensing Data I

Session Chair: Michael Schmitt, Technical University of Munich

FR3.L5.1 13:40 **FUSION OF SAR AND OPTICAL REMOTE SENSING DATA - CHALLENGES AND RECENT TRENDS**
Michael Schmitt, Technische Universität München; Florence Tupin, Université Paris Saclay; Xiao Xiang Zhu, German Aerospace Center (DLR)

FR3.L5.3 14:20 **COMPARATIVE EVALUATION OF SIGNAL-BASED AND DESCRIPTOR-BASED SIMILARITY MEASURES FOR SAR-OPTICAL IMAGE MATCHING**
Chunping Qiu, Michael Schmitt, Technische Universität München; Xiao Xiang Zhu, Technische Universität München / Germany Aerospace Center (DLR)

FR3.L5.4 14:40 **AUTOMATIC ALIGNMENT OF HIGH RESOLUTION OPTICAL AND SAR IMAGES FOR URBAN AREAS**
Stefan Auer, German Aerospace Center (DLR); Michael Schmitt, Technische Universität München; Peter Reinartz, German Aerospace Center (DLR)

FR3.L5.5 15:00 **FUSION OF SAR-OPTICAL DATA FOR LAND COVER MONITORING**
Raffaele Gaetano, Center of Agricultural Research for Development; Davide Cozzolino, Luca D'Amiano, Luisa Verdoliva, Giovanni Poggi, University Federico II of Naples

Friday, July 28 | 15:50 - 17:30 | Room 203 BC
Session FR4.L5 | Oral-Invited

Fusion of SAR and Optical Remote Sensing Data II

Session Chair: Michael Schmitt, Technical University of Munich

FR4.L5.1 15:50 **IMPROVING THE HBDT FRAMEWORK FUSING HR AND VHR SAR AND OPTICAL DATA FOR IMAGE CLASSIFICATION**
Gianni Cristian Iannelli, Paolo Gamba, University of Pavia

FR4.L5.2 16:10 **IMPROVE MULTI-BASELINE INSAR PARAMETER RETRIEVAL BY SEMANTIC INFORMATION FROM OPTICAL IMAGES**
Jian Kang, Yuanyuan Wang, Marco Körner, Technische Universität München; Xiao Xiang Zhu, Technische Universität München / Germany Aerospace Center (DLR)

FR4.L5.3 16:30 **IDENTIFYING CORRESPONDING PATCHES IN SAR AND OPTICAL IMAGERY WITH A CONVOLUTIONAL NEURAL NETWORK**
Lichao Mou, Michael Schmitt, Yuanyuan Wang, Technische Universität München; Xiao Xiang Zhu, German Aerospace Center; Technical University of Munich

FR4.L5.4 16:50 **SYNERGETIC POTENTIALS OF C-BAND SAR AND MULTI-SPECTRAL IMAGERY FOR TROPICAL CLASSIFICATIONS IN NORTHERN MATO GROSSO (BR)**
Ron Hagensieker, Björn Waske, Freie Universität Berlin

FR4.L5.5 17:10 **FUSION OF STATISTICAL AND LEARNT FEATURES FOR SAR IMAGES CLASSIFICATION**
Chu He, Xinlong Liu, Gong Han, Chenyao Kang, Huai Yu, Wuhan University

Friday, July 28 | **08:00 - 09:40** | **Room 202 CD**
Session FR1.L6 | **Oral-Invited**

Advances in Remote Sensing and Geospatial Technology for Sustainable Water Resource Management I

Session Chair: Yufang Jin, UC Davis

FR1.L6.1 08:00 **ECOSTRESS, A NASA EARTH-VENTURES INSTRUMENT FOR STUDYING LINKS BETWEEN THE WATER CYCLE AND PLANT HEALTH OVER THE DIURNAL CYCLE**
Glynn Hulley, Simon Hook, Joshua Fisher, Christine Lee, Jet Propulsion Laboratory

FR1.L6.3 08:40 **IMPACT OF URBANIZATION ON STORMWATER RUNOFF USING GEOSPATIAL TOOLS**
Shray Pathak, C.S.P. Ojha, R.D. Garg, Indian Institute of Technology Roorkee

FR1.L6.4 09:00 **REMOTE SENSING RETRIEVAL OF SUSPENDED SOLIDS IN LONGQUAN LAKE BASED ON GA-SVM MODEL**
Xuehui Ye, Yuxia Li, Ling Tong, Ling He, University of Electronic Science and Technology of China

FR1.L6.5 09:20 **APPLICATION OF SPI, EDI AND PNPI USING MSWEP PRECIPITATION DATA OVER MARATHWADA, INDIA**
Sabyasachi Swain, Pratiman Patel, Saswata Nandi, Indian Institute of Technology Bombay

Friday, July 28 | **10:40 - 12:20** | **Room 202 CD**
Session FR2.L6 | **Oral-Invited**

Advances in Remote Sensing and Geospatial Technology for Sustainable Water Resource Management II

Session Chair: Yufang Jin, UC Davis

FR2.L6.1 10:40 **COMPARING METHODS TO ESTIMATE CONSUMPTIVE USE WITH REMOTE SENSING IN CALIFORNIA'S SACRAMENTO-SAN JOAQUIN DELTA**
Josue Medellin-Azuara, Kyaw Tha Paw U, Yufang Jin, Eric Kent, Jenae Clay, Andy Wong, University of California Davis; Michelle Leinfelder-Miles, University of California Cooperative Extension; Jay Lund, University of California Davis

FR2.L6.3 11:20 **UNMANNED AIRBORNE THERMAL AND MUTILSPECTRAL IMAGERY FOR ESTIMATING EVAPOTRANSPIRATION IN IRRIGATED VINEYARDS**
Hector Nieto, Joaquim Bellvert, IRTA, Research & Technology Food & Agriculture; William P. Kustas, Joseph G. Alfieri, Feng Gao, John Prueger, US Department of Agriculture, Agricultural Research Service; Alfonso Torres-Rua, Lawrence E. Hipps, Utah State University; Manal Elarab, Micasense; Lisheng Song, Southwest University

FR2.L6.4 11:40 **TEMPORAL UPSCALING OF REMOTE SENSING INSTANTANEOUS EVAPOTRANSPIRATION USING AN IMPROVED CONSTANT EVAPORATIVE FRACTION METHOD**
Ronglin Tang, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences; Zhao-Liang Li, Ministry of Agriculture/Institute of Agricultural Resources and Regional Planning, Chinese Academy of Agricultural Sciences; Bohui Tang, Hua Wu, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences

FR2.L6.5 12:00 **AN APPLICATION OF DROUGHT MONITORING OVER THE SEMI-ARID AREA BASED ON EVAPOTRANSPIRATION DROUGHT INDEX**
Lijuan Wang, Ni Guo, Yang Yang, Institute of Arid Meteorology, China Meteorological Administration

FRIDAY ORAL

Friday, July 28 | **13:40 - 15:20** | **Room 202 CD**
Session FR3.L6 | **Oral-Invited**

Copernicus Sentinel-1 Mission: Operational Status, Scientific Results and Future Evolution I

Session Co-Chairs: Nuno Miranda, European Space Agency; Klaus Scipal, European Space Agency

FR3.L6.1 13:40 **SENTINEL-1 MISSION SCIENTIFIC EXPLOITATION ACTIVITIES**
Yves-Louis Desnos, European Space Agency - ESRIN; Michael Foumelis, RSAC c/o European Space Agency (ESA-ESRIN); Marcus Engdahl, Pierre-Philippe Mathieu, European Space Agency - ESRIN; Francesco Palazzo, Fabrizio Ramoino, Serco S.p.A. c/o European Space Agency (ESA-ESRIN)

FR3.L6.3 14:20 **SENTINEL-1 MISSION STATUS**
Pierre Potin, Betlem Rosich, Nuno Miranda, Patrick Grimont, Pier Bargellini, Eric Monjoux, Jolyon Martin, Yves-Louis Desnos, Johannes Roeder, Ian Shurmer, Alistair O'Connell, Ramon Torres, Mike Krassenburg, Jean-Baptiste Gratadour, European Space Agency (ESA)

FR3.L6.4 14:40 **SENTINEL-1 DATA EXPLOITATION FOR AUTOMATIC SURFACE DEFORMATION TIME-SERIES GENERATION THROUGH THE SBAS-DINSAR PARALLEL PROCESSING CHAIN**
Ivana Zinno, Manuela Bonano, Sabatino Buonanno, Francesco Casu, Claudio De Luca, Adele Fusco, Riccardo Lanari, Michele Manunta, Mariarosaria Manzo, Antonio Pepe, CNR

FR3.L6.5 15:00 **SENTINEL-1 HIGH RESOLUTION SOIL MOISTURE**
Francesco Mattia, Anna Balenzano, Giuseppe Satalino, Francesco Lovergine, Consiglio Nazionale delle Ricerche (CNR); Alexander Loew, Ludwig-Maximilians Universität München (LMU); Jian Peng, Ludwig-Maximilians Universität München (LMU) & Max Planck Institute for Meteorology; Urs Wegmüller, Maurizio Santoro, Oliver Cartus, GAMMA Remote Sensing AG; Katarzyna Dabrowska-Zielinska, Jan Musial, Institute of Geodesy and Cartography; Malcolm W. J. Davidson, European Space Agency (ESA)/Agence Spatiale Européenne; Simon Yueh, Seungbum Kim, Narendra N Das, Andreas Colliander, Jet Propulsion Laboratory; Joel Johnson, The Ohio State University; Jeff Ouellette, Naval Research Laboratory; Jeffrey Walker, Xiaoling Wu, Monash University; Heather McNairn, Amine Merzouki, Jarrett Powers, Agriculture and Agri-Food Canada / Agriculture et Agroalimentaire Canada; Todd Caldwell, The University of Texas at Austin; Dara Entekhabi, Massachusetts Institute of Technology; Michael H. Cosh, Thomas J. Jackson, United States Department of Agriculture (USDA)

Friday, July 28 | **15:50 - 17:30** | **Room 202 CD**
Session FR4.L6 | **Oral-Invited**

Copernicus Sentinel-1 Mission: Operational Status, Scientific Results and Future Evolution II

Session Co-Chairs: Nuno Miranda, European Space Agency; Klaus Scipal, European Space Agency

FR4.L6.1 15:50 **INTERFEROMETRIC INVESTIGATIONS WITH THE SENTINEL-1 CONSTELLATION**
Pau Prats-Iraola, Matteo Nannini, Nestor Yague-Martinez, Muriel Pinheiro, Jun-Su Kim, German Aerospace Center (DLR); Francesco Vecchioli, Federico Minati, Mario Costantini, e-GEOS SpA; Sven Borgstrom, Prospero De Martino, Valeria Siniscalchi, National Institute of Geophysics and Volcanology (INGV); Michael Foumelis, French Geological Survey (BRGM); Yves-Louis Desnos, European Space Agency - ESRIN

FR4.L6.3 16:30 **SENTINEL-1 CONSTELLATION MISSION PERFORMANCE**
Nuno Miranda, European Space Agency (ESA); Peter Meadows, BAE Systems Applied Intelligence Limited; Riccardo Piantanida, Andrea Recchia, Aresys Srl; David Small, Adrian Schubert, University of Zurich; Pauline Vincent, CLS Brest; Dirk Geudtner, Ignacio Navas-Traver, Francisco Ceba Vega, European Space Agency (ESA)

FR4.L6.4 16:50 **THE SENTINEL-1 CONSTELLATION FOR INSAR APPLICATIONS: EXPERIENCES FROM THE INSARAP PROJECT**
Yngvar Larsen, Norut; Petar Marinkovic, PPO.labs; John F. Dehls, Geological Survey of Norway; Zbigniew Perski, Polish Geological Institute; Andy J. Hooper, Tim J. Wright, University of Leeds

FR4.L6.5 17:10 **SENTINEL 1 EVOLUTION: SENTINEL-1C AND -1D MODELS**
Ramon Torres, Svein Lokas, Gianluigi Di Cosimo, Dirk Geudtner, David Bibby, European Space Agency (ESA)

Friday, July 28 | 08:00 - 09:40 | Room 201 A
Session FR1.L7 | Oral

Geographic Information Science I

Session Co-Chairs: Peter Baumann, Jacobs University; Peng Yue, Wuhan University

FR1.L7.1 08:00 **AN ADAPTIVE MAXIMAL CO-LOCATION MINING ALGORITHM**
Xiaojing Yao, Dacheng Wang, Ling Peng, Tianhe Chi, Chinese Academy of Sciences, Beijing

FR1.L7.2 08:20 **GEPATAR: A GEOTECHNICAL BASED PS-INSAR TOOLBOX FOR ARCHITECTURAL CONSERVATION IN BELGIUM**
Michal Shimoni, Juanfran Lopez, RMA; Jan Walstra, Pierre Yves Declercq, Geological Survey of Belgium; Leidy Bejarano-Urrego, Els Verstrynge, Building Materials and Building Technology Division; Dominique Derauw, Central Spatial of Liege (CSL); Roald Hayen, Royal Institute for Cultural Heritage (KIK-IRPA); Koen Van Balen, Building Materials and Building Technology Division

FR1.L7.3 08:40 **LAND-USE PLANNING WITH MINIMIZING UNEMPLOYMENT USING GIS AND LINEAR PROGRAMMING**
Rao Zahid Khalil, Saad-Ul- Haque, Institute of Space Technology; Yawar Abbas, University of Karachi

FR1.L7.4 09:00 **AN VISUAL ANALYTICS APPROACH TO EXPLORE CRIMINAL PATTERNS BASED ON MULTIDIMENSIONAL DATA**
Daichao Li, Yingjie Wang, University of Chinese Academy of Sciences; Sheng Wu, Fuzhou University; Junhui Qi, Tingting Wang, University of Chinese Academy of Sciences

FR1.L7.5 09:20 **CATEGORIZATION OF HIERARCHICALLY PARTITIONED WATERBODY-SPREAD VIA MORAN'S INDEX**
H. M. Rajashekara, Indian Statistical Institute; K. Nagajothi, Indian Space Research Organisation; Ashok Vardhan Sanda, Novo Nordisk Service Centre (India) Pvt. Ltd.; B. S. Daya Sagar, Indian Statistical Institute

Friday, July 28 | 10:40 - 12:20 | Room 201 A
Session FR2.L7 | Oral-Invited

Remote Sensing Big Data and the Internet of Things

Session Chair: Peng Yue, Wuhan University

FR2.L7.1 10:40 **BIG DATA MEETS INTERNET OF THINGS: A STANDARDS-BASED PERSPECTIVE**
Peter Baumann, Jacobs University

FR2.L7.3 11:20 **AN OPEN STANDARDS BASED METHOD FOR INTEGRATED ENVIRONMENTAL MODELLING**
Lianlian He, Hubei University of Education; Peng Yue, Mingda Zhang, Wuhan University

FR2.L7.4 11:40 **CONNECTING THE INTERNET OF THINGS TO THE EO COMMUNITY AND THE GEOSPATIALLY ENABLED WEB USING OGC STANDARDS**
George Percivall, Trevor Taylor, Open Geospatial Consortium

FR2.L7.5 12:00 **APPLYING DISCRETE GLOBAL GRID SYSTEMS TO SENSOR NETWORKS AND THE INTERNET OF THINGS**
Matthew Purss, Geoscience Australia; Steve Liang, Sensor Up; University of Calgary; Robert Gibb, Land Care Research, New Zealand; Faramarz Samavati, University of Calgary; Perry Peterson, PYXIS Inc.; Clinton Dow, ESRI Inc.; Ben Jin, Zhengzhou Institute of Surveying & Mapping; Sara Saeedi, University of Calgary

FRIDAY ORAL

Friday, July 28 | 13:40 - 15:20 | Room 201 A
Session FR3.L7 | Oral

Remote Sensing for Water Management I

Session Co-Chairs: Michael Cosh, USDA ARS; Pang-Wei Liu, University of Florida

FR3.L7.1 13:40 **SMOS AND APPLICATIONS: FIRST GLANCE AT SYNERGISTIC AND NEW RESULTS**
Yann Kerr, CNES; Jean-Pierre Wigneron, INRA; Alireza Mahmoodi, Centre d'Etudes Spatiales de la Biosphère (CESBIO); Ahmad Al Bitar, Arnaud Mialon, CNRS; Simone Bircher, Beatriz Molero, Philippe Richaume, Centre d'Etudes Spatiales de la Biosphère (CESBIO); François Cabot, CNES; Nemesio Rodriguez-Fernandez, Marie Parrens, Centre d'Etudes Spatiales de la Biosphère (CESBIO); Amen Al-Yaari, INRA; Roberto Fernandez-Moran, University of Valencia

FR3.L7.2 14:00 **HYDROLOGIC APPLICATIONS FOR SMAP AND SMOS SURFACE SOIL MOISTURE RETRIEVAL PRODUCTS**
Wade Crow, USDA-ARS

FR3.L7.3 14:20 **UNDERSTANDING OF CYPRUS TOTAL WATER STORAGE UNDER CLIMATE CHANGE**
Gokhan Kayan, Esra Erten, Huseyin Mercan, Orkan Özcan, Istanbul Technical University

FR3.L7.4 14:40 **IMPROVING FLOOD RESILIENCE THROUGH EFFECTIVE INTEGRATION OF EARTH OBSERVATION DATA AND MODELING OVER LARGE SCALES**
Guy Schumann, Remote Sensing Solutions Inc./University of Bristol

FR3.L7.5 15:00 **ASSESSMENT OF POST-IMPOUNDMENT GEOMORPHIC VARIATIONS ALONG BRAHMANI RIVER USING REMOTE SENSING**
Chandan Pradhan, Rishikesh Bharti, Subashisa Dutta, Indian Institute of Technology Guwahati

Friday, July 28 | 15:50 - 17:30 | Room 201 A
Session FR4.L7 | Oral

Remote Sensing for Water Management II

Session Co-Chairs: Dong-Jun Seo, UTA; Yuei-An Liou, National Central University

FR4.L7.1 15:50 **GROUNDWATER ARSENIC CONTAMINATION AND LAND SUBSIDENCE IN HANOI CITY, VIETNAM**
Anh Kim Nguyen, PhD student at National Central University of Taiwan and Researcher at Institute of Geography, Vietnam Academy of Science and Technology, Vietnam; Yuei-An Liou, Distinguished Professor at National Central University; Minh-Hsu Li, Professor at National Central University; Anh Van Tran, Binh Van Do, Lecturer at Hanoi University of Mining and Geology, Vietnam

FR4.L7.2 16:10 **COMPARISON OF PRECIPITATION FORECASTS FROM NOAA'S HIGH RESOLUTION RAPID REFRESH (HRRR) MODEL WITH POLARIMETRIC RADAR OBSERVATIONS IN THE SAN FRANCISCO BAY AREA**
Robert Cifelli, Haonan Chen, National Oceanic and Atmospheric Administration; Venkatachalam Chandrasekar, Colorado State University

FR4.L7.3 16:30 **SURFACE WATER QUALITY ASSESSMENT OF GANGA RIVER BASIN, INDIA USING INDEX MAPPING**
Anoop Kumar Shukla, C.S.P. Ojha, R.D. Garg, INDIAN INSTITUTE OF TECHNOLOGY, ROORKEE

FR4.L7.4 16:50 **A RESERVOIR STORAGE ESTIMATION ALGORITHM USING DIGITAL ELEVATION DATA AND IMAGE CLASSIFICATIONS**
Huilin Gao, Shuai Zhang, Texas A&M University

FR4.L7.5 17:10 **MONITORING RESERVOIRS' WATER LEVEL FROM SPACE FOR FLOOD CONTROL APPLICATIONS. A CASE STUDY IN THE ITALIAN ALPINE REGION**
Luca Cenci, Giorgio Boni, Luca Pulvirenti, Giuseppe Squicciarino, Simone Gabellani, CIMA Research Foundation; Fabio Gardella, Agenzia Regionale per la Protezione dell'Ambiente Ligure; Nazzareno Pierdicca, Sapienza University of Rome; Marco Chini, Luxembourg Institute of Science and Technology

Friday, July 28 | **08:00 - 09:40** | **Room 202 A**
Session FR1.L8 | **Oral-Invited**

GCOM Status I

Session Co-Chairs: Paul Chang, NOAA/NESDIS; Haruhisa Shimoda, Tokai University

FR1.L8.1 08:00 **GCOM SCIENCE OVERVIEW**
Haruhisa Shimoda, Tokai University

FR1.L8.2 08:20 **AN OVERVIEW OF NOAA'S GCOM-W1/AMSR-2 PRODUCT PROCESSING AND UTILIZATION**
Paul Chang, Zorana Jelenak, Suleiman Alsweiss, Seubson Soisuvarn, Patrick Meyers, Ralph Ferraro, NOAA/NESDIS

FR1.L8.3 08:40 **AMSR-E AND UNIFIED AMSR (AMSR-U) PRODUCTS**
Elena Lobl, Dawn Conway, University of Alabama in Huntsville

FR1.L8.4 09:00 **EVALUATION OF IMPROVED MARINE SURFACE WIND PRODUCTS FROM AMSR2 ON GCOM-W**
Naoto Ebuchi, Hokkaido University

FR1.L8.5 09:20 **AMSR2 SOIL MOISTURE PRODUCT VALIDATION**
Rajat Bindlish, NASA Goddard Space Flight Center; Thomas J. Jackson, Michael H. Cosh, USDA; T. Koike, University of Tokyo; H. Fujii, Remote Sensing Technology Center of Japan; R. de Jeu, Vandersat; Steven Chan, Jet Propulsion Laboratory; Jun Asanuma, University of Tsukuba; Aaron Berg, University of Guelph; David Bosch, USDA; Todd Caldwell, The University of Texas at Austin; C. Holyfield Collins, USDA; Heather McNairn, Agriculture and Agri-Food Canada; José Martínez-Fernández, University of Salamanca; John Prueger, Mark Seyfried, Patrick Starks, USDA; Z. Su, University of Twente; Marc Thibeault, Comisión Nacional de Actividades Espaciales; Jeffrey Walker, Monash University

Friday, July 28 | **10:40 - 12:20** | **Room 202 A**
Session FR2.L8 | **Oral-Invited**

GCOM Status II

Session Co-Chairs: Haruhisa Shimoda, Tokai University; Paul Chang, NOAA/NESDIS

FR2.L8.1 10:40 **FIVE YEARS OBSERVATIONS OF GLOBAL WATER CYCLE BY GCOM-W/AMSR2**
Misako Kachi, Takashi Maeda, Hiroyuki Tsutsui, Nodoka Ono, Marehito Kasahara, Masaaki Mokuno, Japan Aerospace Exploration Agency

FR2.L8.2 11:00 **OVERVIEW OF GCOM-C1/ SGLI ILAND TEAM ACTIVITES**
Yoshiaki Honda, Koji Kajiwara, Chiba University

FR2.L8.3 11:20 **GCOM-C/SGLI LEVEL-2 OCEAN COLOR PRODUCTS GENERATION**
Kauznori Ogata, Japan Aerospace Exploration Agency; Mitsuhiro Toratani, Tokai University; Hiroshi Murakami, Japan Aerospace Exploration Agency

FR2.L8.4 11:40 **DEVELOPMENT AND APPLICATION OF GCOM-C LAI AND GPP/NPP RESEARCH PRODUCTS**
Kazuhito Ichii, Japan Agency for Marine-Earth Science and Technology (JAMSTEC); Wei Yang, Chiba University; Hideki Kobayashi, Yuji Yanagi, Hiroaki Takayama, Tomohiro Hajima, Manabu Abe, Kaoru Tachiiri, Japan Agency for Marine-Earth Science and Technology (JAMSTEC)

FR2.L8.5 12:00 **A MICRO-TOPOGRAPHY CONSIDERED MONTE CARLO RAY-TRACING SOLUTION FOR OPEN FOREST BRF ESTIMATION**
Shengye Jin, Junichi Susaki, Kyoto University

FRIDAY ORAL

Friday, July 28 | **13:40 - 15:20** | **Room 202 A**
Session FR3.L8 | **Oral**

Topography

Session Chair: Cristian Rossi, German Aerospace Center (DLR)

FR3.L8.1 13:40 **UPDATES OF 'AW3D30' 30 M-MESH GLOBAL DIGITAL SURFACE MODEL DATASET**
Takeo Tadono, Japan Aerospace Exploration Agency; Junichi Takaku, Fumi Ohgushi, Masanori Doutsu, Ken-ichiro Kobayashi, Remote Sensing Technology Center of Japan

FR3.L8.2 14:00 **TOPOGRAPHIC CORRECTION USING BRIGHTNESS NORMALIZATION APPROACH FROM HYPERSPECTRAL REMOTE SENSING IMAGES**
Mahendra Pal, Alok Porwal, Indian Institute of Technology Bombay

FR3.L8.3 14:20 **ELEVATION MEASUREMENT FROM SINGLE-PASS SAR IMAGES**
Shota Hishinuma, Koichi Ito, Takafumi Aoki, Tohoku University; Jyunpei Uemoto, Seiho Uratsuka, National Institute of Information and Communications Technology

FR3.L8.4 14:40 **QUALITY UPDATES OF 'AW3D' GLOBAL DSM GENERATED FROM ALOS PRISM**
Junichi Takaku, Remote Sensing Technology Center of Japan; Takeo Tadono, Japan Aerospace Exploration Agency

FR3.L8.5 15:00 **ACCURACY ASSESSMENT OF DIFFERENT DIGITAL ELEVATION MODELS AVAILABLE FOR FILDES PENINSULA**
Guido Staub, Carlos Vargas, University of Concepción

Friday, July 28 | **15:50 - 17:30** | **Room 202 A**
Session FR4.L8 | **Oral**

Topography, Geology and Geomorphology I

Session Co-Chairs: Takeo Tadono, Japan Aerospace Exploration Agency; Guido Staub, University of Concepción

FR4.L8.1 15:50 **DIGITAL FIELD BOOK FOR GEOSCIENCES**
Jóice Cagliari, Mauricio Roberto Veronez, Farlei Heinen, Luiz Gonzaga Jr., Francisco M. W. Tognoli, Débora P. Gallon, Universidade do Vale do Rio dos Sinos; Fernando Pinho Marson, Vale do Rio dos Sinos University

FR4.L8.2 16:10 **CARBON SINK ESTIMATION OF SURFACE CARBONATE KARSTIFICATION IN GLOBAL KARST AREA**
Guoqing Zhou, Bin Jia, Guoqing Gao, Zhiliang Wu, Yajun Fan, Pengyun Chen, Wei Huang, Guilin University of Technology; Jingjin Huang, Rongting Zhang, Tianjin University

FR4.L8.3 16:30 **EVIDENCE OF ROOF COLLAPSE DETECTED ON SOUTH AFRICAN COAL MINES USING SENTINEL-1 INTERFEROMETRY**
Jeanine Engelbrecht, Andre Theron, Shelley Haupt, Council for Scientific and Industrial Research

FR4.L8.4 16:50 **RESEARCH ON FUSION STRATEGY OF ASCENDING AND DESCENDING MULTI-BASELINE MULTI-FREQUENCY INSAR RESULTS TO GENERATE HIGH QUALITY DEM**
Qiming Zeng, Xiaojie Zhang, Jian Jiao, Peking Univeristy

FR4.L8.5 17:10 **TOPOGRAPHICAL CHANGES CAUSED BY THE 2016 CENTRAL ITALY EARTHQUAKE SERIES**
Cristian Rossi, Gerald Baier, Paola Rizzoli, José-Luis Bueso-Bello, German Aerospace Center (DLR)

Friday, July 28 **08:00 - 09:40** **Room 203 A**
Session FR1.L9 **Oral**

Flooding

Session Chair: Qi Gao, isardSAT

FR1.L9.1 08:00 **INUNDATION EXTENT MONITORING WITH SMAP DATA FOR CARBON STUDIES**
Seungbum Kim, Jet Propulsion Laboratory; Brian Brisco, CCRS; Valentin Poncos, Kepler

FR1.L9.2 08:20 **AUTOMATIC SAR-BASED FLOOD DETECTION USING HIERARCHICAL TILE-RANKING THRESHOLDING AND FUZZY LOGIC**
Wenxi Cao, Sandro Martinis, Simon Plank, German Aerospace Center (DLR)

FR1.L9.3 08:40 **DETECTION OF FLOODED URBAN AREAS USING SAR: AN APPROACH BASED ON THE COHERENCE OF STABLE SCATTERERS**
Luca Pulvirenti, CIMA Research Foundation; Marco Chini, Luxembourg Institute of Science and Technology; Nazzareno Pierdicca, Sapienza University of Rome; Giorgio Boni, CIMA Research Foundation

FR1.L9.4 09:00 **COMBINING POLARIMETRIC SENTINEL-1 AND ALOS-2/PALSAR-2 IMAGERY FOR MAPPING OF FLOODED VEGETATION**
Simon Plank, Martin Jüssi, Sandro Martinis, André Twele, German Aerospace Center (DLR)

FR1.L9.5 09:20 **MANGROVE FOREST MAPPING USING SHORTWAVE INFRARED REFLECTANCE AND IMAGE SUBSET TECHNIQUES USING PROXIMITY MEASURE**
Mehwish Ghulam Zuhra, Junichi Susaki, Masayuki Tamura, Kyoto University

Friday, July 28 **10:40 - 12:20** **Room 203 A**
Session FR2.L9 **Oral**

Inland Waters and Vegetation

Session Chair: Soo Chin Liew, National University of Singapore

FR2.L9.1 10:40 **CLASSIFICATION OF PEATLAND VEGETATION TYPES USING IN SITU HYPERSPECTRAL MEASUREMENTS**
Thierry Erudel, Sophie Fabre, Xavier Briottet, Thomas Houet, ONERA

FR2.L9.2 11:00 **MANGROVE MAPPING AND CHANGE DETECTION USING SATELLITE IMAGERY**
Ping Chen, Soo Chin Liew, Leong Keong Kwoh, National University of Singapore

FR2.L9.3 11:20 **STUDY ON THE RELATIONSHIP BETWEEN POLARIMETRIC PARAMETERS AND VEGETATION BIOMASS AND ITS USE IN WETLAND VEGETATION BIOMASS INVERSION**
Guozhuang Shen, Jingjuan Liao, Tao Xu, Zhongchang Sun, RADI, CAS

FR2.L9.4 11:40 **RAINFALL-RUNOFF SIMULATION USING GEOSTATIONARY SATELLITE RAIN RATE IN A SMALL MOUNTAINOUS WATERSHED**
Jongpil Kim, Hyewon Yun, Dalgeun Lee, Jinyoung Kim, Youngjin Park, National Disaster Management Research Institute

FR2.L9.5 12:00 **INLAND WATER LEVEL RETRIEVAL OVER WESTERN AFRICA WITH RADAR ALTIMETERS**
Qi Gao, Maria José Escorihuela, Albert Garcia-Mondejar, Bernat Martinez Val, isardSAT; Mehrez Zribi, Centre d'Etudes Spatiales de la Biosphère (CESBIO); Pere Quintana-Segui, Observatori de l'Ebre

FRIDAY ORAL

Friday, July 28 **13:40 - 15:20** **Room 203 A**
Session FR3.L9 **Oral**

Living Environment I

Session Co-Chairs: Tianxing Wang, RADI; Hui Lu, Tsinghua University

FR3.L9.1 13:40 **QUANTIFYING THE CONTRIBUTIONS OF ENVIRONMENTAL PARAMETERS TO SATELLITE-RETRIEVED SURFACE NET LONGWAVE RADIATION ERROR: AN EXAMINATION ON CERES DATASET IN CHINA**
Xin Pan, Hohai University; Yuanbo Liu, Xingwang Fan, Guojing Gan, Nanjing Institute of Geography and Limnology, Chinese Academy of Sciences; Yingbao Yang, Yuehong Chen, Hohai University

FR3.L9.2 14:00 **SPATIAL AND TEMPORAL VARIABILITY IN THE NET PRIMARY PRODUCTIVITY OF FUJIAN PROVINCE, CHINA**
Xinlong Zhang, Xiuwan Chen, Fei Li, Ting Yang, Peking University

FR3.L9.3 14:20 **DESERTIFICATION ASSESSMENT AND TREND ANALYSIS USING MODIS DATA**
Yuwei Guan, Binbin He, Xing Li, Changming Yin, Shi Qiu, University of Electronic Science and Technology of China

FR3.L9.4 14:40 **URBAN VEGETATION PHENOLOGY ANALYSIS AND THE RESPONSE TO THE TEMPERATURE CHANGE**
Li Feng, Song Guo, Hohai University; Liujun Zhu, Monash University; Xiuqin Fang, Yanan Zhou, Hohai University

FR3.L9.5 15:00 **POTENTIAL AND PROSPECTIVE SEASONAL DISTRIBUTION OF HOTSPOT HABITAT OF ALBACORE TUNA (THUNNUS ALALUNGA) IN THE SOUTH INDIAN OCEAN USING THE SATELLITE DATA**
Ming An Lee, National Taiwan Ocean University; Ali Haghi Vayghan, Gorgan University of Agricultural Science and Natural Resources, Gorgan, Iran; De-Cheng Liu, Wan-Chen Yang, National Taiwan Ocean University

Friday, July 28 **15:50 - 17:30** **Room 203 A**
Session FR4.L9 **Oral**

Living Environment II

Session Chair: Xiaofeng Yang, RADI

FR4.L9.1 15:50 **MULTIFREQUENCY RADAR IMAGERY AND CHARACTERIZATION OF HAZARDOUS AND NOXIOUS SUBSTANCES AT SEA**
Sébastien Angelliaume, ONERA; Brent Minchew, British Antarctic Survey; Sophie Chataing, CEDRE; Philippe Martineau, Olivier Boisot, ONERA; Véronique Miegebielle, TOTAL

FR4.L9.2 16:10 **OBSERVATION PARAMETERS DESIGN OF MOON-BASED EARTH OBSERVATION SENSORS FOR MONITORING THREE-POLAR REGIONS**
Hanlin Ye, Huadong Guo, Guang Liu, Chinese Academy of Sciences

FR4.L9.3 16:30 **SPATIAL-TEMPORAL PATTERNS OF VAGETATION DAMAGE AND RECOVERY AFTER THE WENCHUAN EARTHQUAKE**
Bingwei Tian, Sichuan University; Ling Wang, Sichuan Normal University

FR4.L9.4 16:50 **IMPLEMENTATION OF VALID AND STABLE ALGORITHM OF QL1-NMF FOR ANALYZING ENVIRONMENTAL ELF MAGNETIC SIGNALS**
Motoaki Mouri, Aichi University; Ichi Takumi, Nagoya Institute of Technology; Hiroshi Yasukawa, Aichi Prefectural University

FR4.L9.5 17:10 **BUILDING HEIGHT EXTRACTION FROM OVERLAPPING AIRBORNE IMAGES IN URBAN ENVIRONMENT USING COMPUTER VISION APPROACH**
Shiming Li, Qingwang Liu, Zengyuan Li, Erxue Chen, Chinese Academy of Forestry; Jianbing Zhang, China University of Petroleum - Beijing

Friday, July 28 **08:00 - 09:40** **Room 204 A**
Session FR1.L10 **Oral**

Biomass and Monitoring

Session Co-Chairs: Lars Ulander, Chalmers University of Technology; Emanuele Santi, IFAC

FR1.L10.1 08:00 **MODELING OF FOREST ABOVE-GROUND BIOMASS DYNAMICS USING MULTI-SOURCE DATA AND INCORPORATED MODELS: A CASE STUDY OVER THE QILIAN MOUNTAINS**
Xin Tian, Zengyuan Li, Erxue Chen, Min Yan, Zongtao Han, Qingwang Liu, Chinese Academy of Forestry

FR1.L10.2 08:20 **COMPARISON OF THREE MODELING METHODS FOR ESTIMATING FOREST BIOMASS USING TM, GLAS AND FIELD MEASUREMENT DATA**
Kaili Liu, State Key Laboratory of Remote Sensing Science, Research Center for Remote Sensing and GIS, and Institute of Remote Sensing Science and Engineering, Faculty of Geographical Science, Beijing Normal University.; Jindi Wang, State Key Laboratory of Remote Sensing Science, Research Center for Remote Sensing and GIS, and Institute of Remote Sensing Science and Engineering, Faculty of Geographical Science, Beijing Normal University.; Weisheng Zeng, Academy of Forest Inventory and Planning, State Forestry Administration; Jinling Song, State Key Laboratory of Remote Sensing Science, Research Center for Remote Sensing and GIS, and Institute of Remote Sensing Science and Engineering, Faculty of Geographical Science, Beijing Normal University

FR1.L10.3 08:40 **GNSSBIO: FOREST BIOMASS RETRIEVAL BASED ON GNSS GROUND RECEIVER**
Antonio Mollfulleda, Francisco Martín, Starlab Limited; Simonetta Paloscia, Emanuele Santi, IFAC; Leila Guerriero, Tor Vergatta University of Rome; Nazzareno Pierdicca, La Sapienza University of Rome; Nicolas Floury, European Space Agency (ESA)

FR1.L10.4 09:00 **IMPORTANCE OF GRASSLANDS MONITORING APPLYING OPTICAL AND RADAR SATELLITE DATA IN PERSPECTIVE OF CHANGING CLIMATE**
Katarzyna Dabrowska-Zielinska, Maria Budzynska, Martyna Gatkowska, Wanda Kowalik, Maciej Bartold, Wojciech Kiryla, Institute of Geodesy and Cartography

FR1.L10.5 09:20 **INTEGRATION OF SPACEBORNE LIDAR DATA TO IMPROVE THE FOREST BIOMASS MAP IN MADAGASCAR**
Mohammad El Hajj, Nicolas Baghdadi, Ibrahim Fayad, IRSTEA; Ghislain Vieilledent, CIRAD, JRC; Jean-Stéphane Bailly, AgroParisTech; Dinh Ho Tong Minh, IRSTEA

FRIDAY ORAL

Friday, July 28 **10:40 - 12:20** **Room 204 A**
Session FR2.L10 **Oral**

Remote Sensing of Forests

Session Chair: Shihua Li, University of Electronic Science and Technology of China

FR2.L10.1 10:40 **ESTIMATING CLUMPING INDEX OF WOODY CANOPY WITH TERRESTRIAL LIDAR DATA**
Shihua Li, Zuqin Liang, Sen Lin, University of Electronic Science and Technology of China; Adu Gong, Jianwei Yue, Beijing Normal University

FR2.L10.2 11:00 **CONSTRUCTION OF TREE GROWTH MODEL BASED CUSP CATASTROPHE THEORY MODEL**
Wei Li, China Railway First Survey and Design Institute Group Ltd.; Kaixin Yang, Peking University; Haiying Mao, Specialized Forces College of CAPF; Fei Li, Peking University; Ruohan Yang, China Railway First Survey and Design Institute Group Ltd.

FR2.L10.3 11:20 **DETECTION AND VALIDATION OF FOREST DISTUBANCES USING RADARSAT 2 DATA**
Gordon Staples, Graham Green, Ji Chen, Shane Gravelle, MDA; David G. Goodenough, University of Victoria

FR2.L10.4 11:40 **LEAST SQUARE FITTING OF POLLOCK MODEL FOR TREE DETECTION AND CROWN DELINEATION**
Chao-Cheng Wu, Hsuan-Tsung Chang, Shau-An Tsai, Taipei Tech; Chinsu Lin, National Chiayi University

FR2.L10.5 12:00 **A GRADIENT VECTOR FLOW SNAKE BASED MULTI-LEVEL MORPHOLOGICAL ACTIVE CONTOUR ALGORITHM**
Chao-Cheng Wu, You-Lun Wu, Chung-Yu Wu, Taipei Tech; Chinsu Lin, National Chiayi University

Friday, July 28 **13:40 - 15:20** **Room 204 A**
Session FR3.L10 **Oral**

Monitoring Forests II

Session Chair: Gabriel de Oliveira, University of Kansas

FR3.L10.1 13:40 **A FAST ITERATIVE FEATURES SELECTION FOR THE K-NEAREST NEIGHBOR**
Zongtao Han, Chinese Academy of Forestry; Wei Wang, State Forestry Administration of the Peoples's Republic of China; Zengyuan Li, Erxue Chen, Chinese Academy of Forestry; Qiuping Wang, Weihai's Marine Environmental Monitoring Center; Hong Jiang, Fuzhou University; Xin Tian, Chinese Academy of Forestry

FR3.L10.2 14:00 **ESTIMATING THE THREE DIMENSIONAL STRUCTURE OF THE HARVARD FOREST USING A DATABASE DRIVEN MULTI-MODAL REMOTE SENSING TECHNIQUE**
Michael Benson, Leland Pierce, Kamal Sarabandi, University of Michigan

FR3.L10.3 14:20 **MEASUREMENTS OF FOREST BIOMASS CHANGE USING L- AND P-BAND SAR BACKSCATTER**
Ivan Huuva, Johan Fransson, Henrik Persson, Jörgen Wallerman, Swedish University of Agricultural Sciences; Lars Ulander, Erik Blomberg, Maciej Soja, Chalmers University of Technology

FR3.L10.4 14:40 **GROSS PRIMARY PRODUCTIVITY IN THE NORTHERN REGION OF PARA STATE, BRAZILIAN AMAZON, FROM MOD17 DATA**
Gabriel de Oliveira, Nathaniel A. Brunsell, University of Kansas; Elisabete C. Moares, Yosio E. Shimabukuro, Gabriel Bertani, National Institute for Space Research; Thiago V. dos Santos, University of Minnesota; Luiz E. O. C. Aragao, National Institute for Space Research

FR3.L10.5 15:00 **OXYGEN TRANSMITTANCE CORRECTION FOR SOLAR-INDUCED CHLOROPHYLL FLUORESCENCE MEASURED ON PROXIMAL SENSING: APPLICATION TO THE NASA-GSFC FUSION TOWER**
Neus Sabater, University of Valencia; Elizabeth M. Middleton, NASA Goddard Space Flight Center (GSFC); Zbynek Malenovsky, Universities Space Research Association- GESTAR, NASA-GSFC; Luis Alonso, Jochem Verrelst, University of Valencia; Karl Fred Huemmrich, Petya K.E. Campbell, University of Maryland, Baltimore County; William P. Kustas, USDA-ARS Agriculture Research Service; Jorge Vicent, Shari Van Wittenberghe, Jose Moreno, University of Valencia

Friday, July 28 **15:50 - 17:30** **Room 204 A**
Session FR4.L10 **Oral**

Agriculture Applications VI

Session Co-Chairs: Nazzareno Pierdicca, Sapienza University of Rome; Zhengwei Yang, USDA National Agricultural Statsistics Service

FR4.L10.1 15:50 **ANALYSIS OF METHANE EMISSIONS FROM PADDY RICE USING BAYESIAN ASSIMILATION**
Longfei Tan, Ling Tong, Yan Chen, University of Electronic Science and Technology of China; Yalin Zhu, Chongdi Duan, Xi' an Institute of space Radio Technology, China Aerospace Science and Technology Corporation

FR4.L10.2 16:10 **SUGARCANE BIOMASS ESTIMATE BASED ON SAR IMAGERY: A RADAR SYSTEMS COMPARISON**
Giovanni Laneve, Pablo Marzialetti, Roberto Luciani, Lorenzo Fusilli, University of Rome 'La Sapienza'; Betty Mulianga, Kenya Agricultural and Livestock Research Organization

FR4.L10.3 16:30 **LEAF DEVELOPMENT INDEX ESTIMATION USING UAV IMAGERY FOR FIGHTING APPLE SCAB**
Abdallah Zeggada, University of Trento; Alessandro Stella, Gennaro Caliendo, Metacortex; Farid Melgani, University of Trento; Maurizio Barazzuol, Metacortex; Nicola La Porta, Fondazione Edmund Mach; Rino Goller, Metacortex

FR4.L10.4 16:50 **SENTINEL-2 FOR AGRICULTURE NATIONAL DEMONSTRATION IN UKRAINE: RESULTS AND FURTHER STEPS**
Nataliia Kussul, Andrii Kolotii, Space Research Institute NASU-SSAU; Andrii Shelestov, Mykola Lavreniuk, National Technical University of Ukraine "Igor Sikorsky Kiev Polytechnic Institute"; Nicolas Bellemans, Sophie Bontemps, Pierre Defourny, Université catholique de Louvain; Benjamin Koetz, European Space Agency (ESA)

FR4.L10.5 17:10 **USING COMPACT POLARIMETRIC PARAMETERS FOR RAPE (BRASSICA NAPUS L.) LAI INVERSION**
Wangfei Zhang, Southwest Forestry University; Erxue Chen, Zengyuan Li, Lei Zhao, Chinese Academy of Forestry; Yongjie Ji, Yahong Zhang, Southwest Forestry University

Friday, July 28 | 08:00 - 09:40 | Room 202 B
Session FR1.L11 | Oral

Tomography and 3D Mapping I

Session Co-Chairs: Scott Hensley, Jet Propulsion Laboratory; Stefano Tebaldini, Politecnico di Milano

FR1.L11.1 08:00 **A CASE STUDY ON THE USE OF DIFFERENTIAL SAR TOMOGRAPHY FOR MEASURING DEFORMATION IN LAYOVER AREAS IN RUGGED ALPINE TERRAIN**
Muhammad Adnan Siddique, Swiss Federal Institute of Technology, ETH Zurich; Irena Hajnsek, Swiss Federal Institute of Technology, ETH Zurich / German Aerospace Center - DLR; Othmar Frey, Swiss Federal Institute of Technology, ETH Zurich / Gamma Remote Sensing AG

FR1.L11.2 08:20 **REGULARIZATION AND COMPLETION OF TOMOSAR POINT CLOUDS IN A PROJECTED HEIGHT MAP DOMAIN**
Andreas Ley, Olivier D'Hondt, Olaf Hellwich, Technische Universität Berlin

FR1.L11.3 08:40 **HIGH LATITUDE MULTI-TEMPORAL DIGITAL SURFACE MODELS FROM SENTINEL-2 DATA: A PROOF OF CONCEPT**
Julien Michel, Myriam Cournet, Jean-Marc Delvit, Florie Languille, Angélique Gaudel-Vacaresse, CNES; David Youssefi, Christophe Palmann, CS-SI; Vincent Poulain, Thales Services

FR1.L11.4 09:00 **P-BAND SAR TOMOGRAPHY FOR THE CHARACTERIZATION OF TROPICAL FORESTS**
Dinh Ho Tong Minh, IRSTEA; Ludovic Villard, Centre d'Etudes Spatiales de la Biosphère (CESBIO); Laurent Ferro-Famil, University of Rennes 1; Stefano Tebaldini, POLIMI; Thuy Le Toan, Centre d'Etudes Spatiales de la Biosphère (CESBIO)

FR1.L11.5 09:20 **IONOSPHERE VERTICAL PROFILING FROM BIOMASS MULTI-SQUINT INSAR**
Stefano Tebaldini, Mauro Mariotti d'Alessandro, Politecnico di Milano; Jun Su Kim, Konstantinos Papathanassiou, German Aerospace Center (DLR)

Friday, July 28 | 10:40 - 12:20 | Room 202 B
Session FR2.L11 | Oral

Optical and LIDAR Data for Urban Applications

Session Chair: Franz J. Meyer, University of Alaska Fairbanks

FR2.L11.1 10:40 **COMPARISONS OF IMPERVIOUS SURFACE MAPPING USING MULTIPLE INDICES FROM TM, ETM+ AND OLI-TIRS**
Ranran Shang, Shandong University of Science and Technology; Zhongchang Sun, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences; Junyi Xun, Shandong University of Science and Technology; Guozhuang Shen, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences

FR2.L11.2 11:00 **ANALYZING THE URBAN HEAT ISLAND USING TIME SERIES LAND SURFACE TEMPERATURE (LST) DATA**
Weimin Wang, Hong Liang, Lijun Yang, Shenzhen Environmental Monitoring Center; Kai Liu, Institute of Geographical Sciences and Natural Resource Research, Chinese Academy of Sciences; Hongbo Su, Florida Atlantic University; Xueke Li, University of Connecticut

FR2.L11.3 11:20 **EXTRACTION OF BUILT-UP AREAS IN CHINESE SILK ROAD ECONOMIC BELT BASED ON DMSP-OLS DATA**
Xiaolong Ma, Chinese Academy of Surveying and Mapping; Xiaohua Tong, Sicong Liu, Tongji University; Zhaoting Ma, Chinese Academy of Surveying and Mapping

FR2.L11.4 11:40 **USING GRADIENTS AND TENSOR VOTING IN 3D LOCAL GEOMETRIC DESCRIPTORS FOR FEATURE DETECTION IN AIRBORNE LIDAR POINT CLOUDS IN URBAN REGIONS**
Jaya Sreevalsan-Nair, Akshay Jindal, International Institute of Information Technology Bangalore

FR2.L11.5 12:00 **ATMOSPHERIC CORRECTION OF GROUND-BASED THERMAL INFRARED CAMERA THROUGH DART MODEL**
Tiangang Yin, Singapore-MIT alliance for research and technology; Simone Kotthaus, University of Reading; Jean-Philippe Gastellu-Etchegorry, University of Toulouse; William Morrison, University of Reading; Leslie Norford, Massachusetts Institute of Technology; Sue Grimmond, University of Reading; Nicolas Lauret, University of Toulouse; Nektarios Chrysoulakis, Foundation for Research and Technology; Ahmad Al Bitar, Lucas Landier, University of Toulouse

Friday, July 28 | 13:40 - 15:20 | Room 202 B
Session FR3.L11 | Oral

UAV and Airborne Platforms I

Session Co-Chairs: Marco Lavalle, JPL; Cathleen Jones, Jet Propulsion Lab

FR3.L11.1 13:40 **FROM FLOOD TO DROUGHT: UTILIZING SAR TO ASSESS THE STATUS OF LEVEES AND AQUEDUCTS**
Cathleen Jones, David Bekaert, Jet Propulsion Laboratory, California Institute of Technology; Karen An, University of California, Los Angeles

FR3.L11.2 14:00 **UAVSAR PROGRAM: RECENT UPGRADES TO SUPPORT VEGETATION STRUCTURE STUDIES AND LAND ICE TOPOGRAPHY MAPPING**
Yunling Lou, Scott Hensley, Brian Hawkins, Cathleen Jones, Marco Lavalle, Thierry Michel, Jet Propulsion Laboratory; Delwyn Moller, Remote Sensing Solutions; Ronald Muellerschoen, Naiara Pinto, Xiaoqing Wu, Yang Zheng, Jet Propulsion Laboratory

FR3.L11.3 14:20 **PROGRESSING THE SOUTH AFRICAN SAR TECHNOLOGY BASE THROUGH THE DEVELOPMENT OF A DUAL-BAND, FULLY POLARISED, AIRBORNE SAR SENSOR**
Josias Jacobus de Witt, Kevin Hugh Kloke, Willem Andries Jacobus Nel, Johanna Mathilde Steyn, Council for Scientific and Industrial Research

FR3.L11.4 14:40 **RADAR ECHO SOUNDING OF RUSSELL GLACIER AT 35 MHZ USING COMPACT RADAR SYSTEMS ON SMALL UNMANNED AERIAL VEHICLES**
Shawn Keshmiri, Emily Arnold, Aaron Blevins, Mark Ewing, Richard Hale, Carl Leuschen, Jonathan Lyle, Mahmood Ali, John Paden, Fernando Rodriguez, University of Kansas; Stephen Yan, University of Alabama

FR3.L11.5 15:00 **ACCURACY ANALYSIS OF UAV REMOTE SENSING IMAGERY MOSAICKING BASED ON STRUCTURE-FROM-MOTION**
Haojie Pei, Peng Wan, School of Surveying and Land Information Engineering, Henan Polytechnic University; Changchun Li, Henan Polytechnic University; Haikuan Feng, Guijun Yang, Bo Xu, Beijing Research Center for Information Technology In Agriculture; Qinglin Niu, School of Surveying and Land Information Engineering, Henan Polytechnic University

Friday, July 28 | 15:50 - 17:30 | Room 202 B
Session FR4.L11 | Oral

UAV and Airborne Platforms II

Session Chair: Marco Lavalle, JPL

FR4.L11.1 15:50 **MINI-UAV BORNE HYPERSPECTRAL REMOTE SENSING: A REVIEW**
Yanfei Zhong, Xinyu Wang, Yao Xu, Tianyi Jia, Song Cui, Wuhan University; Lifei Wei, Hubei University; Ailong Ma, Liangpei Zhang, Wuhan University

FR4.L11.2 16:10 **ADVANCED CALIBRATION TO IMPROVE ROBUSTNESS OF DRONE-ACQUIRED HYPERSPECTRAL REMOTE SENSING DATA**
Keshav Singh, Christian Nansen, University of California, Davis

FR4.L11.3 16:30 **SNPP VIIRS RSB EARTH VIEW REFLECTANCE UNCERTAINTY**
Ning Lei, Kevin Twedt, Jeffrey McIntire, Science Systems and Applicaitons, Inc; Xiaoxiong Xiong, NASA Goddard Space Flight Center

FR4.L11.4 16:50 **TIME SERIES ANALYSIS OF VEGETATION PHENOLOGY AND CLOUD COVER CONDITIONS AFFECTING AIRBORNE REMOTE SENSING OPERATIONS AND DATA PRODUCTS FROM THE NATIONAL ECOLOGICAL OBSERVATORY NETWORK (NEON)**
John Musinsky, Mitch Haynes, Tristan Goulden, Battelle Ecology, Inc.

FR4.L11.5 17:10 **CLASSIFYING COMMON WETLAND PLANTS USING HYPERSPECTRAL DATA TO IDENTIFY OPTIMAL SPECTRAL BANDS FOR SPECIES MAPPING USING A SMALL UNMANNED AERIAL SYSTEMS– A CASE STUDY**
Sathishkumar Samiappan, Gray Turnage, Lee Hathcock, Haibo Yao, Russel Kincaid, Robert Moorhead, Steve Ashby, Mississippi State University

Friday, July 28 | **08:00 - 09:40** | **Room 204 B**
Session FR1.L12 | **Oral-Invited**

Earth Remote Sensing with Small Satellites: Enabling Time Resolved Observations of Earth's Atmosphere from Space

Session Co-Chairs: Andreas Colliander, Jet Propulsion Laboratory, California Institute of Technology; Boon Lim, Jet Propulsion Laboratory

FR1.L12.1 08:00 **ALL-WEATHER TROPOSPHERIC 3D WIND FROM MICROWAVE SOUNDERS**
Bjorn Lambrigtsen, Joseph Turk, Hui Su, Jet Propulsion Laboratory, California Institute of Technology

FR1.L12.2 08:20 **GLOBAL MEASUREMENT OF TEMPORAL SIGNATURES OF PRECIPITATION: DEVELOPMENT OF THE TEMPORAL EXPERIMENT FOR STORMS AND TROPICAL SYSTEMS TECHNOLOGY DEMONSTRATION MISSION**
Steven C. Reising, Colorado State University; Todd C. Gaier, NASA Jet Propulsion Laboratory; Christian D. Kummerow, Colorado State University; Sharmila Padmanabhan, Boon H. Lim, Cate Heneghan, NASA Jet Propulsion Laboratory; Wesley Berg, Venkatachalam Chandrasekar, Jonathan P. Olson, Colorado State University; Shannon T. Brown, NASA Jet Propulsion Laboratory; John Carvo, Matthew Pallas, Blue Canyon Technologies

FR1.L12.3 08:40 **AN OVERVIEW OF THE NASA TROPICS EARTH VENTURE MISSION**
William Blackwell, Massachusetts Institute of Technology Lincoln Laboratory

FR1.L12.4 09:00 **DEMONSTRAGING THE IMPACT OF RAPID REPEAT PASSIVE MICROWAVE OBSERVATIONS FROM THE GLOBAL HAWK: IMPLICATIONS FOR FUTURE SMALL-SAT OR GEO MISSIONS**
Shannon T. Brown, Bjorn Lambrigtsen, Boon H. Lim, Todd C. Gaier, Jet Propulsion Laboratory

FR1.L12.5 09:20 **DEVELOPMENT OF THE CUBESAT RADIOMETER RADIO FREQUENCY INTERFERENCE TECHNOLOGY VALIDATION (CUBERRT) SYSTEM**
Christopher Ball, Chi-Chih Chen, Andrew O'Brien, Graeme Smith, Christa McKelvey, Mark Andrews, J. Landon Garry, Joel Johnson, The Ohio State University; Sidharth Misra, Shannon T. Brown, Robert Jarnot, Jet Propulsion Laboratory; Jonathon Kocz, California Institute of Technology; Damon Bradley, Priscilla Mohammed, Jared Lucey, Kevin Horgan, Quenton Bonds, Carlos Duran-Aviles, Michael Solly, Jeffrey R. Piepmeier, Goddard Space Flight Center; Matthew Pallas, Ervin Krauss, Blue Canyon Technologies

FRIDAY ORAL

Friday, July 28 | **10:40 - 12:20** | **Room 204 B**
Session FR2.L12 | **Oral**

Aerosols and Atmospheric Chemistry I

Session Co-Chairs: Shobha Kondragunta, NOAA/Center for Satellite Applications and Research; Son Nghiem, NASA/JPL

FR2.L12.1 10:40 **RESPONSE OF THE CLIMATE SYSTEM TO ANTHROPOGENIC AEROSOLS**
Makiko Nakata, Itaru Sano, Kindai University; Sonoyo Mukai, Kyoto College of Graduate Studies for Informatics

FR2.L12.2 11:00 **METHANE AND CARBON MONOXIDE EMISSIONS ASSOCIATED WITH ALISO CANYON GROUND STORAGE BLOWOUT**
Ramesh Singh, Chapman University; Sudipta Sarkar, NASA Goddard Space Flight Center

FR2.L12.3 11:20 **DESIGN OF A SMART GAS DETECTION SYSTEM IN AREAS OF NATURAL GAS STORAGE**
Ana Maria Carmen Ilie, Carmela Vaccaro, University of Ferrara

FR2.L12.4 11:40 **REGIONAL AND SEASONAL EFFECTS ON BIOMASS BURNING AEROSOLS**
Sonoyo Mukai, The Kyoto College of Graduate Studies for Informatics; Makiko Nakata, Itaru Sano, Masayoshi Yasumoto, Kindai University; Toshiyuki Fujito, The Kyoto College of Graduate Studies for Informatics

FR2.L12.5 12:00 **AEROSOL OPTICAL AND PHYSICAL PROPERTIES OVER BEIJING**
Lu She, Yong Xue, Jie Guang, Linlu Mei, Yahui Che, Ying Li, Chen Fan, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences

Friday, July 28 | **13:40 - 15:20** | **Room 204 B**
Session FR3.L12 | **Oral-Invited**

DFW and other Small Weather Radar Networks I

Session Co-Chairs: Chandra.V Chandrasekar, Colorado State University; Sanghun Lim, KICT, Seoul Korea

FR3.L12.1 13:40 **OSAKA URBAN PHASED ARRAY RADAR NETWORK EXPERIMENT**
Tomoo Ushio, Shigeharu Shimamura, Hiroshi Kikuchi, Osaka University; Fumihiko Mizutani, Kenichi Naito, Takahiro Watanabe, Masakazu Wada, Toshiba; Nobuhiro Takahashi, NICT

FR3.L12.2 14:00 **EVALUATION OF THE RAINFALL NOWCASTING SYSTEM FOR A DENSE RADAR NETWORK OVER DALLAS-FORT WORTH (DFW)**
Haonan Chen, Venkatachalam Chandrasekar, Colorado State University

FR3.L12.3 14:20 **TRACKING TORNADOS DOWN STREETS: USING CASA RADARS IN REAL TIME SEVERE WEATHER WARNING OPERATIONS IN NORTH CENTRAL TEXAS**
Brenda Philips, University of Massachusetts Amherst; Ted Ryan, National Weather Service Forecast Office Fort Worth/Dallas; Venkatachalam Chandrasekar, Colorado State University; Eric Lyons, University of Massachusetts Amherst; Tom Bradshaw, Mark Fox, National Weather Service Forecast Office Fort Worth/Dallas; Francesc Junyent, Colorado State University; Apoorva Bajaj, University of Massachusetts Amherst

FR3.L12.4 14:40 **EFFICIENT DATA PROCESSING WITH EXOGENI FOR THE CASA DFW URBAN TESTBED**
Eric Lyons, Michael Zink, Brenda Philips, University of Massachusetts Amherst

FR3.L12.5 15:00 **MULTI-DOPPLER PROCESSING FOR ACCURATE ESTIMATION OF UPDRAFT AT LOW ALTITUDES**
Eiichi Yoshikawa, Japan Aerospace Exploration Agency; Tomoo Ushio, Osaka University; Venkatachalam Chandrasekar, Colorado State University

Friday, July 28 | **15:50 - 17:30** | **Room 204 B**
Session FR4.L12 | **Oral-Invited**

DFW and other Small Weather Radar Networks II

Session Co-Chairs: Chandra.V Chandrasekar, Colorado State University; Sanghun Lim, KICT, Seoul Korea

FR4.L12.1 15:50 **POLARIMETRIC OBSERVATIONS BY A PHASE-TILT WEATHER RADAR IN THE DFW NETWORK**
Krzysztof Orzel, Stephen Frasier, University of Massachusetts

FR4.L12.2 16:10 **EXAMPLES OF GROUND-BASED HAIL, RAIN, AND WIND SENSOR NETWORKS OPERATING IN REAL-TIME**
Elena Willmot, Shane Bussmann, Nicole Homeier, Alex Kubicek, Understory, Inc.

FR4.L12.3 16:30 **HIGH RESOLUTION QUANTITATIVE PRECIPITATION ESTIMATION DERIVED FROM MEASUREMENT OF S-BAND DUAL-POLARIZATION RADAR NETWORK OVER SOUTHERN CHINA**
Sheng Chen, Sun Yat-sen University; Haonan Chen, Venkatachalam Chandrasekar, Colorado State University; Junjun Hu, NOAA/National Severe Storms Laboratory; Asi Zhang, Wenping Yuan, Sun Yat-sen University

FR4.L12.4 16:50 **PERFORMANCE ANALYSES OF XY-A SOLID-STATE WEATHER RADAR**
Rui Li, Jianxin He, Zhao Shi, Chengdu University of Information Technology; Xingang Fan, Western Kentucky University; Shunxian Tang, Xuehua Li, Chengdu University of Information Technology

FR4.L12.5 17:10 **OPERATIONAL AND RESEARCH RADAR NETWORKS IN KOREA**
Sanghun Lim, Korea Institute of Civil Engineering and Building Technology; Venkatachalam Chandrasekar, Colorado State University; Bong-Joo Jang, Hyunjung Kim, Korea Institute of Civil Engineering and Building Technology; Gyuwon Lee, Kyungpook National University

Monday, July 24 15:20 - 16:20 Poster Area A
Session MOP2.PA Poster

SAR and InSAR Methods

Session Co-Chairs: Pietro Milillo, California Institute of Technology; Yunling Lou, Jet Propulsion Laboratory

MOP2.PA.1 Board PA.1 **A STUDY OF HEIGHT MEASUREMENT ERROR BY USING CROSS-TRACK INTERFEROMETRIC SAR**
Akitsugu Nadai, Jyunpei Uemoto, Shoichiro Kojima, Tatsuharu Kobayashi, Takeshi Matsuoka, National Institute of Information and Communications Technology

MOP2.PA.2 Board PA.2 **INTERFEROMETRIC PROCESSING OF TERRASAR DATA FROM YUNNAN MOUNTAINOUS AREA**
Qingqing Feng, Huaping Xu, Zhefeng Wu, Yanan You, Beihang University

MOP2.PA.3 Board PA.3 **PRELIMINARY RESULT OF A NOVEL YAW AND PITCH ERROR ESTIMATION METHOD FOR UAV-BASED FMCW INSAR**
Xikai Fu, Maosheng Xiang, Bingnan Wang, Shuai Jiang, Jie Wang, Institute of Electronics, Chinese Academy of Sciences

MOP2.PA.4 Board PA.4 **MULTIPLICATIVE PROCESSING TECHNIQUE FOR SAR INTERFEROMETRY**
Dayalan Kasilingam, Jigar Shah, Prabin Shrestha, University of Massachusetts Dartmouth

MOP2.PA.5 Board PA.5 **FULLY THREE-DIMENSIONAL UAV SAR IMAGING WITH MULTI-AZIMUTH-ANGLE OBSERVATION**
Hui Kuang, Jie Chen, Wei Yang, Beihang University; Wei Liu, University of Sheffield; Xia Zhu, Instituit of Beijing Remote Sensing Information

MOP2.PA.6 Board PA.6 **DIGITAL BEAM FORMING OF AZIMUTH DIRECTION FOR SAR IMAGE PROCESSING**
Yuya Yokota, Shohei Nakamura, Akira Karasawa, Masakazu Taniguchi, Shota Katayama, Yu Okada, Mitsubishi Electric Corporation

MOP2.PA.7 Board PA.7 **A HIGH-SPEED AND HIGH-PRECISION OPTICAL SYSTEM OF PHASED ARRAY RADAR BEAMFORMING**
Fang Wang, Lei Liu, Yesheng Gao, Xingzhao Liu, Shanghai Jiao Tong University

MOP2.PA.8 Board PA.8 **THE LATEST ADVANCES OF GF-3 SATELLITE**
ChunHua Xie, MingSen Lin, Xinzhe Yuan, WenYu Wang, National Satellite Ocean Application Service

Monday, July 24 15:20 - 16:20 Poster Area B
Session MOP2.PB Poster

Living Environment: Observations and Assessments

Session Co-Chairs: Rajat Bindlish, NASA Goddard Space Flight Center; Feng Chen, Xiamen University

MOP2.PB.1 Board PB.1 **HOW MANY PEOPLE DIED DUE TO PM2.5 AND WHERE THE MORTALITY RISKS INCREASED? A CASE STUDY IN BEIJING**
Yuenan Li, Zhuo Chen, Jonathan Li, University of Waterloo

MOP2.PB.3 Board PB.3 **THE EFFECT OF SKEW UNDERWATER TOPOGRAPHY ON UNIDIRECTIONAL TIDAL CURRENT**
Xiaozhen Wang, Zhejiang University; Huaguo Zhang, Weibing Guan, Bin Fu, Peng Chen, Second Institute of Oceanography, State Oceanic Administration

MOP2.PB.4 Board PB.4 **STUDY OF SPATIO-TEMPERAL REVOLUTION OF URBAN HEAT ISLAND AND ITS CLOUD EFFECT USING MODIS OBSERVATIONS**
Ya Ma, Guihuan Liu, Chinese Academy for Environmental planning

Monday, July 24 15:20 - 16:20 Poster Area C

Session MOP2.PC Poster

Calibration and Validation of Space-borne Imaging and Radiometer Systems

Session Co-Chairs: Thomas Kopp, Aerospace Corporation; Jin Zhao, Chinese Academy of Sciences

MOP2.PC.1 Board PC.1 **DESTRIPING PUSHBROOM SATELLITE IMAGING SYSTEMS WITH TOTAL VARIATION-L1/-L2 METHOD**
Konstantin Dragomiretskiy, University of California, Los Angeles; Igor Yanovsky, Jet Propulsion Laboratory

MOP2.PC.2 Board PC.2 **ANTENNA PATTERN ERROR CALIBRATION FOR L-BAND SYNTHETIC APERTURE RADIOMETER**
Aili Zhang, Hao Liu, Ji Wu, Lin Wu, National Space Science Center,Chinese Academy of Sciences

MOP2.PC.3 Board PC.3 **RECALIBRATION OF HY-2A ATMOSPHERIC CORRECTION MICROWAVE RADIOMETER**
Jin Zhao, Dehai Zhang, Zhenzhan Wang, Yun Li, Chinese Academy of Sciences

MOP2.PC.4 Board PC.4 **PLEIADES-HR IMAGE PRODUCTS 5 YEARS AFTER LAUNCH**
Stéphanie Artigues, Danel Greslou, Simon Baillarin, CNES (Centre National d'Etudes Spatiales)

MOP2.PC.5 Board PC.5 **DEVELOPMENT OF LEVEL 2 CALIBRATION AND VALIDAITON PLANS FOR GOES-R; WHAT IS A RIMP?**
Thomas Kopp, Leslie Belsma, Andrew Mollner, Ziping Sun, Frank DeLuccia, The Aerospace Corporation

MOP2.PC.6 Board PC.6 **ASSESSING CALIBRATION STABILITY USING MOON OBSERVATIONS FROM MICROWAVE INSTRUMENTS**
Hu Yang, University of Maryland; Fuzhong Weng, NOAA

MOP2.PC.7 Board PC.7 **DYNAMIC FILTERING RESAMPLING FOR OBSERVED BRIGHTNESS TEMPERATURE OF HY-2A MICROWAVE RADIOMETER**
Zhaohui Wang, Natioinal Satellite Ocean Application Service; Fei Liao, Guangzhou Meteorological Observatory; Qimao Wang, Qingtao Song, Natioinal Satellite Ocean Application Service

MOP2.PC.8 Board PC.8 **ON-ORBIT PERFORMANCE OF HIGH TEMPERATURE NOISE SOURCE (HTS) FOR ADVANCED MICROWAVE SCANNING RADIOMETER 2 (AMSR2) ONBOARD THE GCOM-W SATELLITE**
Takaaki Ishikawa, Tatsuhiro Noguchi, Shinichi Yokobori, Takeshi Ito, Masakazu Taniguchi, Yu Okada, Mitsubishi Electric Corporation; Marehito Kasahara, Japan Aerospace Exploration Agency

Monday, July 24 15:20 - 16:20 Poster Area D

Session MOP2.PD Poster

Development of Advanced Remote Sensing Instrumentation and its Applications

Session Chair: Andrew O'Brien, The Ohio State University

MOP2.PD.1 Board PD.1 **INTRODUCTION TO CHINESE FY-3 SERIES FOLLOW-UP SATELLITE PLAN**
Songyan Gu, Peng Zhang, Zhongdong Yang, Aijun Zhu, Xiuqing Hu, China Meteorological Administration

MOP2.PD.2 Board PD.2 **THE DEVELOPMENT AND DESIGN OF LAPAN'S IR CAMERA EQUIPPED WITH MICRO BOLOMETER SENSOR**
Bustanul Arifin, Irwan Priyanto, Andi Mukhtar Tahir, Lembaga Penerbangan dan Antariksa Nasional

MOP2.PD.3 Board PD.3 **THE IMPROVED DESIGN FOR HY-2B RADAR ALTIMETER**
Ke Xu, Peng Liu, CAS Key Laboratory of Microwave Remote Sensing, National Space Science Center; Yueying Tang, CAS Key Laboratory of Mircrowave Remote Sensing; Xiufen Yu, CAS Key Laboratory of Microwave Remote Sensing, National Space Science Center

MOP2.PD.4 Board PD.4 **STUDY ON LEO-LEO MICROWAVE OCCULTATION**
Congliang Liu, National Space Science Center; Gottfried Kirchengast, University of Graz; Yueqiang Sun, Qifei Du, Weihua Bai, National Space Science Center; Veronika Proschek, Wegener Center for Climate and Global Change; Xianyi Wang, Junming Xia, Xiangguang Meng, Dongwei Wang, Yuerong Cai, Danyang Zhao, Chunjun Wu, Wei Li, Cheng Liu, National Space Science Center

MOP2.PD.5 Board PD.5 **DEVELOPMENT AND INTEGRATION OF THE GROUND BASED MICAP SCATTEROMETER DEMONSTRATOR**
Caiyun Wang, Hao Liu, Xiangkun Zhang, Di Zhu, Chinese Academy of Sciences

MOP2.PD.6 Board PD.6 **AN AUTOMATIC ORTHORECTIFICATION APPROACH FOR THE TIME SERIES GF-4 GEOSTATIONARY SATELLITE IMAGES IN MOUNTAINOUS AREA**
Jinhu Bian, Ainong Li, Wei Zhao, Gaofei Yin, Institute of Mountain Hazards and Environment, Chinese Academy of Sciences

MOP2.PD.7 Board PD.7 **RAINFALL RETRIEVAL OF TROPICAL CYCLONES USING FY-3B MICROWAVE RADIATION IMAGER (MWRI)**
Ruanyu Zhang, Zhenzhan Wang, Lanjie Zhang, Yun Li, Key Laboratory of Microwave Remote Sensing, National Space Science Center

MONDAY POSTER

Monday, July 24 15:20 - 16:20 Poster Area E
Session MOP2.PE Poster

Classification Methods

Session Co-Chairs: Claudia Paris, University of Trento; Dalton Lunga, Oak Ridge National Laboratory

MOP2.PE.1 Board PE.1 **FUSION OF GENETIC-PROGRAMMING-BASED INDICES IN HYPERSPECTRAL IMAGE CLASSIFICATION TASKS**
Juan Hernández Albarraci ´n, University of Campinas; Edemir Ferreira Jr, Jefersson Alex dos Santos, Universidade Federal de Minas Gerais; Ricardo Torres, University of Campinas

MOP2.PE.2 Board PE.2 **SHIP CLASSIFICATION WITH DEEP LEARNING USING COSMO-SKYMED SAR DATA**
Chao Wang, Hong Zhang, Fan Wu, Bo Zhang, Institute of Remote Remote Sensing and Digital Earth; Sirui Tian, Nanjing University of Science and Technology

MOP2.PE.3 Board PE.3 **EXTENDING OUT-OF-SAMPLE MANIFOLD LEARNING VIA META-MODELLING TECHNIQUES**
Gülsen Taskin, Istanbul Technical University; Melba Crawford, Purdue University

MOP2.PE.4 Board PE.4 **VISUAL DATA MINING APPLIED ON EARTH OBSERVATION DATASETS**
Andreea Griparis, Florin-Andrei Georgescu, Politehnica University of Bucharest; Mihai Datcu, German Aerospace Center (DLR)

MOP2.PE.5 Board PE.5 **A DYNAMIC HIERARCHICAL FEATURE SELECTION METHOD FOR OBJECT-BASED CLASSIFICATION OF WETLAND**
Sahel Mahdavi, Bahram Salehi, Meisam Amani, Jean Granger, C-CORE/ Memorial University of Newfoundland; Brian Brisco, The Canada Center for Mapping and Earth Observation; Weimin Hunag, C-CORE/ Memorial University of Newfoundland

MOP2.PE.6 Board PE.6 **MULTIPLE SVMS BASED ON RANDOM SUBSPACES FROM KERNEL FEATURE IMPORTANCE FOR HYPERSPECTRAL IMAGE CLASSIFICATION**
Cheng-Hsuan Li, Pei-Jyun Hsieh, Bor-Chen Kuo, National Taichung University of Education

MOP2.PE.7 Board PE.7 **A NEW TEXTURE FEATURE SET FOR ULTRA-HIGH RESOLUTION SAR IMAGES**
Wenjin Wu, Xinwu Li, Huadong Guo, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences; Yue Fang, Beihang University

Monday, July 24 15:20 - 16:20 Poster Area F
Session MOP2.PF Poster

Target Detection and Unmixing of Hyperspectral Images II

Session Co-Chairs: Mauro Dalla Mura, GIPSA-lab, Grenoble Institute of Technology; Ioannis Schizas, University of Texas- Arlington; Ioannis Schizas, University of Texas at Arlington

MOP2.PF.1 Board PF.1 **BILINEAR MIXTURE MODELS BASED UNSUPERVISED NONLINEAR UNMIXING USING CONSTRAINED NONNEGATIVE MATRIX FACTORIZATION**
Bin Yang, Bin Wang, Zongmin Wu, Qiyong Lu, Fudan University

MOP2.PF.2 Board PF.2 **ITERATIVE ANOMALY DETECTION**
Yulei Wang, Dalian Maritime University; Bai Xue, University of Maryland, Baltimore County; Lin Wang, Xidian University; Hsiao-Chi Li, Fu Jen Catholic University; Li-Chien Lee, University of Maryland, Baltimore County; Chunyan Yu, Meiping Song, Sen Li, Chein-I Chang, Dalian Maritime University

MOP2.PF.3 Board PF.3 **NONNEGATIVE MATRIX FACTORIZATION WITH DATA-GUIDED CONSTRAINTS**
Risheng Huang, Xiaorun Li, Zhejiang University; Liaoying Zhao, Hangzhou Dianzi University

MOP2.PF.4 Board PF.4 **A HIERARCHICAL SUPPORT TENSOR MACHINE FOR TARGET DETECTION IN HIGH-RESOLUTION REMOTE SENSING IMAGES**
Hao Chen, Qinglong Ren, Ye Zhang, Harbin Institute of Technology

MOP2.PF.5 Board PF.5 **DIFFERENTIABLE SPARSE UNMIXING BASED ON BREGMAN DIVERGENCE FOR HYPERSPECTRAL REMOTE SENSING IMAGERY**
Ruyi Feng, Lizhe Wang, China University of Geosciences; Yanfei Zhong, Liangpei Zhang, Wuhan University

MOP2.PF.6 Board PF.6 **SUB-PIXEL INTELLIGENCE MAPPING CONSIDERING SPATIAL-TEMOPORAL ATTRACTION FOR REMOTE SENSING IMAGERY**
Da He, Yanfei Zhong, Ailong Ma, Liangpei Zhang, Wuhan University

MOP2.PF.7 Board PF.7 **A NOVEL APPROACH TO MOVING TARGETS SHADOW DETECTION IN VIDEOSAR IMAGERY SEQUENCE**
Ying Zhang, Xinhua Mao, He Yan, Daiyin Zhu, Xiaochen Hu, Nanjing University of Aeronautics and Astronautics

Monday, July 24 15:20 - 16:20 Poster Area G
Session MOP2.PG Poster

Change Detection Applications

Session Co-Chairs: Qian Du, Mississippi State University; Daniele Marinelli, University of Trento

MOP2.PG.1 Board PG.1 **LARGE FLOOD MAPPING USING SYNCRO WATER INDEX COUPLING WITH HYDRO DATA AND TIME SERIES MODIS IMAGES**
Young-joo Kwak, PWRI; Jonggeol Park, TUIS; Yoichi Iwami, PWRI

MOP2.PG.2 Board PG.2 **CHANGE DETECTION OF MARINE RECLAMATION USING MULTISPECTRAL IMAGES VIA PATCH-BASED RECURRENT NEURAL NETWORK**
Jie Geng, Dalian University of Technology; Jianchao Fan, National Marine Environmental Monitoring Center; Hongyu Wang, Xiaorui Ma, Dalian University of Technology

MOP2.PG.3 Board PG.3 **ASSESSING SNOW EXTENT VARIATIONS OF ILLIMANI MOUNTAIN WITH LANDSAT NDSI**
Jorge Antonio Silva Centeno, Edson Aparecido Mitishita, Regina Tiemy Kishi, Federal University of Paraná – UFPR

MOP2.PG.4 Board PG.4 **HIERARCHICAL CHANGE DETECTION FRAMEWORK FOR BIOMASS MONITORING**
Zexi Chen, Bharathkumar Ramachandra, Ranga Vatsavai, North Carolina State University

MOP2.PG.5 Board PG.5 **CHANGE DETECTION ASSESSMENT IN A TROPICAL FOREST USING MULTISPECTRAL AND HYPERSPECTRAL IMAGES**
Ernesto Reyes, Rita Jakelyn Abad, Julio Diaz, Vidya Manian, University of Puerto Rico

MOP2.PG.6 Board PG.6 **SEMI-ANALYTICAL APPROACH COMBINED& NEURAL NETWORK TECHNOLOGY MODEL CHLOROPHYLL-A CONCENTRATION BY REMOTE SENSING**
Dacheng Wang, Chinese Academy of Sciences; Xiaojing Yao, Chinese Academy of Sciences, Beijing; Shaolong Cui, Chi Tianhe, Lin Peng, Chinese Academy of Sciences

Monday, July 24 15:20 - 16:20 Poster Area H
Session MOP2.PH Poster

Target Detection and Unmixing in Hyperspectral Images I

Session Co-Chairs: Pedram Ghamisi, German Aerospace Center (DLR) and Technical University of Munich (TUM); Shaohui Mei, Northwestern Polytechical University

MOP2.PH.1 Board PH.1 **SEGMENTATION-BASED CNMF FOR HYPERSPECTRAL UNMIXING**
Mohammed Alkhatib, Miguel Velez-Reyes, The University of Texas at El Paso

MOP2.PH.2 Board PH.2 **KERNEL AUTOMATIC TARGET GENERATION PROCESS**
Bai Xue, Dalian Maritime University; Shih-Yu Chen, National Yulin University of Science and Technology; Chunyan Yu, Yulei Wang, Dalian Maritime University; Lin Wang, Xidian University; Meiping Song, Sen Li, Chein-I Chang, Dalian Maritime University

MOP2.PH.3 Board PH.3 **HYPERSPECTRAL TARGET DETECTION BASED ON KERNEL SPARSE AND SPATIAL CONSTRAINT**
Qiupeng Sun, Junping Zhang, Tianming Jin, Xiaochen Lu, Harbin Institute of Technology

MOP2.PH.4 Board PH.4 **ABUNDANCE ESTIMATION FOR HYPERSPECTRAL IMAGES BASED ON BILINEAR MIXTURE MODELS**
Bin Yang, Bin Wang, Zongmin Wu, Qiyong Lu, Fudan University

MOP2.PH.5 Board PH.5 **A SPARSE DICTIONARY LEARNING METHOD FOR HYPERSPECTRAL ANOMALY DETECTION WITH CAPPED NORM**
Dandan Ma, University of Chinese Academy of Sciences; Yuan Yuan, Xi'an Institute of Optics and Precision Mechanics of CAS; Qi Wang, Northwestern Polytechnical University

MOP2.PH.6 Board PH.6 **GEOMETRIC N-FINDER ALGORITHM FOR FINDING ENDMEMBERS IN HYPERSPECTRAL IMAGERY**
Hsiao-Chi Li, Fu Jen Catholic University

MOP2.PH.7 Board PH.7 **EVALUATION OF MULTI-SPECTRAL CUBE FROM MULTI-SENSOR IMAGERY CORRESPONDING TO HYPERSPECTRAL IMAGERY**
Divyesh Varade, Anudeep Sure, Onkar Dikshit, Indian Institute of Technology Kanpur

Monday, July 24 **15:20 - 16:20** **Poster Area I**
Session MOP2.PI **Poster**

Land Use and Land Cover Mapping

Session Chair: Sergii Skakun, University of Maryland

MOP2.PI.1 Board PI.1 **DEMARCATION OF PRIME FARMLAND PROTECTION AREAS FROM HIGH-RESOLUTION SATELLITE IMAGERY**
Nan Xia, Man Chun Li, Liang Cheng, Nanjing University

MOP2.PI.4 Board PI.4 **DEVELOPMENT OF PDF BASED UNSUPERVISED CLASSIFICATION TECHNIQUE FOR PALSAR-2 DATA**
Ankita Jain, Deepak Murugan, Dharmendra Singh, Indian Institute of Technology Roorkee; N. S. Rajput, Indian Institute of Technology (Banaras Hindu University) Varanasi

MOP2.PI.5 Board PI.5 **BALANCED DATA DRIVEN SPARSITY FOR UNSUPERVISED DEEP FEATURE LEARNING IN REMOTE SENSING IMAGES CLASSIFICATION**
Yang Yu, Ping Zhong, Zhiqiang Gong, National University of Defense Technology

Monday, July 24 **15:20 - 16:20** **Poster Area J**
Session MOP2.PJ **Poster**

Snow and Ice I

Session Chair: Monique Bernier, Institut national de la recherche scientifique

MOP2.PJ.1 Board PJ.1 **IMPROVING SNOW AND CLOUD DISCRIMINATION IN MODIS SNOW COVER PRODUCTS**
Gongxue Wang, Lingmei Jiang, Shirui Hao, Xiaojing Liu, Huizhen Cui, Beijing Normal University

MOP2.PJ.2 Board PJ.2 **SNOW EXTRACTION USING X-BAND MULTI-TEMPORAL COHERENCE BASED ON INSAR TECHNOLOGY**
Caizheng Guo, Ling Tong, Yan Chen, Xun Yang, University of Electronic Science and Technology of China

MOP2.PJ.3 Board PJ.3 **FINE TEMPORAL RESOLUTION FREEZE AND THAW STATES USING COMBINATION OF MICROWAVE LAND SURFACE EMISSIVITY ESTIMATED**
Satya Prakash, Hamidreza Norouzi, New York City College of Technology, CUNY; Marzi Azarderakhsh, Fairleigh Dickinson University; Reginald Blake, New York City College of Technology, CUNY

MOP2.PJ.4 Board PJ.4 **AN INVERSE MODEL FOR SEA ICE PHYSICAL PARAMETER RETRIEVAL USING SIMULATED ANNEALING**
Yu Jen Lee, Kee Choon Yeong, Hong Tat Ewe, Universiti Tunku Abdul Rahman

MOP2.PJ.5 Board PJ.5 **SEA ICE MAPPING AND CHARACTERIZATION USING KU- AND KA BANDS NEAR NADIR RADAR DATA**
Nicolas Longépé, CLS; Alexis Mouche, Fanny Ardhuin, IFREMER; François Soulat, CLS

MOP2.PJ.6 Board PJ.6 **THE GLOBAL LAND SURFACE SATELLITE (GLASS) PRODUCTS: ALGORITHMS AND APPLICATION EXAMPLES**
Shunlin Liang, Beijing Normal University

MOP2.PJ.7 Board PJ.7 **DEVELOPMENT OF A MULTILAYER MODIS IST-ALBEDO PRODUCT OF GREENLAND**
Dorothy Hall, Michigan State University; Josefino Comiso, NASA; Richard Cullather, University of Maryland; Nicolo DiGirolamo, SSAI; Sophie Nowicki, Brooke Medley, NASA

Monday, July 24 15:20 - 16:20 Poster Area K
Session MOP2.PK Poster

Synthetic Aperture Microwave Radiometers I

Session Co-Chairs: Hamideh Ebrahimi, University of Florida; Jeffrey Piepmeier, NASA Goddard Space Flight Center

MOP2.PK.1 Board PK.1 **DIRECT FARADAY ROTATION ANGLE RETRIEVAL IN SMOS FIELD OF VIEW**
Roselena Rubino, Francesc Torres, Nuria Duffo, Universitat Politècnica de Catalunya; Verónica González-Gambau, Barcelona Expert Centre. Institute of Marine Sciences, CSIC.; Ignasi Corbella, Universitat Politècnica de Catalunya; Manuel Martín-Neira, European Space Agency (ESA)

MOP2.PK.2 Board PK.2 **THE OCEAN AS A CALIBRATION TARGET TO TRIM SMOS VISIBILITY DENORMALIZATION ERRORS**
Israel Durán, Marc Vizcarro, Francesc Torres, Nuria Duffo, Universitat Politècnica de Catalunya; Verónica González-Gambau, Institute of Marine Sciences, CSIC.; Ignasi Corbella, Universitat Politècnica de Catalunya; Roger Oliva, Manuel Martín-Neira, European Space Agency (ESA)

MOP2.PK.3 Board PK.3 **STUDY ON DATA PROCESSING METHOD OF SYNTHETIC APERTURE MICROWAVE RADIOMETER**
Rongchuan Lv, Pengfei Li, Guangnan Song, Yinan Li, Hailiang Lu, Xiaojiao Yang, Pengju Dang, Xian Institute of Space Radio Technology

MOP2.PK.4 Board PK.4 **DATA ANALYTICS TO IMPROVE SMOS CALIBRATION**
Roger Oliva, Swedish Space Coorporation for the European Space Agency, ESA-ESAC; Joseph Tenerelli, Ocean DataLab; Manuel Martín-Neira, European Space Agency - ESRIN; Ignasi Corbella, Polythecnic University of Catalonia; Josep Closa, Airbus Defence and Space España; Juha Kainulainen, Harp Technologies

MOP2.PK.5 Board PK.5 **PRELIMINARY RESULTS OF GIMS-II (GEOSTATIONARY INTERFEROMETRIC MICROWAVE SOUNDER-SECOND GENERATION) DEMONSTRATOR**
Hao Liu, Lijie Niu, Cheng Zhang, Donghao Han, Hao Lu, Xin Zhao, Ji Wu, CAS Key Laboratory of Microwave Remote Sensing, National Space Science Center

MOP2.PK.6 Board PK.6 **SYSTEM DESIGN AND PRELIMINARY TESTS OF AN L-BAND CLOCK SCAN MICROWAVE INTERFEROMETRIC RADIOMETER**
Cheng Zhang, Hao Liu, Lijie Niu, Ji Wu, Chinese Academy of Sciences

MOP2.PK.7 Board PK.7 **INTERCOMPARISON OF BRIGHTNESS TEMPERATURE MEASUREMENTS FROM SMAP AND SMOS RADIOMETERS**
Chun Sik Chae, Andreas Colliander, Mariko S. Burgin, NASA Jet Propulsion Laboratory; Emmanuel Dinnat, NASA Goddard Space Flight Center

Monday, July 24 15:20 - 16:20 Poster Area L
Session MOP2.PL Poster

Ocean Surface Wind and Wave I

Session Co-Chairs: Biao Zhang; Simon Yueh, California Institute of Technology

MOP2.PL.1 Board PL.1 **SEA SURFACE WAVES PARAMETERS RETRIEVAL METHOD BASED ON THE MEASUREMENT OF THE DOPPLER SPECTRUM AT SMALL INCIDENT ANGLE**
Yuriy Titchenko, Vladimir Karaev, Institute of Applied Physics, Russian Academy of Science

MOP2.PL.2 Board PL.2 **ANALYSIS OF SENTINEL-1 WAVE MODE SWELL MEASUREMENTS**
Romain Husson, CLS; Alexis Mouche, IFREMER; He Wang, NOTC; François Soulat, CLS

MOP2.PL.3 Board PL.3 **COMPARISON OF EMPIRICAL AND ELECTROMAGNETIC GEOPHYSICAL MODEL FUNCTION FOR NEAR-SURFACE WIND SPEED RETRIEVAL**
Tran Vu La, Ali Khenchaf, Fabrice Comblet, ENSTA Bretagne; Carole Nahum, Direction Générale de l'Armement

MOP2.PL.4 Board PL.4 **PARAMETERIZATION OF OCEANIC WHITECAP FRACTION BASED ON SATELLITE OBSERVATIONS**
Monique F. M. A. Albert, KWR; Magdalena D. Anguelova, Naval Research Laboratory; Astrid M. M. Manders, Martijn Schaap, TNO; Gerrit de Leeuw, Finnish Meteorological Institute

MOP2.PL.5 Board PL.5 **EVOLUTION OF TYPHOON SOUDELOR OBSERVED BY RADARSAT-2 SAR**
Qing Xu, Hohai University; Guosheng Zhang, Fisheries and Oceans Canada; Shuangshang Zhang, Hohai University; Yongcun Cheng, Old Dominion University; William Perrie, Fisheries and Oceans Canada

MOP2.PL.6 Board PL.6 **THE PRECIPITATION RADAR AS AN INSTRUMENT FOR MEASUREMENT OF SEA WAVES SLOPES**
Maria Panfilova, Vladimir Karaev, Institute of applied physics Russian academy of sciences

MOP2.PL.7 Board PL.7 **AN APPROACH TO AUTOMATED SPIRAL EDDY DETECTION IN SAR IMAGES**
Svetlana Karimova, University of Liège

MONDAY POSTER

Tuesday, July 25 09:40 - 10:40 Poster Area A
Session TUP1.PA Poster

SAR Imaging Algorithms I

Session Co-Chairs: Saibun Tjuatja, University of Texas at Arlington; Kun-Shan Chen, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences

TUP1.PA.1 Board PA.1 **EFFICIENT MOTION COMPENSATION APPROACH WITH MODIFIED PHASE CORRECTION FOR AIRBORNE SAR**
Mingdong Yang, Fanqiang Kong, Daiyin Zhu, Nanjing University of Aeronautics and Astronautics; Xiang Yu, Nanjing Institute of Technology

TUP1.PA.2 Board PA.2 **AN ALTERNATING DIRECTION METHOD FOR ANGULAR SUPER-RESOLUTION IN SCANNING RADAR**
Yuebo Zha, Lu Liu, China Electronics Technology Group Corporation No.38 Research Institute; Jianyu Yang, Yulin Huang, School of Electronic Engineering

TUP1.PA.3 Board PA.3 **SIGNAL PROCESSING FOR MULTI-ROTORS UAV SAR**
Xinhua Mao, Xueli He, Lan Ding, Chenqing Wang, Wei Shen, Nanjing University of Aeronautics and Astronautics

TUP1.PA.4 Board PA.4 **IMAGING ALGORITHM STUDY ON ARC ANTENNA ARRAY GROUND-BASED SAR**
Zengshu Huang, Beihang University; Weixian Tan, Pingping Huang, Inner Mongolia University of Technology; Jinping Sun, Yaolong Qi, Beihang University; Yanping Wang, China Academy of Safety Science and Technology

TUP1.PA.5 Board PA.5 **A NOVEL SAR IMAGING METHOD BASED ON ELECTROMAGNETIC VORTEX WITH ORBITAL-ANGULAR-MOMENTUM**
Yue Fang, Jie Chen, Pengbo Wang, Beihang University; Wei Li, Shanghai Institute of Satellite Engineering; Zhirong Men, Baobin Ma, Bing Han, Beihang University

TUP1.PA.6 Board PA.6 **OPTICAL COUNTERPART OF SAR SYSTEM AND ITS APPLICATIONS**
Kaizhi Wang, Hui Chen, Xingzhao Liu, Shanghai Jiao Tong University

TUP1.PA.7 Board PA.7 **SLIDING SPOTLIGHT SAR DATA FOCUSING BASED ON SUBAPERTURE WITH LINE-OF-SIGHT MOTION COMPENSATION**
Mingdong Yang, Fanqiang Kong, Daiyin Zhu, Nanjing University of Aeronautics and Astronautics; Xiang Yu, Nanjing Institute of Technology

Tuesday, July 25 15:20 - 16:20 Poster Area A
Session TUP2.PA Poster

SAR Data Processing and Applications

Session Co-Chairs: Rakesh Bhan, Indian Space Research Organisation; Gerardo Di Martino, University of Naples Federico II

TUP2.PA.1 Board PA.1 **SNOW SURFACE SLOPE AND DIFFERENTIAL SNOW METAMORPHOSIS RATE IMPACT ON SAR SEA ICE IMAGES INTERPRETATION.**
Eric Hudier, UQAR

TUP2.PA.2 Board PA.2 **CHARTERIZATION OF LAND SURFACE USING BACKSCATTERING FEATURES: AN APPLICATION OF HYBRID POLARIMETRIC RISAT-1 SAR DATA**
Nidhi Verma, Shantal Raj, Indian Institute of Information Technology, Allahabad; Pooja Mishra, Neetesh Purohit, indian Institute of Information Technology, Allahabad

TUP2.PA.4 Board PA.4 **USING SENTINEL-1 DATA FOR MONITORING OF SOIL MOISTURE**
Igor Garkusha, Volodymyr Hnatushenko, Volodymyr Vasyliev, EOS Data Analytics

TUP2.PA.5 Board PA.5 **KOLGOMOROV SMIRNOV TEST BASED APPROACH FOR SAR AUTOMATIC TARGET RECOGNITION**
Fabio Baselice, Giampaolo Ferraioli, Vito Pascazio, Universita' di Napoli Parthenope; Michele Ambrosanio, Emanuele Ferrentino, Unoiversity of Naples Parthenope

TUP2.PA.6 Board PA.6 **ROAD NETWORK EXTRACTION IN HIGH-RESOLUTION SAR IMAGES BASED CNN FEATURES**
Yue Li, Rong Zhang, Yunfei Wu, University of Science and Technology of China

TUP2.PA.7 Board PA.7 **SAR IMAGES SUPER-RESOLUTION VIA CARTOON-TEXTURE IMAGE DECOMPOSITION AND JOINTLY OPTIMIZED REGRESSORS**
Zhen Wang, Shuang Wang, Caijin Xu, Chengyuan Li, Bo Yue, Xidian University; Xuefeng Liang, Kyoto University

Tuesday, July 25 **09:40 - 10:40** **Poster Area B**
Session TUP1.PB **Poster**

Urban and Peri-Urban Area Mapping

Session Chair: Dave Kelbe, Oak Ridge National Laboratory

TUP1.PB.1 Board PB.1 **BUILDING EXTRACTION FROM REMOTE SENSING IMAGES WITH DEEP LEARNING IN A SUPERVISED MANNER**
Kaiqiang Chen, Kun Fu, Xin Gao, Menglong Yan, Xian Sun, Huan Zhang, Institute of Electronics, Chinese Academy of Sciences

TUP1.PB.2 Board PB.2 **DIVERSIFIED DEEP STRUCTURAL METRIC LEARNING FOR LAND USE CLASSIFICATION IN REMOTE SENSING IMAGES**
Zhiqiang Gong, Ping Zhong, Yang Yu, Weidong Hu, National University of Defense Technology

Tuesday, July 25 **15:20 - 16:20** **Poster Area B**
Session TUP2.PB **Poster**

Differential SAR Interferometry I

Session Co-Chairs: Alberto Moreira, German Aerospace Center; Charles Werner, Gamma Remote Sensing AG

TUP2.PB.1 Board PB.1 **TOMOSAR PLATFORM SUPPORTS FOR SENTINEL-1 TOPS PERSISTENT SCATTERERS INTERFEROMETRY**
Dinh Ho Tong Minh, Yen-Nhi Ngo, IRSTEA

TUP2.PB.2 Board PB.2 **EVALUATION OF AN AIRBORNE SAR SYSTEM FOR DEFORMATION MAPPING: A CASE STUDY OVER THE SLUMGULLION LANDSLIDE**
Ning Cao, Hyongki Lee, University of Houston; Evan C. Zaugg, ARTEMIS, Inc.; Ramesh Shrestha, William Carter, Craig Glennie, Guoquan Wang, University of Houston; Zhong Lu, Southern Methodist University; Juan Carlos Fernandez-Diaz, University of Houston

TUP2.PB.3 Board PB.3 **USER DRIVEN PRODUCTS IN THE CONTEXT OF THE GROUND MOTION SERVICE GERMANY**
Andre Cahyadi Kalia, Federal Institute for Geosciences and Natural Resources

TUP2.PB.4 Board PB.4 **THREE-DIMENSIONAL SURFACE DEFORMATION MAPPING FROM MULTI-DIRECTIONAL SAR INTERFEROGRAMS**
Hiroshi Kimura, Gifu University

TUP2.PB.5 Board PB.5 **MODIFIED MULTILOOKING BASED PATCH SIMILARITY FOR MULTITEMPORAL INTERFEROMETRY**
Yingjie Wang, Yunkai Deng, Robert Wang, Wenbo Fei, Institute of Electronics, Chinese Academy of Sciences; Huina Song, University of Chinese Academy of Sciences; Jili Wang, Institute of Electronics, Chinese Academy of Sciences

TUP2.PB.6 Board PB.6 **REPEAT PASS RADAR INTERFEROMETRY BY PI-SAR2 WITH RF-NAVI**
Shoichiro Kojima, Takeshi Matsuoka, Tatsuharu Kobayashi, Junpei Uemoto, Akitsugu Nadai, Toshihiko Umehara, National Institute of Information and Communications Technology

Tuesday, July 25 **09:40 - 10:40** **Poster Area C**
Session TUP1.PC **Poster**

Lidar Data Analysis

Session Co-Chairs: Micahel Cathcart, Georgia Tech Research Institute; John Kerekes, Rochester Institute of Technology

TUP1.PC.2 Board PC.2 **STUDY ON THE METHOD OF HIGH-PRECISION VEHICLE-BORNE LIDAR POINT CLOUDS DATA ACQUISITION IN EXISTING RAILWAY SURVEY**
Wei Li, Xiaochun Ren, China Railway First Survey and Design Institute Group Ltd.; Fei Li, Peking University; Wei Wang, China Railway First Survey and Design Institute Group Ltd.

TUP1.PC.3 Board PC.3 **A NEW APPROACH TO MINIMIZE WALK ERROR IN PULSED LASER RANGEFINDING**
Guoqing Zhou, Wei Huang, Xiang Zhou, Lieping Zhang, Pengyun Chen, Guilin University of Technology; Jingjin Huang, Rongting Zhang, Tianjin University

TUP1.PC.4 Board PC.4 **QUANTITATIVE EXTRACTION OF WALL CRACKS INFORMATION OF EARTHQUAKE DAMAGED BUILDINGS BASED ON GROUND-BASED LIDAR**
Hongbo Jiang, Qiang Li, Qisong Jiao, Tengfei Xue, Qingyun Zhang, The Institute of Crustal Dynamics, CEA

TUP1.PC.5 Board PC.5 **LASER SCANNER INTENSITY CALIBRATION BASED ON ARTIFICIAL NEURAL NETWORKS**
Rodrigo Marques de Figueiredo, Mauricio Roberto Veronez, Francisco Manoel Wohnrath Tognoli, Márcio Rosa da Silva, Fabiane Bordin, Luiz Gonzaga Jr., Ismael Koch, Fernando Pinho Marson, UNISINOS; Ana Paula Camargo Larocca, São Carlos Engineering School (USP)

TUP1.PC.6 Board PC.6 **TLS POINT CLOUD SEGMENTATION BASED ON POINTS FEATURES**
Hongbo Jiang, Qisong Jiao, The Institute of Crustal Dynamics, CEA

Tuesday, July 25 **15:20 - 16:20** **Poster Area C**
Session TUP2.PC **Poster**

SAR Imaging Techniques

Session Co-Chairs: Saibun Tjuatja, University of Texas at Arlington; Kun-Shan Chen, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences

TUP2.PC.1 Board PC.1 **A NOVEL STRATEGY OF 3D IMAGING ON GEO SAR BASED ON MULTI-BASELINE SYSTEM**
Lifang Zheng, Shunsheng Zhang, Xiangqian Zhang, University of Electronic Science and Technology of China

TUP2.PC.2 Board PC.2 **EFFICIENT STRIPMAP SAR RAW DATA GENERATION ACCOUNTING FOR TRAJECTORY DEVIATION AND ANTENNA POINTING ERRORS AT A NONZERO SQUINT ANGLE**
Yuhua Guo, Integrated Information Technology, Beijing Institute of Satellite Information Engineering; Xiaohan Liao, Huanyin Yue, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences; Yan Hao, Beijing Institute of Satellite Information Engineering; Yuhong Guo, Beijing University of Technology

TUP2.PC.3 Board PC.3 **AN IMAGING STRATEGY FOR HIGH-PRECISION AND WIDE-BEAM AIRBORNE SAR SYSTEM**
Xue Lin, University of Jinan; Yue-Ting Zhang, Chinese Academy of Sciences; Dong-Sheng Fang, University of Chinese Academy of Sciences; Ling-Yin Wang, University of Jinan; Fang-Fang Li, Chinese Academy of Sciences

Tuesday, July 25 **09:40 - 10:40** **Poster Area D**
Session TUP1.PD **Poster**

Change Detection Techniques

Session Co-Chairs: Claudia Paris, University of Trento; Marco Chini, Luxembourg Institute of Science and Technology

TUP1.PD.1 Board PD.1 **PCA-BASED CHANGE DETECTION IN URBAN CONTEXT**
Yang Gao, Yan Li, Xiaosai Huang, Jianliang Wu, Peikun Ma, Nanjing University

TUP1.PD.2 Board PD.2 **IMPROVING FEATURES USED FOR HYPER-TEMPORAL LAND COVER CHANGE DETECTION BY REDUCING THE UNCERTAINTY IN THE FEATURE EXTRACTION METHOD**
Brian Salmon, University of Tasmania; Waldo Kleynhans, Council for Scientific and Industrial Research; Jan Olivier, University of Tasmania; Colin Schwegmann, Council for Scientific and Industrial Research

TUP1.PD.3 Board PD.3 **A NOVEL SYSTEM FOR CONTENT BASED RETRIEVAL OF MULTI-LABEL REMOTE SENSING IMAGES**
Osman Emre Dai, Bogazici University; Begüm Demir, University of Trento; Bülent Sankur, Bogazici University; Lorenzo Bruzzone, University of Trento

TUP1.PD.4 Board PD.4 **DISCOVERING LATENT MANIFOLD FOR MULTI-ASPECT ANGLE SAR IMAGERY**
Jifang Pei, Yulin Huang, Weibo Huo, Yin Zhang, Junjie Wu, Jianyu Yang, University of Electronic Science and Technology of China

TUP1.PD.5 Board PD.5 **SEAM CARVING FOR HYPERSPECTRAL IMAGE SIZE REDUCTION AND UNMIXING**
Alp Ertürk, Sarp Ertürk, Kocaeli University

TUP1.PD.6 Board PD.6 **SAR SPECKLE DENOISING USING ITERATIVE FILTER**
Mohamed Yahia, SYSCOM Laboratory ENIT/Université Tunis El Manar, 1002 Tunis, Tunisia; Tej AlBaha Hamrouni, Riadh Abdelfattah, Université of Carthage: COSIM Lab, Higher School of Communications of Tunis (Tunisia)

TUP1.PD.7 Board PD.7 **SIMILARITY CRITERION FOR SAR TOMOGRAPHY OVER DENSE URBAN AREA**
Clément Rambour, Télécom ParisTech; Loïc Denis, Univ Lyon, UJM- Télécom Saint-Etienne, CNRS, Institut d'Optique Graduate School; Florence Tupin, Jean-Marie Nicolas, Télécom ParisTech; Hélène Oriot, ONERA, The French Aerospace Lab, F-91761; Laurent Ferro-Famil, IETR - University of Rennes 1; Charles Deledalle, IMB, CNRS, Université de Bordeaux

Tuesday, July 25 **15:20 - 16:20** **Poster Area D**
Session TUP2.PD **Poster**

Image Segmentation

Session Co-Chairs: Alina Zare, University of Florida; Hao Hu, Huazhong University of Science and Technology

TUP2.PD.1 Board PD.1 **SAR IMAGE SEGMENTATION BASED ON BMFCM**
Hailun Xu, Bing Sun, Jie Chen, Wei Guo, Beihang University; Zhijun Qiao, University of Texas Rio Grande Valley

TUP2.PD.2 Board PD.2 **DISCRETIZATION OF OBJECT-BASED LIDAR FEATURES FOR LAND COVER CLASSIFICATION**
Yu-Ching Lin, Chung Cheng Institute of Technology, National Defense University; Chun-Lin Lin, National Chung-Shan Institute of Science & Technology; Ming-Da Tsai, Chung Cheng Institute of Technology, National Defense University

TUP2.PD.3 Board PD.3 **LEVEL SETS WITH SELF-GUIDED FILTERING FOR MARINE OIL SPILL SEGMENTATION**
Fang Chen, Xingrui Yu, Xiangyuan Jiang, Peng Ren, China University of Petroleum

TUP2.PD.4 Board PD.4 **A NEW SEMANTIC SEGMENTATION MODEL FOR REMOTE SENSING IMAGES**
Xin Wei, Insititute of Electrics, Chinese Academy of Sciences; Yajng Guo, Beijing University of Posts and Telecommunications; Xin Gao, Institute of Electronics, Chinese Academy of Sciences; Menglong Yan, Xian Sun, Insititute of Electrics, Chinese Academy of Sciences

TUP2.PD.5 Board PD.5 **PREDICTING YEAR OF PLANTATION WITH HYPERSPECTRAL AND LIDAR DATA**
Adrià Descals, Luis Alonso, Gustau Camps-Valls, Universitat de València

Tuesday, July 25 **09:40 - 10:40** **Poster Area E**
Session TUP1.PE **Poster**

Target Identification

Session Co-Chairs: Jonathan Li, Xiamen University, University of Waterloo; Emmett Ientilucci, Rochester Institute of Technology

TUP1.PE.1 Board PE.1 **TARGET ASPECT FEATURE EXTRACTION AND APPLICATION FROM MULTI-ASPECT HIGH RESOLUTION SAR**
Yue Zhao, University of Chinese Academy of Sciences; Yun Lin, Wen Hong, Institute of Electronics, Chinese Academy of Sciences; Shiqiang Chen, Wenjie Shen, Feiteng Xue, University of Chinese Academy of Sciences

TUP1.PE.2 Board PE.2 **IMPURITY FUNCTION BAND PRIORITIZATION BASED ON PARTICLE SWARM OPTIMIZATION AND GRAVITATIONAL SEARCH ALGORITHM FOR HYPERSPECTRAL IMAGES**
Yang-Lang Chang, National Taipei University of Technology; Lena Chang, National Taiwan Ocean University; Ming-Xiu Xu, Chihyuan Chu, National Taipei University of Technology

TUP1.PE.3 Board PE.3 **CHARATERIZATION OF DENSELY ARRAYED TARGETS PATTERNS IN HIGH RESOLUTION SAR IMAGES: A STUDY CASE IN THE DAVIS-MONTHAN AIR FORCE BASE**
Zeyu Liu, Bin Liu, Weiwei Guo, Zenghui Zhang, Wenxian Yu, Shanghai Jiao Tong University

TUP1.PE.4 Board PE.4 **FEATURE EXTRACTION FOR POLSAR IMAGE CLASSIFICATION USING MULTILINEAR SUBSPACE LEARNING**
Mingliang Tao, Northwestern Polytechnical University; Feng Zhou, Xidian University; Jia Su, Jian Xie, Northwestern Polytechnical University

TUP1.PE.5 Board PE.5 **PROBLEM-BASED BAND SELECTION OF HYPERSPECTRAL IMAGES**
Mateus Habermann, Vincent Frémont, Université de Technologie de Compiègne; Elcio Shiguemori, Instituto de Estudos Avançados

TUP1.PE.6 Board PE.6 **FEATURE EXTRACTION AND MACHINE LEARNING FOR THE CLASSIFICATION OF ACTIVE CROPLAND IN THE ARAL SEA BASIN**
Dimo Dimov, University of Würzburg; Fabian Löw, MapTailor Geospatial Consulting; Mirzahayot Ibrakhimov, Khorezm Rural Advisory Support Service; Sarah Schönbrodt-Stitt, Christopher Conrad, University of Würzburg

Tuesday, July 25 **15:20 - 16:20** **Poster Area E**
Session TUP2.PE **Poster**

Deep Networks for Classification

Session Co-Chairs: Xudong Kang, Hunan University; Claudio Persello, University of Twente

TUP2.PE.1 Board PE.1 **GABOR FILTERING BASED DEEP NETWORK FOR HYPERSPECTRAL IMAGE CLASSIFICATION**
Chengchao Li, Shutao Li, Xudong Kang, Ting Lu, Hunan University

TUP2.PE.3 Board PE.3 **SUPERVISED CLASSIFICATION OF HYPERSPECTRAL IMAGES VIA HETEROGENEOUS DEEP NEURAL NETWORKS**
Zhixin Li, Yu Shen, Nan Huang, Liang Xiao, Nanjing University of Science and Technology

TUP2.PE.4 Board PE.4 **INVERSION OF DEEP NETWORKS FOR MODELLING VARIATIONS IN SPATIAL DISTRIBUTIONS OF LAND COVER CLASSES ACROSS SCALES**
Arun P V, Krishna Mohan Buddhiraju, Alok Porwal, Indian Institue of Technology Bombay

TUP2.PE.5 Board PE.5 **LEARNING SENSOR-SPECIFIC FEATURES FOR HYPERSPECTRAL IMAGES VIA 3-DIMENSIONAL CONVOLUTIONAL AUTOENCODER**
Jingyu Ji, Shaohui Mei, Northwestern Polytechnical University; Junhui Hou, City University of Hong Kong; Xu Li, Northwestern Polytechnical University; Qian Du, Mississippi State University

TUP2.PE.6 Board PE.6 **DEEP RESIDUAL NETWORKS FOR HYPERSPECTRAL IMAGE CLASSIFICATION**
Zilong Zhong, Jonathan Li, Lingfei Ma, Han Jiang, He Zhao, University of Waterloo

TUP2.PE.7 Board PE.7 **CLASSIFICATION BASED ON DEEP CONVOLUTIONAL NEURAL NETWORKS WITH HYPERSPECTRAL IMAGE**
Zezhong Zheng, Yameng Zhang, Liutong Li, University of Electronic Science and Technology of China; Mingcang Zhu, Yong He, Land and Resources Department of Sichuan Province; Minqi Li, Zhengqiang Guo, Yue He, Zhenlu Yu, University of Electronic Science and Technology of China; Xiaocheng Yang, Sinohydro Bureau 5 CO.,LTD; Xin Liu, Jianhua Luo, Taoli Yang, University of Electronic Science and Technology of China; Yalan Liu, Chinese Academy of Sciences; Jiang Li, Old Dominion University

Tuesday, July 25 09:40 - 10:40 Poster Area F
Session TUP1.PF Poster

Road and Traffic Detection

Session Co-Chairs: Emmett Ientilucci, Rochester Institute of Technology; Weijia Li, Tsinghua University

TUP1.PF.2 Board PF.2 **AUTOMATED EXTRACTION OF URBAN ROADSIDE TREES FROM MOBILE LASER SCANNING POINT CLOUDS BASED ON A VOXEL GROWING METHOD**
Jianfeng Liu, Zhenlong Xiao, Yiping Chen, Pengdi Huang, Rongren Wu, Xiamen University; Jonathan Li, Xiamen University, University of Waterloo

TUP1.PF.3 Board PF.3 **EFFICIENT DETECTION OF VEHICLE ON THE ROAD FOR GF-2 SATELLITE IMAGE WITH 1-METER SPATIAL RESOLUTION**
Ping Wang, Hao Chen, Ye Zhang, Harbin Institute of Technology

TUP1.PF.4 Board PF.4 **MOVING TARGET DETECTION VIA HIERARCHICAL SPATIOTEMPORAL SALIENCY ANALYSIS**
Bin Du, Long Ma, Yin Zhuang, He Chen, Beijing Institute of Technology; Nouman Qadeer Soomro, Mehran University of Engineering & Technology, SZAB Campus

TUP1.PF.5 Board PF.5 **FAST MULTIDIRECTIONAL VEHICLE DETECTION ON AERIAL IMAGES USING REGION BASED CONVOLUTIONAL NEURAL NETWORKS**
Tianyu Tang, Shilin Zhou, Zhipeng Deng, Lin Lei, Huanxin Zou, National University of Defense Technology

Tuesday, July 25 15:20 - 16:20 Poster Area F
Session TUP2.PF Poster

Ship, Vessel and Spill Detection

Session Co-Chairs: Vahid Akbari, UiT- The Arctic University of Norway; Zhong Ping, National University of Defense Technology

TUP2.PF.1 Board PF.1 **PRELIMINARY EVALUATION OF VESSEL DETECTABILITY FOR SENTINEL-1 SAR DATA**
Lanqing Huang, Bin Liu, Weiwei Guo, Zenghui Zhang, Wenxian Yu, Shanghai Jiao Tong University

TUP2.PF.2 Board PF.2 **EXTRACTION OF INSHORE VESSELS IN VERY HIGH RESOLUTION SAR IMAGES**
Guangjiao Zhou, Ye Zhang, Qi Li, Harbin Institute of Technology

TUP2.PF.3 Board PF.3 **REGION PROPOSAL FOR SHIP DETECTION BASED ON STRUCTURED FORESTS EDGE METHOD**
Jie Huang, Zhiguo Jiang, Haopeng Zhang, Bowen Cai, Yuan Yao, Beihang University

TUP2.PF.4 Board PF.4 **SHIP DETECTION AND VELOCITY ESTIMATION IN QUAD POLARIMETRIC SAR IMAGES FROM PURSUIT MONOSTATIC MODE OF TERRASAR-X AND TANDEM-X**
Bo Zhang, Chao Wang, Fan Wu, Hong Zhang, Lu Xu, Meng Liu, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences

TUP2.PF.5 Board PF.5 **A SHIP DETECTOR APPLYING PRINCIPAL COMPONENT ANALYSIS TO THE POLARIMETRIC NOTCH FILTER**
Tao Zhang, Shanghai Jiao Tong University; Armando Marino, The Open University; Huilin Xiong, Shanghai Jiao Tong University

TUP2.PF.6 Board PF.6 **RESEARCH ON MARINE RADAR OIL SPILL NETWORK MONITORING TECHNOLOGY**
Jin Xu, Dalian Maritime University; Xinxin Wang, National Marine Environmental Monitoring Center; Xueyuan Zhu, Can Cui, Peng Liu, Dalian Maritime University; Bo Li, Liaoning Reconnaissance Institute of Hydrogeology and Engineering Geology

TUP2.PF.7 Board PF.7 **MULTI-FREQUENCY POLARIMETRIC SAR SIGNATURES OF LEAD SEA ICE AND OIL SPILLS**
Malin Johansson, Camilla Brekke, UiT The Arctic Univeristy of Norway; Gunnar Spreen, University of Bremen

TUP2.PF.8 Board PF.8 **NONCIRCULARITY PARAMETERS AND THEIR POTENTIAL IN SHIP DETECTION FROM HIGH RESOLUTION SAR IMAGERY**
Xiangguang Leng, Kefeng Ji, Shilin Zhou, Huanxin Zou, National University of Defense Technology

Tuesday, July 25 09:40 - 10:40 Poster Area G
Session TUP1.PG Poster

Change Detection in SAR Images II

Session Co-Chairs: Fabio Del Frate, University of Rome Tor Vergata; Florence Tupin, Télécom ParisTech

TUP1.PG.1 Board PG.1 **A NEW APPROACH FOR RAPID URBAN FLOOD MAPPING USING ALOS-2/PALSAR-2 IN 2015 KINU RIVER FLOOD, JAPAN**
Youngjoo Kwak, ICHARM-UNESCO-PWRI; Sang-ho Yun, Jet Propulsion Laboratory; Yoichi Iwami, ICHARM-UNESCO-PWRI

TUP1.PG.2 Board PG.2 **POLARIMETRIC SAR IMAGE CHANGE DETECTION BASED ON LOW RANK AND SPARSE REPRESENTATION WITH FREEMAN-DURDEN DECOMPOSITION**
Yizhou Liu, Wei Liu, Shuiping Gou, Licheng Jiao, Xidian University

TUP1.PG.3 Board PG.3 **THE ANALYSIS OF RELIABLE ARC SOLUTION IN THE MULTI-TEMPORAL INSAR**
Fengming Hu, Jicang Wu, Tongji University

TUP1.PG.4 Board PG.4 **INCOHERENT DETECTION OF MAN-MADE OBJECTS OBSCURED BY FOLIAGE IN FOREST AREA**
Mats I. Pettersson, Viet Thuy Vu, Blekinge Institute of Technology; Natanael Gomes, Federal University of Santa Maria; Patrik Dammert, Hans Hellsten, Saab Electronic Defense Systems

TUP1.PG.5 Board PG.5 **CHANGE DETECTION BASED ON SIMILARITY MEASURE AND JOINT CLASSIFICATION FOR POLARIMETRIC SAR IMAGES**
Jinqi Zhao, Jie Yang, Wuhan University; Zhong Lu, Southern Methodist University; Pingxiang Li, Wensong Liu, Wuhan University

TUP1.PG.6 Board PG.6 **FLOOD HAZARD MAPPING FROM SAR IMAGES USING TEXTURE ANALYSIS AND FUZZY LOGIC**
Moslem Ouled Sghaier, École de technologie supérieure; Imen Hammami, Faculté des Sciences de Tunis; Samuel Foucher, Computer Research Institute of Montreal; Richard Lepage, École de technologie supérieure

TUP1.PG.7 Board PG.7 **A MOVING TARGET RECONSTRUCTION APPROACH FOR THE MULTICHANNEL IN AZIMUTH HRWS SAR SYSTEM**
Yuying Wang, University of the Chinese Academy of Sciences; Zhimin Zhang, Wei Xu, Institute of Electronics, Chinese Academy of Sciences; Heng Zhang, University of the Chinese Academy of Sciences

Tuesday, July 25 15:20 - 16:20 Poster Area G
Session TUP2.PG Poster

Change Detection and Multitemporal Analysis

Session Co-Chairs: Pedram Ghamisi, German Aerospace Center (DLR) and Technical University of Munich (TUM); Claudio Persello, University of Twente

TUP2.PG.1 Board PG.1 **A FRAMEWORK FOR RADIOMETRIC SENSITIVITY EVALUATION OF MEDIUM RESOLUTION REMOTE SENSING TIME SERIES DATA TO BUILT-UP LAND COVER CHANGE**
Johannes H. Uhl, Stefan Leyk, University of Colorado

TUP2.PG.2 Board PG.2 **COMBINING MULTI-TEMPORAL SATELLITE IMAGES AND A CLOUD PLATFORM TO DEVELOP NEW EVALUATING PROCEDURES FOR LANDSLIDE VULNERABILITY STUDY**
Kuan-Tsung Chang, Minghsin University of Science and Technology; Jin-King Liu, CEO/LiDAR Technology Co., Ltd.; Chih-Ping Kuo, Minghsin University of Science and Technology; Hern Wang, Yu-Sheng Chang, Graduate Student/Minghsin University of Science and Technology

TUP2.PG.3 Board PG.3 **THE CONTRIBUTION OF CLIMATIC VARIABLES TO VEGETATION CHANGE OVER THE FARMING-PASTORAL ECOTONE OF NORTHERN CHINA**
Zhengjia Liu, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences

TUP2.PG.4 Board PG.4 **CHANGE DETECTION FOR HIGH-RESOLUTION REMOTE SENSING IMAGERY BASED ON MULTI-SCALE SEGMENTATION AND FUSION**
Qingle Guo, Junping Zhang, Tong Li, Xiaochen Lu, Harbin Institute of Technology

TUP2.PG.5 Board PG.5 **A STUDY ON DERIVING DAILY EVAPOTRANSPIRATION FROM REMOTELY SENSED INSTANTANEOUS EVAPOTRANSPIRATION BASED ON THE GAUSSIAN FITTING METHOD**
Suhua Liu, Chinese Academy of Sciences; Hongbo Su, Florida Atlantic University; Renhua Zhang, Jing Tian, Shaohui Chen, Chinese Academy of Sciences; Weimin Wang, Lijun Yang, Hong Liang, Shenzhen Environmental Monitoring Center

TUP2.PG.6 Board PG.6 **A NEW METHOD OF MARS ICE FLOW DETECTION BASED ON ANISOTROPY CRYSTAL ORIENTATION FABRICS**
Chen Wang, Xiaojuan Zhang, Xiaojun Liu, Institute of Electronics, Chinese Academy of Sciences; Jiancheng Shi, Institute of Remote Sensing Applications, Chinese Academy of Sciences

TUP2.PG.7 Board PG.7 **SATELLITE OBSERVATION BASED THERMAL ANOMALIES DETECTION FOR 2016 MENYUAN MS6.4 EARTHQUAKE**
Yanmei Zhang, China Earthquake Administration; Xiao Cheng, Beijing Normal University

Tuesday, July 25 **09:40 - 10:40** **Poster Area H**
Session TUP1.PH **Poster**

Change Detection in Hyperspectral and Multispectral Images II

Session Chair: N Rajput, IIT(BHU)

TUP1.PH.1 Board PH.1 **COMPARISON BETWEEN PIXEL AND REGION BASED SITS ANALYSIS APPROACHES**
Safa Réjichi, Ferdaous Chaabane, SUPCOM; Florence Tupin, Télécom ParisTech

TUP1.PH.2 Board PH.2 **LAND-COVER CHANGE DETECTION USING LOCAL FEATURE DESCRIPTORS EXTRACTED FROM SPECTRAL INDICES**
Daniela Espinoza-Molina, Reza Bahmanyar, German Aerospace Center (DLR); Ricardo Diaz-Delgado, Javier Bustamante, Remote Sensing and GIS Laboratory (LAST-EBD); Mihai Datcu, German Aerospace Center (DLR)

TUP1.PH.3 Board PH.3 **CLOUD DETECTION ON THE GOOGLE EARTH ENGINE PLATFORM**
Gonzalo Mateo-García, Jordi Muñoz-Marí, Luis Gómez-Chova, University of Valencia

TUP1.PH.4 Board PH.4 **EVALUATING HYPERSPECTRAL IMAGING CHANGE DETECTION METHODS**
Stanley R. Rotman, Hanoch Shalev, Ben-Gurion University of the Negev

TUP1.PH.5 Board PH.5 **ANALYSIS OF CHANGE DETECTION ALGORITHMS WITH LANDSAT-8 DATA ON LANDSLIDE MAPPING IN THE KAIKOURA EARTHQUAKE**
Liwei Li, Yixin Wu, Xianfeng Zhou, Linyi Liu, Yunxia Wei, Dailiang Peng, Liping Lei, Wenjiang Huang, Bing Zhang, Institute of Remote Sensing and Digital Earth

TUP1.PH.6 Board PH.6 **A CHANGE DETECTION METHOD BASED ON COSEGMENTATION**
Zhenlei Xie, Ruoming Shi, Ling Zhu, Beijing University of Civil Engineering and Architecture; Shu Peng, National Geomatics Center of China; Linyuan Li, Beijing Normal University

TUP1.PH.7 Board PH.7 **A DEEP INFORMATION BASED TRANSFER LEARNING METHOD TO DETECT ANNUAL URBAN DYNAMICS OF BEIJING AND NEWYORK FROM 1984-2016**
Haobo Lyu, Hui Lu, Tsinghua University

Tuesday, July 25 **15:20 - 16:20** **Poster Area H**
Session TUP2.PH **Poster**

Ocean Surface Remote Sensing

Session Co-Chairs: Tonje-Nanette Hannevik, Norwegian Defence Research Establishment; Mehmet Kurum, Mississippi State University

TUP2.PH.1 Board PH.1 **THE OCEAN SURFACE CURRENT INVERSION MEHTOD OF DOPPLER SCATTEROMETER**
Qingliu Bao, Mingsen Lin, Youguang Zhang, National Satellite Ocean Application Service; Xiaolong Dong, National Space Science Center, Chinese Academy of Sciences; Shuyan Lang, National Satellite Ocean Application Service; Peng Gong, Tsinghua University

TUP2.PH.2 Board PH.2 **ON CFOSAT SWIM WAVE SPECTROMETER RETRIEVAL OF OCEAN WAVES**
Lin Ren, Jingsong Yang, Qingmei Xiao, Gang Zheng, Juan Wang, Second Institute of Oceanography, State Oceanic Administration

TUP2.PH.3 Board PH.3 **THE ERROR TRANSFER OF DOPPLER SPECTRUM MODEL IN OCEAN SURFACE CURRENT DIRECT INVERSION**
Mingsen Lin, Youguang Zhang, Qingliu Bao, National Satellite Ocean Application Service; Peng Gong, Tsinghua University

TUP2.PH.4 Board PH.4 **MARINE RECLAMATION FEATURE ANALYSIS BASED ON GF-3 SAR REMOTE SENSING IMAGERY**
Jianchao Fan, Jianhua Zhao, Xinxin Wang, Xiang Wang, Jialan Chu, Bingnan Li, National Marine Environmental Monitoring Center

TUP2.PH.5 Board PH.5 **MARINE TARGETS DETECTION USING GF-3 SAR DATA**
Peng Chen, Jinggsong Yang, Juan Wang, State Key Laboratory of Satellite Ocean Environment Dynamics

TUP2.PH.6 Board PH.6 **DATA QUALITY CONTROL OF SEA SURFACE TEMPERATURE RETRIEVED BY SPACEBORNE MICROWAVE RADIOMETER**
Qimao Wang, National Satellite Ocean Application Service; Chen Chen, 27th Research institute of China Electronics Technology Group Corporation; Fei Liao, Guangzhou Meteorological Observatory,CHINA; Yuxin Liu, Zhaohui Wang, National Satellite Ocean Application Service

Tuesday, July 25 09:40 - 10:40 Poster Area I
Session TUP1.PI Poster

SMAP Retrievals and Applications

Session Co-Chairs: Pang-Wei Liu, University of Florida; Kalifa Goïta, Université de Sherbrooke

TUP1.PI.1 Board PI.1 **CCI SOIL MOISTURE FOR LONG-TERM AGRICULTURAL DROUGHT MONITORING: A CASE STUDY IN SPAIN**
José Martínez-Fernández, Universitiy of Salamanca; Ángel González-Zamora, University of Salamanca; Nilda Sánchez, Miriam Pablos, Universitiy of Salamanca

TUP1.PI.2 Board PI.2 **DECOMPOSITION OF THE SMAP RADAR CHANNELS AND RELATION TO SURFACE SOIL MOISTURE AND VEGETATION**
Yishan Li, Tsinghua University; Ruzbeh Akbar, Massachusetts Institute of Technology; Fan Yang, Hui Lu, Tsinghua University; Kaighin McColl, Dara Entekhabi, Massachusetts Institute of Technology

TUP1.PI.3 Board PI.3 **PASSIVE/ACTIVE MICROWAVE SOIL MOISTURE DISAGGREGATION USING SMAP DATA**
Bin Fang, Venkat Lakshmi, University of South Carolina; Rajat Bindlish, NASA Goddard Space Flight Center; Thomas J. Jackson, Michael H. Cosh, USDA-ARS Hydrology and Remote Sensing Laboratory; Andreas Colliander, Jet Propulsion Laboratory

TUP1.PI.4 Board PI.4 **SMAP DATA FOR CROPLAND SOIL MOISTURE ASSESSMENT – A CASE STUDY**
Zhengwei Yang, USDA / National Agricultural Statistics Service; Wade Crow, USDA-ARS; Lei Hu, Liping Di, George Mason University; Rick Mueller, USDA / National Agricultural Statistics Service

TUP1.PI.5 Board PI.5 **PRELIMINARY ASSESSMENT OF AN INTEGRATED SMOS AND MODIS APPLICATION FOR GLOBAL AGRICULTURAL DROUGHT MONITORING**
Nilda Sánchez, Ángel González-Zamora, José Martínez-Fernández, University of Salamanca; María Piles, Universitat de València; Miriam Pablos, University of Salamanca; Brian Wardlow, Tsegaye Tadesse, Mark Svoboda, University of Nebraska-Lincoln

TUP1.PI.6 Board PI.6 **IMPROVING SATELLITE RAINFALL ESTIMATES OVER TIBETAN PLATEAU USING IN SITU SOIL MOISTURE OBSERVATION AND SMAP RETRIEVALS**
Hui Lu, Wei Wang, Fuqiang Tian, Kun Yang, Tsinghua University

TUP1.PI.7 Board PI.7 **GENERATION OF SMAP 9 KM SOIL MOISTURE USING A SPATIO-TEMPORAL INFORMATION FUSION MODEL**
Hongtao Jiang, Huanfeng Shen, Xinghua Li, Liangpei Zhang, Wuhan University

Tuesday, July 25 15:20 - 16:20 Poster Area I
Session TUP2.PI Poster

Soil Moisture Validation

Session Chair: Andreas Colliander, Jet Propulsion Laboratory, California Institute of Technology

TUP2.PI.1 Board PI.1 **A MULTI-SCALE AUTOMATIC OBSERVATORY OF SOIL MOISTURE AND SOIL TEMPERATURE FOR SATELLITE PRODUCT VALIDATION IN TIBETAN PLATEAU**
Shihao Tang, Lixin Dong, China Meteorological Administration; Ping Zhao, Chinese Academy of Meteorological Sciences

TUP2.PI.2 Board PI.2 **STRATEGIES FOR VALIDATING SATELLITE SOIL MOISTURE PRODUCTS USING IN SITU NETWORKS: LESSONS FROM THE USDA-ARS WATERSHEDS**
Michael H. Cosh, Thomas J. Jackson, Patrick Starks, David Bosch, Chandra Holifield Collins, Mark Seyfried, John Prueger, Stan Livingston, Rajat Bindlish, USDA-ARS

TUP2.PI.3 Board PI.3 **SURFACE SOIL MOISTURE RELATIONSHIP MODEL CONSTRUCTION BASED ON RANDOM FOREST METHOD**
Wei Zhao, Ainong Li, Pan Huang, Bo Kong, Juelin He, Xianming Ma, Institute of Mountain Hazards and Environment, Chinese Academy of Sciences

TUP2.PI.4 Board PI.4 **RECONSTRUCTION OF LONG TIME SERIES OF SOIL MOISTURE COMBINING OPTICAL AND MICROWAVE PRODUCTS OVER THE TIBETAN PLATEAU**
Yaokui Cui, State Key Laboratory of Hydroscience and Engineering, Department of Hydraulic Engineering, Tsinghua University; Ronghua Liu, China Institute of Water Resources and Hydropower Research; Chao Zeng, Di Long, Yang Hong, Cunguang Wang, Yingzhao Ma, State Key Laboratory of Hydroscience and Engineering, Department of Hydraulic Engineering, Tsinghua University; Yong Tu, China Institute of Water Resources and Hydropower Research

TUP2.PI.5 Board PI.5 **SOIL SURFACE ROUGHNESS OBSERVED DURING SMAPVEX16–IA AND ITS POTENTIAL CONSEQUENCES FOR SMOS AND SMAP**
Brian Hornbuckle, Iowa State University; Bill Eichinger, Vivian Wallace, University of Iowa; Victoria Walker, Iowa State University; Enes Yildirim, University of Iowa

TUP2.PI.6 Board PI.6 **L-BAND SOIL MOISTURE MAPPING USING A SMALL UNMANNED AERIAL SYSTEM**
Eryan Dai, Albin J. Gasiewski, Aravind Venkitasubramony, University of Colorado Boulder; Maciej Stachura, Jack Elston, Black Swift Technologies LLC

TUP2.PI.7 Board PI.7 **ESTIMATION AND ANALYSIS SOIL MOISTURE OF HUNSHANDAKE SANDY LAND FROM POLARIMETRIC SAR DATA**
Chi Wang, Pingping Huang, Ritu Su, Weixian Tan, Inner Mongolia University of Technology

TUP2.PI.8 Board PI.8 **PARAMETERIZATION OF THE FREEZE/THAW DISCRIMINANT FUNCTION ALGORITHM USING DENSE IN SITU OBSERVATION NETWORK DATA**
Pingkai Wang, Tianjie Zhao, Jiancheng Shi, Panpan Yao, Tongxi Hu, Dabin Ji, Shangnan Li, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences

Tuesday, July 25 **09:40 - 10:40** **Poster Area J**
Session TUP1.PJ **Poster**

Target Detection and Applications

Session Co-Chairs: Andrii Shelestov, Space Research Institute; Jakob Sigurdsson, University Of Iceland

TUP1.PJ.1 Board PJ.1
MULTI SCALE C-V MODEL LEVEL SET METHOD FOR FAST COASTLINE EXTRACTION WITH SAR IMAGERY
Jiaojing Hu, Shandong University of Science and Technology; Lijun Lu, Chinese Academy of Surveying and mapping; Junyi Xu, Shandong University of Science and Technology; Jixian Zhang, Chinese Academy of Surveying and mapping

TUP1.PJ.2 Board PJ.2
DETECTION OF TARGETS MOVING IN AZIMUTH BASED ON VARIABLE-BORESIGHT MULTICHANNEL SAR
Hongchao Zheng, Junfeng Wang, Xingzhao Liu, Yesheng Gao, Shanghai Jiao Tong University

TUP1.PJ.3 Board PJ.3
SHIP DETECTION IN SAR IMAGERY: A COMPARISON STUDY
Pasquale Iervolino, Raffaella Guida, University of Surrey; Parivash Lumsdon, Jürgen Janoth, Melanie Clift, Andrea Minchella, Paolo Bianco, Airbus Defence and Space GmbH

TUP1.PJ.4 Board PJ.4
VELOCITY ESTIMATION OF THE MOVING TARGET FOR HIGH-RESOLUTION WIDE-SWATH SAR SYSTEMS
Hongchao Zheng, Junfeng Wang, Xingzhao Liu, Yesheng Gao, Linjian Zhang, Shanghai Jiao Tong University

TUP1.PJ.5 Board PJ.5
EVALUATION OF THE BLACK OCEAN PIXEL ASSUMPTION FOR MODIS IMAGERY OVER THE ARABIAN GULF
Maryam Al Shehhi, Imen Gherboudj, Hosni Ghedira, Masdar Institute of Science and Technology

TUP1.PJ.6 Board PJ.6
ANALYSIS OF GPS SIGNALS BACKSCATTERED FROM A TARGET ON THE SEA SURFACE
Silvia Liberata Ullo, Generoso Giangregorio, Maurizio di Bisceglie, Carmela Galdi, Università degli Studi del Sannio; Maria Paola Clarizia, University of Michigan; Pia Addabbo, Università Telematica Giustino Fortunato

TUP1.PJ.7 Board PJ.7
IMPERVIOUS SURFACE AREA EXTRACTION USING SIMULATED ENMAP IMAGERY
Boyu Feng, Jinfei Wang, Western University

Tuesday, July 25 **15:20 - 16:20** **Poster Area J**
Session TUP2.PJ **Poster**

Calibration and Validation of Space-borne Remote Sensing Instruments

Session Co-Chairs: Kurtis Thome, NASA; Xiaoxiong Xiong, NASA GSFC

TUP2.PJ.1 Board PJ.1
EVALUATION OF XCO2 FROM OCO-2 LITE FILE PRODUCT COMPARED WITH TCCON DATA
Ailin Liang, Ge Han, Hao Xu, Wei Gong, Tianhao Zhang, Wuhan University

TUP2.PJ.2 Board PJ.2
IMAGE NAVIGATION AND REGISTRATION PERFORMANCE ASSESSMENT EVALUATION TOOLS FOR GOES-R ABI AND GLM
Scott Houchin, Brian Porter, Justin Graybill, Philip Slingerland, The Aerospace Corporation

TUP2.PJ.3 Board PJ.3
EVALUATING SENTINEL-2A ATMOSPHERICALLY CORRECTED REFLECTANCE USING THE 6SV MODEL
Yingjie Li, Qingmiao Ma, Jiangsu Normal University

TUP2.PJ.4 Board PJ.4
CALIBRATION RESULTS OF MULTIPLE SATELLITE ALTIMETRY MISSIONS FROM QIANLIYAN PERMANENT CAL/VAL FACILITIES
Xinghua Zhou, Lei Yang, Ning Lei, Qiuhua Tang, First Institute of Oceanography, State Oceanic Administration; Lin Zhu, Anhui Institute of Optics and Fine Mechanics, Chinese Academy of Science;University of Science and Technology of China

TUP2.PJ.5 Board PJ.5
CROSS VALIDATION OF OBSERVATIONS FROM GPM DUAL-FREQUNECY PRECIPITATION RADAR WITH S-BAND GROUND RADAR MEASURENTS OVER THE DALLAS – FORT WORTH REGION
Sounak Biswas, Venkatachalam Chandrasekar, Colorado State University

TUP2.PJ.6 Board PJ.6
ASSESSMENT AND VALIDATION OF MICROWAVE HUMIDITY AND TEMPERATURE SOUNDER ONBOARD FY-3C
Jieying He, Shengwei Zhang, Zhenzhan Wang, Na Li, National Space Science Center, Chinese Academy of Sciences

TUP2.PJ.7 Board PJ.7
EMISSIVITY IMAGE SIMULATION FOR THERMAL INFRARED BANDS ON GAOFEN-5 USING AIRBORNE HYPERSPECTRAL DATA
Yao Liu, Na Li, China Aero Geophysical Survey and Remote Sensing Center for Land and Resources; Huazhong Ren, Tianyuan Zhang, Peking University

TUP2.PJ.8 Board PJ.8
MULTIPLE MODE SAR RAW DATA SIMULATION FOR GAOFEN-3 MISSION EVALUATION
Fan Zhang, Hanyuan Tang, Qiang Yin, Beijing University of Chemical Technology; Jiayin Liu, Xiaolan Qiu, Yuxin Hu, Chinese Academy of Sciences

Tuesday, July 25 **09:40 - 10:40** **Poster Area K**
Session TUP1.PK **Poster**

Microwave Radiometer Calibration II

Session Chair: Rachael Kroodsma, University of Maryland

TUP1.PK.1 Board PK.1 **RESEARCH OF COLD SKY CALIBRATION FOR CHINESE FUTURE SATELLITE-BASED L-BAND RADIOMETER**
Yili Zhao, Chuntao Chen, National Ocean Technology Center; Wu Zhou, Chaofei Ma, National Satellite Ocean Application Service; Jianhua Zhu, Xiaoqi Huang, National Ocean Technology Center

TUP1.PK.2 Board PK.2 **AN EMISSIVE ANTENNA CORRECTION FOR THE TROPICAL RAINFALL MEASURING MISSION MICROWAVE IMAGER (TMI)**
Faisal Alquaied, W. Linwood Jones, University of Central Florida

TUP1.PK.3 Board PK.3 **HOT LOAD TEMPERATURE CORRECTION FOR THE TROPICAL RAINFALL MEASURING MISSION MICROWAVE IMAGER (TMI)**
Faisal Alquaied, Ruiyao Chen, W. Linwood Jones, University of Central Florida

TUP1.PK.4 Board PK.4 **PRE-LAUNCH RADIOMETRIC PERFORMANCE CHARACTERIZATION OF THE ADVANCED TECHNOLOGY MICROWAVE SOUNDER ON THE JOINT POLAR SATELLITE SYSTEM-1 SATELLITE**
Craig Smith, Stinger Ghaffarian Technologies; Edward Kim, NASA Goddard Space Flight Center; R. Vincent Leslie, Massachusetts Institute of Technology Lincoln Laboratory; Joseph Lyu, I.M. Systems Group, Inc.; Lisa McCormick, Fibertek, Inc.; Kent Anderson, Northrop Grumman Aerospace Systems

TUP1.PK.5 Board PK.5 **INTERCALIBRATION OF JASON-3 ADVANCED MICROWAVE RADIOMETER THROUGH GPM CORE AND CONSTELLATION SATELLITE INSTRUMENTS**
Tanvir Islam, Shannon T. Brown, Sidharth Misra, NASA Jet Propulsion Laboratory

TUP1.PK.6 Board PK.6 **TRACKING CALIBRATION STABILITY IN CLIMATE MONITORING MICROWAVE RADIOMETERS USING ONBOARD 3-POINT CALIBRATION**
Mustafa Aksoy, University of Maryland, Baltimore County; Paul E. Racette, NASA Goddard Space Flight Center

TUP1.PK.7 Board PK.7 **SHOWMASK: A TOOL TO IDENTIFY HOMOGENEOUS DESERT SCENES FROM SPACEBORNE MICROWAVE RADIOMETER OBSERVATIONS**
Saswati Datta, Data and Image Processing Consultants, LLC; W. Linwood Jones, University of Central Florida; Branislav Vlahovic, North Carolina Central University

Tuesday, July 25 **15:20 - 16:20** **Poster Area K**
Session TUP2.PK **Poster**

Advanced Microwave Instruments

Session Co-Chairs: Andreas Colliander, Jet Propulsion Laboratory, California Institute of Technology; Andrew O'Brien, The Ohio State University

TUP2.PK.1 Board PK.1 **HURRICANE IMAGING RADIOMETER (HIRAD) BRIGHTNESS TEMPERATURE VALIDATION**
Saleem Sahawneh, W. Linwood Jones, University of Central Florida

TUP2.PK.2 Board PK.2 **SHAPED SPACE-BORNE WAVEGUIDE SLOTS ARRAY ANTENNA**
Hongjian Wang, CAS Key Laboratory of Microwave Remote Sensing, National Space Science Center

TUP2.PK.3 Board PK.3 **COMBINED RECEIVER FOR ACTIVE AND PASSIVE MICROWAVE REMOTE SENSING**
Chun Sik Chae, Shannon T. Brown, Andy Fung, Lorene Samoska, Todd C. Gaier, Jason Matthews, NASA Jet Propulsion Laboratory

TUP2.PK.4 Board PK.4 **RIGOROUS RADIATIVE TARNSFER SIMULATION FOR ATMS 183 GHZ WITH ATMOSPHERIC WATER SIGNATURE FROM COMBINED RADAR AND RADIOMETER OF GPM**
John Xun Yang, Hu Yang, University of Maryland; Fuzhong Weng, NOAA Center for Satellite Applications and Research

TUP2.PK.5 Board PK.5 **PRELAUNCH PERFORMANCE OF THE 118 GHZ POLARCUBE 3U TEMPERATURE SOUNDING RADIOMETER**
Lavanya Periasamy, Albin J. Gasiewski, University of Colorado Boulder

TUP2.PK.6 Board PK.6 **CHARACTERISTIC OF A DIGITAL CORRELATION RADIOMETER BACK END WITH FINITE WORDLENGTH**
Sayak Biswas, USRA/NASA MSFC; David Hyde, Mark James, Daniel Cecil, NASA Marshell Space Flight Center

TUP2.PK.7 Board PK.7 **PALS INSTRUMENT UPGRADE, A WIDE BAND RADIOMETER**
Isaac Ramos Perez, Sidharth Misra, Jet Propulsion Laboratory

Tuesday, July 25 **09:40 - 10:40** **Poster Area L**
Session TUP1.PL **Poster**

Ocean Surface Wind and Wave II

Session Co-Chairs: Xiaobin Yin; Alexandra Bringer, The Ohio State University

TUP1.PL.1 Board PL.1 **HURRICANE IMAGING RADIOMETER (HIRAD) WIND SPEED RETRIEVAL USING RADAR RAIN RATE**
Abdusalam Alasgah, Maria Jacob, W. Linwood Jones, University of Central Florida

TUP1.PL.2 Board PL.2 **IN-ORBIT ONBOARD WIND VECTOR RAPID RETERIVAL USING POLARIMETERIC MICROWAVE RADIOMETER**
Xiaobin Yin, Beijing Piesat Information Technology Co. Ltd; Chaofei Ma, National Ocean Satellite Application Center; Congcong Wang, Yinan Li, CAST-Xi'an Institute of Space Radio Technology; Tongkui Liao, Beijing Piesat Information Technology Co. Ltd

TUP1.PL.3 Board PL.3 **WIND/STRESS FEEDBACK TO MESOSCALE OCEAN EDDIES**
W Timothy Liu, Xiaosu Xie, Jet Propulsion Laboratory

TUP1.PL.4 Board PL.4 **ON THE DEVELOPMENT OF A SCATTEROMETER-BASED CORRECTION FOR NWP WIND FORCING SYSTEMATIC ERRORS: IMPACT OF SATELLITE SAMPLING**
Ana Trindade, Marcos Portabella, Wenming Lin, Institut de Ciències del Mar - Consejo Superior de Investigaciones Científicas; Ad Stoffelen, Royal Netherlands Meteorological Institute

TUP1.PL.5 Board PL.5 **WIND SPEED RETRIEVING FOR COMBINED OBSERVATIONS OF SCATTEROMETER AND RADIOMETER ONBOARD HY-2A FOR TYPHOONS USING NEURAL NETWORK**
Xingou Xu, Xiaolong Dong, The CAS Key Laboratory of Microwave Remote Sensing, National Space Science Center, Chinese Academy of Sciences; Lei Zhang, DFH Satellite co., Ltd; Di Zhu, The CAS Key Laboratory of Microwave Remote Sensing, National Space Science Center, Chinese Academy of Sciences; Shuyan Lang, National Satellite Ocean Application Service

Tuesday, July 25 **15:20 - 16:20** **Poster Area L**
Session TUP2.PL **Poster**

Ocean Remote Sensing: Techniques and Applications

Session Chair: Ana Ruescas, Univ. Valencia

TUP2.PL.1 Board PL.1 **QUANTIFYING SARGASSUM BOUNDARIES ON EASTERN AND WESTERN WALLS OF THE GULF STREAM PROTRUDING NEAR CAPE HATTERAS INTO SARGASSO SEA BERMUDA/AZORES**
Hagen Hodgkins, Tatyana Matthews, Derek Morris, James Boswell, Andrew Brumfield, Robert George, Linda Hayden, Elizabeth City State University

TUP2.PL.2 Board PL.2 **THE IMPACT OF OCEANOGRAPHIC CONDITIONS ON FISHING GROUND DISTRIBUTION OF FLYING SQUID (OMMASTREPHES BARTRAMI) IN THE WESTERN NORTH PACIFIC USING REMOTELY SENSED SATELLITE DATA**
Yu Liu, Shanghai Ocean University; Quanan Zheng, University of Maryland; Xiaofeng Li, Shanghai Ocean University

TUP2.PL.3 Board PL.3 **A NONLINEAR OPTIMIZATION ALGORITHM FOR EVALUATING THE PERFORMANCE OF MICROWAVE IMAGER COMBINED ACTIVE/PASSIVE**
Lanjie Zhang, Zhenzhan Wang, Ranyu Zhang, Key Laboratory of Microwave Remote Sensing, National Space Science Center; Xiaobin Yin, Beijing Aerospace Hongtu information technology incorporated company

TUP2.PL.4 Board PL.4 **SATELLITE BASED OBSERVATION OF ENHANCEMENT OF CHLOROPHYLL-A CONCENTRATION BY TYPHOON – NARI**
Ankita Misra, Balaji Ramakrishnan, Indian Institute of Technology Bombay

TUP2.PL.5 Board PL.5 **SEA SURFACE SALINITY ESTIMATION IN THE CENTER OF SETO INLAND SEA USING IN SITU REFLECTANCE AND WATER QUALITY DATA FROM FY2015 TO FY2016**
Zuomin Wang, Yuji Sakuno, Kazuhiko Koike, Shizuka Ohara, Hiroshima University

TUP2.PL.6 Board PL.6 **RETRIEVAL OF COLOURED DISSOLVED ORGANIC MATTER WITH MACHINE LEARNING METHODS**
Ana Belen Ruescas, University of Valencia; Martin Hieronymi, Helmholtz-Zentrum Geesthacht; Sampsa Koponen, Kari Kallio, Finnish Environment Institute; Gustau Camps-Valls, University of Valencia

Wednesday, July 26 **09:40 - 10:40** **Poster Area A**
Session WEP1.PA **Poster**

SAR Image Processing

Session Co-Chairs: Zheng-Shu Zhou, CSIRO; Hiroyoshi Yamada, Niigata University; David Garren, Naval Postgraduate School

WEP1.PA.1 Board PA.1 **L1/2 REGULARIZATION BASED AZIMUTH RESOLUTION ENHANCEMENT FOR MULTI-CHANNEL RADAR FORWARD-LOOKING IMAGING**
Jinping Sun, Xuwang Zhang, Rui Zhou, Jinbin Fu, Jun Wang, Beihang University

WEP1.PA.2 Board PA.2 **SAR IMAGE CHANGE DETECTION METHOD BASED ON VISUAL ATTENTION**
Yan Zhang, Jilin University; Chao Wang, University of Chinese Academy of Sciences; Shigang Wang, Jilin University; Hong Zhang, Meng Liu, University of Chinese Academy of Sciences

WEP1.PA.3 Board PA.3 **AN ADAPTIVE SAR IMAGE SPECKLE REDUCTION ALGORITHM BASED ON WAVELET TRANSFORM AND DIFFUSION EQUATIONS FOR MARINE SCENES**
Yanjiao Yang, Zegang Ding, Jingyun Liu, Qiang Gao, Beijing Institute of Technology; Xinzhe Yuan, National Satellite Ocean Application Service; Xiaojun Lu, Beijing Institute of Technology

WEP1.PA.4 Board PA.4 **RPCA BASED TIME-FREQUENCY SIGNAL SEPARATION ALGORITHM FOR NARROW-BAND INTERFERENCE SUPPRESSION**
Jia Su, Mingliang Tao, Ling Wang, Jian Xie, Xin Yang, Wei Zhang, Northwestern Polytechnical University

WEP1.PA.5 Board PA.5 **CHANGE DETECTION IN SYNTHETIC APERTURE RADAR IMAGES BASED ON LOG-MEAN OPERATOR AND STACKED AUTO-ENCODER**
Yangyang Li, Linhao Zhou, Gao Lu, Biao Hou, Licheng Jiao, Xidian University

WEP1.PA.6 Board PA.6 **DOPPLER SHIFT EFFECT AND FIRST EXPERIMENTAL RESULT ON NONLINEAR FREQUENCY MODULATION AIRBORNE SAR**
Wei Wang, Robert Wang, Yunkai Deng, Zhimin Zhang, Xiangyu Wang, Jin Liu, Institute of Electronics, Chinese Academy of Sciences

WEP1.PA.7 Board PA.7 **AN EFFICIENT TIME-SEQUENTIAL SAR IMAGE FORMATION ALGORITHM BASED ON SUBAPERTURE COMBINATION**
Baobin Ma, Jie Chen, Pengbo Wang, Yue Fang, Bing Han, Beihang University

Wednesday, July 26 **15:20 - 16:20** **Poster Area A**
Session WEP2.PA **Poster**

SAR Image Processing and Segmentation

Session Chair: Lori Mann Bruce, Mississippi State University

WEP2.PA.1 Board PA.1 **A LOW-RANK FULLY CONVOLUTIONAL NETWORK FOR CLASSIFICATION BASED ON A MULTI-DIMENSIONAL DESCRIPTION PRIMITIVE OF TIME SERIES POLARIMETRIC SAR IMAGES**
Chu He, Gong Han, Xinlong Liu, Huai Yu, Wuhan University

WEP2.PA.2 Board PA.2 **THE RELIABILITY INSPECTION OF WATER VAPOR FROM WRF UTILIZED FOR INSAR ATMOSPHERIC CORRECTION IN DIFFERENT AREAS**
Xinyi Wang, Qiming Zeng, Peking University; Ye Yun, Chinese Academy of Sciences; Kaili Han, Jian Jiao, Peking University

WEP2.PA.3 Board PA.3 **INFLUENCE OF AZIMUTH ANGLE AND WATER SURFACE ROUGHNESS ON SAR IMAGERY OF A BRIDGE**
Xiaojian Gan, Yong Wang, Taoli Yang, University of Electronic Science and Technology of China; Hong Li, East Carolina University; Yuanyuan Yang, University of Electronic Science and Technology of China

WEP2.PA.4 Board PA.4 **IMAGE SEGMENTATION-BASED OIL SLICK DETECTION USING SAR RADARSAT-2 OSVN MARITIME DATA**
Lizwe Mdakane, Waldo Kleynhans, Colin Schwegmann, Rory Meyer, Council for Scientific and Industrial Research

WEP2.PA.5 Board PA.5 **MEASUREMENTS OF SIGNAL PENETRATION FOR P-BAND SAR SYSTEM THROUGH TREES USING TWO TRIHEDRAL CORNER REFLECTORS**
Abdullah Algafsh, King Abdulaziz City for Science and Technology; Michael Inggs, Amit Mishra, University of Cape Town

WEP2.PA.6 Board PA.6 **RESEARCH ORIENTED FOSS SOLUTION FOR AUTOMATIC OIL SPILL DETECTION USING RISAT-1 SAR DATA**
Pooja Shah, Tanish Zaveri, Institute of Technology,Nirma University; Raj Kumar Sharma, Space Applications Center, ISRO; Shubham Sharma, Darshan Patel, Institute of Technology,Nirma University

WEP2.PA.7 Board PA.7 **PERFORMANCE EVALUATION OF SAR TEXTURE ALGORITHMS FOR SURFACE WATER BODY EXTRACTION THROUGH AN OPEN SOURCE PYTHON-BASED ENGINE**
Reihaneh Peiman, Husam Ali, University of Lethbridge; Brian Brisco, Canada Centre for Remote Sensing; Chris Hopkinson, University of Lethbridge

WEP2.PA.8 Board PA.8 **A NOVEL METHOD OF SPECKLE REDUCTION AND ENHANCEMENT FOR SAR IMAGE**
Hao Shi, Tsinghua University; Liang Chen, Yin Zhuang, Beijing Institute of Technology; Jian Yang, Tsinghua University; Zhu Yang, Beijing Institute of Technology

Wednesday, July 26 **09:40 - 10:40** **Poster Area B**
Session WEP1.PB **Poster**

Remote Sensing for Energy and other Applications

Session Chair: Joel Johnson, Ohio State University

WEP1.PB.1 Board PB.1 **ESTIMATION OF AREA-AVERAGED EVAPOTRANSPIRATION IN EJINA OASIS BASE ON EC MATRIX FLUX MEASUREMENTS AND FOOTPRINT ANALYSIS**
Feinan Xu, Weizhen Wang, Jiemin Wang, Yuan Qi, Yang Su, Northwest Institute of Eco-Environment and Resources, Chinese Academy of Sciences

WEP1.PB.2 Board PB.2 **REALTIME INFRARED SENSING WITH IOT AND UAS FOR SATELLITE VALIDATION AND ENVIRONMENTAL INTELLIGENCE**
Changyong Cao, NOAA/Center for Satellite Applications and Research; Frank Padula, Aaron Pearlman, GTT LLC; Xi Shao, University of Maryland/CICS

WEP1.PB.4 Board PB.4 **USING A WIND TURBINE'S STATE TO SUPPRESS ITS SIGNATURE IN RADAR OBSERVATIONS**
Robert M. Beauchamp, Venkatachalam Chandrasekar, Colorado State University

WEP1.PB.5 Board PB.5 **EFFECTS OF REFLECTANCE ANISOTROPY ON ALBEDO RETRIEVAL FROM SATELLITE OBSERVATIONS**
Hu Zhang, Pengfei Liu, Long He, Yi Lian, Tiejun Cui, Tianjin Normal University

Wednesday, July 26 **15:20 - 16:20** **Poster Area B**
Session WEP2.PB **Poster**

Differential SAR Interferometry II

Session Co-Chairs: Esra Erten, Istanbul Technical University; Othmar Frey, Gamma Remote Sensing / ETH Zurich

WEP2.PB.1 Board PB.1 **SURFACE DEFORMATION MAPPING USING SENTINEL-1A TOPS TIME SERIES: CASES STUDY OVER THE CHOSHUI RIVER ALLUVIAL FAN AND YILAN COUNTY, TAIWAN**
Bowen Zhang, Robert Wang, Ning Li, Jiaqi Ning, Huina Song, Institute of Electronics, Chinese Academy of Sciences

WEP2.PB.2 Board PB.2 **COHERENCE ESTIMATION FOR SMALL SETS OF MULTI-TEMPORAL SAR DATA BASED ON JOINT DATA VECTOR**
Huina Song, Yingfei Sun, University of Chinese Academy of Sciences; Robert Wang, Wenbo Fei, Bowen Zhang, Yingjie Wang, Institute of Electronics, Chinese Academy of Sciences

WEP2.PB.3 Board PB.3 **POLARIMETRIC CHARACTERISTICS OF TEMPORARILY COHERENT RFI IN ALOS-2 PALSAR-2**
Ryo Natsuaki, The University of Tokyo; Takeshi Motohka, Takeo Tadono, Shinichi Suzuki, Japan Aerospace Exploration Agency

WEP2.PB.4 Board PB.4 **X-BAND INTERFEROMETRIC SAR OBSERVATIONS FOR WETLAND WATER LEVEL MONITORING IN NEWFOUNDLAND AND LABRADOR**
Fariba Mohammadimanesh, Bahram Salehi, Masoud Mahdianpari, C-CORE and Memorial University of Newfoundland; Mahdi Motagh, Helmholtz Center Potsdam, GFZ German Research Center for Geosciences, Potsdam, Germany

WEP2.PB.5 Board PB.5 **PHYSICAL MODELS FOR EVALUATING THE INTERFEROMETRIC COHERENCE OF POTENTIAL PERSISTENT SCATTERERS**
Gerardo Di Martino, Antonio Iodice, Davod Poreh, Daniele Riccio, Giuseppe Ruello, Università di Napoli Federico II

WEP2.PB.6 Board PB.6 **INSAR ATMOSPHERIC DELAYS COMPENSATION: CASE STUDY IN TENERIFE ISLAND**
Zhongbo Hu, Jordi J. Mallorqui, Universitat Politècnica de Catalunya; Giuseppe Centolanza, Javier Duro, Dares Technology

WEP2.PB.7 Board PB.7 **A UNIVERSAL TOPS INSAR PROCESSING SCHEME FOR MAPPING LARGE SCALE GROUND DISPLACEMENT**
Kui Zhang, Di Wu, Chongqing University; Guojie Meng, Ruiqing Song, China Earthquake Administration

WEP2.PB.8 Board PB.8 **LANDSLIDE MONITORING WITH STARING-SPOTLIGHT DATA: CANILLO CASE STUDY**
Jordi J. Mallorqui, Zhongbo Hu, Jordi Corominas, Josep A. Gili, Universitat Politècnica de Catalunya

Wednesday, July 26 **09:40 - 10:40** **Poster Area C**
Session WEP1.PC **Poster**

Calibration in UAV and Spaceborne Platforms

Session Chair: Fumio Yamazaki, Chiba University

WEP1.PC.1 Board PC.1 **ESTIMATION OF FRACTIONAL VEGETATION COVER USING MEAN-BASED SPECTRAL UNMIXING METHOD**
Linyuan Li, Guangjian Yan, Xihan Mu, Suhong Liu, Yiming Chen, Kai Yan, Jinghui Luo, Wanjuan Song, State Key Laboratory of Remote Sensing Science

WEP1.PC.2 Board PC.2 **DAMAGE ASSESSMENT AND 3D MODELING BY UAV FLIGHTS AFTER THE 2016 KUMAMOTO, JAPAN EARTHQUAKE**
Fumio Yamazaki, Kasumi Kubo, Ryoto Tanabe, Wen Liu, Chiba University

WEP1.PC.3 Board PC.3 **VALIDATION OF LANDSAT-8 OLI IMAGE SIMULATION**
Zhaoyu Cui, John Kerekes, John Schott, Rochester Institute of Technology

WEP1.PC.4 Board PC.4 **DEVELOPING A SMALL UAV PLATFORM TO DETECT SHEATH BLIGHT OF RICE**
Dongyan Zhang, Anhui University; Xingen Zhou, Texas A&M AgriLife Research and Extension Center; Jian Zhang, Huazhong Agricultural University; Linsheng Huang, Jinling Zhao, Anhui University

Wednesday, July 26 09:40 - 10:40 Poster Area D
Session WEP1.PD Poster

Hyperspectral Image Classification I

Session Co-Chairs: Jun Li, Sun Yat-Sen Uni; Xudong Kang, Hunan University

WEP1.PD.1 Board PD.1 **SMALL-SAMPLE CLASSIFICATION OF HYPERSPECTRAL DATA IN A GRAPH-BASED SEMI-SUPERVISION FRAMWORK**
Chunmei Zhang, Junyan Wang, Beifang University of Nationalities; Yunbin Zhang, Chinasoft International co. ltd; Yaoyao Liu, Beifang University of Nationalities

WEP1.PD.2 Board PD.2 **DISTRIBUTED PARALLEL OPTIMIZATION OF HYPERSPECTRAL IMAGE CLASSIFICATION BASED ON SPATIAL CORRELATION REGULARIZED SPARSE REPRESENTATION**
Junling Shen, Zebin Wu, Zhihui Wei, Yaoqin Zhu, Zekun Kang, Nanjing University of Science and Technology

WEP1.PD.3 Board PD.3 **SPECTRAL-SPATIAL SUBSPACE CLUSTERING FOR HYPERSPECTRAL IMAGES VIA MODULATED LOW-RANK REPRESENTATION**
Jinhuan Xu, Nan Huang, Liang Xiao, Nanjing University of Science and Technology

WEP1.PD.4 Board PD.4 **HYPERSPECTRAL CLASSIFICATION BASED ON KERNEL LOW-RANK MULTITASK LEARNING**
Zhi He, Jun Li, Sun Yat-sen University; Lin Liu, Sun Yat-sen University; Department of Geography, University of Cincinnati (UC)

WEP1.PD.5 Board PD.5 **HYPERSPECTRAL IMAGE CLASSIFICATION USING ANT COLONY OPTIMIZATION ALGORITHM BASED ON JOINT SPECTRAL-SPATIAL PARAMETERS**
Shakti Sharma, Krishna Mohan Buddhiraju, Gaurav Kumar Dashondhi, Indian Inst of Technology Bombay

WEP1.PD.6 Board PD.6 **CROSS-VALIDATING GAUSSIAN PROCESS METHODS FOR HYPERSPECTRAL DATA FROM TREE CROWNS**
Leila Kalantari, Paul Gader, University of Florida

WEP1.PD.7 Board PD.7 **MULTIPLE FEATURES FUSION FOR HYPERSPECTRAL IMAGE CLASSIFICATION BASED ON EXTREME LEARNING MACHINE**
Wei Liu, Zebin Wu, Jie Wei, Weishi Deng, Yang Xu, Lu Du, Zhihui Wei, Nanjing University of Science and Technology

Wednesday, July 26 15:20 - 16:20 Poster Area D
Session WEP2.PD Poster

Optical Image Classification

Session Co-Chairs: Björn Waske, Freie Universität Berlin; Peijun Li, Peking University

WEP2.PD.1 Board PD.1 **THE USE OF LAND COVER CHANGE LIKELIHOOD FOR IMPROVING LAND COVER CLASSIFICATION**
Mariane S. Reis, Sidnei J. S. Sant'Anna, Luciano V. Dutra, Maria Isabel S. Escada, Brazilian National Institute for Space Research; Eliana Pantaleão, Federal University of Uberlândia

WEP2.PD.2 Board PD.2 **CAN SEMANTIC LABELING METHODS GENERALIZE TO ANY CITY? THE INRIA AERIAL IMAGE LABELING BENCHMARK**
Emmanuel Maggiori, Yuliya Tarabalka, Inria Sophia Antipolis Mediterranee; Guillaume Charpiat, Inria Saclay; Pierre Alliez, Inria Sophia Antipolis Mediterranee

WEP2.PD.3 Board PD.3 **HIGHLY EFFICIENT PADDY CLASSIFICATION USING UAV-BASED ORTHORECTIFIED IMAGE**
Hongli Liu, Zhoumiqi Yuan, Jinshui Zhang, Beijing Normal University; Guanyuan Shuai, Michigan State University

WEP2.PD.4 Board PD.4 **A GENETIC ALGORITHM APPROACH TO PURIFY THE CLASSIFIER TRAINING LABELS FOR THE ANALYSIS OF REMOTE SENSING IMAGERY**
Victor-Emil Neagoe, Politehnica University of Bucharest; Catalina-Elena Neghina, "Lucian Blaga" University of Sibiu; Vlad Chirila-Berbentea, Politehnica University of Bucharest

WEP2.PD.5 Board PD.5 **A MODIFIED ADAPTABLE NEAREST FEATURE SPACE CLASSIFIER FOR REMOTE SENSING IMAGES**
Yang-Lang Chang, National Taipei University of Technology; Lena Chang, National Taiwan Ocean University; Tzu-Wei Tseng, Chihyuan Chu, National Taipei University of Technology

WEP2.PD.6 Board PD.6 **FUSING TWO CONVOLUTIONAL NEURAL NETWORKS FOR HIGH-RESOLUTION SCENE CLASSIFICATION**
Xiaoyong Bian, Wuhan University of Science and Technology and Hubei Province Key Laboratory of Intelligent Information Processing and Real-time Industrial System; Chen Chen, University of Central Florida; Yuxia Sheng, Wuhan University of Science and Technology; Yan Xu, Qian Du, Mississippi State University

WEP2.PD.7 Board PD.7 **ENSEMBLE CLASSIFIER BASED TRAINING DATA REFINEMENT TECHNIQUE FOR CLASSIFICATION OF REMOTELY SENSED OPTICAL IMAGES**
Akash Ashapure, Texas A&M University-Corpus Christi; Anand Mehta, Onkar Dikshit, Indian Institute of Technology Kanpur; Jinha Jung, Texas A&M University-Corpus Christi

Wednesday, July 26 **09:40 - 10:40** **Poster Area E**
Session WEP1.PE **Poster**

SAR Classification

Session Co-Chairs: Vahid Akbari, UiT- The Arctic University of Norway; Saibun Tjuatja, University of Texas at Arlington

WEP1.PE.1 Board PE.1 **IMPROVING THE METRIC FOR EVALUATING CNNS IN SAR ATR APPLICATIONS BY SALIENCY MAPS**
Jiayi Guo, Bin Lei, Chibiao Ding, Yueting Zhang, Institute of Electronics, Chinese Academy of Sciences

WEP1.PE.2 Board PE.2 **EVALUATION OF POLSAR SIMILARITY MEASURES WITH SPECTRAL CLUSTERING**
Jingliang Hu, German Aerospace Center (DLR); Yuanyuan Wang, Technische Universität München; Pedram Ghamisi, Xiao Xiang Zhu, German Aerospace Center (DLR)

WEP1.PE.3 Board PE.3 **OPTIMIZED GLCM-BASED TEXTURE FEATURES FOR IMPROVED SAR-BASED FLOOD MAPPING**
Antara Dasgupta, IITB Monash University Research Academy; Stefania Grimaldi, Monash University; Raaj Ramsankaran, Indian Institute of Technology Bombay; Jeffrey Walker, Monash University

WEP1.PE.4 Board PE.4 **SEA ICE AND OPEN WATER CLASSIFICATION OF SAR IMAGERY USING CNN-BASED TRANSFER LEARNING**
Yan Xu, K. Andrea Scott, University of Waterloo

WEP1.PE.5 Board PE.5 **UNSUPERVISED CLASSIFICATION OF POLSAR IMAGERY BASED ON CONSENSUS SIMILARITY NETWORK FUSION**
Yue Zhang, Huanxin Zou, Ningyuan Shao, Shilin Zhou, Kefeng Ji, National University of Defense Technology

WEP1.PE.6 Board PE.6 **POLSAR IMAGE CLASSIFICATION BASED ON POLARIMETRIC OBJECT-BASED MORPHOLOGICAL PROFILES**
Xiaofang Xu, Bin Zou, Lamei Zhang, Harbin Institute of Technology

WEP1.PE.7 Board PE.7 **PRELIMINARY EXPLORATION OF SAR IMAGE LAND COVER CLASSIFICATION WITH NOISY LABELS**
Juanping Zhao, Weiwei Guo, Bin Liu, Zenghui Zhang, Wenxian Yu, Shanghai Jiao Tong University; Shiyong Cui, German Aerospace Center (DLR)

WEP1.PE.8 Board PE.8 **DOMAIN ADAPTATION FOR POLSAR LAND CLASSIFICATION USING LINEAR DISCRIMINATIVE LAPLACIAN EIGENMAPS**
Weidong Sun, Pingxiang Li, Jie Yang, Lei Shi, Lingli Zhao, Wuhan University

Wednesday, July 26 **15:20 - 16:20** **Poster Area E**
Session WEP2.PE **Poster**

Target Recognition: Radar

Session Co-Chairs: Marco Chini, Luxembourg Institute of Science and Technology; Vahid Akbari, UiT- The Arctic University of Norway

WEP2.PE.1 Board PE.1 **COMPENSATION OF THE POSITIONING SHIFT CAUESD BY INACCURATE GEODETIC TERRAIN HEIGHTS FOR RADARSAT-2 DATA**
Wentao An, Mingsen Lin, Chunhua Xie, National Satellite Ocean Application Service

WEP2.PE.2 Board PE.2 **A FLEXIBLE WAVEFORM OPTIMIZATION METHOD FOR COGNITIVE RADAR**
Xiaowen Zhang, Kaizhi Wang, Xingzhao Liu, Lei Liu, Shanghai Jiao Tong University

WEP2.PE.3 Board PE.3 **KERNEL MARGINAL SAMPLE DISCRIMINANT EMBEDDING FOR SAR AUTOMATIC TARGET RECOGNITION**
Xian Liu, University of Electronic Science and Technology of China; Yulin Huang, Jifang Pei, Junjie Wu, Jianyu Yang, UESTC

WEP2.PE.4 Board PE.4 **ANALYSIS OF MULTI-ASPECT AND FULLY POLARIMETRIC L-BAND SAR DATA FROM UAVSAR OVER SPACEX ROCKET DEBRIS SITE**
Bruce Chapman, Scott Hensley, Yunling Lou, Brian Hawkins, Ronald Muellerschoen, Thierry Michel, Jet Propulsion Laboratory, California Institute of Technology

WEP2.PE.5 Board PE.5 **TARGET RECOGNITION IN LARGE SCENE SAR IMAGES BASED ON REGION PROPOSAL REGRESSION**
Sifei Wang, Zongyong Cui, Zongjie Cao, University of Electronic Science and Technology of China*

WEP2.PE.6 Board PE.6 **SAR TARGET CONFIGURATION RECOGNITION USING CLASS-DEPENDENT LOCALITY PRESERVING PROJECTIONS**
Ming Liu, Shaanxi Normal University; Shichao Chen, Xi'an Modern Control Technology Research Institute; Jie Wu, Shaanxi Normal University; Fugang Lu, Jun Wang, Xi'an Modern Control Technology Research Institute; Taoli Yang, University of Electronic Science and Technology of China

WEP2.PE.7 Board PE.7 **A UAV-BASED CRACK INSPECTION SYSTEM FOR CONCRETE BRIDGE MONITORING**
Huai Yu, Wen Yang, Heng Zhang, Wanjun He, Wuhan University

Wednesday, July 26 09:40 - 10:40 Poster Area F
Session WEP1.PF Poster

Urban, Artificial Targets

Session Co-Chairs: Paolo Gamba, University of Pavia; H. Lexie Yang, Oak Ridge National Laboratory

WEP1.PF.1 Board PF.1
INTEGRATING EDGE/ BOUNDARY PRIORS WITH CLASSIFICATION SCORES FOR BUILDING DETECTION IN VERY HIGH RESOLUTION DATA
Maria Vakalopoulou, National Technical University of Athens; Norbert Bus, Télécom ParisTech; Konstantinos Karantzalos, National Technical University of Athens; Nikos Paragios, CentraleSupelec

WEP1.PF.2 Board PF.2
A DETERMINATION OF THE EARTHQUAKE DISASTER AREA BY OBJECT-BASED ANALYSIS USING A SINGLE SATELLITE IMAGE
Jonggeol Park, Tokyo University of Information Sciences; Ippei Harada, Foundation of River & Basin Integrated Communications; Youngjoo Kwak, International Centre for Water Hazard and Risk Management

WEP1.PF.3 Board PF.3
BUILDING EXTRACTION FROM UAV REMOTE SENSING DATA BASED ON PHOTOGRAMMETRY METHOD
Xiwei Fan, Gaozhong Nie, Na Gao, Yan Deng, Jiwen An, Huayue Li, China Earthquake Administration

WEP1.PF.4 Board PF.4
MEASUREMENT OF TRAFFIC FLOWS WITH SAR - FIELD TEST ON THE SWEDISH ROAD NETWORK
Viet Thuy Vu, Mats I. Pettersson, Mattias Dahl, Blekinge Institute of Technology; Thomas Sjögren, Swedish Defence Research Agency

WEP1.PF.5 Board PF.5
BUILDING CLASSIFICATION FROM SINGLE TERRASAR-X ST IMAGE BY FUSING STRUCTURE FEATURES IN THE PYRAMID FRAMEWORK
Jinxing Chen, Chao Wang, Fan Wu, Hong Zhang, Chinese Academy of Sciences

WEP1.PF.6 Board PF.6
CHIMNEY AND CONDENSING TOWER DETECTION BASED ON FASTER R-CNN IN HIGH RESOLUTION REMOTE SENSING IMAGES
Yuan Yao, Zhiguo Jiang, Haopeng Zhang, Bowen Cai, Beijing University of Aeronautics and Astronautics; Gang Meng, Deshan Zuo, Beijing Institute of Remote Sensing Information

WEP1.PF.7 Board PF.7
AUTOMATIC EXTRACTION OF BUILT-UP AREA BASED ON DEEP CONVOLUTION NEURAL NETWORK
Yihua Tan, Feifei Ren, Shengzhou Xiong, Huazhong University of Science and Technology

Wednesday, July 26 15:20 - 16:20 Poster Area F
Session WEP2.PF Poster

Target Recognition: Optical

Session Co-Chairs: Leyuan Fang, Hunan University; Emmett Ientilucci, Rochester Institute of Technology

WEP2.PF.1 Board PF.1
EFFICIENT OBJECT PROPOSALS EXTRACTION FOR TARGET DETECTION IN VHR REMOTE SENSING IMAGES
Adnan Farooq, Jiankun Hu, Xiuping Jia, University of New South Wales

WEP2.PF.2 Board PF.2
ACCURATE OBJECT MATCHING FOR UAV IMAGERY USING MULTI-SCALE BEST-BUDDIES SIMILARITY
Lei Xu, Jinwang Wang, Kaimin Fu, Huai Yu, Wen Yang, Wuhan University

WEP2.PF.3 Board PF.3
AN OBJECT LINKED INTELLIGENT CLASSIFICATION METHOD FOR HYPERSPECTRAL IMAGES
Ashutosh Mishra, N. S. Rajput, Keshav P Singh, Indian Institute of Technology (Banaras Hindu University) Varanasi; Dharmendra Singh, Indian Institute of Technology Roorkee

WEP2.PF.4 Board PF.4
A MINI CONSUMER GRADE UNMANNED AERIAL VEHICLE (UAV) FOR SMALL SCALE TERRACE DETECTION
Xiaoli Li, Zhiqiang Li, Bo Fu, Bing Wu, Yaohui Liu, Institute of Geology, China Earthquake Administration

WEP2.PF.5 Board PF.5
ROBUST GEOSPATIAL OBJECT DETECTION BASED ON PRE-TRAINED FASTER R-CNN FRAMEWORK FOR HIGH SPATIAL RESOLUTION IMAGERY
Xiaobing Han, Yanfei Zhong, Liangpei Zhang, Wuhan University

WEP2.PF.6 Board PF.6
MULTI-CLASS CONSTRAINED BACKGROUND SUPPRESSION APPROACH TO HYPERSPECTRAL IMAGE CLASSIFICATION
Chunyan Yu, Dalian Maritime University; Bai Xue, University of Maryland, Baltimore County; Yulei Wang, Meiping Song, Dalian Maritime University; Lin Wang, Xidian University; Sen Li, Dalian Maritime University; Shih-Yu Chen, National Yulin University of Science and Technology; Chein-I Chang, University of Maryland, Baltimore County

WEP2.PF.7 Board PF.7
ADAPTIVE NOISE FILTERING FOR SINGLE PHOTON LIDAR OBSERVATIONS
Xiao Wang, Craig Glennie, Zhigang Pan, University of Houston

Wednesday, July 26 **09:40 - 10:40** **Poster Area G**
Session WEP1.PG **Poster**

Image and Data Fusion I

Session Co-Chairs: Nathan Longbotham, Descartes Labs; Claudia Paris, University of Trento

WEP1.PG.1 Board PG.1 **IMAGE FUSION OF MODIS AOD (COLLECTION 6) IN CHINA BASED ON UNCERTAINTY**
Yanqing Xie, University of Chinese Academy of Sciences; Yong Xue, Jie Guang, Linlu Mei, Cheng Fan, Yahui Che, Lu She, Chinese Academy of Sciences

WEP1.PG.2 Board PG.2 **FUSION OF TANDEM-X AND CARTOSAT-1 DEMS USING TV-NORM REGULARIZATION AND ANN-PREDICTED WEIGHTS**
Hossein Bagheri, Michael Schmitt, Technische Universität München; Xiao Xiang Zhu, Technische Universität München / Germany Aerospace Center (DLR)

WEP1.PG.3 Board PG.3 **HYPERSPECTRAL AND MULTISPECTRAL WASSERSTEIN BARYCENTER FOR IMAGE FUSION**
Jamila Mifdal, Université de Bretagne Sud; Bartomeu Coll, Universitat de Illes Balears; Nicolas Courty, Jacques Froment, Béatrice Vedel, Université de Bretagne Sud

WEP1.PG.4 Board PG.4 **AN ENHANCED SPATIAL AND TEMPORAL ADAPTIVE REFLECTANCE FUSION MODEL BASED ON OPTIMAL WINDOW**
Bo Ping, Tianjin University; Yunshan Meng, National Marine Information Center; Fenzhen Su, LREIS, Institute of Geographic Sciences and Natural Resources Research

WEP1.PG.5 Board PG.5 **FUSION OF THEMIS AND TES FOR ACCURATE MARS SURFACE CHARACTERIZATION**
Chiman Kwan, Bulent Ayhan, Bence Budavari, Signal Processing, Inc.

WEP1.PG.6 Board PG.6 **VALIDATION OF THE WAVE MODEL SWAN AGAINST ALTIMETER DATA FROM JASON-2 SATELLITE**
Chuntao Chen, Yili Zhao, Jianyong Xing, Jianhua Zhu, Jiajia Liu, Xiaoqi Huang, Qinglong Yu, He Wang, State Oceanic Administration of China

WEP1.PG.7 Board PG.7 **INVISIBLE WATERMARKING ALGORITHM FOR GIS DATA USING CURVELET TRANSFORM – COMPARITIVE STUDY WITH WAVELET**
Harshula Tulapurkar, Thakur College of Engineering and Technology,; Krishna Mohan Buddhiraju, Indian Institute of Technology Bombay; Vinayak Bharadi, Thakur College of Engineering and Technology,

WEP1.PG.8 Board PG.8 **AN IMPROVED NON-SUBSAMPLED CONTOURLET TRANSFORM-BASED HYBRID PAN-SHARPENING ALGORITHM**
Xiaochen Lu, Junping Zhang, Ye Zhang, Harbin Institute of Technology

Wednesday, July 26 **15:20 - 16:20** **Poster Area G**
Session WEP2.PG **Poster**

Image and Data Fusion III

Session Co-Chairs: Jose Bioucas-Dias, Instituto Tecnico of Lisbon; Jacqueline Le Moigne, NASA

WEP2.PG.1 Board PG.1 **AN IMPROVED IDW METHOD FOR LINEAR ARRAY 3D IMAGING SENSOR**
Mei Zhou, Academy of Opto-Electronics, Chinese Academy of Sciences; Hongcan Guan, University of Chinese Academy of Sciences; Chuanrong Li, Lian Ma, Geer Teng, Academy of Opto-Electronics, Chinese Academy of Sciences

WEP2.PG.2 Board PG.2 **ANALYSIS OF THE SCALING EFFECT PRESENT IN THE RELATIVE DIFFERENCES BETWEEN NDVIS OBTAINED FROM MULTIPLE SENSORS, BASED ON THE SOIL ISOLINE EQUATION**
Kenta Taniguchi, Munenori Miura, Aichi Prefectural University; Kenta Obata, National Institute of Advanced Industrial Science and Technology; Hiroki Yoshioka, Aichi Prefectural University

WEP2.PG.3 Board PG.3 **CLOUD IMPLEMENTATION OF HYPERSPECTRAL IMAGE RESTORATION WITH PCA AND TOTAL VARIATION BASED ON SPARK**
Xianliang Yin, Zebin Wu, Nanjing University of Science and Technology; Wenzhi Liao, Ghent University; Zhihui Wei, Chao Tan, Nanjing University of Science and Technology

WEP2.PG.4 Board PG.4 **HYPERSPECTRAL IMAGE INPAINTING BASED ON LOW-RANK REPRESENTATION: A CASE STUDY ON TIANGONG-1 DATA**
Dan Yao, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences; University of Chinese Academy of Sciences; Lina Zhuang, Instituto de Telecomunicações,Instituto Superior Técnico, Universidade de Lisboa; Lianru Gao, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences; Bing Zhang, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences; University of Chinese Academy of Sciences; José Manuel Bioucas-Dias, Instituto de Telecomunicações, Instituto Superior Técnico, Universidade de Lisboa

WEP2.PG.5 Board PG.5 **MULTI-SCALE-AND-DEPTH CONVOLUTIONAL NEURAL NETWORK FOR REMOTE SENSED IMAGERY PAN-SHARPENING**
Yancong Wei, Qiangqiang Yuan, Xiangchao Meng, Huanfeng Shen, Liangpei Zhang, Michael Ng, Wuhan University

Wednesday, July 26 **09:40 - 10:40** **Poster Area H**
Session WEP1.PH **Poster**

Ground-based Sensing

Session Co-Chairs: Daniele Perissin, Purdue University; Larry Schneider, University of Central Florida

WEP1.PH.1 Board PH.1 **FULL POLARIMETRIC RADAR BACKSCATTERING MEASUREMENT OF OIL SPILLING INDOOR EXPERIMENT**
Xun Yang, Yan Chen, Ling Tong, Fanghong Xiao, University of Electronic Science and Technology of China

WEP1.PH.2 Board PH.2 **A LOW-FREQUENCY GEOPHONE DESIGNED BY GENETIC ALGORITHMS**
Kezhu Song, University of Science and Technology of China; Yang Yang, Hefei Guowei Electronics Co., Ltd.; Yonghong Guo, ShanXi Coal Geological Prospecting Institute of Hydrology; Shengqun Tong, Lei Dong, University of Science and Technology of China

WEP1.PH.3 Board PH.3 **JOINT LOCAL AND NON-LOCAL PRIORS FOR GROUND-BASED ASTRONOMICAL IMAGE DENOISING**
Luxin Yan, Wenshan Liao, Yi Chang, Chunan Luo, Huazhong University of Science and Technology

WEP1.PH.4 Board PH.4 **A GROUND-BASED L-BAND SYNTHETIC APERTURE RADAR SYSTEM FOR FOREST TEMPORAL DYNAMICS MONITORING**
Xingjian Chen, Paul Siqueira, University of Massachusetts

WEP1.PH.5 Board PH.5 **MOTION COMPENSATION OF L-BAND SAR USING GNSS-INS**
Man Chung Chim, Daniele Perissin, Purdue University

WEP1.PH.6 Board PH.6 **MAXIMUM ENTROPY IMAGE RECONSTRUCTION APPLIED TO C-BAND GROUND BASED SYNTHETIC APERTURE RADAR**
Adrian Focsa, Stefan-Adrian Toma, Military Technical Academy; Mihai Datcu, German Aerospace Center (DLR)

WEP1.PH.7 Board PH.7 **STUDY ON PARALLELIZATION OF COMPONENTS' PROPORTION CALCULATION FOR THREE DIMENSIONAL THERMAL ANISOTROPY MODEL OF URBAN TARGETS BASED ON LINUX CLUSTER**
Li Li, Fang Huang, University of Electronic Science and Technology of China; Yinjie Chen, Xihua University; Jian Tao, Louisiana State University; Ji Zhou, Guangsong Fan, University of Electronic Science and Technology of China

WEP1.PH.8 Board PH.8 **OUTDOOR MEASUREMENTS WITH GROUND BASED C-BAND SYNTHETIC APERTURE RADAR**
Adrian Moldovan, Stefan-Adrian Toma, Valentin Poncos, Delia Teleaga, Florin Serban, Terrasigna

Wednesday, July 26 **15:20 - 16:20** **Poster Area H**
Session WEP2.PH **Poster**

Microwave Remote Sensing and the Challenges of Radio Frequency Interference

Session Co-Chairs: Paolo de Matthaeis, NASA - GSFC; Priscilla Mohammed, NASA - GSFC

WEP2.PH.1 Board PH.1 **AN IMPROVED CLEAN ALGORITHM FOR RFI MITIGATION IN APERTURE SYNTHESIS RADIOMETERS**
Xiaohui Peng, Fei Hu, Feng He, Dong Zhu, Yayun Cheng, Hao Hu, Tao Zheng, HuaZhong University of Science and Technology

WEP2.PH.2 Board PH.2 **AN RFI DETECTION ALGORITHM FOR MICROWAVE RADIOMETERS USING SPARSE COMPONENT ANALYSIS**
Priscilla Mohammed, Asmita Korde-Patel, Armen Gholian, Jeffrey R. Piepmeier, Adam Schoenwald, Damon Bradley, NASA

WEP2.PH.3 Board PH.3 **A BROKER BASED SCHEME FOR SPECTRUM SHARING**
John Marino, Albin J. Gasiewski, University of Colorado Boulder

WEP2.PH.4 Board PH.4 **RFI STATISTICAL DISTRIBUTION AND MISSED DETECTION IN AQUARIUS RADIOMETER MEASUREMENTS**
Paolo de Matthaeis, David Le Vine, NASA Goddard Space Flight Center

Wednesday, July 26 **09:40 - 10:40** **Poster Area I**
Session WEP1.PI **Poster**

Soil Properties

Session Chair: Chi-Chih Chen, The Ohio State University

WEP1.PI.1 Board PI.1 **SIMULATION OF RUNOFF AND SEDIMENT YIELD IN ZHUXI WATERSHED IN CHANGTING COUNTY OF CHINA BASED ON SWAT MODEL**
Xiongbin Zhu, Xiaoqin Wang, Shujiao Zeng, Weidong Zhou, Fuzhou University

WEP1.PI.2 Board PI.2 **SOIL EROSION ANALYSIS OF FUJIAN PROVINCE, CHINA IN 2015**
Shujiao Zeng, Xiaoqin Wang, Xiongbin Zhu, Zhenping Wang, Zuocheng Wu, Fuzhou University

WEP1.PI.3 Board PI.3 **DENSITY-INDEPENDENT COMPLEX DIELECTIC PERMITTIVITY MEASURED FOR PREDICTIONS OF SOIL MOISTURE CONTENT IN FARMING AND DOMESTIC ACTIVITIES**
Jessica Joe-Cobblah, Sam Nwaneri, Onareesha Odom, Erica Nelson, Alcorn State University

WEP1.PI.4 Board PI.4 **COMPARISON AND ANALYSIS OF DIELECTRIC MODELS TOWARDS SOIL MOISTURE AND SALINITY ESTIMATIONS**
Long Wei, Weizhen Wang, Chunfeng Ma, Yueru Wu, Northwest Institute of Eco-Environment and Resources, Chinese Academy of Sciences

Wednesday, July 26 **15:20 - 16:20** **Poster Area I**
Session WEP2.PI **Poster**

Forest Monitoring

Session Co-Chairs: Feng Chen, Xiamen University; Zengyuan Li, Chinese Academy of Forestry

WEP2.PI.1 Board PI.1 **REMOTELY SENSED MONITORING FOREST CHANGES-A CASE STUDY IN THE JINHE TOWN OF INNER MONGOLIA**
Hong Sun, Xin Tian, Zengyuan Li, Erxue Chen, Chinese Academy of Forestry; Wei Wang, State Forestry Bureaue

WEP2.PI.2 Board PI.2 **A METHOD FOR EXTRACTING VEGETATION INFORMATION OF URBAN UNDERLAYING SURFACE ORIENTED TO ECO-ENVIRONMENTAL QUALITY ASSESSMENT**
Xiaoyuan Zhang, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences; Yulun Song, Jusfoun Big Data Corp; Shudong Wang, Lifu Zhang, Xia Zhang, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences

WEP2.PI.3 Board PI.3 **INTEGRATION OF RADARSAT-2 AND TERRASAR-X POLARIMETRIC DATA FOR CROP GROWTH STAGES ESTIMATION**
Yifeng Li, George Lampropoulos, A.U.G. Signals Ltd.

WEP2.PI.4 Board PI.4 **PREDICTION AND ANALYSIS OF SUDDEN OAK DEATH (SOD) RISK IN THE WEST COAST OF AMERICA BASED ON MAXENT MODEL**
Houzhi Jiang, Chunxiang Cao, Wei Chen, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences; Yuxing Zhang, Yongfeng Dang, Xuejun Wang, Wei Wang, State Forestry Administration; Shengrui Zhang, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences

WEP2.PI.5 Board PI.5 **ESTIMATION OF GRASSLAND BIOPHYSICAL VARIABLES FOR LAKE QINGHAI WATERSHED: MOVING TOWARDS REMOTE SENSING PRODUCTS**
Changming Yin, Binbin He, Xingwen Quan, Xueting Zhang, University of Electronic Science and Technology of China; Jinsong Ge, Zhijun Zhang, Qinghai Ecosystem Remote Sensing Monitoring Center

WEP2.PI.6 Board PI.6 **THE ESTIMATION AND VALIDATION OF FRACTIONAL VEGETATION COVER BASED ON GAOFEN-4 SATELLITE IMAGERY**
Yuanheng Sun, Huazhong Ren, Gongqi Zhou, Tianyuan Zhang, Chengye Zhang, Qiming Qin, Peking University

WEP2.PI.7 Board PI.7 **POST-TYPHOON ASSESSMENT OF SURFACE GREENNESS DISTURBANCE USING LANDSAT SERIES OBSERVATIONS**
Feng Chen, Jonathan Li, Cheng Wang, Xiamen University

Wednesday, July 26 09:40 - 10:40 Poster Area J
Session WEP1.PJ Poster

Forest Monitoring by Optical Rradiometry III

Session Co-Chairs: Ramesh Singh, Chapman University; Chris Ball, The Ohio State University

WEP1.PJ.1 Board PJ.1 **SIMULATING THE EFFECTS OF TYPHOON-INDUCED DEFOLIATION ON FOREST DYNAMICS USING A PROCESS-BASED MODEL IN A SUBTROPICAL FOREST**
Hsueh-Ching Wang, Central Police University; Andrew Friend, University of Cambridge; Cho-ying Huang, Nation Taiwan University

WEP1.PJ.2 Board PJ.2 **SENSITIVITY OF NEON'S AIRBORNE REMOTE SENSING INSTRUMENTATION TO CLOUD AND ILLUMINATION CONDITIONS**
Nathan Leisso, Tristan Goulden, National Ecological Observatory Network/Battelle

WEP1.PJ.3 Board PJ.3 **ASSESSING 2016 DROUGHT PROGRESSION OVER INDIA USING REMOTE SENSING DATA FOR THE PERIOD 2006-2015**
Samara Azevedo, Unesp; Ramesh Singh, Chapman University; Erivaldo Silva, Unesp

WEP1.PJ.4 Board PJ.4 **ESTIMATING FOREST STANDS VIGOR FROM AIRBORNE IMAGES AND NEURAL NETWORKS**
Lacina Coulibaly, Ognel Pierre Louis, Eric Hervet, Université de Moncton

WEP1.PJ.5 Board PJ.5 **CALIBRATION FOR FISS IMAGE DATA BASED ON PROSAIL MODEL**
Lei Chen, Hongxin Zhang, Hu Zhang, Long He, Yi Lian, Tiejun Cui, Tianjin Normal University

WEP1.PJ.6 Board PJ.6 **IDENTIFY THE RISK OF ENVIRONMENTAL DEGRADATION WITH ECOLOGICAL MODEL AND REMOTE SENSING: A CASE STUDY OF NATURAL FOREST IN XISHUANGBANNA**
Jianbo Tan, Institute of Mountain Hazards and Environment; University of Chinese Academy of Sciences; Ainong Li, Guangbin Lei, Huaan Jin, Wei Zhao, Gaofei Yin, Jinhu Bian, Institute of Mountain Hazards and Environment

WEP1.PJ.7 Board PJ.7 **TEMPORAL AND SPATIAL DISTRIBUTION AND VARIATION OF GPP IN MOHE, CHINA**
Ling Hu, Wenjie Fan, Peking University; Suhong Liu, Beijing Normal university; Peng Zhao, Huazhong Ren, Peking University

Wednesday, July 26 15:20 - 16:20 Poster Area J
Session WEP2.PJ Poster

Small Satellite Technology II

Session Co-Chairs: Toru Kouyama, National Institute of Advanced Industrial Science and Technology; Jingjin Huang, Tianjin University

WEP2.PJ.1 Board PJ.1 **MOON OBSERVATIONS FOR SMALL SATELLITE RADIOMETRIC CALIBRATION**
Toru Kouyama, Ryosuke Nakamura, Soushi Kato, National Institute of Advanced Industrial Science and Technology; Motoki Kimura, Axelspace Corporation

WEP2.PJ.2 Board PJ.2 **ON-BOARD DETECTION AND MATCHING OF REMOTELY SENSING IMAGERY**
Jingjin Huang, Guoqing Zhou, Tianjin University; Rongting Zhang, School of Precision Instrument and Opto-Electronics Engineering

WEP2.PJ.3 Board PJ.3 **EVALUATION OF THE USE OF CUBESATS IN ATMOSPHERIC PROFILING**
Jonathan P. Olson, Sounak Biswas, Venkatachalam Chandrasekar, Steven C. Reising, Colorado State University

WEP2.PJ.4 Board PJ.4 **ANALYSIS OF THE IMAGERIES FROM A CHINESE CUBE SATELLITE FOR POLAR OBSERVATIONS**
Yanmei Zhang, China Earthquake Administration; Xiao Cheng, Beijing Normal University

Wednesday, July 26 **09:40 - 10:40** **Poster Area K**
Session WEP1.PK **Poster**

Ocean Temperature and Salinity

Session Co-Chairs: David Le Vine, NASA Goddard Space Flight Center; Xiaobin Yin, Key Laboratory of Microwave Remote Sensing, Chinese Academy of Sciences

WEP1.PK.1 Board PK.1 **END TO END STUDY OF THE CHINESE SALINITY MISSION**
Xiaobin Yin, Beijing Piesat Information Technology Co. Ltd; Wu Zhou, Mingsen Lin, Ting Liu, National Ocean Satellite Application Center; Yuxiang Zhu, Yanwei He, Tongkui Liao, Beijing Piesat Information Technology Co. Ltd

WEP1.PK.2 Board PK.2 **SALINITY MAPPING FOR FLORIDA BAY USING LANDSAT TM IMAGES AND IN-SITU OBSERVATIONS**
Fahad Khadim, Hongbo Su, Jason Blankenship, Frederick Bloetscher, Florida Atlantic University; Weimin Wang, Shenzhen Environmental Monitoring Center

WEP1.PK.3 Board PK.3 **GEOSTATIONARY SATELLITE OBSERVATIONS AND NUMERICAL SIMULATION OF TYPHOON-INDUCED UPWELLING TO THE NORTHEAST OF TAIWAN**
Dongliang Shen, Shanghai Ocean University; Xiaofeng Li, National Oceanic and Atmospheric Administration; Len Pietrafesa, Shaowu Bao, Coastal Carolina University

WEP1.PK.4 Board PK.4 **BAYESIAN STATISTICAL MODELS OF SEA SURFACE SALINITY BASED ON SMOS SATELLITE DATA**
Hong Zhao, Changjun Li, Hongping Li, Xiao Han, Ocean University of China

WEP1.PK.5 Board PK.5 **FPASMR: A NEW INSTRUMENT FOR FUTURE SEA SURFACE SALINITY MEASUREMENT**
Yinan Li, Rongchuan Lv, Guangnan Song, Xiaojiao Yang, Hailiang Lu, Pengfei Li, Qinggui Tan, Xian Institute of Space Radio Technology

WEP1.PK.6 Board PK.6 **A NEW SMOS SEA SURFACE SALINITY RETRIEVAL METHOD**
Hongping Li, Xiao Han, Changjun Li, Hong Zhao, Ocean University of China

WEP1.PK.7 Board PK.7 **THE STABILITY TEST OF RADIOMETER**
Guangnan Song, Xiaojiao Yang, Yinan Li, Pengfei Li, Hailiang Lu, Xian Institute of Space Radio Technology

WEP1.PK.8 Board PK.8 **THE DIELECTRIC CONSTANT MODEL FUNCTION AND IMPLICATIONS FOR REMOTE SENSING OF SALINITY**
Roger Lang, Yiwen Zhou, The George Washington University; Emmanuel Dinnat, CEESMO Chapman University; David Le Vine, Goddard Space Flight Center

Wednesday, July 26 **15:20 - 16:20** **Poster Area K**
Session WEP2.PK **Poster**

Ice Sheets and Glaciers I

Session Co-Chairs: Alexandra Bringer, The Ohio State University; Marco Brogioni, IFAC -CNR; Alexandra Bringer, The Ohio State University

WEP2.PK.1 Board PK.1 **ANTARCTIC ICE SHEET GROUNDING LINE MIGRATION MONITORING USING COSMO-SKYMED VERY SHORT REPEAT-TIME SAR INTERFEROMETRY**
Pietro Milillo, Eric Rignot, California Institute of Technology; Jeremie Mouginot, Bernd Scheuchl, Xin Li, University of California Irvine; Jacqueline Salzer, GFZ German Research Centre for Geosciences

WEP2.PK.2 Board PK.2 **TIDAL DEFLECTION OF ROSS ICE SHELF, ANTARCTICA, OBSERVED BY SENTINEL-1A DOUBLE-DIFFERENTIAL INTERFEROMETRIC SAR**
Hoonyol Lee, Soojeong Han, Hyorim Jin, Kangwon National University; Hyangsun Han, Korea Polar Research Institute

WEP2.PK.3 Board PK.3 **SENSITIVITY OF POLARIMETRIC SAR INTERFEROMETRY DATA TO DIFFERENT VERTICAL SUBSURFACE STRUCTURES OF THE GREENLAND ICE SHEET**
Georg Fischer, Giuseppe Parrella, Konstantinos Papathanassiou, Irena Hajnsek, German Aerospace Center (DLR)

WEP2.PK.4 Board PK.4 **ESTIMATING SIZES AND ROTATION ANGLES OF ANTARCTIC ICEBERGS UTILIZING SCATTEROMETER DATA**
Jeffrey Budge, David G. Long, Brigham Young University

WEP2.PK.5 Board PK.5 **COMBINING OPTIAL-THERMAL REMOTE SENSING DATA AND TOPOGRAPHIC SLOPE FOR THE IDENTIFICATION OF DEBRIS-COVERED GLACIERS**
Cheng Kou, Chunyang Zhao, Fan Yang, Xi'an Surveying and Mapping Technological Center; Jonathan Li, University of Waterloo; Yikun Liu, Fei Zeng, Xi'an Surveying and Mapping Technological Center

WEP2.PK.6 Board PK.6 **GROUP ON EARTH OBSERVATIONS COLD REGIONS INITIATIVE (GEOCRI): AN INFORMATION SERVICE FOR COLD REGIONS**
Yubao Qiu, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences; Hannele Savela, Peter Pulsifer, Thule Institute, University of Oulu; Jeffrey R. Key, NOAA/NESDIS; Vito Vitale, Italian National Research Council (CNR); Massimo Menenti, Delft University of Technology; Xiao Cheng, Beijing Normal University; Julie E. Friddell, University of Waterloo; Hiroyuki Enomoto, Arctic Environment Research Center (AERC); Xin Li, Chinese Academy of Sciences; Stein Sandven, Nansen Environmental and Remote Sensing Center

Wednesday, July 26 **09:40 - 10:40** **Poster Area L**
Session WEP1.PL **Poster**

Ocean Monitoring Applications I

Session Co-Chairs: Qing Xu; Svetlana Karimova

WEP1.PL.1 Board PL.1 **STORM SURGE MODELING OF SACO-CASCO BAYS: A FVCOM BASED STUDY ON WINTER STORM JUNO**
Saswati Deb, National Taiwan University; Huijie Xue, University of Maine

WEP1.PL.2 Board PL.2 **SHORELINE EXTRACTION FROM REMOTE SENSING IMAGE BASED ON AN IMPROVED OTSU METHOD**
Yeshuang Ai, Fan Liu, Yuanxiu Zhou, Yan Song, China University of Geosciences, Wuhan

WEP1.PL.3 Board PL.3 **NUMERICAL SIMULATION OF SEDIMENT DYNAMICS IN THE HOOGHLY ESTUARY**
Supratik Deb, ABV-Indian Institute of Information Technology and Management, Gwalior; Saswati Deb, National Taiwan University; Bhaskar Das, National Tsing Hua University

WEP1.PL.4 Board PL.4 **STUDY ON ENVIRONMENTAL CHANGE MONITORING BETWEEN SHORELINE CHANGE AND SUSPENDED SEDIMENT CONCENTRATION USING LANDSAT IMAGES IN NAKDONG RIVER, KOREA**
Jinah Eom, Korea Institute of Ocean Science & Technology; Changwook Lee, Jiwon Jang, Kangwon National University; Jong-Kuk Choi, Korean Institute of Ocean Science and Technology; Sungjae Park, Kangwon National University

WEP1.PL.5 Board PL.5 **FEASIBILITY STUDY OF RFID-MOUNTED DRONE APPLICATION IN MANAGEMENT OF OYSTER FARMS**
Jen-Han Yang, Yi Chang, National Cheng Kung University

Wednesday, July 26 **15:20 - 16:20** **Poster Area L**
Session WEP2.PL **Poster**

Ocean Monitoring Applications II

Session Co-Chairs: Xiaolong Dong; Dongliang Shen

WEP2.PL.1 Board PL.1 **COASTAL OBSERVATION USING NEW HYPERSPECTRAL IMAGER FOR UAVS**
Kuniaki Uto, Haruyuki Seki, Genya Saito, Yukio Kosugi, Tokyo Institute of Technology; Teruhisa Komatsu, The University of Tokyo

WEP2.PL.2 Board PL.2 **SATELLITE OBSERVATION ON COASTAL CHANGE IN THE WESTERN HUNCHING PENINSULA, SOUTHERN TAIWAN**
Yi Chang, Ming-Chee Wu, National Cheng Kung University

WEP2.PL.3 Board PL.3 **SHALLOW WATER TOPOGRAPHY OF SUBEI BANK IMAGED BY SAR**
Shuangshang Zhang, Qing Xu, Hohai University; Yongcun Cheng, Old Dominion University; Jie Yang, Wenhao Zhang, Hohai University

WEP2.PL.4 Board PL.4 **STUDY ON THE INFLUENTCE OF DONGJIAKOU HARBOR CONSTRUCTION ON SUSPENDED SEDIMENT CONCENTRATION**
Jie Yu, Honghui Huang, Pimao Chen, Guobao Chen, South China Sea Fisheries Research Institute, Chinese Academy of Fishery Sciences

WEP2.PL.5 Board PL.5 **COASTAL SURFACE WIND MEASUREMENTS DERIVED FROM SAR**
Samantha Ballard, Hans Graber, Michael Caruso, Rosenstiel School of Marine and Atmospheric Science - University of Miami

Thursday, July 27 09:40 - 10:40 Poster Area A
Session THP1.PA Poster

PolSAR Classification: Techniques & Assessments

Session Chair: Nataliia Kussul, Space Research Institute

THP1.PA.1 Board PA.1 **LAND COVER CLASSIFICATION FOR VARIOUS FEATURES USING OPTIMUM TOUZI DECOMPOSITION PARAMETERS**
Varsha Turkar, Vidyalakar Institute of Technology; Y.S. Rao, Indian Institute of Technology Bombay; Anup Das, Space Applications Center, ISRO

THP1.PA.2 Board PA.2 **A CASE STUDY OF SCATTERING CHARACTERISTICS DETECTION USING POLSAR DATA IN NORTHWEST ARID CHINA**
Liping Yang, Xiaohui Sun, Xiaodong Feng, Fei Liu, School of Earth Science and Resources, Chang'an University

THP1.PA.3 Board PA.3 **AN IMPROVED HYBRID INVERSION METHOD FOR POLARIMETRIC SAR INTERFEROMETRY**
Lamei Zhang, Baolong Duan, Harbin Institute of Technology; Yan Cheng, Product Quality Supervision and Inspection Institute of Harbin

THP1.PA.4 Board PA.4 **UNSUPERVISED CHANGE DETECTION IN BUILT-UP AREAS BY MULTI-TEMPORAL POLARIMETRIC SAR IMAGES**
Davide Pirrone, Fondazione Bruno Kessler; Shaunak De, Avik Bhattacharya, Indian Institute of Technology; Lorenzo Bruzzone, University of Trento; Francesca Bovolo, Fondazione Bruno Kessler

THP1.PA.5 Board PA.5 **OPTIMAL USE OF POLARIMETRIC SIGNATURE ON PALSAR-2 DATA FOR LAND COVER CLASSIFICATION**
Gopal Singh Phartiyal, Kundan Kumar, Dharmendra Singh, Indian Institute of Technology Roorkee; Keshav P Singh, Indian Institute of Technology (Banaras Hindu University) Varanasi

THP1.PA.6 Board PA.6 **COASTLINE DETECTION BASED ON POLARIMETRIC CHARACTERISTICS AND MATHEMATICAL MORPHOLOGY USING POLSAR IMAGES**
Bin Zou, Chenyi Wang, Harbin Institute of Technology; Chengyi Wang, Forestry Research Institute; Lamei Zhang, Harbin Institute of Technology

THP1.PA.7 Board PA.7 **FULL POLARIZATION SAR IMAGE CLASSIFICATION USING DEEP LEARNING WITH SHALLOW FEATURE**
Debo Li, Yu Gu, Shuiping Gou, Licheng Jiao, Xidian University

THP1.PA.8 Board PA.8 **IONOSPHERIC SCINTILLATION PARAMETER ESTIMATION USING POLARIMETRIC SAR DATA: A COMPARATIVE STUDY**
Shradha Mohanty, Gulab Singh, Indian Institute of Technology Bombay

Thursday, July 27 15:20 - 16:20 Poster Area A
Session THP2.PA Poster

PolSAR Applications

Session Co-Chairs: Gordon Staples, MDA; Liping Yang, Chang'an University; Kun-Shan Chen, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences; Jonathan Bredow, University of Texas- Arlington

THP2.PA.1 Board PA.1 **POLSAR IMAGE SEGMENTATION BASED ON HIERARCHICAL REGION MERGING AND SEGMENT REFINEMENT WITH WMRF MODEL**
Wei Wang, KTH Royal Institute of Technology; Qinglin Zhai, National University of Defense Technology; Yifang Ban, KTH Royal Institute of Technology; Jun Zhang, Jianwei Wan, National University of Defense Technology

THP2.PA.2 Board PA.2 **IMPROVED SLIC SUPERPIXEL GENERATION ALGORITHM AND ITS APPLICATION IN POLARIMETRIC SAR IMAGES CLASSIFICATION**
Lamei Zhang, Cuijuan Han, Harbin Institute of Technology; Yan Cheng, Product Quality Supervision and Inspection Institute of Harbin

THP2.PA.3 Board PA.3 **OIL SPILL DETECTION USING SIMULATED RADARSAT CONSTELLATION MISSION COMPACT POLARIMETRIC SAR DATA**
Mohammed Dabboor, Environment and Climate Change Canada; Suman Singha, German Aerospace Center (DLR); Konstantinos Topouzelis, University of the Aegean; Dean Flett, Environment and Climate Change Canada

THP2.PA.4 Board PA.4 **MULTITEMPORAL MONITORING OF WETLANDS USING SIMULATED RADARSAT CONSTELLATION MISSION COMPACT POLARIMETRIC SAR DATA**
Mohammed Dabboor, Environment and Climate Change Canada; Brian Brisco, Natural Resources Canada, Government of Canada; Sarah Banks, Environment and Climate Change Canada; Kevin Murnaghan, Natural Resources Canada, Government of Canada; Lori White, Environment and Climate Change Canada

THP2.PA.5 Board PA.5 **A NEW APPROACH TO USE DUAL-POLARIZED SAR IMAGERY FOR THE DETECTION OF BIVALVE BEDS ON EXPOSED INTERTIDAL FLATS**
Wensheng Wang, Martin Gade, Universität Hamburg; Xiaofeng Yang, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences

THP2.PA.6 Board PA.6 **UNSUPERVISED CLASSIFICATION OF POLSAR DATA BASED ON A NOVEL POLARIZATION FEATURE**
Xiaofeng Zhou, Shuang Wang, Wenqiang Hua, Xidian University; Yang Zhao, Institute of tracking and telecommunications technology; Chuang Liu, xi'an electronic engineering institute

THP2.PA.7 Board PA.7 **THE DUAL-ASPECT RADIOMETRIC TERRAIN CORRECTION WITH POLSAR IMAGES**
Lijun Lu, Guoman Huang, Chinese Academy of Surveying and Mapping; Wenxiang Liu, Xuzhou Academy of Reconnaissancing and Survey; Qianxiang Xu, Dalian Jiucheng Surveying and Mapping Information Co., Ltd

Thursday, July 27 09:40 - 10:40 Poster Area B
Session THP1.PB Poster

Differential SAR Interferometry III

Session Co-Chairs: Armando Marino, The Open University; Matteo Pardini, DLR

THP1.PB.1 Board PB.1 **COMPLEMENTARITY OF HIGH-RESOLUTION COSMO-SKYMED AND MEDIUM-RESOLUTION SENTINEL-1 SAR INTERFEROMETRY: QUANTITATIVE ANALYSIS OF REAL TARGET DISPLACEMENT AND 3D POSITIONING MEASUREMENT PRECISION, AND POTENTIAL OPERATIONAL SCENARIOS**
Mario Costantini, Fabio Malvarosa, Federico Minati, Francesco Trillo, Francesco Vecchioli, e-GEOS - Italian Space Agency / Telespazio

THP1.PB.2 Board PB.2 **LEVERAGING GPUS FOR HANDLING LARGE SAR DATA VOLUMES FOR THE NISAR MISSION**
Joshua Cohen, Piyush Agram, Sean Buckley, Paul Rosen, Eric Gurrola, Jet Propulsion Laboratory

THP1.PB.3 Board PB.3 **AN INNOVATIVE DISTRIBUTED SCATTERER BASED TIME-SERIES INSAR METHOD OVER UNDERGROUND MINING REGION**
Zheyuan Du, Linlin Ge, The University of New South Wales; Alex Hay-Man Ng, Guangdong University of Technology; Xiaojing Li, The University of New South Wales

THP1.PB.4 Board PB.4 **GROUND DEFORMATION MONITORING IN BEIJING USING BOTH SENTINEL AND ALOS**
Zheyuan Du, Linlin Ge, The University of New South Wales; Alex Hay-Man Ng, Guangdong University of Technology; Xiaojing Li, The University of New South Wales

THP1.PB.5 Board PB.5 **PERSISTENT SCATTERER CLUSTERING FOR STRUCTURE DISPLACEMENT ANALYSIS BASED ON PHASE CORRELATION NETWORK**
Taichi Tanaka, Osamu Hoshuyama, NEC Corporation

THP1.PB.6 Board PB.6 **COHERENCE-BASED LAND COVER CLASSIFICATION OF OKARA, PAKISTAN**
Rao Zahid Khalil, Saad-ul- Haque, Institute of Space Technology

THP1.PB.7 Board PB.7 **SUBSIDENCE FEATURE DISCRIMINATION USING DEEP CONVOLUTIONAL NEURAL NETWORKS IN SYNTHETIC APERTURE RADAR IMAGERY**
Colin Schwegmann, Waldo Kleynhans, Jeanine Engelbrecht, Lizwe Mdakane, Rory Meyer, Council for Scientific and Industrial Research

THP1.PB.8 Board PB.8 **POLARIMETRIC SAR IMAGES CLASSIFICATION VIA FCM-BASED SELECTIVE ENSEMBLE LEARNING**
Lamei Zhang, Harbin Institute of Technology; Ligang Zou, Harbin Institute of Technology/ Northeast Forestry University

Thursday, July 27 15:20 - 16:20 Poster Area B
Session THP2.PB Poster

Clouds and Precipitation III

Session Co-Chairs: Stephen Frasier, U. Massachusetts; Al Gasiewski, University of Colorado at Boulder

THP2.PB.1 Board PB.1 **COMPARISON OF REGRESSION MODELS FOR SPATIAL DOWNSCALING OF COARSE SCALE SATELLITE-BASED PRECIPITATION PRODUCTS**
Yeseul Kim, No-Wook Park, Inha University

THP2.PB.2 Board PB.2 **SUB-PIXEL PRECIPITATION NOWCASTING OVER GUANGDONG PROVINCE USING OPTICAL FLOW ALGORITHM**
Ling Li, Chengdu University of Technology; Sheng Chen, Sun Yat-sen University; Xiong-Fa Mai, Guangxi Teachers Education University; Asi Zhang, no

THP2.PB.3 Board PB.3 **ASSESSMENT OF QUANTITATIVE PRECIPITATION ESTIMATION OVER THE FOUR CORNERS REGION**
Delbert Willie, Northern Arizona University

THP2.PB.4 Board PB.4 **X-BAND MP RADAR DATA IN ANALYSIS OF HEAVY RAIN DISASTER DUE TO TYPHOON NUMBER 18**
Masahiro Nishio, Kurume Institute of Technology; Masatoshi Mori, Kindai University

THP2.PB.5 Board PB.5 **A DECADE OF DAILY TOTAL PRECIPITABLE WATER DATASET IN ALL-WEATHER CONDITION**
Dabin Ji, Jiancheng Shi, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences

THP2.PB.6 Board PB.6 **SIMULATION ANALYSIS OF GEOSTIONARY PASSIVE MICROWAVE OBSERVATION FOR TROPICAL CYCLONE**
Ke Chen, Huazhong University of Science and Technology; Albin J. Gasiewski, Kun Zhang, University of Colorado Boulder; Gongwei Li, Wei Guo, Liang Lang, Huazhong University of Science and Technology; Anjie Cao, Shanghai Institute of Satellite Engineering

Thursday, July 27 **09:40 - 10:40** **Poster Area C**
Session THP1.PC **Poster**

Atmospheric Sounding I

Session Chair: Xiaolong Dong, National Space Science Center, Chinese Academy of Sciences

THP1.PC.1 Board PC.1 **ANALYSIS OF TOTAL PRECIPITABLE WATER AND CLOUD LIQUID WATER FROM MWHTS AND ACMR OBSERVATIONS**
Jieying He, Shengwei Zhang, Chinese Academy of Sciences; Jin Zhao, National Space Science Center, Chinese Academy of Sciences

THP1.PC.2 Board PC.2 **ANALYSIS OF METHANE EMISSION USING SCIAMACHY DATA COUPLED WITH TEMPERATURE, PRECIPITATION, AND SOIL MOISTURE IN ALPINE WETLAND OF ZOIGE, CHINA**
Yuanyuan Yang, Yong Wang, Haitao Lv, University of Electronic Science and Technology of China; Hong Li, East Carolina University

THP1.PC.3 Board PC.3 **MOON-BASED OCCULTATION OBSERVATION FOR ATMOSPHERIC PHENOMENA**
Cheng Fan, Yong Xue, Jie Guang, Lu She, Ying Li, Yahui Che, Institute of Remote Sensing and Digital Earth

THP1.PC.4 Board PC.4 **MEASURING THE OPTICAL SCATTERING CHARACTERISTICS OF LARGE PARTICLES IN VISIBLE REMOTE SENSING**
Jie Zhan, Yesheng Gao, Xingzhao Liu, Shanghai Jiao Tong University

THP1.PC.5 Board PC.5 **SCATTERING PROPERTY MEASUREMENTS WITH ADAPTIVE ALGORITHM**
Hui Chen, Yesheng Gao, Xingzhao Liu, Shanghai Jiao Tong University

THP1.PC.6 Board PC.6 **A STUDY ON DETECTING WATER VAPOR PROFILE USING GROUND BASED MICROWAVE RADIOMETER AND CLOUD RADAR**
Yili Zhao, National Ocean Technology Center; Yubao Chen, Bai Li, Meteorological Observation Centre of China Meteorological Administration; Chuntao Chen, Jianhua Zhu, Xiaoqi Huang, National Ocean Technology Center

Thursday, July 27 **15:20 - 16:20** **Poster Area C**
Session THP2.PC **Poster**

Clouds and Precipitation IV

Session Co-Chairs: Stephen Frasier, U. Massachusetts; Al Gasiewski, University of Colorado at Boulder

THP2.PC.1 Board PC.1 **THIN CLOUD DETECTION USING SPECTRAL SIMILARITY IN COASTAL AND BLUE BANDS OF LANDSAT-8 DATA**
Haitao Lv, Yong Wang, Yuanyuan Yang, University of Electronic Science and Technology of China

THP2.PC.2 Board PC.2 **NEW PROGRESS IN DERIVING CLOUDY-SKY LAND SURFACE LONGWAVE RADIATION BASED ON MULTIPLE REMOTELY SENSED DATA**
Tianxing Wang, Jiancheng Shi, Letu Husi, Tianjie Zhao, Dabin Ji, Chuan Xiong, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences; Ya Ma, Chinese Academy for Environmental Planning; Wang Zhou, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences; Yuechi Yu, Institute of Remote sensing and Digital Earth,Chinese Academy of Scicences; Rui Zhao, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences

THP2.PC.4 Board PC.4 **ERROR ANALYSIS OF ENSEMBLE MULTI-SATELLITE PRECIPITATION DATASETS OVER THE TIBETAN PLATEAU**
Ronghua Liu, China Institute of Water Resources and Hydropower Research; Yingzhao Ma, Yuan Yang, Zhongying Han, Guoqiang Tang, Tsinghua University; Qi Liu, China Institute of Water Resources and Hydropower Research; Yang Hong, Tsinghua University

THP2.PC.5 Board PC.5 **STUDY ON DEW CHARACTERISTICS IN LOESS PLATEAU, CHINA**
Sheng Wang, Qiang Zhang, Yaohui Li, Lijuan Wang, Jianhua Zhao, Ping Yue, Institute of Arid Meteorology, China Meteorological Administration; Xing Wang, Xiaocui Hao, Northwestern Regional Climatic Center

Thursday, July 27 09:40 - 10:40 Poster Area D
Session THP1.PD Poster

Passive Optical Sensors and Calibration

Session Co-Chairs: Lorenzo Bruzzone, University of Trento; Paolo Gamba, University of Pavia

THP1.PD.1 Board PD.1 **POST-LAUNCH RADIOMETRIC CALIBRATION OF TELEOS-1 SATELLITE IMAGING SENSOR**
Soo Chin Liew, Wee Juan Tan, Leong Keong Kwoh, National University of Singapore

THP1.PD.2 Board PD.2 **15 YEARS OF AQUA MODIS ON-ORBIT OPERATION, CALIBRATION, AND PERFORMANCE**
Xiaoxiong Xiong, NASA Goddard Space Flight Center; Amit Angal, Aisheng Wu, Zhipeng Wang, SSAI; William Barnes, University of Maryland, Baltimore County; Vincent Salomonson, University of Utah

THP1.PD.3 Board PD.3 **AN AUTOMATIC REFLECTANCE-BASED APPROACH TO VICARIOUS RADIOMETRIC CALIBRATE THE LANDSAT8 OPERATIONAL LAND IMAGER**
Yaokai Liu, Chuanrong Li, Lingling Ma, Ning Wang, Yonggang Qian, Lingli Tang, Academy of Opto-Electronics, Chinese Academy of Sciences

THP1.PD.5 Board PD.5 **DEVELOPING HOURLY SURFACE ALBEDO PRODUCT FOR GOES-R ABI**
Tao He, Wuhan University; Yi Zhang, Shunlin Liang, University of Maryland; Yunyue Yu, National Oceanic and Atmospheric Administration

Thursday, July 27 15:20 - 16:20 Poster Area D
Session THP2.PD Poster

Atmospheric Sounding II

Session Chair: FLAVIO ITURBIDE-SANCHEZ, NOAA/NESDIS

THP2.PD.1 Board PD.1 **GOPA: A RADIATION HARDENED GNSS BASEBAND ASIC FOR GNOS SERIES**
Yuerong Cai, Xianyi Wang, Yueqiang Sun, Qifei Du, National Space Science Center, Chinese Academy of Sciences; Lipeng Yue, Jianjun Zhang, The 772 Institute of China Academy of Aerospace Electronics Technology; Weihua Bai, Dongwei Wang, Chunjun Wu, Yusen Tian, Xiangguang Meng, Junming Xia, Congliang Liu, Danyang Zhao, Cheng Liu, Wei Li, National Space Science Center, Chinese Academy of Sciences

THP2.PD.2 Board PD.2 **A NEW VISIOMETER SYSTEM VIA AUTOMATIC OBSERVATION**
Jingli Wang, Institute of Urban Meteorology, China Meteorological Administration, Beijing, China; Xulin Liu, Beijing Meteorological Observation Center, Beijing, 100089, China

THP2.PD.3 Board PD.3 **A CRYOGENIC DEW AND FROST POINT HYGROMETER DESIGNED FOR UPPER AIR SOUNDING**
Zhendong Yao, Xiaoqiong Zhen, Chengdu University of Information Technology; Xiangdong Zheng, China Meteorological Administration

THP2.PD.4 Board PD.4 **GPS OBSERVATIONS OF TROPOSPHERIC DISTURBANCES FOLLOWING THE 2010 MW=8.8 CHILE EARTHQUAKE**
Gokhan Gurbuz, Shuanggen Jin, Bulent Ecevit University

THP2.PD.5 Board PD.5 **IONOSPHERIC SCINTILLATION MAPPING AT LOW LATITUDE: OVER INDONESIA**
Dessi Marlia, Falin Wu, Beihang University; Sri Ekawati, Sefria Anggarani, National Institute of Aeronautics and Space (LAPAN); Wasiu Akande Ahmed, Ed Nofri, Beihang University

THP2.PD.6 Board PD.6 **IMPROVING THE LOW LIGHT RADIANCE CALIBRATION OF S-NPP VIIRS DAY/NIGHT BAND IN THE NOAA OPERATIONS**
Sirish Uprety, CIRA, Colorado State University; Changyong Cao, NOAA/NESDIS/STAR; Yalong Gu, Earth Resources Tech. Inc.; Xi Shao, University of Maryland

Thursday, July 27 09:40 - 10:40 Poster Area E
Session THP1.PE Poster

Multispectral/Hyperspectral Image Classification

Session Co-Chairs: Pedram Ghamisi, German Aerospace Center (DLR) and Technical University of Munich (TUM); Leyuan Fang, Hunan University

THP1.PE.1 Board PE.1 **A NOVEL APPROACH FOR SEMI-SUPERVISED CLASSIFICATION OF REMOTE SENSING IMAGES USING CLUSTERING-BASED SELECTION OF TRAINING DATA ACCORDING TO THEIR GMM RESPONSIBILITIES**
Victor-Emil Neagoe, Vlad Chirila-Berbentea, Politehnica University of Bucharest

THP1.PE.2 Board PE.2 **HYPERSPECTRAL IMAGE SUBPIXEL MAPPING BASED ON SPATIAL-SPECTRAL ENDMEMBER DICTIONARY WITH COLLABORATIVE REPRESENTATION**
Yifan Zhang, Duanguang Zhang, Northwestern Polytechnical University; Jun Sun, Yang Peng, Shanghai Aerospace Control Technology Institute

THP1.PE.3 Board PE.3 **NONLINEAR CLASSIFICATION OF MULTISPECTRAL IMAGERY USING REPRESENTATION-BASED CLASSIFIERS**
Yan Xu, Qian Du, Mississippi State University; Wei Li, Beijing University of Chemical Technology; Chen Chen, University of Central Florida; Nicolas Younan, Mississippi State University

THP1.PE.4 Board PE.4 **DATA QUALITY SCREENING FOR HIGH-RESOLUTION SATELLITE IMAGERY VIA SPECTRAL CLUSTERING**
Qi Liu, Yawen Zhang, Qin Lv, Li Shang, University of Colorado Boulder

THP1.PE.5 Board PE.5 **DECISION TREE COUPLED WITH FEATURE OPTIMIZATION FOR OBJECT-BASED CLASSIFICATION OF ZY-1-02C SATELLITE IMAGES**
Anzhi Yue, Yu Meng, Jiansheng Chen, Qingqing Huang, Chengyi Wang, Jingbo Chen, Dongxu He, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences

THP1.PE.6 Board PE.6 **A REFLECTANCE IMAGE SIMULATION METHOD FOR ATMOSPHERIC ABSORPTION BANDS CENTERED AT 2.7 MICRON**
Yao Liu, China Aero Geophysical Survey and Remote Sensing Center for Land and Resources; Wenjuan Zhang, Bing Zhang, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences; Yingzhao Ma, Tsinghua University

Thursday, July 27 15:20 - 16:20 Poster Area E
Session THP2.PE Poster

Advanced Techniques for Optical Images

Session Co-Chairs: Wenzhi Liao Liao, Ghent University; John Kerekes, Rochester Institute of Technology

THP2.PE.1 Board PE.1 **SCENE SEMANTIC CLASSIFICATION BASED ON SCALE INVARIANCE CONVOLUTIONAL NEURAL NETWORKS**
Yanfei Liu, Yanfei Zhong, Wuhan University; Ji Zhao, China University of Geosciences; Ailong Ma, Qianqing Qin, Wuhan University

THP2.PE.2 Board PE.2 **HOMOGENEOUS REGION BASED LOW RANK REPRESENTATION IN HIDDEN FIELD FOR HYPERSPECTRAL CLASSIFICATION**
Le Sun, Nanjing University of Information Science and Technology; Byeungwoo Jeon, Sungkyunkwan University; Yuhui Zheng, Nanjing University of Information Science and Technology; Yang Xu, Zebin Wu, Nanjing University of Science and Technology

THP2.PE.3 Board PE.3 **ENSEMBLE OF TRANSFER COMPONENT ANALYSIS FOR DOMAIN ADAPTATION IN HYPERSPECTRAL REMOTE SENSING IMAGE CLASSIFICATION**
Junshi Xia, Naoto Yokoya, Akira Iwasaki, The University of Tokyo

THP2.PE.4 Board PE.4 **AN OPTIMIZED K-MEANS CLUSTERING ALGORITHM BASED ON BC-QPSO FOR REMOTE SENSING IMAGE**
Wu Tao, Chengdu University of Information Technology; Xi Chen, Southwest University for Nationalities; Lei Xie, Chengdu University of Information Technology; Zhongquan Qiu, Southwest Jiaotong University

THP2.PE.5 Board PE.5 **EXTRACTION OF THEMES FROM AERIAL IMAGERY USING LATENT DIRICHLET ALLOCATION**
Shailesh Deshpande, Shamsuddin Ladha, Tata Research Development and Design Centre; Hemant Aggarwal, Indraprastha Institute of Information Technology; Piyush Yadav, Tata Research Development and Design Centre

THP2.PE.6 Board PE.6 **SUPPORT VECTOR DOMAIN DESCRIPTION MODEL TO MAP SPECIFIC LAND COVER WITH OPTIMAL PARAMETERS DETERMINED FROM WINDOW-BASED VALIDATION SET**
Shuang Zhu, Beijing Polytechnic College; Jinshui Zhang, College of Resources Science and Technology/State Key Laboratory of Earth Surface Processes and Resource Ecology,Beijing Normal University; Guanyuan Shuai, Earth and Environmental Sciences, Michigan State University; Zhoumiqi Yuan, College of Resources Science and Technology/State Key Laboratory of Earth Surface Processes and Resource Ecology,Beijing Normal University

THP2.PE.7 Board PE.7 **PRODUCING FINE RESOLUTION THEMATIC MAP USING INTERPOLATION THEN CLASSIFICATION**
Peng Wang, Liguo Wang, Harbin Engineering University

THP2.PE.8 Board PE.8 **AN OBJECT-BASED IMAGE ANALYSIS SYSTEM BASED ON REGION-LINE PRIMITIVE ASSOCIATION FRAMEWORK**
Min Wang, Jiru Huang, Qi Cui, Jie Wang, Nanjing Normal University

Thursday, July 27 **09:40 - 10:40** **Poster Area F**
Session THP1.PF **Poster**

Land and Environmental Applications of Target Detection

Session Co-Chairs: Emanuele Santi, CNR-IFAC; Wenzhi Liao Liao, Ghent University

THP1.PF.1 Board PF.1 **WEAKLY SUPERVISED LANDSLIDE DETECTION USING MEDLDA REGRESSION MODEL**
Shi He, Henan Polytechnic University; Hong Tang, Beijing Normal University; Haitao Jing, Henan Polytechnic University; Tianjie Lei, China Institute of Water Resources and Hydropower Research; Jiehai Cheng, Henan Polytechnic University

THP1.PF.2 Board PF.2 **MONITORING OF DISTURBED LAND BASED ON CONVOLUTION NEURAL NETWORK**
Tao Sun, China Institute of Water Resources and Hydropower Research; Yu Zhao, Beijing Soil and Water Conservation Center; Changjun Liu, China Institute of Water Resources and Hydropower Research; Gang Fu, Tsinghua University; Rong Zhou, Fangxiao Chen, Daming Lu, Yaguang Gong, Beijing Soil and Water Conservation Center; Wenbo Fu, Lei Wang, Huazhong University of Science and Technology

THP1.PF.3 Board PF.3 **STUDY ON VARIATIONS OF GROWING SEASON FOR DIFFERENT VEGETATION TYPES IN XILINGOL LEAGUE, CHINA**
Dengkai Chi, Hong Wang, Beijing Normal University

THP1.PF.4 Board PF.4 **NATURAL LANGUAGE DESCRIPTION OF REMOTE SENSING IMAGES BASED ON DEEP LEARNING**
Xiangrong Zhang, Xiang Li, Jinliang An, Xidian University; Gao Li, Xi'an research institute of surverying and mapping; Biao Hou, Xidian University; Chen Li, Xi'an Jiaotong University

THP1.PF.5 Board PF.5 **IMPROVING PESTICIDE RESIDUES DETECTION USING BAND PRIORITIZATION AND CONSTRAINED ENERGY MINIMIZATION**
Kenneth-Yeonkong Ma, Yi-Mei Kuo, Yen-Chieh Ouyang, National Chung Hsing University, Taichung, Taiwan; Horng-Yuh Guo, Taiwan Agriculture Research Institute; Hsian-Min Chen, Taichung Veterans General Hospital; Chao-Cheng Wu, National Taipei University of Technology; Chgein-I Chang, University of Maryland, Baltimore County

THP1.PF.6 Board PF.6 **MAPPING ASH TREES FROM WORLDVIEW-2 AND 3 DATA**
Abdelmounaime Safia, Kalifa Goïta, Université de Sherbrooke

THP1.PF.7 Board PF.7 **DETECTION AND VALIDATION OF DUST STORM FROM NPP VIIRS**
Yikun Yang, Lin Sun, Jinshan Zhu, Renli Wang, Qinghua Su, Jing Wei, Fangwei Liu, Chen Jia, Shandong University of Science and Technology

Thursday, July 27 **15:20 - 16:20** **Poster Area F**
Session THP2.PF **Poster**

GPR System and Data Processing I

Session Co-Chairs: Motoyuki Sato, Tohoku University; Chi-Chih Chen, The Ohio State University

THP2.PF.1 Board PF.1 **ONLINE DICTIONARY LEARNING AIDED TARGET RECOGNITION IN COGNITIVE GPR**
Fabio Giovanneschi, Fraunhofer institute for High Frequency Physics and Radar Techniques (FHR); Kumar Vijay Mishra, Andrew and Erna Viterbi Faculty of Electrical Engineering, Technion - Israel Institute of Technology; Maria Antonia Gonzalez-Huici, Fraunhofer institute for High Frequency Physics and Radar Techniques (FHR); Yonina Eldar, Andrew and Erna Viterbi Faculty of Electrical Engineering, Technion - Israel Institute of Technology; Joachim H.G. Ender, University Of Siegen

THP2.PF.2 Board PF.2 **MARKS OF PAST STORMINESS ON BALTIC UPLIFTING COASTS AND THE PERSPECTIVE OF FUTURE CLIMATE CHANGE**
Ülo Suursaar, University of Tartu; Kadri Vilumaa, Hannes Tõnisson, Are Kont, Tallinn University

THP2.PF.4 Board PF.4 **USE OF GROUND PENETRATING RADAR FOR DETECTING UNDERGROUND HOLES IN URBAN AREAS: XMU'S EXPERIENCE**
Zhiyou Hong, Zhipeng Luo, Xiamen University; Jonathan Li, University of Waterloo; Zhenmiao Deng, Yiping Chen, Zhenlong Xiao, Xiamen University

THP2.PF.5 Board PF.5 **SOFTWARE DEFINED RADIO FOR STEPPED-FREQUENCY, GROUND-PENETRATING RADAR**
Samuel Carey, Waymond Scott, Georgia Institute of Technology

THP2.PF.6 Board PF.6 **THE EIGENDECOMPOSITION OF THE EDDY CURRENT PROBLEM IN THIN CONDUCTING SHELLS**
Jonathan Gabbay, Waymond Scott, Georgia Institute of Technology

THP2.PF.7 Board PF.7 **A LEAST MEAN SQUARE APPROACH TO BURIED OBJECT DETECTION IN GROUND PENETRATING RADAR**
Eyyup Temlioglu, Isin Erer, Deniz Kumlu, Istanbul Technical University

THURSDAY POSTER

Thursday, July 27 09:40 - 10:40 Poster Area G
Session THP1.PG Poster

Estimation and Regression I

Session Co-Chairs: Shunlin Liang, University of Maryland; shunlin liang, University of Maryland

THP1.PG.1 Board PG.1 **LAND SURFACE TEMPERATURE RETRIEVAL FROM LANDSAT-8 DATA**
Shanshan Li, Geng-Ming Jiang, Fudan University

THP1.PG.2 Board PG.2 **EXTENSION OF THE GENERALIZED SPLIT-WINDOW ALGORITHM FOR LAND SURFACE TEMPERATURE RETRIEVAL TO ATMOSPHERES WITH AIR TEMPERATURE INVERSION**
Chuan Zhan, Bohui Tang, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences; University of Chinese Academy of Sciences; Zhao-Liang Li, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences; University of Chinese Academy of Sciences; Ministry of Agriculture/Institute of Agricultural Resources and Regional Planning, Chinese Academy of Agricultural Sciences; Hua Wu, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences; University of Chinese Academy of Sciences; Ruofei Zhong, Capital Normal University

THP1.PG.3 Board PG.3 **DIRECT ESTIMATION OF 1-KM LAND SURFACE TEMPERATURE FROM AMSR2 BRIGHTNESS TEMPERATURE**
Xiaodong Zhang, Ji Zhou, Changming Yin, University of Electronic Science and Technology of China

THP1.PG.4 Board PG.4 **AUTOENCODING APPROACH TO THE CLOUD REMOVAL PROBLEM**
Salim Malek, Farid Melgani, University of Trento

THP1.PG.5 Board PG.5 **GLOBAL LAND SURFACE EVAPOTRANSPIRATION ESTIMATION FROM MERRA DATASET AND MODIS PRODUCT USING THE SUPPORT VECTOR MACHINE**
Meng Liu, Rong-Lin Tang, Zhao-Liang Li, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences; Yunjun Yao, Guangjian Yan, Beijing Normal University

THP1.PG.6 Board PG.6 **ESTIMATION OF DOWNWELLING SURFACE LONGWAVE RADIATION UNDER THIN CIRRUS CLOUD SKY WITH ARTIFICIAL NEURAL NETWORK METHOD**
Chunlei Wang, Bo-Hui Tang, Hua Wu, Ronglin Tang, Zhao-Liang Li, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences; University of Chinese Academy of Sciences

Thursday, July 27 15:20 - 16:20 Poster Area G
Session THP2.PG Poster

Estimation and Regression II

Session Co-Chairs: Fabio Del Frate, University of Rome Tor Vergata; Begum Demir, University of Trento

THP2.PG.1 Board PG.1 **AN ENHANCED SEMI-EMPIRICAL METHOD TO ESTIMATE LAND SURFACE TEMPERATURE FROM AMSR2 OBSERVATION**
Ji Zhou, Xiaodong Zhang, Fengnan Dai, Changming Yin, University of Electronic Science and Technology of China

THP2.PG.2 Board PG.2 **A DROUGHT ANALYSIS METHOD BASED ON MODIS SATELLITE IMAGERY AND AWS DATA**
Yongmin Kim, Soo Bong Lee, Hyewon Yun, Jinyoung Kim, Youngjin Park, National Disaster Management Research Institute

THP2.PG.3 Board PG.3 **GEOGRAPHICALLY WEIGHTED REGRESSION MODEL FOR URBAN TRAFFIC BLACK-SPOT ANALYSIS**
Yaqin Ye, Zejun Zuo, China University of Geosciences; Xiaohui Yuan, University of North Texas; Siyu Zhang, Xiu Zeng, Ying An, China University of Geosciences; Bo Chen, Wuhan ZondyCyber Technology Co., Ltd.

THP2.PG.4 Board PG.4 **ESTIMATING GROUND-LEVEL PM2.5 CONCENTRATION IN BEIJING USING BP ANN MODEL FROM SATELLITE DATA**
Ying Li, Yong Xue, Jie Guang, Linlu Mei, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences; Lu She, Cheng Fan, Chinese Academy of Sciences; Guili Chen, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences

THP2.PG.5 Board PG.5 **IMPROVEMENT ON IMAGE SIMULATION FROM MULTITEMPORAL LANDSAT IMAGES**
Soo Bong Lee, National Disaster Management Research Institute; Hien Phu La, Hanoi University of Mining and Geology; Yongmin Kim, National Disaster Management Research Institute; Dalgeun Lee, NDMI; Jinyoung Kim, Youngjin Park, National Disaster Management Research Institute

THP2.PG.6 Board PG.6 **ASSESSING RELATIONSHIP OF AIR QUALITY INDEX AND VEGETATION TYPE USING HYPERSPECTRAL REMOTE SENSING**
Hanning Chen, Yong Wang, Shuxu Gao, University of Electronic Science and Technology of China

THP2.PG.7 Board PG.7 **IDENTIFICATION AND QUANTIFICATION OF KAOLINITE IN MIXTURES WITH GOETHITE USING SHORT-WAVE INFRARED (SWIR) REFLECTANCE SPECTROSCOPY**
Marcelo Kehl de Souza, Mauricio Roberto Veronez, Francisco Manoel Wohnrath Tognoli, Luiz Gonzaga Jr., Lais Vieira de Souza, Marcus Vinicius Lermen Kochhann, Nadine Goulart da Silva, Fernando Pinho Marson, Jóice Cagliari, UNISINOS

THP2.PG.8 Board PG.8 **FEASIBILITY OF ESTIMATING HEAVY METAL CONCENTRATIONS IN WETLAND SOIL USING HYPERSPECTRAL TECHNOLOGY**
Yin Gao, National Geomatics Center of China; Guofeng Wu, Shenzhen University; Faliang Wang, National Geomatics Center of China; Wei Li, Yinru Lei, Baodi Sun, Lijuan Cui, Chinese Academy of Forestry

Thursday, July 27 09:40 - 10:40 Poster Area H
Session THP1.PH Poster

Microwave Models for Land

Session Chair: Mehmet Kurum, Mississippi State University

THP1.PH.1 Board PH.1 **MODELING MICROWAVE BISTATIC SCATTERING FROM RICE CANOPY BASED ON RADIATIVE TRANSFER EQUATION AND ANTENNA ARRAY THEORY**
Yu Liu, Kun-Shan Chen, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences; Zhao-Liang Li, Ministry of Agriculture/Institute of Agricultural Resources and Regional Planning, Chinese Academy of Agricultural Sciences

THP1.PH.2 Board PH.2 **DEVELOPMENT OF A COHERENT BISTATIC VEGETATION MODEL FOR SIGNAL OF OPPORTUNITY APPLICATIONS AT VHF/UHF-BANDS**
Mehmet Kurum, Mississippi State University; Manohar Deshpande, Alicia Joseph, Peggy E. O'Neill, NASA Goddard Space Flight Center; Roger Lang, George Washington University; Orhan Eroglu, Mississippi State University

THP1.PH.3 Board PH.3 **SEMI-ANALYTICAL SOIL MOISTURE RETRIEVAL USING POLSAR IMAGERY**
Esmaeil Khedri, Mahdi Hasanlou, College of Engineering, University of Tehran; Alireza Tabatabaeenejad, University of Southern California

THP1.PH.4 Board PH.4 **SCATTERING MODELING OF DYNAMIC SOYBEAN DURING SMAPVEX16-MICROWEX**
Alejandro Monsivais-Huertero, Instituto Politecnico Nacional; Pang-Wei Liu, Jasmeet Judge, Subit Chakrabarti, University of Florida

THP1.PH.5 Board PH.5 **AN ULTRA-WIDEBAND MEASUREMENT METHOD OF ROCK PERMITTIVITY**
Chen Guo, Hang Dong, Chang'an University; Gary Mavko, Stanford University; Richard Liu, Chang'an University

THP1.PH.6 Board PH.6 **BACKSCATTERING MODEL FOR DYNAMIC CORN DURING SMAPVEX16-MICROWEX**
Alejandro Monsivais-Huertero, Instituto Politecnico Nacional; Pang-Wei Liu, Jasmeet Judge, Subit Chakrabarti, University of Florida

Thursday, July 27 15:20 - 16:20 Poster Area H
Session THP2.PH Poster

Microwave Models for Natural Media

Session Co-Chairs: Hean Teik Chuah, Universiti Tunku Abdul Rahman; Joel Johnson, Ohio State University

THP2.PH.1 Board PH.1 **STATISTICAL STUDY OF RADAR BACKSCATTERING FROM SEA SURFACES WITH OIL SLICKS**
Aymeric Mainvis, Vincent Fabbro, Henri-Jose Mametsa, ONERA; Christophe Bourlier, IETR; Philippe Lattes, Véronique Miegebielle, TOTAL SA

THP2.PH.2 Board PH.2 **A L-BAND SEMI-EMPIRICAL OCEAN BACKSCATTERING MODEL**
Yanlei Du, Xiaofeng Yang, Kun-Shan Chen, Ziwei Li, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences

THP2.PH.3 Board PH.3 **IONOSPHERIC SCINTILLATION EFFECTS ON SIGNALS IN THE V AND W BANDS**
David Smith, Derek Hesser, Peter Collins, James Fee, James Petrosky, Andrew Terzuoli, Caglar Yardim, Institute of Electronics, Chinese Academy of Sciences

THP2.PH.4 Board PH.4 **ELECTROMAGNETIC SCATTERING FROM 2-D SEA SURFACE WITH 3-D ELECTRICALLY LARGE SHIP BY PARALLEL MLFMA**
Jinshen Wang, Fugen Zhou, Beihang University

THP2.PH.5 Board PH.5 **INVERSION OF DIELECTRIC PROPERTIES OF LUNAR PSR REGIONS USING UHF RADAR RANGE POL-ECHOES**
Ya-Qiu Jin, Niutao Liu, Fudan University

THP2.PH.6 Board PH.6 **CIRCULARLY POLARIZED BISTATIC SCATTERING FROM SASTRUGI SURFACES**
Peng Xu, Kun-Shan Chen, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences

Thursday, July 27 09:40 - 10:40 Poster Area I
Session THP1.PI Poster

Soil Moisture Retrieval and Applications I

Session Co-Chairs: Seyed Hamed Alemohammad, Columbia University; Jeffrey Walker, Monash University

THP1.PI.1 Board PI.1 **COMPARISON OF THE SOIL MOISTURE PRODUCTS FROM FY-3B/MWRI AND CLDAS-V1.0 OVER CHINA**
Ruijing Sun, Xiuzhen Han, Yeping Zhang, National Satellite Meteorological Center, China Meteorological Administration

THP1.PI.2 Board PI.2 **COMPONENT SOIL MOISTURE RETRIEVAL USING OBSERVATIONS OF DIFFERENT WHEAT ROW-STRUCTURES FROM A TRUCK-MOUNTED MICROWAVE RADIOMETER**
Tao Zhang, Satellite Surveying and Mapping Application Center,NASG; Yunqing Li, Beijing City University; Shaojie Zhao, Beijing Normal University; Bing Lei, Satellite Surveying and Mapping Application Center,NASG; Shirui Hao, State Key Laboratory of Remote Sensing Science and Institute of Remote Sensing Science and Engineering, Faculty of Geographical Science, Beijing Normal University and Joint Center for Global Change Studies (JCGCS)

THP1.PI.3 Board PI.3 **EXPLOITING SENTINEL 1 DATA FOR IMPROVING (FLASH) FLOOD MODELLING VIA DATA ASSIMILATION TECHNIQUES**
Luca Cenci, Luca Pulvirenti, Giorgio Boni, CIMA Research Foundation; Marco Chini, Patrick Matgen, Luxembourg Institute of Science and Technology; Simone Gabellani, Giuseppe Squicciarino, Valerio Basso, Flavio Pignone, CIMA Research Foundation; Nazzareno Pierdicca, Sapienza University of Rome

THP1.PI.4 Board PI.4 **STATISTICAL RETRIEVAL OF SURFACE AND ROOT ZONE SOIL MOISTURE USING SYNERGY OF MULTI-FREQUENCY REMOTELY-SENSED OBSERVATIONS**
Seyed Hamed Alemohammad, Columbia University; Jana Kolassa, NASA Goddard Space Flight Center; Catherine Prigent, Filipe Aires, Observatoire de Paris; Pierre Gentine, Columbia University

THP1.PI.5 Board PI.5 **POLARIMETRIC DECOMPOSITION OF MULTI-ANGULAR SAR DATA FOR SOIL MOISTURE RETRIEVAL OVER AGRICULTURAL FIELDS**
Hongquan Wang, Ramata Magagi, Kalifa Goïta, University of Sherbrooke

THP1.PI.6 Board PI.6 **IMPROVEMENT AND VALIDATION OF QP MODEL WITH DUAL-CHANNEL SOIL MOISTURE RETRIEVAL ALGORITHM IN GENHE, CHINA**
Huizhen Cui, Lingmei Jiang, Zheng Lu, Gongxue Wang, Jian Wang, Beijing Normal University

Thursday, July 27 15:20 - 16:20 Poster Area I
Session THP2.PI Poster

Soil Moisture Retrieval and Applications III

Session Co-Chairs: Sabah Sabaghy, Monash University; Moritz Link, Ludwig-Maximilian University of Munich (LMU)

THP2.PI.1 Board PI.1 **RETRIEVAL OF AIRMOSS ROOT-ZONE SOIL MOISTURE PROFILE WITH A RICHARDS' EQUATION-BASED APPROACH**
Alireza Tabatabaeenejad, University of Southern California; Morteza Sadeghi, Utah State University; Mahta Moghaddam, University of Southern California; Markus Tuller, University of Arizona; Scott Jones, Utah State University

THP2.PI.2 Board PI.2 **SOIL MOISTURE RETRIEVAL IN THE TIBETAN PLATEAU USING THE IMPROVED TEMPERATURE-VEGETATION DRYNESS INDEX (TVDI)**
Ting Yang, Peking University; Wei Wan, Tsinghua University; Xiuwan Chen, Xinlong Zhang, Fei Li, Peking University

THP2.PI.3 Board PI.3 **MULTI-SCALE SURFACE ROUGHNESS MODEL FOR SOIL MOISTURE RETRIEVAL**
Maheshwari Neelam, Texas A&M University; Andreas Colliander, Jet Propulsion Laboratory; Binayak Mohanty, Texas A&M University; Thomas J. Jackson, Michael H. Cosh, USDA-Agriculture Research Serivice; Sidharth Misra, Jet Propulsion Laboratory

THP2.PI.4 Board PI.4 **HIGH RESOLUTION SOIL MOISTURE MEASUREMENTS: MAPPING THE WAY TOWARD SMOS NEXT GENERATION**
François Cabot, Eric Anterrieu, Yann Kerr, Bernard Rouge, Centre d'Etudes Spatiales de la Biosphère (CESBIO)

THP2.PI.5 Board PI.5 **EXPERIMENT AND ANALYSIS OF RETRIEVING LAND SURFACE PARAMETERS USING POLARIZATION RADAR IMAGES IN GENHE AREA OF CHINA**
Quan Chen, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences; Haoran Tao, Xi'an University of Science and Technology; Wei Zhang, National Disaster Reduction Center of China, MCA; Zhen Li, Ping Zhang, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences

THP2.PI.6 Board PI.6 **SOIL MOISTURE CONTENT MEASUREMENT USING GPR DATA INVERSION**
Chen Guo, Yan Chen, Hang Dong, Wei Li, Lidong Liu, Richard Liu, Chang'an University

Thursday, July 27 09:40 - 10:40 Poster Area J
Session THP1.PJ Poster

Snow and Ice II

Session Co-Chairs: Joshua King, Environment Canada; Kari Luojus, Finnish Meteorological Institute

THP1.PJ.1 Board PJ.1 **RETRIEVAL OF SNOW DEPTH ON SEA ICE IN THE ARCTIC FROM FY3B/MWRI**
Lele Li, Haihua Chen, Lei Guan, Ocean University of China

THP1.PJ.2 Board PJ.2 **POLARIMETRIC CHARACTERISTICS OF ICE ON LAKE SAROMA OBSERVED BY PI-SAR-L2**
Hiroyuki Wakabayashi, Nihon University; Kohei Cho, Tokai University

THP1.PJ.3 Board PJ.3 **A NOVEL APPROACH TO RETRIEVE ARCTIC SEA ICE THICKNESS FOR PREDICTION AND ANALYSIS**
Ludovic Brucker, NASA Goddard Space Flight Center / USRA GESTAR; Guillaume Vernieres, NASA Goddard Space Flight Center GMAO

THP1.PJ.4 Board PJ.4 **USE OF SEQUENTIAL SAR IMAGES FOR DETECTING ICE AND WATER IN VIEW OF DATA ASSIMILATION**
Alexander Komarov, Mark Buehner, Environment and Climate Change Canada

THP1.PJ.5 Board PJ.5 **ICE CONCENTRATION ESTIMATION IN THE GULF OF ST. LAWRENCE USING FULLY CONVOLUTIONAL NEURAL NETWORK**
Lei Wang, K. Andrea Scott, David A. Clausi, Yan Xu, University of Waterloo

THP1.PJ.6 Board PJ.6 **VALIDATION AND INTERCOMPARISON OF CLOUD-FREE BINARY SNOW PRODUCTS OVER HIGH ASIA**
Yubao Qiu, Xiaoqi Yu, Xinru Fu, Lijuan Shi, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences

Thursday, July 27 15:20 - 16:20 Poster Area J
Session THP2.PJ Poster

Agriculture Applications IV

Session Chair: Michael Cosh, US Department of Agriculture

Agricultural Research Service (ARS)

THP2.PJ.1 Board PJ.1 **MULTISCALE RETRIEVAL OF WINTER WHEAT WATER CONTENT**
Zhizhong Chen, Linna Chai, Wenxing Hu, Xiaojing Liu, Beijing Normal University

THP2.PJ.2 Board PJ.2 **REMOTE ESTIMATION OF MAIZE CARBON SEQUESTRATION CAPACITY BASED ON EDDY COVARIANCE FLUX MEASUREMENTS**
Huiling Long, Beijing Research Center for Information Technology in Agriculture; Chunjiang Zhao, Beijing Academy of Agriculture and Forestry Sciences; Guijun Yang, Beijing Research Center for Information Technology in Agriculture

THP2.PJ.3 Board PJ.3 **CROPLAND PRODUCTIVITY ASSESSMENT FOR UKRAINE BASED ON TIME SERIES OF OPTICAL SATELLITE IMAGES**
Nataliia Kussul, Mykola Lavreniuk, Space Research Institute; Sergii Skakun, University of Maryland; Andrii Shelestov, Space Research Institute

THP2.PJ.4 Board PJ.4 **USE OF MODIS PRODUCTS TO ASSESS THE IMPACTS OF THE 2012 DROUGHT ON ET AND GPP IN A PERENNIAL AGRICULTURE SYSTEM IN KANSAS**
Gabriel de Oliveira, Nathaniel A. Brunsell, University of Kansas

THP2.PJ.5 Board PJ.5 **DROUGHT DISTRIBUTION AND ITS EFFECTS ON WHEAT YIELDS IN CHINA USING MODIS DATA**
Shuhe Zhao, Qiangfei Fang, Kexun He, Nanjing University; Zhihao Qin, Chinese Academy of Agricultural Sciences

Thursday, July 27 **09:40 - 10:40** **Poster Area K**
Session THP1.PK **Poster**

Global Navigation Satellite Systems Reflectometry / GNSS-R Sensors I

Session Co-Chairs: Cinzia Zuffada, JPL; Mehrez Zribi, CNRS

THP1.PK.1 Board PK.1 **GNSS-R FROM THE SMAP AND CYGNSS MISSIONS: APPLICATION TO POLARIMETRIC SCATTEROMETRY AND OCEAN ALTIMETRY**
Hugo Carreno-Luengo, Stephen Lowe, Cinzia Zuffada, Stephan Esterhuizen, Shadi Oveisgharan, NASA Jet Propulsion Laboratory

THP1.PK.2 Board PK.2 **CALIBRATION OF GNSS-R RECEIVERS WITH PRN SIGNAL INJECTION: METHODOLOGY AND VALIDATION WITH THE MICROWAVE INTERFEROMETRIC REFLECTOMETER (MIR)**
Daniel Pascual, Raul Onrubia, Jorge Querol, Hyuk Park, Adriano Camps, Universitat Politècnica de Catalunya

THP1.PK.3 Board PK.3 **BEAMFORMER CHARACTERIZATION OF THE MIR INSTRUMENT: THE MICROWAVE INTERFEROMETRIC REFLECTOMETER**
Raul Onrubia, Daniel Pascual, Jorge Querol, Hyuk Park, Adriano Camps, Universitat Politècnica de Catalunya

THP1.PK.4 Board PK.4 **FIRST EXPERIMENT ABOUT TRAFFIC FLOW DETECTION BY USING GNSS-R**
Chaoqun Gao, Dongkai Yang, Beihang University; Xuejing Qiu, China University of Geosciences; Lei Yang, Yao Xu, Yunlong Zhu, Beihang University

THP1.PK.5 Board PK.5 **CLOUD-COVER ASSESSMENT: FROM SPECTRAL PROPERTIES TO SPATIAL DOMAIN NATURAL SCENE STATISTIC**
Shuigen Wang, Chenwei Deng, Xun Liu, Zhenzhen Li, Fan Feng, Baojun Zhao, Beijing Institute of Technology

THP1.PK.6 Board PK.6 **ANALYSIS OF BACKUS-GILBERT APPROACH ON RESOLUTION ENHANCEMENT OF DUAL-FREQUENCY POLARIZED SCATTEROMETER**
Liling Liu, Xiaolong Dong, National Space Science Center, Chinese Academy of Sciences; Wenming Lin, The Institute of Marine Sciences (ICM); Jintai Zhu, DFH Satellite co., Ltd; Di Zhu, National Space Science Center, Chinese Academy of Sciences

THP1.PK.7 Board PK.7 **A MILLIMETER WAVE SEEKER PERFORMANCE EVALUATION METHOD BASED ON DIFFERENTIAL GLOBAL POSITION SYSTEM**
Fugang Lu, Shichao Chen, Jun Wang, Xi'an Modern Control Technology Research Institute; Ming Liu, Shaanxi Normal University; Taoli Yang, University of Electronic Science and Technology of China

Thursday, July 27 **15:20 - 16:20** **Poster Area K**
Session THP2.PK **Poster**

Agriculture Applications V

Session Co-Chairs: Zhengwei Yang, USDA National Agricultural Statsistics Service; Giovanni Laneve, Università di Roma 'La Sapienza'

THP2.PK.1 Board PK.1 **DELINEATION OF SITE-SPECIFIC MANAGEMENT ZONE BASED ON SPOT6/7 REMOTE SENSING IMAGE IN BLACK SOIL AREA, NORTHEAST CHINA**
Huanjun Liu, Northeast Institute of Geography and Agroecology, Chinese Academy of Sciences; Zhengchao Qiu, Linghua Meng, Mengyuan Xu, Yue Pan, Xinle Zhang, Northeast Agricultural University

THP2.PK.2 Board PK.2 **COTTON GROWTH MODELING USING UNMANNED AERIAL VEHICLE VEGETATION INDICES**
Junho Yeom, Jinha Jung, Anjin Chang, Texas A&M University-Corpus Christi; Murilo Maeda, Juan Landivar, Texas A&M AgriLife Research Extension Service Corpus Christi

THP2.PK.3 Board PK.3 **MULTI-TEMPORAL MOD09A1-BASED DETECTING OF MAJOR GROWTH STAGES OF PADDY RICE ON A PROVINCIAL SCALE**
Linsheng Huang, Shasha Zhang, Jinling Zhao, Wenjiang Huang, Jinyang Huang, Xiaobo Qi, Anhui University

THP2.PK.4 Board PK.4 **ESTIMATION OF LEAF NITROGEN CONTENT OF MAIZE BASED ON AKAIKE'S INFORMATION CRITERION IN BEIJING**
Haikuan Feng, Haojie Pei, Fuqin Yang, Guijun Yang, Zhenhai Li, Xiaodong Yang, Huiling Long, Beijing Research Center for Information Technology In Agriculture; Xiuliang Jin, UMR EMMAH, INRA, UAPV, 84914, Avignon, France

THP2.PK.5 Board PK.5 **THE USE OF MULTI-TEMPORAL NDVI MEASUREMENTS FROM SMALL UNMANNED AERIAL VEHICLE DATA FOR PADDY RICE YIELD ESTIMATION AND PREDICTION**
Jin-Ki Park, National Institute of Crop Science; Jong-Hwa Park, Chungbuk National University

THP2.PK.6 Board PK.6 **CROPLAND PRODUCTION POTENTIAL MONITORING USING LONG-TERM CROP DYNAMICS**
Huiling Long, Chunjiang Zhao, Guijun Yang, Haikuan Feng, Qingyun Xu, Beijing Academy of Agriculture and Forestry Sciences

Thursday, July 27 **09:40 - 10:40** **Poster Area L**
Session THP1.PL **Poster**

Agriculture Applications I

Session Co-Chairs: Virginia Brancato, ETH Zurich; Giovanni Laneve, University of Rome 'La Sapienza'

THP1.PL.1 Board PL.1 **DETECTION OF CROP HERBICIDE INJURY THROUGH PLANT HYPERSPECTRAL REMOTE SENSING OF CHLOROPHYLL FLUORESCENCE**
Yanbo Huang, USDA-ARS; Haibo Yao, Mississippi State University; Feng Zhao, Beihang University; Krishna Reddy, USDA-ARS

THP1.PL.2 Board PL.2 **AIRBORNE L-BAND SAR OBSERVATION FOR PADDY RICE FIELDS IN SEMI-MOUNTAINOUS REGION**
Chinatsu Yonezawa, Tohoku Univ.; Manabu Watanabe, Tokyo Denki University

THP1.PL.3 Board PL.3 **RICE MONITORING USING MULTI-SATELLITE DATA**
Dorj Ichikawa, Koji Wakamori, Naohiro Oguri, Dorj Ichikawa, Japan Manned Space Systems Corporation

THP1.PL.4 Board PL.4 **MISSING DATA RECONSTRUCTION AND ANOMALY DETECTION IN CROP DEVELOPMENT USING AGRONOMIC INDICATORS DERIVED FROM MULTISPECTRAL SATELLITE IMAGES**
Mohanad Albughdadi, Denis Kouamé, University of Toulouse; Guillaume Rieu, TerraNIS; Jean-Yves Tourneret, University of Toulouse

THP1.PL.5 Board PL.5 **MONITORING OF POWDERY MILDEW ON WINTER WHEAT USING MULTI-TEMPORAL HJ-CCD IMAGERY ON A REGIONAL SCALE**
Jinling Zhao, Junjie Guo, Chuang Liu, Dongyan Zhang, Linsheng Huang, Anhui University

THP1.PL.6 Board PL.6 **ESTIMATION OF RICE GROWTH STATUS, PROTEIN CONTENT AND YIELD PREDICTION USING MULTI-SATELLITE DATA**
Koji Wakamori, Dorj Ichikawa, Naohiro Oguri, JAMSS

Thursday, July 27 **15:20 - 16:20** **Poster Area L**
Session THP2.PL **Poster**

Land Cover Dynamics II

Session Chair: Jin-Woo Kim, Southern Methodist University

THP2.PL.2 Board PL.2 **TIME-SERIES INSAR ANALYSIS OF CASCADE LANDSLIDE COMPLEX, WASHINGTON, USA**
Xie Hu, Zhong Lu, Teng Wang, Southern Methodist University; Thomas Pierson, U.S. Geological Survey; Jin-Woo Kim, Southern Methodist University; Thomas Cecere, U.S. Geological Survey

THP2.PL.3 Board PL.3 **DYNAMIC MONITORING OF DROUGHT CONDITONS IN HENAN PROVINCE BASED ON LAI-TS SPACE**
Ying Liu, Hui Yue, Xi'an University of Science and Technology

THP2.PL.4 Board PL.4 **ANALYSIS ON DIFFERENCE OF PHENOLOGY EXTRACTED FROM EVI AND LAI**
Cong Wang, Jing Li, Qinhuo Liu, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences

THP2.PL.5 Board PL.5 **EVALUATION OF SMALL WATERSHED MANAGEMENT EFFORTS USING ZY-3 SATELLITE IMAGES —A CASE STDUY IN THE WATER SOURCE AREA OF MIDDLE ROUTE OF SOUTH TO NORTH WATER DIVERSION PROJECT**
Tao Zhang, Bing Lei, Yuhang Gan, Ke Liu, Satellite Surveying and Mapping Application Center,NASG; Jianhua Guo, Xiaohong Liu, Liaoning Technical University; Shirui Hao, State Key Laboratory of Remote Sensing Science and Institute of Remote Sensing Science and Engineering, Faculty of Geographical Science, Beijing Normal University and Joint Center for Global Change Studies (JCGCS)

THP2.PL.6 Board PL.6 **ANALYSIS OF URBAN LAND EXPANSION AND SIMULATION OF URBAN LAND USE IN LOUKOU CITY**
Qixia Man, Quanyuan Wu, Shandong Normal University; Pinliang Dong, University of North Texas; Xinming Yang, Jinan Environmental Research Institute

THP2.PL.7 Board PL.7 **REMOTE SENSING METHODOLOGY FOR DETECTION OF ENVIRONMENTAL REGIME SHIFTS IN SEMI-ARID REGION**
Yuki Sofue, Chiba University; Buho Hoshino, Rakuno Gakuen University; Eunice Nduati, Akihiko Kondoh, Chiba University; Kenji Kai, Nagoya University; Purevsuren Tsedendamba, Kenji Baba, Rakuno Gakuen University

Friday, July 28 09:40 - 10:40 Poster Area A
Session FRP1.PA Poster

Synthetic Aperture Radar Instrumentation and Calibration

Session Co-Chairs: Tom Ainsworth, Naval Research Laboratory; Dennis Schobert, European Space Agency

FRP1.PA.1 Board PA.1 **INTERPRETATION OF RELATIVE SEA LEVEL VARIATIONS AT TIDE GAUGES USING RESULTS FROM FOUR ESTONIAN PRECISE LEVELLINGS AND LAND UPLIFT MODELS**
Ülo Suursaar, University of Tartu; Tarmo Kall, Estonian University of Life Sciences

FRP1.PA.2 Board PA.2 **DATA ACQUISITION FOR A NOVEL SPACEBORNE AZIMUTH-RANGE SWEEP SYNTHETIC APERTURE RADAR**
Yan Wang, Jian Yang, Tsinghua University; Jing-wen Li, Beihang University

FRP1.PA.3 Board PA.3 **A NEW FARADAY ROTATION ESTIMATOR BASED ON POLARIMETRIC COHERENCY MATRIX AND ITS EFFECT ON SEA ICE**
Bing Li, Zemin Wang, Chunxia Zhou, Jiachun An, Yiming Chen, Wuhan University

FRP1.PA.5 Board PA.5 **NOVEL CHIRP PHASE ERROR COMPENSATION ALGORITHM USING POLYNOMIAL CHIRP MODELING FOR HIGH RESOLUTION SYNTHETIC APERTURE RADAR**
Heein Yang, Yuta Izumi, Agus Hendra, Josaphat Tetuko Sri Sumantyo, Chiba University

Friday, July 28 09:40 - 10:40 Poster Area B
Session FRP1.PB Poster

Tomography and 3D Mapping II

Session Chair: Othmar Frey, Gamma Remote Sensing / ETH Zurich

FRP1.PB.1 Board PB.1 **ONBOARD ORTHO-RECTIFICATION FOR REMOTELY SENSED IMAGES**
Guoqing Zhou, Yajun Fan, Guilin University of Technology; Rongting Zhang, Tianjin University; Na Liu, Guilin University of Technology; Jingjin Huang, Tianjin University; Xiang Zhou, Guilin University of Technology

FRP1.PB.2 Board PB.2 **NON-LINEAR LEAST SQUARES ALGORITHM FOR DETECTION OF SIMPLE AND DOUBLE PERSISTENT SCATTERERS**
Cosmin Danisor, University Politehnica of Bucharest; Gianfranco Fornaro, National Research Council (CNR); Mihai Datcu, German Aerospace Center (DLR)

FRP1.PB.3 Board PB.3 **SCATTERER DETECTION IN URBAN ENVIRONMENT USING PERSISTENT SCATTERER INTERFEROMETRY AND SAR TOMOGRAPHY**
Alessandra Budillon, University of Naples Parthenope; Michele Crosetto, Centre Tecnològic de Telecomunicacions de Catalunya (CTTC); Angel Caroline Jhonsy, University of Naples Parthenope; Oriol Monserrat, Centre Tecnològic de Telecomunicacions de Catalunya (CTTC); Gilda Schirinzi, University of Naples Parthenope

FRP1.PB.4 Board PB.4 **CROSS-TRACK STEREOVISION USING ASTER**
Akira Iwasaki, Mario Rodriguez, The University of Tokyo

FRP1.PB.5 Board PB.5 **ON THE ROLE OF NON-LOCAL FILTERING IN FOREST VERTICAL STRUCTURE CHARACTERIZATION USING SAR TOMOGRAPHY**
Hossein Aghababaee, K.N. Toosi University of Technology; Alessandra Budillon, Giampaolo Ferraioli, Vito Pascazio, Gilda Schirinzi, Universita' di Napoli Parthenope

FRP1.PB.6 Board PB.6 **AN EFFICIENTLY VOLUMETRIC FUSING METHOD FOR STRUCTURE-FROME-MOTION AND TERRESTRIAL POINT CLOUD**
Wei Li, Cheng Wang, Dawei Zai, Pengdi Huang, Weiquan Liu, Jonathan Li, Xiamen University

FRP1.PB.7 Board PB.7 **QUALITY EVALUATION OF POINT CLOUD MODEL FOR INTERIOR STRUCTURE OF A COMMON BUILDING**
Gen Li, Yiping Chen, Chenglu Wen, Cheng Wang, Xiamen University; Jonathan Li, Xiamen University, University of Waterloo; Jinyong Chen, CETC

Friday, July 28 09:40 - 10:40 Poster Area C
Session FRP1.PC Poster

Aerosols and Atmospheric Chemistry II

Session Co-Chairs: Shobha Kondragunta, NOAA/Center for Satellite Applications and Research; Son Nghiem, NASA/JPL

FRP1.PC.1 Board PC.1 **TEMPORAL AND SPATIAL VARIATIONS IN OZONE OVER ASIAN FREE TROPOSPHERE**
Yingjie Li, Jiangsu Normal University; Jane Liu, University of Toronto; Qingmiao Ma, Jiangsu Normal University; David Tarasick, Environment Canada; Mohammed Osman, Cooperative Institute for Mesoscale Meteorological Studies

FRP1.PC.2 Board PC.2 **POOR AIR QUALITY AND DENSE HAZE/SMOG DURING 2016 IN THE INDO-GANGETIC PLAINS ASSOCIATED WITH THE CROP RESIDUE BURNING AND DIWALI FESTIVAL**
Akshansha Chauhan, Vidya College of Engineering; Ramesh Singh, School of Life and Environmental Sciences, Schmid College of Science and Technology, Chapman University

FRP1.PC.3 Board PC.3 **A NEW ALGORITHM FOR HIGH TEMPORAL AND SPATIAL RESOLUTION AEROSOL RETRIEVAL USING GAOFEN-4 AND LANDSAT-8 DATA**
Weihong Han, Ling Tong, Yunping Chen, University of Electronic Science and Technology of China

FRP1.PC.4 Board PC.4 **AEROSOL SCATTERING AND ABSORPTION COEFFICIENTS AS INDICATORS OF HAZE AND HAZE-FREE DAYS**
Miao Zhang, Nanyang Normal University; Ge Han, Wuhan University; Jie Yang, Nanyang Normal University; Wei Gong, Wuhan University; Miao Cheng, Nanyang Medical College

FRP1.PC.5 Board PC.5 **RETRIEVAL OF PM2.5 USING GROUND-BASED DATA IN BEIJING AREA**
Guili Chen, Jie Guang, Yong Xue, Ying Li, Yahui Che, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences; Shaoqi Gong, Nanjing University of Information Science and Technology

FRP1.PC.6 Board PC.6 **MONITORING AND VISUALIZING THE TRANSPORT OF ATMOSPHERIC AEROSOLS USING SATELLITE AND GROUND BASED OBSERVATIONS**
Kwon-Ho Lee, Gangneung-Wonju National University; Sang-Woo Kim, Seoul National University

Friday, July 28 09:40 - 10:40 Poster Area D
Session FRP1.PD Poster

Geographic Information Science II

Session Co-Chairs: Peter Baumann, Jacobs University; Peng Yue, Wuhan University

FRP1.PD.1 Board PD.1 **AN IMPROVED METHOD FOR THE UNIQUE CODE OF SPATIAL ENTITY BASED ON GLOBAL SUBDIVISION GRID**
Kun Qi, Yina Hu, Shuang Li, Weixin Zhai, Chengqi Cheng, Peking University

FRP1.PD.2 Board PD.2 **FILLING DEPRESSIONS BASED ON SUB-WATERSHEDS IN RASTER DIGITAL ELEVATION MODELS**
Guiyun Zhou, Junjie Zhou, Youyou Li, University of Electronic Science and Technology of China

FRP1.PD.3 Board PD.3 **THE SHARING SERVICES OF MAP LOCATION BASED ON NETWORK API**
Pengfei Liu, Wei Zhang, Qian Wang, Jiaying Yang, Tianjin Normal University

FRP1.PD.4 Board PD.4 **INDOOR PEDESTRIAN TRAJECTORY TRACKING BASED ON ACTIVITY RECOGNITION**
Sheng Guo, Hanjiang Xiong, Xianwei Zheng, Yan Zhou, Wuhan University

FRP1.PD.5 Board PD.5 **HIGH ACCURACY SURFACE MODELING METHOD COMBINED WITH AUXILIARY VARIABLES FOR SOIL MAPPING**
Wenjiao Shi, Tianxiang Yue, Zong Wang, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences

FRP1.PD.6 Board PD.6 **THE PRELIMINARY RESULTS ABOUT POSITIONING ACCURACY OF GF-3 SAR SATELLITE SYSTEM**
Jiayin Liu, Bing Han, Chibiao Ding, Dadi Meng, Fangfang Li, Institute of Electronics, Chinese Academy of Sciences

FRP1.PD.7 Board PD.7 **IMPACTS OF GRASSLAND RECLAMATION ON LAND SURFACE RADIATION AND WATER-HEAT FLUXES IN THE FARMING-PASTORAL ECOTONE OF NORTHERN CHINA**
Fan Yang, Institute of Geographic Sciences and Natural Resources Research; University of Chinese of Sciences; Quanqin Shao, Jiangwen Fan, Yuzhe Li, Wei Cao, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences; Yuzhi Tang, Xingjian Guo, Institute of Geographic Sciences and Natural Resources Research;University of Chinese of Sciences

Friday, July 28 **09:40 - 10:40** **Poster Area E**
Session FRP1.PE **Poster**

Geographic Information Science III

Session Chair: Peng Yue, Wuhan University

FRP1.PE.1 Board PE.1 **RESEARCH AND IMPLEMENTATION ON THE WEB3D VISUALIZATION OF DIGTAL MOON BASED ON WEBGL**
Yi Lian, Long He, Tianjin Normal University; Jinsong Ping, The National Astronomical Observatories of the Chinese Academy of Sciences; Hu Zhang, Xiaoming Zeng, Chenglei Wang, Lei Chen, Tianjin Normal University

FRP1.PE.2 Board PE.2 **A VECTOR MAP OVERLAY ALGORITHM BASED ON DISTRIBUTED QUEUE**
Zhuojian Xiao, University of Chinese Academy of Sciences; Qiang Qiu, Jinyun Fang, Chinese Academy of Sciences; Shaolong Cui, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences

FRP1.PE.3 Board PE.3 **A MEMORY COMPUTING BASED METHOD FOR VECTOR SPATIAL ANALYSIS**
Qiang Qiu, Institute of Computing Technology, Chinese Academy of Sciences; Zhuojian Xiao, Institute of Electronics, Chinese Academy of Sciences;University of Chinese Academy of Sciences; Jinyun Fang, Institute of Computing Technology, Chinese Academy of Sciences

FRP1.PE.4 Board PE.4 **GEO-VISUAL ANALYTICS FOR HEALTHCARE CRITICAL INFRASTRUCTURE SIMULATION MODEL**
Nivedita Nukavarapu, Surya Durbha, Indian Institute of Technology Bombay

FRP1.PE.5 Board PE.5 **COPYRIGHT PROTECTION OF VECTOR DATA USING VECTOR WATERMARK**
Sangita Zope-Chaudhari, ACPCE; Parvatham Venkatachalam, Krishnamohan Buddhiraju, Indian Institute of Technology Bombay

FRP1.PE.6 Board PE.6 **RESEARCH ON THE STORAGE AND MANAGEMENT SYSTEM FOR LARGE AMOUNT OF MULTI-SOURCES RASTER IMAGES BASED ON GIS**
Lichun Yang, Yingyan Gu, Dan Yang, Jiangsu Automation Research Institute; Jinjun Zheng, University of Electronic Science and Technology of China

FRP1.PE.7 Board PE.7 **VALIDATION METHOD OF MODERATE RESOLUTION REMOTELY SENSED LAND SURFACE TEMPERATURE USING LANDSAT-8 AND IN SITU MEASURED DATA ON HETEROGENEOUS SURFACE**
Mingsong Li, Ji Zhou, Yong Wang, Yuanyuan Yang, University of Electronic Science and Technology of China

Friday, July 28 **09:40 - 10:40** **Poster Area F**
Session FRP1.PF **Poster**

Image and Data Fusion V

Session Co-Chairs: Shakti Sharma, Indian Institute of Technology Mumbai; Shuhan Chen, Zhejiang University

FRP1.PF.1 Board PF.1 **INTEGRATING MODIS AND MTSAT-2 TO GENERATE HIGH SPATIAL-TEMPORAL-SPECTRAL RESOLUTION IMAGERY FOR REAL-TIME AIR QUALITY MONITORING**
Yongquan Zhao, Bo Huang, The Chinese University of Hong Kong

FRP1.PF.2 Board PF.2 **FPGA-BASED N×N ADAPTIVE CHANNEL FOR ARRAY LIDAR IMAGER**
Guoqing Zhou, Pengyun Chen, Xiang Zhou, Lieping Zhang, Bin Jia, Guoqing Gao, Yajun Fan, Zhiliang Wu, Wei Huang, Guilin University of Technology; Jingjin Huang, Rongting Zhang, Tianjin University

FRP1.PF.3 Board PF.3 **DOES MULTISPECTRAL / HYPERSPECTRAL PANSHARPENING IMPROVE THE PERFORMANCE OF ANOMALY DETECTION ?**
Ying Qu, Hairong Qi, The University of Tennessee; Bulent Ayhan, Chiman Kwan, Applied Research LLC; Richard Kidd, Jet Propulsion Laboratory

FRP1.PF.4 Board PF.4 **A SPATIAL - SPECTRAL ADAPTIVE HAZE REMOVAL METHOD FOR REMOTE SENSING IMAGES**
Chi Zhang, Huifang Li, Huanfeng Shen, Jie Li, Wuhan University

FRP1.PF.5 Board PF.5 **FUSION OF HYPERSPECTRAL AND LIDAR DATA FOR LAND USE CLASSIFICATION COMBINED WITH MACHINE LEARNING CLASSIFIERS**
Qixia Man, Quanyuan Wu, Shandong Normal University; Pinliang Dong, University of North Texas

FRP1.PF.6 Board PF.6 **MULTI-BEAM DOPPLER BEAM SHARPENING APPROACH FOR AIRBORNE FORWARD-LOOKING RADAR IMAGING**
Yin Zhang, Deqing Mao, Yongchao Zhang, Yulin Huang, Jianyu Yang, University of Electronic Science and Technology of China

FRP1.PF.7 Board PF.7 **A WEIGHTED JOINT SPARSE OF THREE CHANNELS METHOD FOR FULL POL- SAR DATA CLASSIFICATION**
Peng Wang, Wenshuai Chen, Shuiping Gou, Xiangrong Zhang, Xidian University; Xiaofeng Li, GST at National Oceanic and Atmospheric Administration; Licheng Jiao, Xidian University

Friday, July 28 09:40 - 10:40 Poster Area G
Session FRP1.PG Poster

Estimation and Regression III

Session Co-Chairs: Luis Gómez-Chova, University of Valencia; Marco Chini, Luxembourg Institute of Science and Technology

FRP1.PG.1 Board PG.1 **CROP YIELD VARIATION TREND AND DISTRIBUTION PATTERN IN RECENT TEN YEARS**
Shanning Bao, Chunxiang Cao, Xiliang Ni, Min Xu, Hongrun Ju, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences; Qisheng He, Si Zhou, Hohai University

FRP1.PG.2 Board PG.2 **PREDICTION OF SORGHUM BIOMASS BASED ON IMAGE BASED FEATURES DERIVED FROM TIME SERIES OF UAV IMAGES**
Zhou Zhang, Ali Masjedi, Jieqiong Zhao, Melba Crawford, Purdue University

FRP1.PG.3 Board PG.3 **ESTIMATION OF PARAMETERS OF THE MOVING TARGET WITH MICRO MOTION IN GEOSAR**
Jindong Yu, Ze Yu, Chunsheng Li, Jingwen Li, Mingxuan Mei, Beihang University

FRP1.PG.4 Board PG.4 **SPECTRAL RESPONSE OF ROMAINE LETTUCE BY UPTAKE OF ZN**
Haein Shin, Jaehyung Yu, Ji Hye Shin, Yongsik Jeong, Seyoung Kim, Chungnam National University; Gilljae Lee, Korea Institute of Geoscience and Mineral Resources

FRP1.PG.5 Board PG.5 **RELATIONSHIP BETWEEN SPECTRAL REFLECTANCE AND METAL CONTENT OF KOREAN PINE NEEDLES AS A METAL CONTAMINATION INDICATOR**
Ji Hye Shin, Jaehyung Yu, Seyoung Kim, Haein Shin, Chungnam National University; Sang-Mo Koh, Convergence Research Center for Development of Mineral Resources

FRP1.PG.6 Board PG.6 **A MODIFIED METHOD TO PREVENT FALSE MINIMUMS OCCURRING IN ITERATIVE SPECTRALLY SMOOTH TEMPERATURE EMISSIVITY SEPARATION**
Zihua Wu, Huazhong Ren, Tianyuan Zhang, Qiming Qin, Jiaji Dong, Xin Ye, Peking University

FRP1.PG.7 Board PG.7 **EVALUATION OF TWO KERNEL-DRIVEN MODELS FOR ESTIMATING DIRECTIONAL BRIGHTNESS TEMPERATURE IN THE THERMAL INFRARED**
Xiangyang Liu, Bo-Hui Tang, Hua Wu, Ronglin Tang, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences; University of Chinese Academy of Sciences; Zhao-Liang Li, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences; University of Chinese Academy of Sciences; Institute of Agricultural Resources and Regional Planning, Chinese Academy of Agricultural Sciences; Guangjian Yan, Beijing Normal University

FRP1.PG.8 Board PG.8 **ASSESSMENT OF HEAVY METAL STRESS USING HYPERSPECTRAL DATA**
Ping Wang, Fang Huang, Northeast Normal University; Xiangnan Liu, China University of Geosciences

Friday, July 28 09:40 - 10:40 Poster Area H
Session FRP1.PH Poster

Data Management and Systems II

Session Co-Chairs: Mary J. Brodzik, University of Colorado; Leland Pierce, University of Michigan

FRP1.PH.1 Board PH.1 **REMOTE SENSING AND GIS BASED WATERSHED PRIORITIZATION**
Manish Pandey, P. K. Sharma, Indian Institute of Technology Roorkee

FRP1.PH.2 Board PH.2 **EFFICIENTLY DEALING WITH THE VARIETY OF SAR DATA FORMATS**
Leland Pierce, The University of Michigan

FRP1.PH.3 Board PH.3 **A SPATIAL GRID INDEX BASED ON INVERTED INDEX AND ITS QUERY METHOD**
JieXiong Duan, Weixin Zhai, Chengqi Cheng, Peking University

Friday, July 28 09:40 - 10:40 Poster Area H
Session FRP1.PH Poster

Data Management, Policy Decisions and Education

Session Co-Chairs: Jonathan Bredow, University of Texas- Arlington; David Kunkee, Aerospace Corp.

FRP1.PH.5 Board PH.5 **MERKLE QUAD-TREE BASED REMOTE SENSING IMAGE ANALYSIS**
Weixin Zhai, Kun Qi, Jiexiong Duan, Chengqi Cheng, Peking University

FRP1.PH.6 Board PH.6 **THE ASSESSMENT OF ECOLOGICAL EFFECTIVENESS IN THE REGION IMPLEMENTED GRAIN FOR GREEN PROGRAMME IN CHINA IN 1990-2010**
Yuzhi Tang, Quanqin Shao, Jiyuan Liu, Jiangwen Fan, Wei Cao, Huang Lin, Fan Yang, Xingjian Guo, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences

FRP1.PH.7 Board PH.7 **SOURCE LOCALIZATION VIA AERMOD-BASED SIMULATION UNDER MEAN SQUARED ERROR CRITERION: DEMONSTRATION USING FIELD DATA**
Anand Kakarla, Asif Qureshi, Shashidhar Thatikonda, Indian Institute of Technology Hyderabad; Swades De, Indian Institute of Technology Delhi; Shiv Govind Singh, Soumya Jana, Indian Institute of Technology Hyderabad

FRP1.PH.8 Board PH.8 **THE ROLE OF MENTORSHIP IN A REMOTE SENSING RESEARCH PROGRAM FOR UNDERGRADUATE MINORITY STUDENTS**
Reginald Blake, Janet Liou-Mark, Hamidreza Norouzi, Laura Yuen-Lau, Satya Prakash, New York City College of Technology, CUNY

Friday, July 28 09:40 - 10:40 Poster Area I
Session FRP1.PI Poster

Monitoring Forests I

Session Chair: Andreas Colliander, Jet Propulsion Laboratory, California Institute of Technology

FRP1.PI.1 Board PI.1 **ABOVE-GROUND BIOMASS ESTIMATION OF LARCH BASED ON TERRESTRIAL LASER SCANNING DATA**
Junjie Zhou, Guiyun Zhou, Youyou Li, University of Electronic Science and Technology of China

FRP1.PI.2 Board PI.2 **ESTIMATION OF NET PRIMARY PRODUCTIVITY BY BEPS MODEL-A CASE STUDY IN FUJIAN PROVINCE**
Mei Xue, Chinese Academy of Forestry; YunZhi Chen, LiangLiang Jia, XiaoQin Wang, Fuzhou University; Min Yan, Xin Tian, Chinese Academy of Forestry

FRP1.PI.3 Board PI.3 **INTERPRETATION AND IMPLICATION OF CANOPY DIURNAL FLUORESCENCE BY THE FIELD AUTOMATIC MEASURMENT SYSTEM**
Changping Huang, Lifu Zhang, Na Qiao, Siheng Wang, RADI, CAS

FRP1.PI.4 Board PI.4 **SPATIAL ANALYSIS OF GROWING SEASON PEAK CONTROL OVER GROSS PRIMARY PRODUCTION IN NORTHERN ECOSYSTEMS USING MODIS-GPP DATASET**
Yuke Zhou, Shuli Niu, IGSNRR; Lili Xu, Central China Normal University; Xizhang Gao, IGSNRR

FRP1.PI.5 Board PI.5 **RETRIEVE VEGETATION EFFECTIVE OPTICAL DEPTH USING TIME-SERIES AMSR-E BRIGHTNESS TEMPERATURE DATA AT C BAND—A CASE STUDY**
Yunqing Li, Beijing City University; Jiancheng Shi, Chinese Academy of Sciences; Tao Zhang, National Administration of Surveying, Mapping and Geoinformation of China; Tianjie Zhao, State Key Laboratory of Remote Sensing Science, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences. Beijing 100101, China

Friday, July 28 09:40 - 10:40 Poster Area J
Session FRP1.PJ Poster

Inland Waters

Session Chair: Joel Johnson, Ohio State University

FRP1.PJ.1 Board PJ.1 **EVALUATION OF MULTI-TEMPORAL LANDSAT 8 DATA FOR WETLAND CLASSIFICATION IN NEWFOUNDLAND, CANADA**
Meisam Amani, Memorial University of Newfoundland; Bahram Salehi, C-CORE; Sahel Mahdavi, Jean Granger, Memorial University of Newfoundland; Brian Brisco, Canada Center for Mapping and Earth Observation

FRP1.PJ.2 Board PJ.2 **BUILDING AN ONTOLOGY FOR HYDROLOGIC MONITORING**
Chao Wang, Wei Wang, Nengcheng Chen, Wuhan University

FRP1.PJ.4 Board PJ.4 **FIRST VIEW ON THE FLOOD DETECTION BY THE DUAL-FREQUENCY PRECIPITATION RADAR**
Vladimir Karaev, Maria Panfilova, Yuriy Titchenko, Eugeny Meshkov, Galina Balandina, Institute of Applied Physics Russian Academy of Sciences; Zoya Andreeva, State Research Center

FRP1.PJ.5 Board PJ.5 **INTERFEROMETRIC SAR FOR CHARACTERIZATION OF WETLAND LAKES AS A FUNCTION OF SUSPENDING SEDIMENT COVER AND DEPTH**
Esra Erten, Istanbul Technical University; Cristian Rossi, Satellite Applications Catapult; Juan Ma Lopez-Sanchez, University of Alicante; Mehmet Furkan Celik, Istanbul Technical University

FRP1.PJ.6 Board PJ.6 **APPLICATION OF OPTICAL FLOW FOR RIVER VELOCIMETRY**
Musaab Khalid, Lionel Pénard, IRSTEA; Etienne Mémin, Inria

Friday, July 28 **09:40 - 10:40** **Poster Area K**
Session FRP1.PK **Poster**

Topography, Geology and Geomorphology II

Session Chair: Kun-Shan Chen, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences

FRP1.PK.1 Board PK.1 **ASSESSMENT OF HETEROGENEOUS LANDSCAPE ENVIRONMENTS BASED ON INFORMATION CAPACITY**
Fei Li, Peking University; Xuhong Wang, Northwest University; Xiuwan Chen, Peking University; Wei Li, China Railway First Survey and Design Institute Group Ltd.; Xinlong Zhang, Peking University

FRP1.PK.2 Board PK.2 **MODELING THE TOPOGRAPHY OF FAULT ZONE BASED ON STRUCTURE FROM MOTION PHOTOGRAMMETRY**
Haiyun Bi, Institute of Geology, China Earthquake Administration; Wenjun Zheng, Sun Yat-sen University; Jiangyuan Zeng, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences; Xiwei Fan, Institute of Geology, China Earthquake Administration

FRP1.PK.3 Board PK.3 **DISTRIBUTION OF MICAS USING ASTER DATA AND FIELD SAMPLE IN NURI DEPOSIT OF TIBET**
Zhaoqiang Huang, Institute of Mineral Resources, China Metallurgical Geological Bureau; Jianchun Zheng, Beijing Research Center of Urban System Engineering

FRP1.PK.4 Board PK.4 **ABNORMAL MICROWAVE THERMAL EMISSION IN MARIUS HILLS REVEALED BY CELMS DATA FROM CHANG'E-2 LUNAR ORBITER**
Zhiguo Meng, Xiaowei Zhao, Rui Zhao, Jilin University; Zhanchuan Cai, Macau University of Science and Technology; Jinsong Ping, Chinese Academy of Sciences

FRP1.PK.5 Board PK.5 **PASSIVE MICROWAVE PROBING MARE BASALTS IN MARE IMBRIUM USING CELMS DATA FROM CHANG'E-2 SATELLITE**
Zhiguo Meng, Qingshuai Wang, Huihui Wang, Shuo Hu, Jilin University; Zhanchuan Cai, Macau University of Science and Technology; Jinsong Ping, Chinese Academy of Sciences

FRP1.PK.6 Board PK.6 **CASCADE SUB-PIXEL UNMIXING OF ASTER SWIR DATA FOR MAPPING ALTERATION MINERALS IN TAMRA SIDI-DRISS SITE, NW TUNISIA**
Nouha Mezned, Wejdane Bouzidi, Kacem Dkhala, Saadi Abdeljaouad, Science Faculty of Tunis, University of Tunis El Manar

Friday, July 28 **09:40 - 10:40** **Poster Area L**
Session FRP1.PL **Poster**

Remote Sensing Applications in Urban Areas

Session Co-Chairs: Hisatoshi Toriya, NEC Corp.; Tiangang Yin, Singapore-MIT alliance for research and technology

FRP1.PL.1 Board PL.1 **RAPID TRAFFIC SIGN DAMAGE INSPECTION IN NATURAL SCENES USING MOBILE LASER SCANNING DATA**
Changbin You, Chenglu Wen, Huan Luo, Cheng Wang, Jonathan Li, Xiamen University

FRP1.PL.2 Board PL.2 **ESTIMATING SURFACE TEMPERATURE AND LAND COVER CHANGE IN HSINCHU CITY**
Kuan-Tsung Chang, Minghsin University of Science and Technology; Ge-Wen Lee, Chien Hsin University of Science and Technology; Long-Shin Liang, Ph. D./National Central University; Jin-King Liu, CEO/LiDAR Technology Co., Ltd.; Feng-Chi Yu, Minghsin University of Science and Technology

FRP1.PL.3 Board PL.3 **THE ONGOING DESTABILIZATION OF THE MOSUL DAM AS OBSERVED BY SYNTHETIC APERTURE RADAR INTERFEROMETRY**
Pietro Milillo, California Institute of Technology; Maria Cristina Porcu, University of Cagliari; Paul Lundgren, California Institute of Technology; Fabio Soccodato, University of Cagliari; Jacqueline Salzer, GFZ German Research Centre for Geosciences; Eric Fielding, California Institute of Technology; Roland Burgmann, University of California, Berkeley; Giovanni Milillo, Italian Space Agency; Daniele Perissin, Purdue University; Filippo Biondi, University of L'Aquila

FRP1.PL.4 Board PL.4 **IMPERVIOUS SURFACE EXTRACTION FROM MULTISPECTRAL IMAGES USING MORPHOLOGICAL ATTRIBUTE PROFILES AND SPECTRAL MIXTURE ANALYSIS**
Changyu Zhu, Shaoquan Zhang, Sun Yat-sen University; Javier Plaza, University of Extremadura; Jun Li, Sun Yat-sen University; Antonio Plaza, University of Extremadura

FRP1.PL.5 Board PL.5 **URBAN IMPERVIOUS SURFACE EXTRACTION FROM VERY HIGH RESOLUTION IMAGERY USING SPATIAL AND SPECTRAL UNMIXING AND DECISION TREE METHOD**
Peijun Li, Peking University; Yan Chen, Migu Digital Media Co. Ltd

FRP1.PL.6 Board PL.6 **URBAN SURFACE ENERGY BUDGET STUDY USING FLUX TOWER OBSERVATIONS AND REMOTE SENSING MEASUREMENTS**
Hamidreza Norouzi, New York City College of Technology, CUNY; Brian Vant-Hull, Prathap Ramamurphy, City College of New York, CUNY; Reginald Blake, Satya Prakash, New York City College of Technology, CUNY; Marzi Azarderakhsh, Fairleigh Dickinson University

FRP1.PL.7 Board PL.7 **DOWNSCALING RESEARCH OF REMOTELY SENSED LAND SURFACE TEMPERATURE**
Zihao Wang, Yuanheng Sun, Huazhong Ren, Qiming Qin, Guhuai Han, Peking University

Author and Session Chair Index

A

B

C

D

E

F

G

H

I

J

K

L

M

N

O

P

Q

R

S

T

U

V

W

X

Y

Z

Notes

Notes

Notes

Notes

Notes

Notes

CALL FOR PAPERS
IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing

Special Issue on
"IEEE 2017 International Geoscience and Remote Sensing Symposium (IGARSS 2017)"

The IEEE 2017 International Geoscience and Remote Sensing Symposium (IGARSS 2017) is being held in Fort Worth, Texas, USA, on July 23-28, 2017. This is the premier symposium of the IEEE Geoscience and Remote Sensing Society (GRSS). IGARSS is a major scientific and technical event in remote sensing.

As tradition, a special issue of the IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing (J-STARS) is planned in conjunction with IGARSS 2017.

Papers submitted to J-STARS should NOT be the IGARSS conference paper. A 2 to 3 times longer paper is typically expected, with a more detailed presentation of the work, and possibly to include additional data sets and comparisons in an enhanced experimental section.

In the cover letter, please provide the corresponding paper number of IGARSS 2017. 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 "IGARSS2017" 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 IEEE J-STARS applies a mandatory page over length charge of $200 per page (beginning with page 7 and beyond).

Schedule

Sept 15, 2017: Full paper submission deadline
June 2018: Publication date

Guest Editors

Saibun Tjuatja, The University of Texas at Arlington, USA (tjuatja@uta.edu)
David Kunkee, The Aerospace Corporation, USA (David.Kunkee@aero.org)
Joel Johnson, The Ohio State University, USA (johnson.1374@ohio.edu)
Kun-shan Chen, Institute of Remote Sensing and Digital Earth, CAS, China (chenks@radi.ac.cn)