Contents

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Welcome from the General Co-Chairs

It is a great pleasure for us to welcome you—on behalf of the Organizing Committee—to Milan for the International Geoscience and Remote Sensing Symposium (IGARSS 2015). It will be a unique opportunity for the members of the geoscience and remote sensing community to meet colleagues from all over the world, to present the most recent achievements and learn from experienced researchers and professionals.

Oral and poster sessions will accommodate more than 1900 presentations, selected by the Technical Program Committee to form an exciting program, with a broad coverage of the most interesting and strategic topics in Geoscience and Remote Sensing.

The main theme this year will be "Remote Sensing: Understanding the Earth for a Safer World."

Together with the topics inspired by the international exposition held concomitantly in Milan - Expo 2015, whose motto is "Feeding the Planet - Energy for Life," they will be the main focus of the plenary session, on Monday morning, and of several special and regular sessions, throughout the conference week.

Programs and perspectives concerning - but not limited to - these topics will be presented by executives of space agencies: Dr. Volker Liebig (ESA ESRIN), Dr. Roberto Battiston (Italian Space Agency), and Dr. Piers Sellers (NASA GSFC). A complementary viewpoint will be brought by Dr. Dave Thau (Google), discussing about new scenarios opened by ICT applied to Geospatial data and the related social implications.

An introduction to the Conference by the General and Technical Co-Chairs, welcome messages from the President of IEEE, Dr. Howard Michel, and by the President of the Geoscience and Remote sensing Society, Dr. Kamal Sarabandi, and the recognition of the new IEEE Fellows of the Geoscience and Remote Sensing Society, presented by Dr. Werner Wiesbeck, will complete the Opening and Award session on Monday morning.

A rich exhibition of 23 booths, featuring the major space agencies and a variety of companies in space and remote sensing will offer you the possibility to directly experience the most updated products and services in the field.

The Geoscience and Remote Sensing Summer School, focused this year on "Data Fusion for Risk Mapping," and 15 tutorials are the events dedicated to beginners and, in general, to those who like to widen their knowledge to new topics.

The social program includes a rich choice of events, starting from the Welcome reception, an ice-breaker event held on Sunday evening at the MiCo Conference Center, up to the Awards Banquet, held at the Science and Technology Museum on Thursday evening. The program offers events dedicated to Young Professionals and to Women in Geoscience, Remote Sensing, and Engineering. You should not miss the soccer tournament, the IGARSS World Cup, given the enthusiasm for soccer in Italy.

We would like to thank, together with the Organizing Committee, our Platinum Partner, the European Space Agency, our Gold Partners, the Italian Space Agency and Thales Alenia Space, and our other partners, Google, MetaSensing, the RASOR consortium, TRE, and VITO, for their financial support and contribution.

We hope you have a very pleasant stay in Italy: enjoying its food, art masterpieces, opera, natural beauties and visits to cities of art.

Welcome to the 35th IGARSS; we wish you a very fruitful and pleasant conference!

Vito Pascazio and Sebastiano B. Serpico
IGARSS 2015 General Co-Chairs

Welcome from the IEEE Geoscience and Remote Sensing Society President

It is my distinct privilege to warmly welcome you to the International Geoscience and Remote Sensing Symposium IGARSS 2015 in the beautiful city of Milan, Italy. IGARSS is the premier remote sensing conference organized by the IEEE Geoscience and Remote Sensing Society (GRSS) which provides the ideal forum for scientists, practitioners, and industries, as well as decision makers, for meeting and exchanging ideas, obtaining the most up-to-date information about science and technology of remote sensing, as well as forming the future science and technology trends in the important area of remote sensing of the Earth. It is my belief that with the ever growing population and ever increasing demand for resources, public services, security, etc., that the interdisciplinary field of remote sensing will definitely be among the top 10 most promising technology trends in the future. It is our mandate to advance the frontiers of remote sensing science and technology and continue the tradition of providing service to our societies at large and improving the life on this planet. Over the past 53 years IEEE GRSS has been at the forefront of the remote sensing discipline and has made significant strides towards this goal.

This year marks the 35th International Geoscience and Remote Sensing Symposium (IGARSS) since the series began in 1981 in Washington, D.C. Like its predecessors the organization of IGARSS takes a tremendous amount of hard work from a large number of volunteers to ensure formation of a comprehensible and high-quality technical program as well as a memorable experience for the attendees. The technical program of IGARSS 2015 has been ably lead by Professors Paolo Gamba and Lorenzo Bruzzone to whom our most sincere gratitude and appreciation goes. In addition, more than 150 colleagues from around the world participated in the review process and some 60 GRSS members including the GRSS AdCom created the IGARSS technical program during our Technical Program Committee (TPC) meeting in Madrid, Spain in March 2015. I am also very grateful to the IGARSS paper reviewers and the TPC members. The heavy load of organizing and creating the right atmosphere for a successful IGARSS have been carried by the General Co-Chairs Sebastiano Bruno Serpico and Vito Pascazio. I would like to take this opportunity to thank the General Co-Chairs of IGARSS 2015 for their outstanding job of organizing this fabulous conference and invite you to do the same as you see them during the conference.

For those of you who are not members of IEEE GRSS, I am inviting you to become a member of this growing society and enrich your careers through the many opportunities that IEEE GRSS can provide. During IGARSS week, please visit the GRSS booth in the exhibition area and ask how to become a member or an affiliate member of GRSS. IEEE GRSS members should also ask how to become a Senior member at our exhibit booth. Please note the many benefits of being a GRSS member. GRSS members will have electronic access to our three premier journals (IEEE Transactions on Geoscience and Remote Sensing, IEEE Geoscience and Remote Sensing Letters and IEEE Journal of Selected Topics in Applied Earth Observation and Remote Sensing), as well as the IEEE GRSS Magazine. In addition, participation in IGARSS and some other specialty symposia sponsored by GRSS is at a reduced rate. Access to on-line tutorials and other educational materials, Distinguished Lectureship program, and participation in many Young Professional Programs as well as promotion of our members and groups through many GRSS awards and recognitions are more of the many other benefits available. This is also an opportune time for me to ask you to join, if you have not already done so, at least one of the five Technical Committees, or participate in our Educational and/or Globalization activities. You can also help with the IEEE GRSS growth by actively participating in one of our 46 chapters throughout the world.

I am looking forward to meeting you and sharing a technically stimulating, information-rich, and memorable IGARSS in Milan this coming July.

Kamal Sarabandi
2015 President, IEEE Geoscience and Remote Sensing Society

Welcome from the Technical Co-Chairs

Welcome to IGARSS 2015, the premier symposium of IEEE Geoscience and Remote Sensing Society, in Milano! IGARSS 2015 has prepared a rich and exciting technical program that we hope you will enjoy especially here in this beautiful city of Milano.

IGARSS is a major event in remote sensing and provides an ideal forum for obtaining up-to-date information about the latest developments, exchanging ideas, identifying future trends, and networking with the international geoscience and remote sensing community.

This year we received a very large number of extended abstracts (about 2750), which is one of the largest numbers ever. Each extended abstract has been peer reviewed by at least two researchers and one Technical Program Coordinator. Decisions have been taken based on the originality and the technical content merit of each submission. This resulted in a Technical Program that includes 1083 oral and 842 poster presentations using the following primary areas: data analysis methods; atmosphere; cryosphere; oceans; land; missions, sensors and calibration; data management and education. All the presented papers will be published in the proceedings on IEEE Xplore.

The IGARSS 2015 conference main theme highlights the role of remote sensing for assessing, monitoring, and managing risks related to natural disasters. This crucial topic is addressed by many special sessions and is also emphasized in the plenary session. These sessions will offer outstanding presentations about the activities of the space agencies and relevant national, regional, and global players on this topic.

We are also taking advantage of the EXPO 2015 exhibition, whose topic is "Feeding the planet: energy for life." This program includes special topics and sessions focused on the role of remote sensing for food security and global crop monitoring.

The technical program includes as usual the exciting IGARSS Student Prize Paper Competition. The 99 full papers submitted by students were evaluated by 50 dedicated, highly respected reviewers. The ten finalist papers were selected by a committee of experts and will be presented in two dedicated sessions. The winners of this competition will be announced at the banquet, where all the finalists are invited.

Finally, the program is enriched by other events, seminars, and special activities that you can discover in the Conference Guide and by using the IGARSS 2015 App. Both are designed to enhance your IGARSS 2015 technical experience.

We thank all the delegates who submitted their papers to IGARSS 2015 and the Theme Coordinators, the Session Organizers, the Invited Session Organizers, and the Reviewers that made it possible to arrange a truly outstanding program. We do hope you will enjoy the quality of the technical program and your time in Italy.

Lorenzo Bruzzone and Paolo Gamba
IGARSS 2015 Technical Co-Chairs

IGARSS 2015 at a Glance

Tutorials & Welcome Reception

Sunday, July 26										
	Green 1	**Green 2**	**Green 3**	**Orange 1**	**Orange 2**	**Orange 3**	**Turquoise 1**	**Turquoise 2**	**White 1**	**White 2**
08:30 - 12:30	FD-01: From patch similarity to nonlocal processing: patch-based methods & applications in remote sensing	FD-02: Planetary-scale geospatial analysis with Google Earth Engine	FD-03: Recent advances in machine learning and signal processing for remote sensing data analysis	FD-04: Remote Sensing with Reflected Global Navigation Satellite System (GNSS-R) Signals	FD-05: SAR Polarimetry: Basics, Processing Techniques and Applications	HD-04: From SAR Interferometry to 3D/4D Tomography: basics and applications	HD-05: Hyperspectral Imaging Remote Sensing		HD-08: On the acceleration of hyperspectral image unmixing and compression for time-critical applications	
12:30 - 13:30	Break									
13:30 - 17:30	[FD-01 Continued]	[FD-02 Continued]	[FD-03 Continued]	[FD-04 Continued]	[FD-05 Continued]	HD-01: Advances on signal and image processing for remote sensing	HD-02: Analysis of remote sensing images using mathematical morphology	HD-03: Big Data from Earth Observation: analytics, mining, semantics	HD-06: Inverse Problems in Hyperspectral Imaging: Denoising, Fusion, and Compressive Acquisition	HD–10: Vegetation Biomass Estimate at Both Local and Global Scale with Microwave Sensors
18:00 - 20:00	Welcome Reception – Silver Plenary Room, MiCo Level +2									

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

Monday, July 27												
08:45 - 12:15	Opening and Plenary Session – Auditorium, MiCo South Wing, Level +3											
12:45 - 13:30	Lunch Break											
	White 1	**White 2**	**Green 1**	**Green 2**	**Green 3**	**Yellow 1**	**Yellow 2**	**Yellow 3**	**Blue 1**	**Blue 2**	**Red 1**	**Red 2**
13:30 - 15:10	MO3.W1 Estimation and Regression Techniques	MO3.W2 Pansharpening Techniques	MO3.G1 Land Use I	MO3.G2 Ocean Biology I	MO3.G3 RFI in Microwave Remote Sensing: Observations and Management Techniques I	MO3.Y1 Observations by the NASA Soil Moisture Active Passive Mission I	MO3.Y2 Data Management I	MO3.Y3 GEOGLAM: Earth Observation for Crop Monitoring, from Regional to Global Perspective I	MO3.B1 Recent Progresses of Microwave Remote Sensing of Oceanic and Meteorological Satellites in China I	MO3.B2 Digital Beamforming SAR Systems and MIMO Techniques I	MO3.R1 COSMO-SkyMed Mission: Global Results and Future Evolutions Towards the Second Generation I	MO3.R2 Advanced Methods for Polarimetric Information Extraction I
15:10 - 15:40	Break											
15:40 - 17:20	MO4.W1 Estmation and Regression Products	MO4.W2 Analysis and Fusion of LiDAR data	MO4.G1 Land Use II	MO4.G2 Ocean Temperature and Salinity I	MO4.G3 RFI in Microwave Remote Sensing: Observations and Management Techniques II	MO4.Y1 Observations by the NASA Soil Moisture Active Passive Mission II	MO4.Y2 Data Management II	MO4.Y3 GEOGLAM: Earth Observation for Crop Monitoring, from Regional to Global Perspective II	MO4.B1 Recent Progresses of Microwave Remote Sensing of Oceanic and Meteorological Satellites in China II	MO4.B2 Digital Beamforming SAR Systems and MIMO Techniques II	MO4.R1 COSMO-SkyMed Mission: Global Results and Future Evolutions Towards the Second Generation II	MO4.R2 Advanced Methods for Polarimetric Information Extraction II
17:30 - 18:30					FARS TC Meeting	Synthesizing Environmental Information: a new Community created by IEEE Division IX				IFT TC Meeting	ESA Press Event on Copernicus Sentinel 2 First Results	
17:30 - 19:00												
17:30 - 19:30												
19:30 - 22:30	Young Professional Cocktail – Blend Tower, 11th floor; Piazza IV Novembre 7, Milan											

Oral Sessions. Technical and Social Events

Tuesday, July 28												
	White 1	**White 2**	**Green 1**	**Green 2**	**Green 3**	**Yellow 1**	**Yellow 2**	**Yellow 3**	**Blue 1**	**Blue 2**	**Red 1**	**Red 2**
08:20 - 10:00	TU1.W1 Estimation and Regression I	TU1.W2 Image and Data Fusion Techniques	TU1.G1 Heat Wave and Soil Sealing in Urban Areas	TU1.G2 Active Sensing of Ocean Winds	TU1.G3 Sensors and Missions	TU1.Y1 Soil Moisture Validation: A Session in Memoriam of A. Shutko	TU1.Y2 Policy Decision	TU1.Y3 Monitoring Natural Disaster: Floods	TU1.B1 Microwave Synthetic Aperture Radiometry	TU1.B2 Big SAR Data Tools, Applications, Experiences and Solutions I	TU1.R1 RADARSAT I	TU1.R2 Temporal Effects in PolInSAR/TomoSAR Applications to Vegetation I
10:00 - 10:30	Break											
10:30 - 12:10	TU2.W1 Image Segmentation I	TU2.W2 Image Visualization and Pansharpening Techniques	TU2.G1 Built-up Area Extraction and Detection	TU2.G2 Ocean Winds for Climate Studies	TU2.G3 Future Missions	TU2.Y1 Soil Moisture Algorithms and Downscaling	TU2.Y2 Remote Sensing Education	TU2.Y3 Monitoring Natural Disaster: Landslides	TU2.B1 Microwave Radiometer Technology	TU2.B2 Big SAR Data Tools, Applications, Experiences and Solutions II	TU2.R1 RADARSAT II	TU2.R2 Temporal Effects in PolInSAR/TomoSAR Applications to Vegetation II
12:10 - 13:30	Lunch											
12:10 - 13:30	Women in Geosciences, Remote Sensing and Engineering Luncheon – Turquoise 2, MiCo Level -1											
	White 1	**White 2**	**Green 1**	**Green 2**	**Green 3**	**Yellow 1**	**Yellow 2**	**Yellow 3**	**Blue 1**	**Blue 2**	**Red 1**	**Red 2**
13:30 - 15:10	TU3.W1 Image Segmentation II	TU3.W2 Feature Selection Techniques in Hyperspectral Imagery	TU3.G1 Urban Area Monitoring in the Microwave Region	TU3.G2 High Resolution Ocean Winds and Waves	TU3.G3 Satellite Products	TU3.Y1 Soil Moisture Data Assimilation	TU3.Y2 Why Data Matters: Value of Stewardship and Knowledge Augmentation Services I	TU3.Y3 Monitoring Natural Disaster: Multisource Data Integration	TU3.B1 International Spaceborne Imaging Spectroscopy Missions: Updates and News I	TU3.B2 Big Data Methodologies in Remote Sensing and Astronomy I	TU3.R1 Exploring COSMO-SkyMed and RADARSAT-2 Synergies I	TU3.R2 SAR Polarimetry: Theory and Applications I
15:10 - 15:40	Break											
15:40 - 17:20	TU4.W1 Subsurface Sensing and Ground Penetrating Radar I	TU4.W2 Feature Extraction and Reduction	TU4.G1 Wetlands Monitoring I	TU4.G2 Ocean Altimetry I	TU4.G3 SAR Instruments and Calibration	TU4.Y1 Soil Moisture Radar Algorithms	TU4.Y2 Why Data Matters: Value of Stewardship and Knowledge Augmentation Services II	TU4.Y3 Monitoring Natural Disaster: Subsidence, Deformation and Displacement I	TU4.B1 International Spaceborne Imaging Spectroscopy Missions: Updates and News II	TU4.B2 Big Data Methodologies in Remote Sensing and Astronomy II	TU4.R1 Exploring COSMO-SkyMed and RADARSAT-2 Synergies II	TU4.R2 SAR Polarimetry: Theory and Applications II
17:30 - 18:30							ESI TC Meeting		ISIS TC Meeting		A Strategy for Active Remote Sensing Amid Increased Demand for Spectrum	

IGARSS 2015 at a Glance

Oral Sessions. Technical and Social Events

Wednesday, July 29												
	White 1	**White 2**	**Green 1**	**Green 2**	**Green 3**	**Yellow 1**	**Yellow 2**	**Yellow 3**	**Blue 1**	**Blue 2**	**Red 1**	**Red 2**
08:20 - 10:00	WE1.W1 Classification Techniques	WE1.W2 SAR Processing II	WE1.G1 ESA's SMOS Mission: Continuing to Provide Global Soil Moisture and Ocean Salinity Data I	WE1.G2 High-resolution Satellite SAR Retrievals of Ocean Winds, Waves, Currents, and Sea Ice I	WE1.G3 Student Paper Contest I	WE1.Y1 Forest Vegetation Mapping	WE1.Y2 Exposure and Hazard Monitoring II	WE1.Y3 Volume and Surface Scattering	WE1.B1 Imaging Spectroscopy Calibration And Validation, Inter-Calibration And Coming To Terms With Terminology I	WE1.B2 Sparse Reconstruction and Compressive Sensing in Remote Sensing I	WE1.R1 TanDEM-X: Mission Status and Science Activities I	WE1.R2 SAR Tomography: Techniques and Applications I
10:00 - 10:30	Break											
10:30 - 12:10	WE2.W1 Techniques for Classification of SAR Data	WE2.W2 SAR Processing III	WE2.G1 ESA's SMOS Mission: Continuing to Provide Global Soil Moisture and Ocean Salinity Data II	WE2.G2 High-resolution Satellite SAR Retrievals of Ocean Winds, Waves, Currents, and Sea Ice II	WE2.G3 Student Paper Contest II	WE2.Y1 Lidar Forest Vegetation	WE2.Y2 Emergency Response I	WE2.Y3 Surface Backscattering and Bistatic Scattering	WE2.B1 Imaging Spectroscopy Calibration And Validation, Inter-Calibration And Coming To Terms With Terminology II	WE2.B2 Sparse Reconstruction and Compressive Sensing in Remote Sensing II	WE2.R1 TanDEM-X: Mission Status and Science Activities II	WE2.R2 SAR Tomography: Techniques and Applications II
12:10 - 13:30	Lunch											
12:10 - 13:30	Industry Student Lunch – Turquoise 2, MiCo Level -1											
	White 1	**White 2**	**Green 1**	**Green 2**	**Green 3**	**Yellow 1**	**Yellow 2**	**Yellow 3**	**Blue 1**	**Blue 2**	**Red 1**	**Red 2**
13:30 - 15:10	WE3.W1 Techniques for Classification of Multispectral Images	WE3.W2 SAR Statistics: Speckle & Texture	WE3.G1 Inland Waters and Lakes	WE3.G2 Remote Sensing and Population Data Integration for Global Change and Disaster Risk Research I	WE3.G3 Clouds and Precipitation III	WE3.Y1 Optical Forest Vegetation I	WE3.Y2 Damage Mapping I	WE3.Y3 Bistatic and DBF SAR	WE3.B1 Sentinel-1 Operational and Scientific Results after 1 Year in Orbit I	WE3.B2 Remote Sensing in the Oil and Gas Industry I	WE3.R1 The Joint Polar Satellite System: NOAA's New Global Operational Capability to Monitor the Planet I	WE3.R2 Data Fusion I
15:10 - 15:40	Break											
15:40 - 17:20	WE4.W1 Clustering Techniques	WE4.W2 SAR Remote Sensing Applications	WE4.G1 Inland Waters and River Floods	WE4.G2 Remote Sensing and Population Data Integration for Global Change and Disaster Risk Research II	WE4.G3 Clouds and Precipitation IV	WE4.Y1 Optical Forest Vegetation II	WE4.Y2 Global Crop Monitoring and Food Security	WE4.Y3 Analysis of Multitemporal Images II	WE4.B1 Sentinel-1 Operational and Scientific Results after 1 Year in Orbit II	WE4.B2 Remote Sensing in the Oil and Gas Industry II	WE4.R1 The Joint Polar Satellite System: NOAA's New Global Operational Capability to Monitor the Planet II	WE4.R2 Data Fusion II
17:30 - 18:30					L-Band Inter-Comparison Working Group Meeting							IADF TC Meeting
17:30 - 19:00												
18:15 - 23:00	IGARSS 2015 Soccer Tournament – A.S. Masseroni Marchese Sport Center, Via Cristoforo Madruzzo 3, Milan											
19:00 - 23:00	Technical Committee and Chapter Chairs Dinner – Meliã Hotel, Via Masaccio 19, Milan											

Oral Sessions. Technical and Social Events

Thursday, July 30												
	White 1	**White 2**	**Green 1**	**Green 2**	**Green 3**	**Yellow 1**	**Yellow 2**	**Yellow 3**	**Blue 1**	**Blue 2**	**Red 1**	**Red 2**
08:20 - 10:00	TH1.W1 Object Detection and Recognition Techniques	TH1.W2 Geo SAR, etc.	TH1.G1 Digital Elevation Models	TH1.G2 Coastal Zone Remote Sensing II	TH1.G3 Atmospheric Sounding I	TH1.Y1 Land Cover Dynamics I	TH1.Y2 Active/Passive Microwave Remote Sensing of Terrestrial Snow I	TH1.Y3 Long Wavelength SAR Interferometry	TH1.B1 Space Lidar: Missions, Technologies and Observations I	TH1.B2 Analysis of Multitemporal SAR Images	TH1.R1 The European Space Agency Earth Explorer Science Missions I	TH1.R2 Richard K. Moore Memorial Session on Ocean, Ice and ScanSAR I
10:00 - 10:30	Break											
10:30 - 12:10	TH2.W1 SAR and Ocean Applications	TH2.W2 POLSAR Decomposition Techniques	TH2.G1 Topography, Geology and Geomorphology	TH2.G2 Optical Sensors Calibration and Atmospheric Correction	TH2.G3 Aerosols and Atmospheric Chemistry II	TH2.Y1 Radar Observations of Crops	TH2.Y2 Active/Passive Microwave Remote Sensing of Terrestrial Snow II	TH2.Y3 Interferometric Wide Swath Altimetry	TH2.B1 Space Lidar: Missions, Technologies and Observations II	TH2.B2 Change Detection Techniques for Multispectral and Hyperspectral Images	TH2.R1 The European Space Agency Earth Explorer Science Missions II	TH2.R2 Richard K. Moore Memorial Session on Ocean, Ice and ScanSAR II
12:10 - 13:30	Lunch											
12:10 - 13:30	Editors Luncheon – Turquoise 2, MiCo Level -1											
	White 1	**White 2**	**Green 1**	**Green 2**	**Green 3**	**Yellow 1**	**Yellow 2**	**Yellow 3**	**Blue 1**	**Blue 2**	**Red 1**	**Red 2**
13:30 - 15:10	TH3.W1 Advanced Data Analysis	TH3.W2 POLSAR Applications II	TH3.G1 Forest Monitoring III	TH3.G2 Optical Sensors Calibration and Validation II	TH3.G3 Numerical Weather Prediction Models and Methods I	TH3.Y1 Agricultural Products I	TH3.Y2 Multi-sensor Remote Sensing of Snow: An Important Part of the Terrestrial Cryosphere I	TH3.Y3 InSAR and Topographic Methods	TH3.B1 ALOS-2/PALSAR-2 Calval and Science I	TH3.B2 IEEE GRSS Data Fusion Contest	TH3.R1 Earth Remote Sensing with Small Satellites I	TH3.R2 Analysis of Image Time Series
15:10 - 15:40	Break											
15:40 - 17:20	TH4.W1 Object Detection in SAR Images	TH4.W2 POLSAR Analytic Techniques	TH4.G1 Forest Monitoring IV	TH4.G2 GNSS-R Sensors I	TH4.G3 Numerical Weather Prediction Models and Methods II	TH4.Y1 Agricultural Products II	TH4.Y2 Multi-sensor Remote Sensing of Snow: An Important Part of the Terrestrial Cryosphere II	TH4.Y3 D-InSAR Performance	TH4.B1 ALOS-2/PALSAR-2 Calval and Science II	TH4.B2 Sentinel-2 Mission Status and Preparation for Mission Exploitation I	TH4.R1 Earth Remote Sensing with Small Satellites II	TH4.R2 Analysis of Multitemporal Images IV
17:30 - 18:30						Opportunities for EU Funding in H2020 for researchers: The "Marie Skłodowska-Curie Actions"		Opportunities for EU Funding in H2020 for the remote sensing community				
19:00 - 23:00	Symposium Awards Banquet – Leonardo Gallery & Sala delle Colonne, Museo Nazionale della Scienza e della Tecnologia Leonardo da Vinci (National Museum of Science and Technology "Leonardo da Vinci") - Via San Vittore 21, Milan											

IGARSS 2015 at a Glance

Oral Sessions

Friday, July 31												
	White 1	**White 2**	**Green 1**	**Green 2**	**Green 3**	**Yellow 1**	**Yellow 2**	**Yellow 3**	**Blue 1**	**Blue 2**	**Red 1**	**Red 2**
08:20 - 10:00	FR1.W1 Object Detection in Optical Images	FR1.W2 Geographic Information Science	FR1.G1 AirMOSS P-band SAR Mission: Addressing Grand Challenge of Connecting Soil Moisture and Carbon Cycle I	FR1.G2 Innovative Approaches to GNSS+R: Instruments and Techniques I	FR1.G3 Tropical Rainfall Measuring Mission I	FR1.Y1 Synergistic use of SMOS Observations to Improve our Understanding of the Water and Energy Cycle I	FR1.Y2 Snow Cover II	FR1.Y3 Sentinel-1 SAR Interferometry	FR1.B1 NASA ESTO Flight Technologies for Instrument and Information Systems Maturation Using SmallSats I	FR1.B2 Sentinel-3 Mission Status and Preparation for Mission Exploitation I	FR1.R1 Scatterometer, Cloud, and Rain Radar	FR1.R2 Citizen Science for Earth Observation I
10:00 - 10:30	Break											
10:30 - 12:10	FR2.W1 Techniques for Classification of Hyperspectral Images II	FR2.W2 Spectral Unmixing Techniques II	FR2.G1 AirMOSS P-band SAR Mission: Addressing Grand Challenge of Connecting Soil Moisture and Carbon Cycle II	FR2.G2 Innovative Approaches to GNSS+R: Instruments and Techniques II	FR2.G3 Tropical Rainfall Measuring Mission II	FR2.Y1 Synergistic use of SMOS Observations to Improve our Understanding of the Water and Energy Cycle II	FR2.Y2 Remote Sensing of Glaciers I	FR2.Y3 D-InSAR Applications	FR2.B1 NASA ESTO Flight Technologies for Instrument and Information Systems Maturation Using SmallSats II	FR2.B2 Sentinel-3 Mission Status and Preparation for Mission Exploitation II	FR2.R1 UAV and Airborne Platforms II	FR2.R2 Citizen Science for Earth Observation II
12:10 - 13:30	Lunch											
	White 1	**White 2**	**Green 1**	**Green 2**	**Green 3**	**Yellow 1**	**Yellow 2**	**Yellow 3**	**Blue 1**	**Blue 2**	**Red 1**	**Red 2**
13:30 - 15:10	FR3.W1 Techniques for Classification of Hyperspectral Images III	FR3.W2 Spectral Unmixing Techniques III	FR3.G1 GCOM Status I	FR3.G2 Spaceborne Missions and Scientific Applications of GNSS-Reflectometry I	FR3.G3 Global Precipitation Mission I	FR3.Y1 Vegetation Biomass Maps at Global/ Local Scale by Using Multifrequency Microwave Satellite Images I	FR3.Y2 Remote Sensing of Glaciers II	FR3.Y3 Tomography and 3D Mapping I	FR3.B1 UAVSAR: Instrument Status and Science Activities I	FR3.B2 Aquarius: Salinity, Calibration and Applications I	FR3.R1 Ground Based Systems	FR3.R2 High Spectral Resolution Image Processing for Mapping, Quantifying and Detecting Biodiversity I
15:10 - 15:40	Break											
15:40 - 17:20	FR4.W1 Classification and Validation Techniques	FR4.W2 Target Detection Techniques	FR4.G1 GCOM Status II	FR4.G2 Spaceborne Missions and Scientific Applications of GNSS-Reflectometry II	FR4.G3 Global Precipitation Mission II	FR4.Y1 Vegetation Biomass Maps at Global/ Local Scale by Using Multifrequency Microwave Satellite Images II	FR4.Y2 Sea Ice II	FR4.Y3 Tomography and 3D Mapping II	FR4.B1 UAVSAR: Instrument Status and Science Activities II	FR4.B2 Aquarius: Salinity, Calibration and Applications II	FR4.R1 Lidar Sensors and Applications II	FR4.R2 High Spectral Resolution Image Processing for Mapping, Quantifying and Detecting Biodiversity II

Poster Sessions

Monday, July 27			
	Session Code	Starting Board Number	Session Name
MiCo Level +1 17:20 – 19:00	MOP.PA	PA.1	Electromagnetic Scattering
	MOP.PB	PB.1	InSAR Methods and Applications I
	MOP.PC	PC.1	Analysis of Multitemporal Images I
	MOP.PD	PD.1	Technique for Classification of SAR Images
	MOP.PE	PE.1	Techniques for classification of Multi- and Hyperspectral Images
	MOP.PF	PF.1	Analysis of Hyperspectral Data
	MOP.PG	PG.1	Feature Selection Techniques
	MOP.PH	PH.1	High Performance Computing, Image Quality
	MOP.PI	PI.1	Analysis of LIDAR data
	MOP.PJ	PJ.1	Image and Data Fusion I
	MOP.PK	PK.1	Forest Vegetation I
	MOP.PL	PL.1	Validation of Soil Moisture Products
	MOP.PM	PM.1	Vegetation and Roughness Effects on Soil Moisture
	MOP.PN	PN.1	Inland Water and Wetland Monitoring
	MOP.PO	PO.1	Snow Cover I
	MOP.PP	PP.1	Calibration and Validation
	MOP.PQ	PQ.1	UAV and Airborne Platforms I
	MOP.PR	PR.1	Monitoring Natural Disaster: Floods and Landslides
	MOP.PS	PS.1	Global Crop Mapping and Food Security
	MOP.PS	PS.7	Monitoring Natural Disaster II
	MOP.PT	PT.1	Clouds and Precipitation I
	MOP.PU	PU.1	Clouds and Precipitation II
	MOP.PV	PV.1	High Resolution, Active and Passive Measurements
	MOP.PV	PV.7	Ocean Temperature and Salinity II
	MOP.PW	PW.1	Soil Moisture Validation and Algorithms

Tuesday, July 28			
	Session Code	Starting Board Number	Session Name
MiCo Level +1 17:20 – 19:00	TUP.PA	PA.1	Propagation, Scattering and Radiative Transfer
	TUP.PB	PB.1	Image Processing
	TUP.PB	PB.7	InSAR Methods and Applications II
	TUP.PC	PC.1	Change Detection Techniques for Multispectral and Hyperspectral Images
	TUP.PD	PD.1	Techniques for Classification of Hyperspectral Images I
	TUP.PE	PE.1	Estimation and Regression II
	TUP.PF	PF.1	Spectral Unmixing Techniques I
	TUP.PG	PG.1	SAR Processing I
	TUP.PH	PH.1	POLSAR Analysis Methods
	TUP.PI	PI.1	Object Recognition in Very High Resolution Optical Images
	TUP.PJ	PJ.1	Image and Data Fusion II
	TUP.PK	PK.1	Forest Vegetation II
	TUP.PL	PL.1	Downscaling Soil Moisture
	TUP.PM	PM.1	New Approaches and Applications for Soil Moisture and Temperature
	TUP.PN	PN.1	Forest Monitoring I
	TUP.PO	PO.1	Cryosphere: Glacier, Snow and Lake
	TUP.PP	PP.1	Simulation, Performance, and Processing
	TUP.PQ	PQ.1	Optical Sensors Calibration and Validation I
	TUP.PR	PR.1	Monitoring Natural Disaster: Fires and Drought
	TUP.PS	PS.1	Exposure and Hazard Monitoring I
	TUP.PT	PT.1	Aerosols and Atmospheric Chemistry I
	TUP.PU	PU.1	Ocean Biology II
	TUP.PV	PV.1	Coastal Zone Remote Sensing I
	TUP.PW	PW.1	Clouds, Aerosols and Precipitation

Authors are requested to stand by their posters during the dedicated poster session from 17:20 to 19:00 and are invited to put up their posters in the morning so that attendees may browse them during the breaks throughout the day.

Poster Sessions

Wednesday, July 29			
	Session Code	**Starting Board Number**	**Session Name**
MiCo Level +1 17:20 – 19:00	WEP.PA	PA.1	DEM Generation and Analysis
	WEP.PB	PB.1	Tomography and 3D Mapping Poster I
	WEP.PC	PC.1	Analysis of Multitemporal Images III
	WEP.PD	PD.1	Techniques for LiDAR, Very High Resolution and SAR Imagery
	WEP.PE	PE.1	Estimation and Regression III
	WEP.PF	PF.1	Target Detection and Tracking
	WEP.PG	PG.1	SAR Image Analysis Techniques
	WEP.PH	PH.1	POLSAR Applications I
	WEP.PI	PI.1	Applications in SAR and Radar Remote Sensing
	WEP.PJ	PJ.1	Image and Data Fusion III
	WEP.PK	PK.1	Forest Vegetation III
	WEP.PL	PL.1	Land Use III
	WEP.PM	PM.1	Crop Parameters
	WEP.PN	PN.1	Forest Monitoring II
	WEP.PN	PN.7	Geology and Geomorphology
	WEP.PO	PO.1	Sea Ice I
	WEP.PP	PP.1	Microwave Radiometer Instruments and Calibration II
	WEP.PQ	PQ.1	Optical Sensor Calibration, Data Processing and Applications
	WEP.PR	PR.1	Monitoring Natural Disaster: Subsidence, Deformation and Displacement II
	WEP.PS	PS.1	Damage Mapping II
	WEP.PT	PT.1	Atmospheric Sounding II
	WEP.PU	PU.1	Ocean Winds, Waves and Currents
	WEP.PV	PV.1	Ocean Altimetry II
	WEP.PW	PW.1	Satellite Missions

Thursday, July 30			
	Session Code	**Starting Board Number**	**Session Name**
MiCo Level +1 17:20 – 19:00	THP.PA	PA.1	Data Analysis and Estimation Methods
	THP.PB	PB.1	Subsurface Sensing and Ground Penetrating Radar II
	THP.PC	PC.1	Image Segmentation III
	THP.PD	PD.1	Computer Vision for Classification
	THP.PE	PE.1	Estimation and Regression IV
	THP.PF	PF.1	Target Detection and Unmixing
	THP.PG	PG.1	SAR Processing IV
	THP.PH	PH.1	GIS Applications and Techniques I
	THP.PI	PI.1	GIS Applications and Techniques II
	THP.PJ	PJ.1	DBF and Bistatic SAR
	THP.PK	PK.1	Urban Remote Sensing
	THP.PL	PL.1	Land Cover Dynamics II
	THP.PM	PM.1	Agricultural Applications
	THP.PN	PN.1	Topography
	THP.PO	PO.1	Data Management III
	THP.PP	PP.1	Microwave Radiometer Instruments and Calibration I
	THP.PQ	PQ.1	GNSS-R Sensors II
	THP.PR	PR.1	Monitoring Natural Disaster I
	THP.PS	PS.1	Analysis of Multitemporal Images V
	THP.PS	PS.7	Emergency Response II
	THP.PT	PT.1	Atmospheric Sounding III
	THP.PU	PU.1	Ocean Scatterometry
	THP.PU	PU.7	Precipitation and Atmospheric Sounding
	THP.PV	PV.1	Remote Sensing Instruments for Winds and Waves

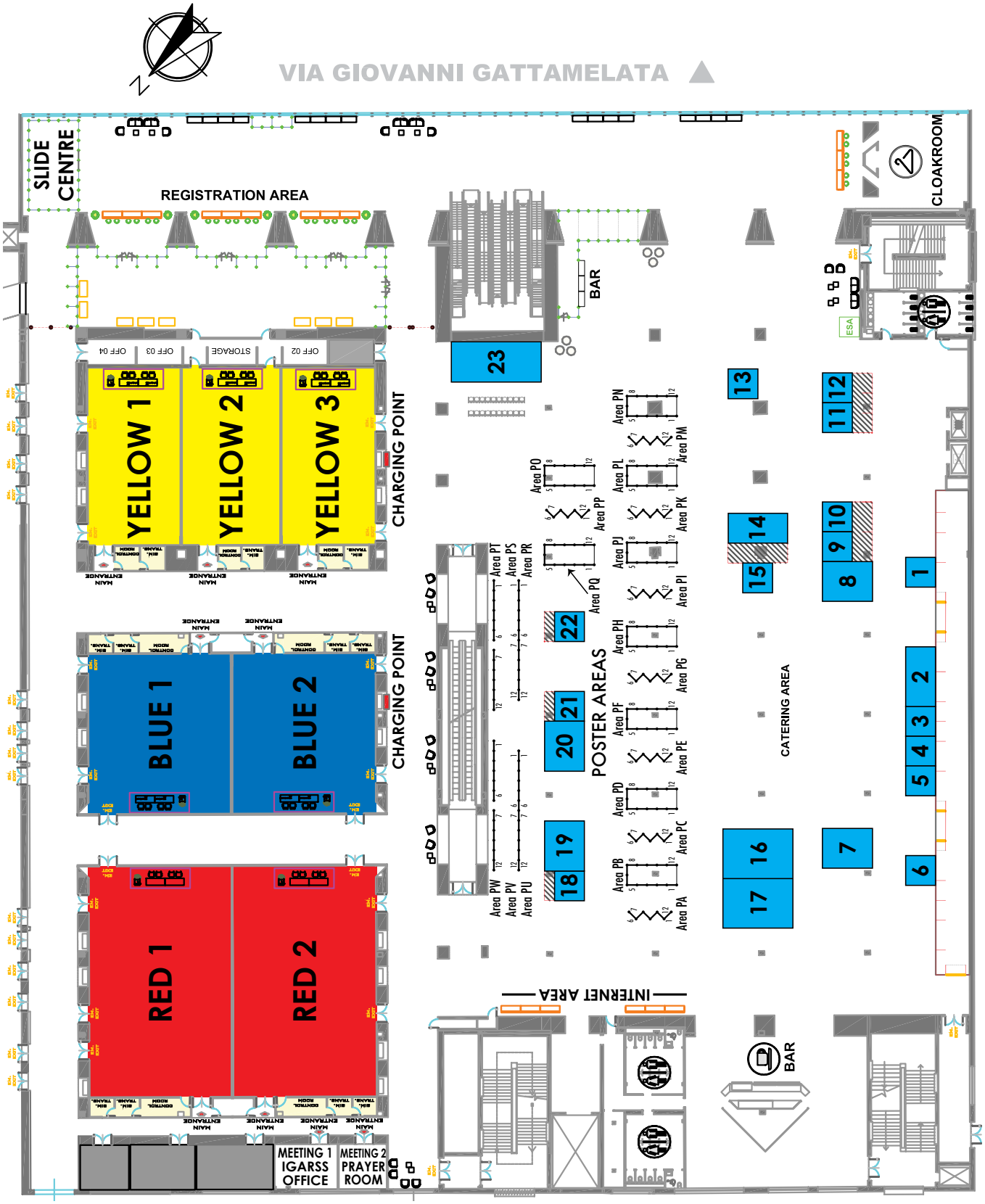
Authors are requested to stand by their posters during the dedicated poster session from 17:20 to 19:00 and are invited to put up their posters in the morning so that attendees may browse them during the breaks throughout the day.

Venue Maps: Milano Congressi (MiCo)

MiCo, Level –1

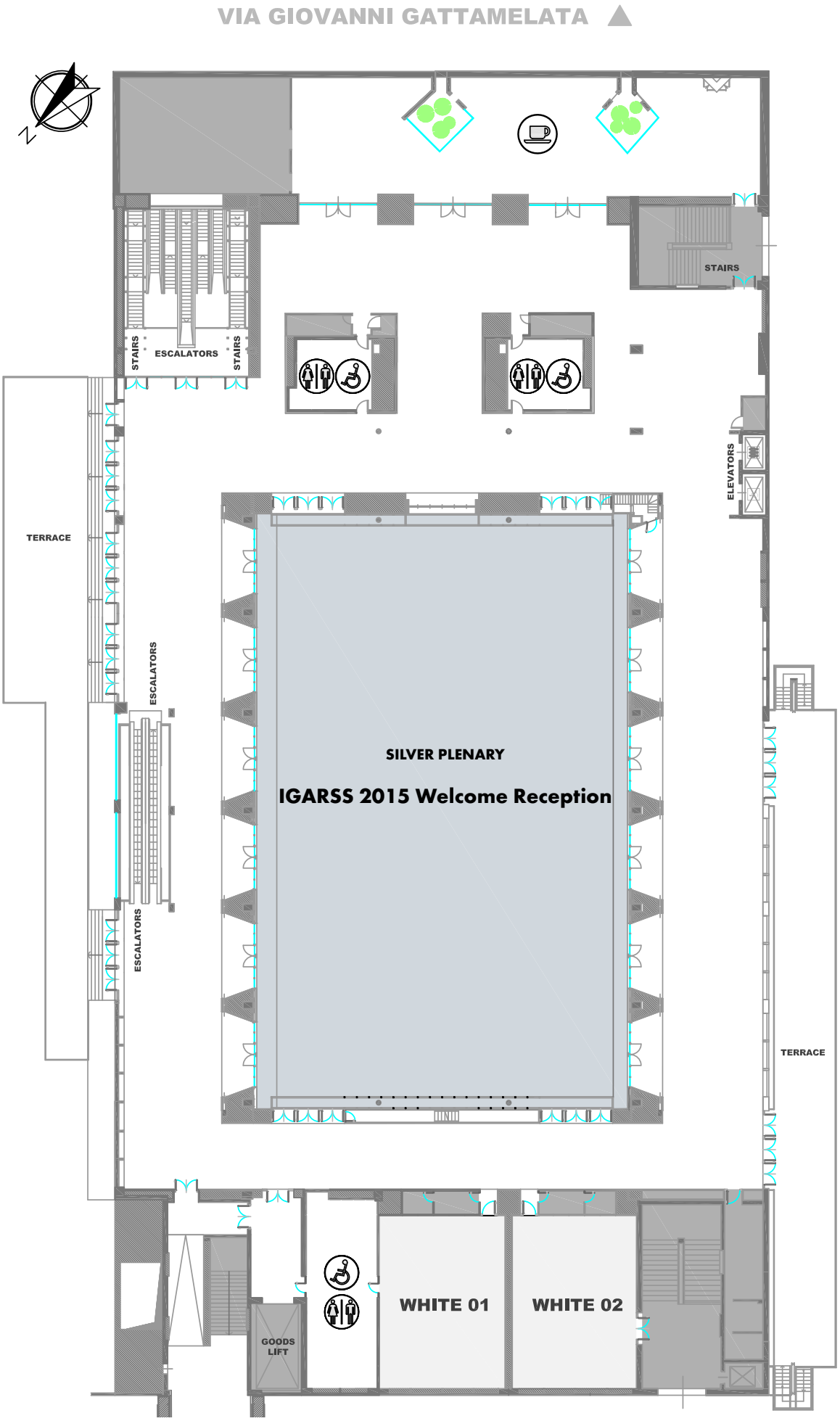
Venue Maps : Milano Congressi (MiCo)

MiCo, Level +1



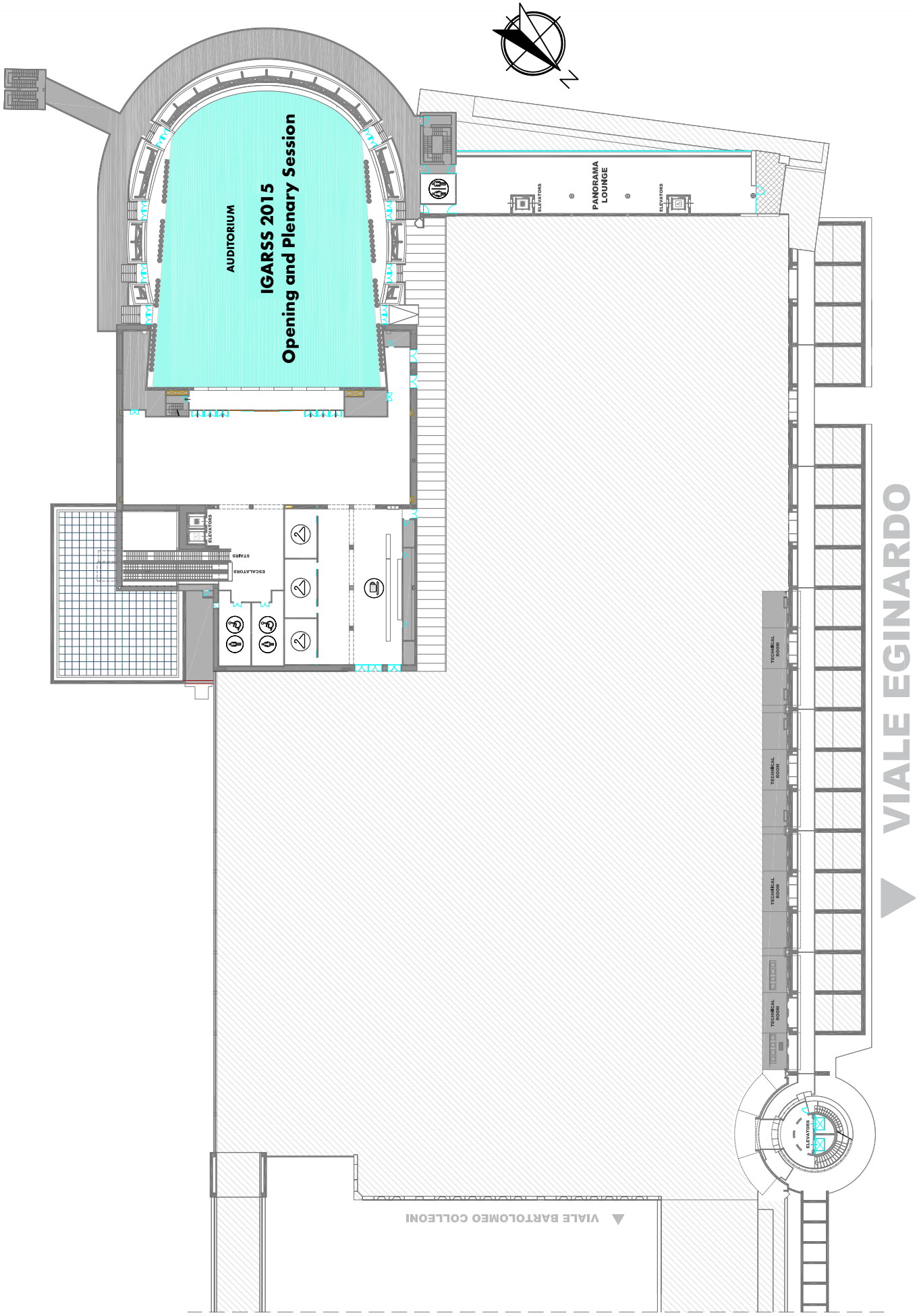
Venue Maps : Milano Congressi (MiCo)

MiCo, Level +2



Venue Maps : Milano Congressi (MiCo)

MiCo, South Wing, Level +3



IEEE GRSS Membership

Membership in the IEEE GRSS is open to professionals and students working in the field of remote sensing. Student memberships in GRSS are extremely economical, and the benefits are the same as regular members. A student member must carry at least 50% of a normal, full time academic program as a registered undergraduate or graduate student in a regular course of study in IEEE designated fields. For professionals interested only in the benefits of GRSS, a society affiliate membership is an option. In fact, if you visit the GRSS booth in the exhibition hall, you can sign up for a free 1-year GRSS affiliate membership. Regular membership in IEEE provides additional benefits including the option to belong to more than one society and receive IEEE benefits such as IEEE Spectrum and insurance or credit cards offered through the organization. Regular members are also eligible for Senior Membership in the IEEE GRSS after ten years of professional experience in the field (including educational experience). Please visit the IEEE GRSS website: http://www.grss-ieee.org/ to explore details of qualifications and membership opportunities.

GRSS membership include on-line access through IEEE Xplore to the Transactions on Geoscience and Remote Sensing (TGRS), Geoscience and Remote Sensing Letters (GRSL), Journal of Selected Topics in Applied Earth Observations and Remote Sensing (J-STARS), and Geoscience and Remote Sensing Magazine (GRSM). The digital edition of the magazine is provided to GRSS members who made subscription to the magazine throughout a subscriber Qmags page. Moreover online access through IEEE Xplore to all IGARSS Proceedings and selected GRSS sponsored small symposia is available to members for an additional fee of only $10. If you would like to receive printed copies of TGRS, GRSL or J-STARS, you must indicate this on your application form (available on the GRSS website) and pay the additional fee(s) of $80, $40, or $80, respectively. These options are available only for full-year memberships.

The list below is a summary of IEEE and Society Dues.

- For Student, Full, Senior and Fellow GRSS membership grades, you must pay to become an IEEE member and select GRSS as an additional society membership.
- To calculate total dues, you may elect to add the optional printed TGRS, GRSL or J-STARS fee to the appropriate IEEE member fee. (Affiliates select appropriate GRSS Affiliate fee only. No IEEE member fees will be assessed.)
- Applications received between 16 August and 28 February will be processed as full-year memberships.
- Services begin immediately.
- Applications received between 1 March and 15 August will be processed as half-year memberships expiring 31 December of that calendar year.

Residence	IEEE GRSS Member Full Year	IEEE GRSS Member Half Year	IEEE GRSS Student Member Full Year	IEEE GRSS Student Member Half Year	GRSS Affiliate Full Year	GRSS Affiliate Half Year
United States	$193	$97	$32	$16	$92	$46
Canada	$185	$93	$37	$18	$92	$46
Africa, Europe, Middle East	$158	$79	$27	$14	$92	$46
Developing Nations e-Membership	$88	$44	N/A	N/A	N/A	N/A
Latin America	$149	$75	$27	$14	$92	$46
Developing Nations e-Membership	$79	$40	N/A	N/A	N/A	N/A
Asia Pacific	$150	$75	$27	$14	$92	$46
Developing Nations e-Membership	$80	$40	N/A	N/A	N/A	N/A

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Gold Partner	Thales Alenia Space
Tutorial Catering Partner	Google Earth Engine

Symposium Guide Partner	MetaSensing
Welcome Kit Partner	RASOR Consortium
Delegate Satchel Partner	T.R.E.
Welcome Kit Partner	VITO

	The European Space Agency (ESA) is Europe's gateway to space. ESA is an intergovernmental organisation, created in 1975, with the mission to shape the development of Europe's space capability and ensure that investment in space delivers benefits to the citizens of Europe and the world. ESA will soon have 22 Member States: Austria, Belgium, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Luxembourg, the Netherlands, Norway, Poland, Portugal, Romania, Spain, Sweden, Switzerland and the United Kingdom, of whom 18 are Member States of the EU. ESA has Cooperation Agreements with eight other Member States of the EU and is discussing an Agreement with the one remaining (Bulgaria). Canada takes part in some ESA programmes under a Cooperation Agreement. By coordinating the financial and intellectual resources of its members, ESA can undertake programmes and activities far beyond the scope of any single European country. ESA develops the launchers, spacecraft and ground facilities needed to keep Europe at the forefront of global space activities. Today, it launches satellites for Earth observation, navigation, telecommunications and astronomy, sends probes to the far reaches of the Solar System and cooperates in the human exploration of space. http://www.esa.com/
	ASI (Agenzia Spaziale Italiana) is a government agency founded in 1988. Its purpose was to coordinate all of Italy's efforts and investments in the space sector that had begun in the 1960s. Within over twenty years' time, ASI became one of the most significant players in the world in space science, satellite technologies and the development of mobile systems for exploring the Universe. Today, ASI has a key role at the European level where Italy is the third contributor country to the European Space Agency. http://www.asi.it/
	Thales Alenia Space, a joint venture between Thales (67%) and Finmeccanica (33%), is a key European player in space telecommunications, navigation, Earth observation, exploration and orbital infrastructures. Thales Alenia Space and Telespazio form the two parent companies' "Space Alliance", which offers a complete range of services and solutions. Because of its unrivaled expertise in dual (civil/military) missions, constellations, flexible payloads, altimetry, meteorology and high-resolution optical and radar instruments, Thales Alenia Space is the natural partner to countries that want to expand their space program. The company posted consolidated revenues in excess of 2 billion euros in 2014, and has 7,500 employees in 7 countries. https://www.thalesgroup.com

Google Earth Engine	Google Earth Engine brings together the world's satellite imagery – trillions of scientific measurements dating back over 40 years – and makes it available online with tools for scientists, independent researchers, and nations to mine this massive warehouse of data to detect changes, map trends and quantify differences on the Earth's surface. Applications include: detecting deforestation, classifying land cover, estimating forest biomass and carbon, and mapping the world's roadless areas. http://www.google.com/
	MetaSensing is an innovative company providing proprietary sensors for data acquisition and post-processing services. MetaSensing offers a broad range of radars operating at different frequency bands. MetaSensing sensors are compact, high-resolution and cost-effective. Each sensor is customised in order to fulfil the customers' needs. MetaSensing has introduced a novel ground based solution for monitoring instable natural elements and critical artificial structures. The FastGBSAR is a non-invasive remote sensing tool for continuous deformation monitoring of large coverage areas, a compact and easy-to-install sensor that can operate even under harsh working conditions. The MetaSensing Ku-band radar for structure monitoring and terrain stability is an excellent example of the versatile and customizable MetaSensing products. http://www.metasensing.com/
RASOR RAPID ANALYSIS AND SPATIALISATION OF RISK	RASOR is a multi-hazard risk analysis software platform to support the full cycle of disaster management. RASOR uses the 12m resolution TanDEM-X digital elevation model of RASOR partners DLR/Airbus Defence and Space as a ground layer for risk management applications, on which RASOR users superpose data sets and develop specific disaster scenarios. RASOR overlays archived and near-real time very-high resolution optical and radar satellite data, combined with in situ data for both global and local applications. A scenario-driven query system allows users to project situations into the future and model multi-hazard risk both before and during an event. RASOR is an open source, freely available tool, but selected RASOR partners offer add-on products and provide targeted value-added services. IGARSS 2015 will host a workshop aimed at fostering new interest in such partnerships and discuss the applications of the RASOR platform. http://www.rasor-project.eu/
TRE® Sensing the Planet	TRE is the world leader in surface deformation monitoring services with InSAR technology. TRE measures surface deformation to millimeter accuracy by analyzing satellite SAR images to offer a quantitative understanding of ground response to both natural and anthropogenic activities. TRE was founded in 2000 with the patenting of its first proprietary algorithm: PSInSAR™. Continuous investment in research and development lead to the unveiling of the new algorithm SqueeSAR™ in 2010, providing a significantly more powerful deformation mapping tool. First spin-off company from the Politecnico di Milano University, TRE employs over 40 professionals from diverse disciplines in two offices, Milan and Vancouver. http://treuropa.com/
vito vision on technology	VITO's (Flemish Institute for Technological Research) Remote Sensing Unit, with more than 80 specialists, is active in multiple remote sensing activities such as developing new remote sensing systems, sensors and platforms, processing and distribution of multiple spaceborne/airborne/UAV data and also designing several local and global applications for end-users worldwide. The main focus areas of expertise are Environment, Climate Change, Agriculture, Food Security, Water Quality and Security. Mission: Remote sensing for the benefit of sustainable Land Use. Our offer: +80 motivated employees; In search of technological solutions; Scientifically justified advice; From satellite to RPAS remote sensing; Combined with in-situ observations; Market oriented products and services; Specialized services for crop monitoring and yield forecasting; On a local, regional and continental scale; Hyperspectral sensors and derived products and services; Unique 16-years archive of SPOT-VEGETATION and PROBA-V. https://vito.be/en

Patronages

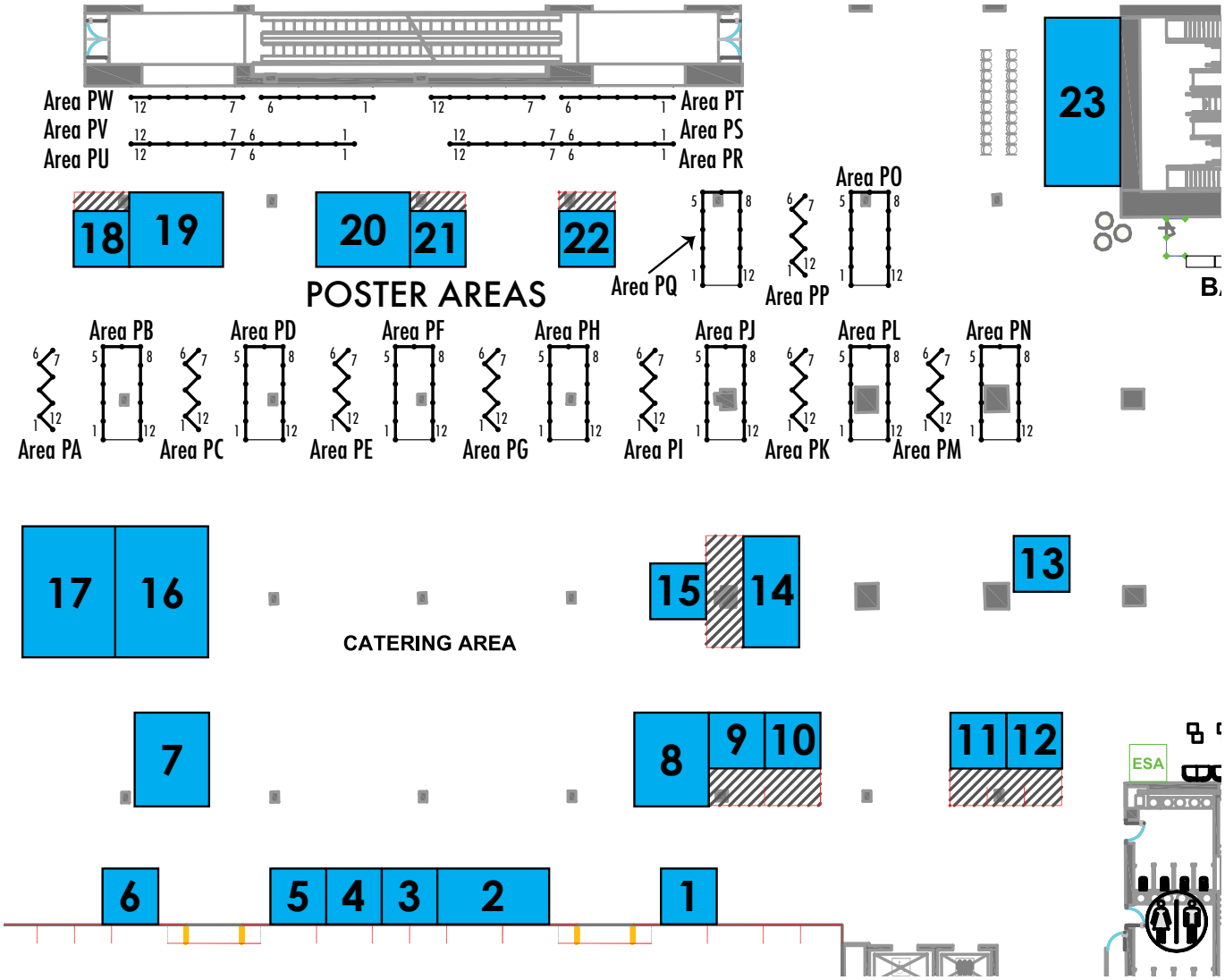
Milano
Comune di Milano

Comune Milano

lombardia aerospace cluster

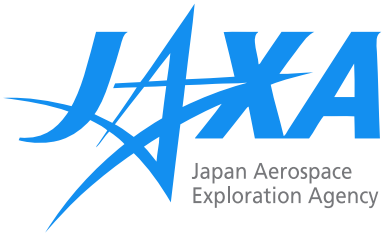
Lombardia Aerospace Cluster

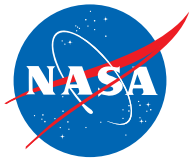
Exhibition: Map and List of Exhibitors



1	Committee in Earth Observation Satellites (CEOS)	9	Diessechem srl	17	IEEE/GRSS
2	Japanese Aerospace Exploration Agency (JAXA)	10	Harris	18	Spectra Vista Corporation
3	ST Electronics (Satcom & Sensor Systems) Pte Ltd	11	Enterprise Electronics Corporation (EEC)	19	VITO
4	Rikola Ltd.	12	SI Imaging Services	20	Consorzio Nazionale Interuniversitario per le Telecomunicazioni (CNIT)
5	SKYE Instruments Ltd.	13	Space Flight Laboratory		
6	PASCO Corporation	14	T&F Academic	21	Agenzia Spaziale Italiana (ASI)
7	Google	15	Headwall Photonics	22	MetaSensing
8	European Space Agency (ESA)	16	IGARSS 2016	23	NASA

asi agenzia spaziale italiana	ASI (Agenzia Spaziale Italiana) is a government agency founded in 1988. Its purpose was to coordinate all of Italy's efforts and investments in the space sector that had begun in the 1960s. Within over twenty years' time, ASI became one of the most significant players in the world in space science, satellite technologies and the development of mobile systems for exploring the Universe. Today, ASI has a key role at the European level where Italy is the third contributor country to the European Space Agency. http://www.asi.it/
CEOS	The Committee on Earth Observation Satellites (CEOS) ensures international coordination of civil space-based Earth observation programs and promotes exchange of data to optimize societal benefit and inform decision making for securing a prosperous and sustainable future for humankind. Its 55 agencies currently operate 131 Earth observation satellites. The CEOS exhibition will demonstrate a variety of tools and data services that enhance the use of satellite data and impact global problems. http://www.ceos.org/
cnit National Lab RaSS	The Radar and Surveillance Systems (RaSS) National Laboratory is a branch of the National Interuniversity Consortium for Telecommunications (CNIT) which is a no-profit organization of 38 Italian Universities. The RaSS Lab is based in Pisa (Italy) and it carries out its research activity in the field of radar, remote sensing, applied electromagnetism, telecommunications and signal processing. http://labrass.cnit.it/
diessechem	DIESSECHEM Srl is a dynamic trading company, representing various brands of analytical instrumentation. Diessechem is the Italian exclusive distributor of ASD Inc. (CO, USA), leading producer of field spectroradiometers for groud truthing and proximal sensing, and Headwall Inc. (MA, USA), top producer of hyperspectral imaging cameras, with the patented aberration-corrected design. http://www.diessechem.com/

	EEC TeleSpace is a leading provider of turn-key ground stations for the real-time reception of meteorological, environmental and defense satellite data. EEC TeleSpace is a division of Enterprise Electronics Corporation (EEC). EEC, incorporated in 1971, manufactures high quality meteorological radar systems. EEC TeleSpace leverages EEC's core engineering capabilities for in-house antenna design, and production, seamlessly coupled with the flagship satellite data visualization and analysis software suite, PROTEUS. Applications include; continuous weather and environmental monitoring, high-resolution satellite imagery, and disaster management. EEC has manufactured and delivered more than 100 satellite and 1000 radar ground stations in over 90 countries worldwide. Visit our booth to learn more about the EEC TeleSpace solution for Himawari-8 & GOES-R satellite ground stations. http://www.eecweathertech.com/
	The European Space Agency (ESA) is Europe's gateway to space. ESA is an intergovernmental organisation, created in 1975, with the mission to shape the development of Europe's space capability and ensure that investment in space delivers benefits to the citizens of Europe and the world. ESA will soon have 22 Member States: Austria, Belgium, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Luxembourg, the Netherlands, Norway, Poland, Portugal, Romania, Spain, Sweden, Switzerland and the United Kingdom, of whom 18 are Member States of the EU. ESA has Cooperation Agreements with eight other Member States of the EU and is discussing an Agreement with the one remaining (Bulgaria). Canada takes part in some ESA programmes under a Cooperation Agreement. By coordinating the financial and intellectual resources of its members, ESA can undertake programmes and activities far beyond the scope of any single European country. ESA develops the launchers, spacecraft and ground facilities needed to keep Europe at the forefront of global space activities. Today, it launches satellites for Earth observation, navigation, telecommunications and astronomy, sends probes to the far reaches of the Solar System and cooperates in the human exploration of space. http://www.esa.com/
	Google Earth Engine brings together the world's satellite imagery – trillions of scientific measurements dating back over 40 years – and makes it available online with tools for scientists, independent researchers, and nations to mine this massive warehouse of data to detect changes, map trends and quantify differences on the Earth's surface. Applications include: detecting deforestation, classifying land cover, estimating forest biomass and carbon, and mapping the world's roadless areas. http://www.google.com/
	We provide desktop, cloud and mobile software solutions to help professionals across industries transform geospatial imagery and complex data into actionable information. Customers use our bespoke services and products - ENVI and IDL - to quickly and easily visualise and analyse all types of data and imagery for better, more informed decision making. http://www.exelisvis.eu/
	For remote-sensing applications, Headwall produces the world's most precise multispectral and hyperspectral imaging solutions featuring aberration-corrected optics, outstanding spatial and spectral resolution, and a very wide field of view. Headwall's sensors are deployed aboard UAVs (lightweight and larger), fixed-wing aircraft, and satellites for applications such as precision agriculture, minerals and mining, environmental analysis, and pipeline inspection. Headwall has manufacturing locations in the United States and Europe and is ISO-9001:2008-certified. Spectral ranges include VNIR (400-1000nm); Extended VNIR (550-1700nm); NIR (900-1700nm); and SWIR (900-2500nm). http://www.headwallphotonics.com/
	Co-hosted by the IEEE Geoscience and National Space Science Center (NSSC), China Academy of Science (CAS), the International Geoscience and Remote Sensing Symposium 2016 (IGARSS 2016) will be held from 10th to 15th July, 2016, at the National Convention Center in Beijing, China. The theme of the Congress is "Advancing the Understand of Our Living Planet", by which we want to stress the physical insights in Remote Sensing. Technical papers on this theme will be accepted and specially acknowledged. Other papers in all fields of Remote Sensing will also be welcome. http://www.igarss2016.org/
	The Geoscience and Remote Sensing Society seeks to advance science and technology in geoscience, remote sensing and related fields using conferences, education, and other resources. The fields of interest of the 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. http://www.grss-ieee.org/
	Since JAXA was launched in October 2003, it consistently performed numerous activities within the aerospace field. JAXA technologies are now globally regarded as excellent as it has performed challenging tasks like successful rocket launches, activities for the International Space Station, and development and operation of satellites and probes. In January 2015, the new Basic Plan for Space Policy determined the three objectives of Japan space policy: i) secure national security in space; ii) promote space utilization by private sectors; and iii) strengthen and maintain the foundation of the space industry, science and technology. The new role of JAXA is to be the core organization providing technological support for all governmental development and utilization of space projects. JAXA will incorporate the aims of the National Research and Development Agency. Its activities will assume a broader perspective and incorporate research over a wide range of areas of expertise, aiming at maximizing the results of research and development conducted throughout Japan. This will include taking a leading role in the development of technology, and uncovering true values to help solve problems within the society. JAXA intends to accelerate all research in this respect. http://global.jaxa.jp/
	MetaSensing is an innovative company providing proprietary sensors for data acquisition and post-processing services. MetaSensing offers a broad range of radars operating at different frequency bands. MetaSensing sensors are compact, high-resolution and cost-effective. Each sensor is customised in order to fulfil the customers' needs. MetaSensing has introduced a novel ground based solution for monitoring instable natural elements and critical artificial structures. The FastGBSAR is a non-invasive remote sensing tool for continuous deformation monitoring of large coverage areas, a compact and easy-to-install sensor that can operate even under harsh working conditions. The MetaSensing Ku-band radar for structure monitoring and terrain stability is an excellent example of the versatile and customizable MetaSensing products. http://www.metasensing.com/

	NASA Earth System Science conducts and sponsors research, collects new observations from space, develops technologies and extends science and technology education to learners of all ages. We work closely with our global partners in government, industry, and the public to enhance economic security, and environmental stewardship, benefiting society in many tangible ways. We conduct and sponsor research to answer fundamental science questions about the changes we see in climate, weather, and natural hazards, and deliver sound science that helps decision-makers make informed decisions. http://www.nasa.gov/
	Pasco Corporation http://www.pasco.co.jp/eng/
	Rikola Ltd. offers small and lightweight hyperspectral camera for UAVs. This innovative product is a frame-based spectral system providing true snapshot images. The frame based approach enables an easy image stitching for the mosaics with high resolution images. The solution doesn't need IMU for its operations, which makes the system low cost and low weight. The camera enables handheld use with computers too. Rikola offers also OEM multichannel- and LED-modules as well as miniature spectrometers. http://www.rikola.fi/
	SI Imaging Services (SIIS) was founded in April 2014 as a subsidiary of Satrec Initiative (SI) with the mission of "Fair Access to Space". SIIS, which is specialized company in satellite imaging services, is exclusive distributor of KOMPSAT-2 (1.0 m optical), KOMPSAT-3 (0.7 m optical), and KOMPSAT-5 (1.0 m SAR) satellites imagery and also distributes DubaiSat-2 (1.0 m optical) imagery worldwide. SIIS has established the global business network with more than 60 resellers and partners. In the capability of providing both optical and radar imagery as well as the collaborative business with worldwide network, SIIS offers better and fair imaging services to customers. http://www.si-imaging.com/
	Skye Instruments Ltd have been designing and manufacturing instrumentation for Remote Sensing, Environmental Monitoring, Plant and Agricultural Research since 1983. We have a range of Remote Sensing instruments for ground, tower and airborne installations, which include Eddy Covariance/Flux Towers & UAV's. Our Multi-Spectral sensors include wavelengths for LANDSAT, SPOT, NOAA, AVHRR, MODIS, plus many more Earth observation satellites. Please visit us at booth #8 to see our product range and to discuss your requirements. We look forward to seeing you at IGARSS 2015. http://www.skyeinstruments.com/
	Satellites built by the Space Flight Laboratory (SFL) push the performance envelope and disrupt the traditional cost paradigm. Mission performance and data achievements are striking relative to the available budget. SFL celebrates over 39 cumulative years of operational heritage in MOST, CanX-2, NTS, AISSat-1, AISSat-2, CanX-4, CanX-5, and BRITE space astronomy satellites. Additional satellites launching soon include EV9, AISSat-3, NORSAT-1, GHGSat-D, NEMO-AM, CanX-7, M3MSat, and the next generation Earth observation satellite, NEMO-HD – a compact 72kg satellite capable of multispectral, high-definition imaging and video with up to 2.8m resolution. SFL arranges launches worldwide and operates a global ground station network. http://www.utias-sfl.net/
	Spectra Vista Corporation http://www.spectravista.com/
	ST Electronics (Satcom & Sensor Systems) delivers innovative, broadband wireless communication and sensor solutions that enhance connectivity and safety globally. Together with its US related satellite communications company, VT iDirect, the company serves a wide range of industry, covering telecommunications, government and defence, maritime, oil and gas, broadcast and enterprise organisations and is a leading supplier of Very Small Aperture Terminals (VSATs), microwave communications and RF equipment. The company also specialises in the design, development and production of advanced earth observation satellites and is poised to contribute to the future development of satellite and sensor technologies. Through its subsidiary ST Electronics (Satellite Systems) set up in 2011, it offers a comprehensive suite of satellite and earth observation solutions to its customers worldwide. http://www.stee.stengg.com/ http://www.agilspace.com/
	Taylor and Francis Group is a premier publisher of scientific books and journals in the field of GIS and Remote Sensing written by leading experts in the field. Visit our booth to view our newest offerings in the area, plus take advantage of savings from 20-50% on select titles. http://explore.tandfonline.com/content/est/remote-sensing/ http://www.crcpress.com/environmental-science/remote-sensing-photogrammetry
	VITO's (Flemish Institute for Technological Research) Remote Sensing Unit, with more than 80 specialists, is active in multiple remote sensing activities such as developing new remote sensing systems, sensors and platforms, processing and distribution of multiple spaceborne/airborne/UAV data and also designing several local and global applications for end-users worldwide. The main focus areas of expertise are Environment, Climate Change, Agriculture, Food Security, Water Quality and Security. Mission: Remote sensing for the benefit of sustainable Land Use. Our offer: +80 motivated employees; In search of technological solutions; Scientifically justified advice; From satellite to RPAS remote sensing; Combined with in-situ observations; Market oriented products and services; Specialized services for crop monitoring and yield forecasting; On a local, regional and continental scale; Hyperspectral sensors and derived products and services; Unique 16-years archive of SPOT-VEGETATION and PROBA-V. https://vito.be/en

living planet symposium | 2016

EARLY ANNOUNCEMENT

PRAGUE | 9-13 MAY 2016

OBJECTIVES

The objectives of the ESA Living Planet Symposium are to:

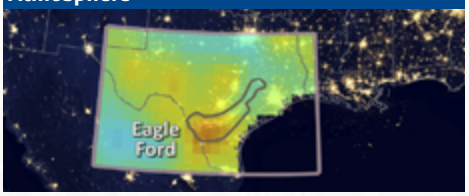
- Present the progress and plans for the implementation of ESA Earth Observation strategy and the relevance of ESA's EO Programme to societal challenges, science and economy
- Provide an international forum to scientists, researchers and users to present and share state of the art results based on ESA's Earth Observation and third-party mission data
- Review the development of Earth Observation applications
- Present the Copernicus space component and operational services
- Report on ESA's Exploitation Programmes (i.e. Climate Change Initiative, SEOM, DUE, VAE, STSE)
- Report on ESA's international cooperation in the field of Earth Observation
- Report on current and future planned Earth Observation missions
- Provide dedicated thematic tutorials and demonstrations

IMPORTANT DATES

Abstracts Deadline	**16 October 2015**
Acceptances Notification	**End January 2016**
Preliminary Programme	**February 2016**
Opening of Registration	**February 2016**
Final Programme	**at the symposium**
Full Papers Submission	**at the symposium**

THEMES

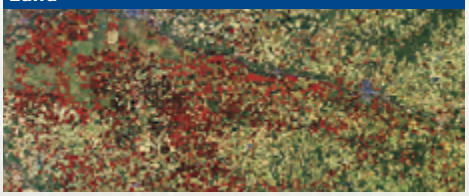
Atmosphere



Oceanography

Cryosphere

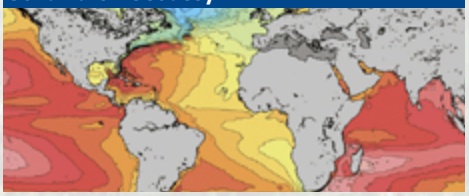
Land



Hazards

Climate and Meteorology

Solid Earth/Geodesy



Near-Earth Environment

Methodologies and Products

Open Science 2.0

ABSTRACT SUBMISSION

ESA invites you to submit your proposed contribution via the dedicated web site: **http://lps16.esa.int**

All submissions will be reviewed by the Scientific Committee.

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www.asi.it
www.asitv.it

The Italian Space Agency programs on Earth Observation mainly deal with environmental protection, natural disaster prevention, homeland and citizens security. COSMO-SkyMed, a constellation of four satellites for environmental monitoring, is the largest Earth Observation space program ever undertaken by Italy. In order to increase national technological and scientific knowledge, ASI is also directing its efforts towards several missions, such as MIOSAT (Microsatellite–based optical light mission), for the progress and qualification in orbit of new technological products; ROSA (Radio Occultation Sounder for Atmosphere), aimed at studying the atmosphere; PRISMA (Hyperspectral Precursor of the application mission), that can determine, by hyperspectral sensors, the chemical-physical composition of objects. ASI contributes significantly to European programs such as GOCE (Gravity field and steady-state Ocean Circulation Explorer), for the measurement of the gravitational field and the determination of the Earth's surface and GMES (Global Monitoring for Environment and Security).

IGARSS

ADVANCING THE UNDERSTANDING OF OUR LIVING PLANET

JULY 10–15, 2016
BEIJING, CHINA

International Geoscience and Remote Sensing Symposium (IGARSS 2016)

ORGANIZED BY:
International Geoscience and Remote Sensing Society

HOSTED BY:
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Fudan University
Institute of Remote Sensing and Digital Earth, CAS

CONTACT US:
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www.igarss2016.org

SAVE THE DATE • JULY 23-28

Howdy!

FORT WORTH

IGARSS 2017

Location: Auditorium, Milano Congressi (MiCo) – South Wing, Level +3

Opening and Awards Session

08:45 **Welcome to IGARSS 2015**
Sebastiano B. Serpico and Vito Pascazio – General Co-Chairs

08:55 **Welcome from IEEE**
Howard E. Michel, 2015 IEEE President

09:05 **Welcome from IEEE GRS Society**
Kamal Sarabandi, IEEE GRSS President

09:15 **Major Awards and Recognitions**
Werner Wiesbeck, Master of Ceremony
2015 IEEE Fellow
2015 IEEE GRSS Education Award
2015 IEEE GRSS Outstanding Service Award
2015 IEEE GRSS Distinguished Achievement Award

09:55 **Break**

Plenary Session

10:25 **Volker Liebig, ESA**
"Earth observation today – meet the challenges of the 21st century"

10:45 **Roberto Battiston, ASI**
"A space renaissance"

11:05 **Piers Sellers, NASA**
"Help from above: satellite observations and environmental threats"

11:25 **Dave Thau, Google**
"Terapixel scale geospatial data mining for risk averse and hungry humans"

Symposium Introduction

11:50 **IGARSS 2015 Technical Program**
Lorenzo Bruzzone and Paolo Gamba – Technical Co-Chairs

12:05 **Closing remarks**
Sebastiano B. Serpico and Vito Pascazio – General Co-Chairs

12:15 **Lunch**

Volker Liebig

Director of Earth Observation Programmes
European Space Agency

"Earth Observation Today - Meet The Challenges Of The 21st Century"

Since October 2004 Volker Liebig is the Director of Earth Observation Programmes and Head of ESA's center ESRIN in Frascati, close to Rome. Volker Liebig grew up and studied geophysics in Munich. This is also where he received his PhD. He began his professional career in polar research. After six years working in space industry, he joined the German Space Agency, DARA and 11 years later ESA. Volker Liebig is lecturing at the University of Stuttgart, from which he has received a honorary professorship.

Roberto Battiston

President of the Italian Space Agency (ASI)

"A Space Renaissance"

Roberto Battiston was born in Trento 1956. He is the chair of Experimental Physics at the Physics Department or the Trento University. Prof. Battiston received the Laurea honoris causa from the Universtiy of Bucharest. He has 30 year long international collaborations in the field of experimental physics and fundamental interactions: Strong interactions, Electroweak interaction physics, Search for antimatter and dark matter in Cosmic Rays. He is author of more than 420 papers published on international scientific journals. Prof. Battiston organized several workshops devoted to space science and to advanced space technologies (Trento 1999, Elba 2002, Washington 2003, Bejijng 2006, CERN 2012). He is the founder of the AMS experiment, the first fundamental physics experiment approved for the International Space Station, installed on the ISS in 2011. He is member of CEPR, the governmental committee advising the Minister of Research and University. Since 2014 he is the President of the Italian Space Agency (ASI).

Piers Sellers

Deputy Director of the Sciences and Exploration Directorate
Acting Director of the Earth Sciences Division
NASA, Goddard Space Flight Center

"Help from Above: Satellite Observations and Environmental Threats"

Piers Sellers was born and educated in the United Kingdom and moved to the U.S. in 1982 to carry out climate research at NASA/GSFC. From 1982 to 1996, he worked on global climate problems, particularly those involving interactions between the biosphere and the atmosphere, and was involved in constructing computer models of the global climate system, satellite data interpretation and conducting large-scale field experiments in the USA, Canada, Africa, and Brazil. He served as project scientist for the first large Earth Observing System platform, Terra, launched in 1998. He has published over 70 papers, 30 of them as first author. His H-index is 49. He joined the NASA astronaut corps in 1996 and flew to the International Space Station (ISS) in 2002, 2006, and 2010, carrying out six spacewalks and working on ISS assembly tasks. He returned to GSFC in June, 2011.

Dave Thau

Senior Developer Advocate
Google

"Terapixel Scale Geospatial Data Mining for Risk Averse and Hungry Humans"

Dr. Dave Thau is a senior developer advocate for Google, focusing on Earth Engine, Google's geospatial data processing platform. He joined Google in 2010, bringing with him 20 years of industry experience developing Internet-based applications. Over the past fourteen years, Dr. Thau has worked with large image databases and geospatial systems, focusing on the fields of ecology, forestry, and biodiversity. He currently works with scientists and NGOs developing software and algorithms that run on Google's highly parallelized cloud computing image processing framework. Dr. Thau holds degrees from the University of California, Los Angeles, the University of Michigan, Ann Arbor, and a doctorate in computer science from the University of California, Davis.

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Data Analysis Methods (Optical, Multispectral, Hyperspectral, SAR)	Irena Hajnsek	A.1 - Electromagnetic Modelling A.2 - SAR Interferometry: Along and Across A.3 - Differential SAR Interferometry A.4 - SAR Imaging Techniques A.5 - POL and POLInSAR A.6 - Bistatic and digital beamforming SAR A.7 - Tomography and 3D mapping A.8 - Subsurface Sensing / Ground Penetrating Radar
	Jocelyn Chanussot	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	David Kunkee	D.1 - Data Management and Systems D.2 - Remote Sensing Data and Policy Decisions D.3 - Education and Remote Sensing
Land	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
	Tom Jackson	L.5 - Agriculture L.6 - Urban and Built Environment L.7 - Topography, Geology and Geomorphology
	Ferdinando Nunziata	L.8 - Soils and Soil Moisture L.9 - Wetlands L.10 - Inland Waters
Atmosphere	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	David Weissman	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	Adriano Camps	S.1 - Satellite Missions S.2 - Small Satellite Technology S.3 - SAR Instrument and Calibration S.4 - Scatterometer, Cloud and Rain Radar S.5 - Microwave Radiometer Instruments and Calibration S.6 - GNSS-R Sensors
	Paolo Gamba	S.7 - Lidar Sensors S.8 - Passive Optical, Hyperspectral Sensors and Calibration S.9 - UAV and Airborne Platforms S.10 - Ground based Systems
Remote Sensing: Understanding the Earth for a Safer World	Francesca Bovolo	ST1.1 - Monitoring Natural Disaster (Subsidence, Landslides, Floods, Fires, etc.) ST1.2 - Exposure and Hazard Monitoring ST1.3 - Emergency Response ST1.4 - Damage Mapping
Feeding the Planet, Energy for Life		ST2.1 - Food Security ST2.2 - Global Crop Monitoring
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Zhenkui Ma
Giovanni Macelloni
Enrico Magli
Philippe Maillard
Jordi J. Mallorqui
Fanar Mansour Abed
Michele Manunta
Kebiao Mao
Andre R.S. Marcal
Javier Marcello
Prashanth Reddy Marpu
Paulo Alexandre Marques
Gert-Jan Marseille
Fernando Martin-Porqueras
Nelson Delfino d'Ávila Mascarenhas
Philippa Jane Mason
Karim Mattar
Francesco Mattia
Dalla Mura Mauro
Frederic Maussang
Greg McDermid
John Elton McFee
Darren McKague
Stephen J. McNeill
Peter Meadows
Susanne Mecklenburg

Erich Meier
Thomas Meissner
Farid Melgani
Gregoire Mercier
Stephane Meric
Franz Meyer
Nouha Mezned
Elizabeth M. Middleton
Maurizio Migliaccio
Koreen Millard
Fernando Pellon de Miranda
Sidharth Misra
Josef Mittermayer
Miguel Moctezuma-Flores
Mahta Moghaddam
Sameena Mohammed
Matthieu Molinier
Frank Monaldo
Alejandro Monsivais-Huertero
Martin Montes-Hugo
Andrea Monti-Guarnieri
Wooil M. Moon
Wooil M. Moon
David I. Morales Avila
Alberto Moreira
Jose Moreno
Robin D Morris
Keith Morrison
Gabriele Moser
Mahdi Motagh
Arii Motofumi
Giorgos Mountrakis
Andreas Mueller
Detlef Mueller
Shyamalee Mukherji
Christopher Mutlow
Vahid Naeimi
Adib Nashashibi
Enrique A. Navarro
Thomas Neff
Son Nghiem
Wenjian Ni
Olaf Niemann
Irmgard Niemeyer
Ryuei Nishii
Sima Noghanian
Yoo-jeong Noh
Charles Norton
Claudia Notarnicola
Ferdinando Nunziata
Vincent de Paul Obade
Kenta Ogawa
Hakan Olsson
Cindy Ong
Roberto Orosei
Majid Mohammady Oskouei
Catherine Ottlé
Kazuo Ouchi
Fabio Pacifici
Petteri Packalen
Mahesh Pal
Francesco Palazzo
Simonetta Paloscia
Gintautas Palubinskas
Paolo Pampaloni
Ovidiu Pancrati
Suraj Pandey
Matteo Pardini
Eulogio Pardo-Iguzquiza
Dimitris Paronis
Filippo Parrini
Chakrapani Patnaik
Swarnajyoti Patra
Petri Pellikka
Antonio Pepe
George Percivall
Vega Perez-Gracia
Stefano Perna
William Perrie
Birgit Peterson
Elena Pettinelli
Leland Pierce
Stefano Pignatti Morano
Maria Piles
Pedro Pina
Zhong Ping
Antonio Plaza
Sorin Popescu
Pierre Potin
Eric Pottier
Scott Powell
Desmond Power
Pau Prats-Iraola
Thomas Puestow
Yuntao Qian
Marco Quartulli
Dale Quattrochi
Shaun Quegan
Damien Raclot
Mirco Raffetto
Atiqur Rahman
Naoufal Raissouni
Nareenart Raksuntorn
Rahul Ramachandran
Hampapuram Ramapriyan
Elijah Ramsey
Keith Raney
Alberto Refice
Andreas Reigber
Steven C. Reising
Daniele Riccio
Rafael Rincon
Benoit Rivard
Dar Roberts
Fabio Rocca
Marc Rodriguez-Cassola
Filomena Romano
Roland Romeiser
Björn Rommen
Petri Rönnholm
Chris R. Rose
Philip Rosenkranz
Betlem Rosich
Helmut Rott
Tod Rubin
Christoph Rudiger
Christopher Ruf
Sassan Saatchi
Behara Seshadri Daya Sagar
Yuji Sakuno
Bahram Salehi
Nazmi Saleous
Brian Salmon
Denis Salvadeo
Mercedes Salvia
Pier Francesco Sammartino
Edson Sano
Veronica Santalla del Rio
Emanuele Santi
Makoto Satake
Dinesh Sathyamoorthy
Motoyuki Sato
Ryoichi Sato
Rolf Scheiber
Bernd Scheuchl
Paul Scheunders
Gilda Schirinzi
Marcus Schwaebisch
Gottfried Schwarz
Klaus Scipal
Michael Seablom
Evan Seed
Guy Serbin
Michael Seymour
Yun Shao
Nimmi C. Parikh Sharma
Joseph Shaw
Hui Shen
Jiancheng Shi
Yosio Edemir Shimabukuro
Masanobu Shimada
Haruhisa Shimoda
Michal Shimoni
Fridon Shubitidze
Claudionor Silva
Jean-Robert Simard
Marc Simard
Elizabeth L. Simms
Steven Simske
Ramesh Singh
Upendra Singh
Vern Singhroy
Paul Siqueira
Gail Skofronick Jackson
Niels Skou
Henning Skriver
Mark Sletten
Zakaria Smahi
David Small
Alistair Smith
Anne Smith
Paul Snoeij
Jose A. Sobrino
Gunho Sohn
Svein Solberg
Domenico Solimini
Ben Somers
Conghe Song
Lin-Ping Song
Boularbah Souissi
Metin Soycan
Claudia Spinetti
Josaphat Tetuko Sri Sumantyo
Satish Srivastava
Nick Stacy
Gordon Staples
Michael Starek
Demetris Stathakis
Erich Stocker
Ad Stoffelen
Thomas Stone
Josef Strobl
Tazio Strozzi
Hongbo Su
Lihong Su
Martin Suess
Qiang Sun
Filiz Sunar
Robert Sundberg
Rikie Suzuki
Shinichi Suzuki
John J Szymanski
Takeo Tadono
Tetsuya Tagawa
Nobuhiro Takahashi
Wataru Takeuchi
Masayuki Tamura
Bingxiang Tan
Shojiro Tanaka
Yuliya Tarabalka
Dario Tarchi
Ana Claudia Teodoro
Medhavy Thankappan
Werner Peter Thomas
Kurt Thome
Francesca Ticconi

Saibun Tjuatja
Mitsuhiro Tomosada
Hüseyin Topan
Konstantinos Topouzelis
Francesc Torres
Ramón Torres
Ridha Touzi
Ridha Touzi
Robert Treuhaft
Maria Tsakiri-Strati
Devis Tuia
Florence Tupin
Ahmet Serdar Turk
Yu-Chang Tzeng
Kalum Priyanath Udagepola
Silvia Liberata Ullo
Cem Unsalan
Kuniaki Uto
Caterina Valeo
Andrea Vallecchi
Mercedes Vall-llossera
Enric Valor
Jan Van Aardt
Sebastian van der Linden
Martin van Leeuwen
Gabriel Vasile
Sivakumar Venkataraman
Jan Verbesselt
Wouter Verhoef
Niko E.C. Verhoest
Eric Vermote
Frank Veroustraete
Ana Vidal-Pantaleoni
Stefano Vignudelli
Ivan Esteban Villalon Turrubiates
Massimo Vincini
Dejan Vinkovic
Gouravaram Viswanathan
Anthony Vodacek
Peter Voelger
Michele Volpi
Alexander Voronovich
Slobodan Vucetic
Wolgang Wagner
Hiroyuki Wakabayashi
Juliet Wallace
Ingo Walterscheid
Haipeng Wang
Jinfei Wang
Xi Li Wang
Yanting Wang
Yong Wang
Yuanyuan Wang
Bjoern Waske
Shimon Wdowinski
Matthias Weiß
David Weissman
Qihao Weng
James West
Joanne White
Jean-Pierre Wigneron
Thomas Wilheit
Mark Williams
Mengistu Wolde
Robert Wolfe
Joong Sun Won
Tim Wright
Jindong Wu
Xiangqian Wu
Xiaoxiong Xiong
Xiaolan Xu
Hiroyoshi Yamada
Yasushi Yamaguchi
Yoshio Yamaguchi
Fumio Yamazaki
Banghua Yan
Wai Yeung Yan
Bisheng Yang
Wenli Yang
Xiaohui Yang
Zhengwei Yang
Mehmet E Yavuz
Donghui Yi
Yonghong Yi
Chinatsu Yonezawa
Hiroki Yoshioka
Nicolas Younan
Marwan Younis
Qian Yu
Xiaolei Yu
Peng Yue
Simon Yueh
Valery Zavorotny
Howard Zebker
Bing Zhang
Chunhua Zhang
Junping Zhang
Keqi Zhang
Liangpei Zhang
Lifu Zhang
Xianfeng Zhang
Xin Zhang
Ying Zhang
Yun Zhang
Yongqiang Zhao
Guoqing Zhou
Hang Zhou
Ji Zhou
Jun Zhou
Zheng-Shu Zhou
Wenquan Zhu
Xiao Xiang Zhu
Manfred Zink
Simona Zoffoli
Weibao Zou
Mehrez Zribi

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

Date: Sunday, July 26
Time: 18:00 – 20:00
Location: Silver Plenary Room, Level +2
Cost: Included for delegates registered to attend on Sunday.

Welcome to the International Geoscience and Remote Sensing Symposium (IGARSS 2015)! Catch up on news from long-time colleagues and make new friends at the opening reception.

Young Professional Cocktail

Date: Monday, July 27
Time: 19:30 – 22:30
Location: Blend Tower, 11th floor – Piazza IV Novembre 7, Milano
Cost: Before May 29: €12
After May 29: €15
Link: http://www.blendtower.it/Milano

The Young professional (YP) cocktail is intended to provide an informal forum for YP, i.e. engineers/students up to fifteen years from the first degree, to interact with other YP and senior members in an informal setting. The cocktail will provide an opportunity to discuss potential career paths and skill sets beneficial to secure employment in the geosciences and remote sensing industries, as well as professional development opportunities.

This year the YP cocktail is hosted by Blend Tower, an innovative business center located between the Stazione Centrale (Train Central Station) and the Galia Hotel, in the heart of one of the most dynamic areas in Milan, Italy. Blend Tower is located to the eleventh floor of the building, a panoramic lounge area, exclusive location for meetings, conferences and fashion events. It is the ideal place for business lunches, dinner and important events.

Women in Geosciences, Remote Sensing and Engineering Luncheon

Date: Tuesday, July 28
Time: 12:10 –13:30
Location: Turquoise 2, Level –1
Cost: Before May 29: €17
After May 29: € 20

This is the fourth annual Women in Geosciences and Remote Sensing event at IGARSS. The luncheon is open by registration to women and men in all stages in their careers. The event will provide networking opportunities and a forum for discussion between participants.

Marina Ruggieri, IEEE Director & Delegate of Division IX, will be the featured speaker and will discuss networking.

Industry Student Lunch

Date: Wednesday, July 29
Time: 12:10 – 13:30
Location: Turquoise 2, Level –1
Cost: €12

The flagship event of the student program is a reception-style buffet luncheon that gives you the opportunity to make valuable connections with industry professionals and peers. Don't miss this opportunity to put your networking skills to good use.

Industry Participants

Altamira Information
e-GEOS
Enterprise Electronics Corporation (EEC)
European Space Agency
Google Earth Engine
Harris
MetaSensing
SI Imaging Services (SIIS)
Telespazio
TRE

IGARSS 2015 Soccer Tournament

Date: Wednesday, July 29
Schedule: 18:15 – 19:00 Walking transfer between the MiCo – Milano Congressi and the A.S. Masseroni Marchese sport center, Via Cristoforo Madruzzo 3.
19:00 – 23:00 Soccer games
Cost: €24 (for players)
Format: Mini World Cup (outdoors)

The IGARSS soccer tournament will be held at the A.S. Masseroni Marchese sport center, at 15min walking distance from the conference venue. Fees cover the cost of t-shirt, drinks, trophies, first aid support, referees, and health insurance for the participation to the tournament. There will be four teams, each team with a maximum of 15 players (11 on field and 4 on bench). There will be two semifinals. Winners of the two semifinals will play off in the final contest, the IGARSS World Cup, while the losers of the two semifinals will compete in the third place playoff.

Technical Committee and Chapter Chairs Dinner

Date: Wednesday, July 29
Time: 19:00 – 23:00
Location: Meliã Hotel – Via Masaccio 19, Milano
Cost: Before May 29: €30
After May 29: €35

Members of GRSS technical committees and GRSS Chapter Chairs and IGARSS delegates (and guests) are invited to learn more about our technical committees and chapters. This event provides a venue for discussion of GRSS activities accompanied by a fine meal. The award ceremony of the 2015 IEEE GRSS Data Fusion Contest will take place during this dinner.

Editors Luncheon

Date: Thursday, 30 July
Time: 12:10 – 13:30
Location: Turquoise 2, Level –1
Cost: By invitation

Symposium Awards Banquet

Date: Thursday, July 30
Time: 19:00 – 23:00
Location: Leonardo Gallery & Sala delle Colonne, Museo Nazionale della Scienza e della Tecnologia Leonardo da Vinci (National Museum of Science and Technology "Leonardo da Vinci") – Via San Vittore 21, Milano
Link: http://www.museoscienza.org/english/mustlocation/events/colonne.asp
Cost: Before May 29: €66
After May 29: €80

The IGARSS 2015 Awards Banquet will be held at the Museo Nazionale della Scienza e della Tecnologia Leonardo da Vinci.

Situated in the heart of Milan, this Museum is the largest Museum of Science and Technology in Italy, and one of the most important ones in Europe. The Museum hosts the largest collection of machines models in the world, realized basing on Leonardo da Vinci's drawings. The Award Banquet will be in the Sala delle Colonne, the antique library of the Olivetan monastery that now hosts the Museum, which is accessed from the Leonardo Gallery.

Please spread the word to other IGARSS 2015 participants, to encourage them to join us for the Award Banquet in the beautiful and extremely interesting Museo Nazionale della Scienza e della Tecnologia.

The Award Banquet doors open at 7:00 PM (19:00). A cocktail will be available at that time in the Leonardo Gallery.

Symposium Venue

MiCo Milano Congressi, North Wing
Via Gattamelata 5 (Gates 14 & 15)
20100 Milano
Information: +39 02 4997.7134
Reception: Tel +39 02 4997.6275
Fax +39 02 4801.0265
Link: http://www.micomilano.it/

Designed in 2002 and doubled in size in 2005, the current extension (2011) will place MiCo – Milano Congressi among the largest conference facilities in Europe and worldwide, accommodating up to 18,000 people in more than 70 fully appointed conference rooms with permanent control booths.

All of this in downtown Milan, with a parking lot for more than 1,100 cars, a heliport and direct access to Milan subway line 5.

MiCo – Milano Congressi is right in the centre of Milan, 4km from the Duomo and just 5 minutes from Leonardo's Last Supper.

Registration Desk

The registration desk is located on Level +1 near the main exhibit entrance.

Hours of operation:

Sunday, July 26	07:30 – 19:00
Monday, July 27	07:30 – 19:00
Tuesday, July 28	07:30 – 19:00
Wednesday, July 29	07:30 – 19:00
Thursday, July 30	07:30 – 19:00
Friday, July 31	07:30 – 18:00

Language

The official language of IGARSS 2015 is English and all presentations must be given in English. No simultaneous interpretation service will be provided.

In Case of Emergency at MiCo

For any emergency at MiCo call 0039 02 43427210.

Message board

Messages received by the Organizers for delegates will be posted on the message board located in front of the registration desk on Level +1. Messages between delegates may also be left on this board.

WiFi Internet

IGARSS 2015 is offering free wireless Internet access. To connect select "IGARSS2015" network. Network authentication requires that you provide a valid e-mail address.

Internet point

Internet point is available in the exhibition area. Delegates are welcome to use it at any time.

Mobile App

The IGARSS 2015 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.

Downloading the app is easy. Simply:

- Scan the QR Code (all device types)
- Search for IGARSS 2015 in the app store (Android and iOS)
- Type the following URL into your device's mobile browser: http://m.core-apps.com/igarss2015

Mobile Phones

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

Charge Bar

Free standing mobile and tablet chargers are available near the Yellow and Blue meeting rooms on Level +1 for quick recharge if you are running low on power.

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.

Please note that children are not permitted in the Congress area.

Receipt and Proof of Attendance

Registration receipt will be included in the participant kit.

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.

Smoking Policy

Italy government imposes a strict "no smoking" policy in public venues, restaurants, bars and shopping centres. MiCo is a smoke-free facility and no indoor smoking areas are provided.

Slide Center

Slide center is located on the right side near the registration desk on Level +1.

This room will be available for all presenters to upload their presentations with the assistance of the IT technician on duty.

Sunday, July 26 ..... 17:30 – 19:00
Monday, July 27..... 08:00 – 17:30
Tuesday, July 28 ..... 07:30 – 17:30
Wednesday, July 29..... 07:30 – 17:30
Thursday, July 30..... 07:30 – 17:30
Friday, July 31..... 07:30 – 17:30

All presenters are required to visit the slide center and provide their presentation on a USB key to the IT technician at least two hours prior to the start of their session. This will ensure that the technician has met with all presenters and that he/she is fully aware of your presentation requirements. All Speakers are expected to produce a PowerPoint (2007 or 2010 compatible) or PDF presentation. PCs will be available to make changes to the presentation.

If Speakers and Authors created their presentation using a system different from Microsoft Windows (such as Macintosh or Linux), they are kindly requested to provide presentations in a Windows compatible format and to come earlier at the Slide Centre in order to have time enough to solve possible compatibility issues.

In the Slide Centre, experienced technicians will assist speakers in transferring slides and making changes if needed.

Your collaboration is requested to ensure that all sessions run as smoothly as possible.

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 Hall: For security and courtesy reasons, recordings of any kind are prohibited unless one has explicit permission from on-site company representatives. Individuals not complying with this policy will be asked to stop their recording media and delete recorded material.

Exhibition

The exhibition takes place in the Congress venue, Level +1.

Exhibition opening hours are:

Monday, July 27..... 17:20 – 19:00
Tuesday, July 28 ..... 08:20 – 19:00
Wednesday, July 29..... 08:20 – 19:00
Thursday, July 30..... 08:20 – 16:00

Symposium Meeting Room

A meeting space is available for short (up to one hour), informal meetings. A booking sheet is available at the registration desk.

Prayer Room

A private space is available for praying or meditation at Level +1, behind room Red 2. The room is open during normal operating hours of the center.

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 2015 IEEE International Geoscience and Remote Sensing Symposium (IGARSS 2015), 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 2015 or related events.

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

Future IGARSS Symposia

- IGARSS 2016: July 10–15, Beijing, China
- IGARSS 2017: July 23–28, Fort Worth, Texas, USA
- IGARSS 2018: July 22–27, Valencia, Spain

Welcome to Milan

Milan boasts a very long history, it is believed to have been founded as far as 590 BC by the Insubri, a very antique Celtic population. Conquered by the Romans in 222 BC, "Mediolanum" became a strategic crossroads between Italy and the rest of the Roman Empire and a fundamental stronghold for Christianity. Milan still uses a specific Christian liturgy called Ambrosiana, from the famous Bishop Ambrogio, which is why Carnival is celebrated after the rest of Italy. In contemporary Milan, manufacture is kept in great account and the city is considered the financial capital of Italy. Famous for fashion, Milan possesses a subtle charme and can conquer those who have time and wish to discover its hidden treasures. Museums encompass antique and contemporary art, design, fashion, archeology and photography. Cultural life wheels around its theatres – one above all: la Scala –, and Universities, which are cultural

landmarks for all citizens who are interested in promoting culture over the boundaries of their town. The Duomo is the centre of day life: Milanese people love to meet under its steeples and enhance social life starting form there and the Vittorio Emanuele Gallery. Walking from Duomo to the Castle, you will be walking through the heart of town. When it comes to nightlife, Navigli and Brera are the areas you will wish to be. Milan is easily reachable from all around Europe both by plane and train. The public transportation system is one of the best in Italy with 4 underground lines and a fifth one under construction.

Transportation in Milan

Milan has an efficient public transportation system operated by Azienda Transporti Milanesi (ATM), which has a network of subway lines, above ground trams, and busses that run throughout the city. Information can be found here: http://www.atm.it/en/ViaggiaConNoi/Pages/default.aspx.

You can download the new official ATM Milano App on your smartphone, available also in English for Android, iOS and Windows Phone (version 8 onwards).

The App includes geo-localization service, quick access to frequently used functions, latest news and alerts on service's disruptions. The side menu on the left offers easy access to all available functions.

By Metro

Milan has a subway network that can get you near almost any location around the city. There are currently 4 active lines; MM1 Red, MM2 Green, and MM3 Yellow, and MM5 violet.

Tickets can be purchased at ATM authorized outlets found in the Milan area and intercity routes, or at ticket machines at underground stations.

By Tram

In addition to the subway lines ATM has several trams that travel throughout the city above ground offering a view of the city as a fun and convenient travel option. Tickets for the trams are the same as the metro lines and should be stamped or scanned upon entering the tram. Be sure to purchase your tickets before boarding a tram.

By Bus

There are some busses that are operated by ATM that can be ridden using an inter-urban ticket purchased at ATM authorized locations. Some ticket options will have distance limits so be aware of all the related rules before purchasing a ticket.

Services operate daily from 06:00–24:00.

Bus, tram, metro (M1 Red Line, M2 Green Line, M3 Yellow Line, M5 Violet Line) and the railway link all reach as far as the city's outskirts. All kinds of tickets are available to meet different needs: from a single ticket (€ 1,50, valid for 90 minutes from the time of validation, allowing one entry to the metro, railway or railway link), a 10-trip tickets (€ 13,80), day tickets (€ 4,50) and two-day tickets (€ 8,25).

Tickets can be purchased at ATM Point and at authorized retailers (bars, tobacco shops, stationers, newsagents) distributed throughout the city and along the trunk lines or at all metro stations by the self-service machines that accept coins, banknotes (Euro currency), credit cards, and debit cards.

Taxis

Taxis are white and can be hailed on the streets. It is better to hire them at taxi ranks outside train stations. Telephone booking is possible and run by cooperatives at the following numbers: +39 026767, +39 025353, +39 028585, +39 024040.

If you plan to extend your stay in Italy, do not forget that Milan is a gateway to the rest of the country.

Just some distances:

- Pavia: 35km south – 20 min by train
- Bologna: 216km south-east – 1 hour by high-speed train
- Lake Como: 50km north – 1 hour by train
- Florence: 307km south-east – 1.5 hour by high-speed train
- Rome: 476km south-east – 3 hours by high-speed train
- Venice: 244km east – 2.5 hours by high-speed train

By Bicycle

BikeMi is Milan's bike sharing program that allows people to rent a bike at stations scattered around the city. Weekly or daily subscriptions are available for purchase online or at ATM locations. Once you pick up a bike from a location ride it to your destination and drop it off at the nearest BikeMi terminal. For more information on this please go to the BikeMi website. https://www.bikemi.com/en/homepage.aspx.

Shopping

Opening hours: 09:30–13.00 and 15:30–19:30

Here's your recommended itinerary:

- Quadrilatero d'Oro (also known as Quadrilatero della Moda) is the collective name for the streets holding the greatest concentration of top designer studios, such as Montenapoleone, Della Spiga, Borgospesso, Sant'Andrea, Manzoni and Santo Spirito. Even if you're not planning to shop for high fashion, take a stroll down these streets to experience their unique chic atmosphere.
- Navigli is home to several noteworthy second-hand female shopping venues.
- Galleria Vittorio Emanuele, located between the Duomo and La Scala, is an original 19th-Century shopping mall that continues to impress as one of the city's most elegant landmarks.
- Corso Vittorio Emanuele II and Corso Buenos Aires are the place to visit for popular international labels.

Climate

The weather in Milan at the end of July is warm. Temperatures in July are generally 25-35 °C .

Time Zone

During July, time in Italy is Central European Summer Time (CEST), two hours ahead of Greenwich Mean Time (GMT+2).

Local Currency

Local currency in Italy is the Euro (€)

Electricity

Voltage is 220V AC, 50 Hz. Plugs have two or three round pins. Foreign voltage could require an adapter.

Emergency

In case of emergency please contact the staff at the registration desks.

Useful telephone numbers:

- Ambulance dial 118
- Police dial 113
- Fire Brigade dial 115
- Milan City Emergency Doctor Service dial +39 02 34567

Tipping

Service is usually included in the bills in bars and restaurants, but tips are welcome.

EXPO

EXPO MILANO 2015 "Feeding the planet, energy for life"

The Universal Exposition has only once been held in Italy, in 1906, and also then the host city was Milan. At that time, the theme was "transportation", celebrated by the inauguration of the Milan-Paris railway.

Expo 2015 is being held from 1 May to 31 October. This extraordinary event is attracting over 20 million visitors from all across the globe. The exhibition site, covering an area of 1 million square meters, is offering an important opportunity for discussion and dialogue, with specific insights on issues related to the use of drinking water and its availability, the quality and safety of food and the promotion of healthy lifestyles. Key topics for research and technological innovation in the food chain, with an emphasis on "dietary customs" and biological sustainability are addressed.

Over the 6 months, a number of activities are taking place, including shows, concerts and cultural events.

The site's structure draws its inspiration from the ancient Roman cities, based on two perpendicular axes, the Cardo and the Decumano, each overlooked by the exhibition halls.

For info:
http://www.expo2015.org/en/index.html?packedargs=op=changeLang

How to Reach the Exposition Site

By underground railway (metro)

To reach the Exposition Site by underground (metro), purchase an "extra-urbano" (extra-urban) ticket, and take MM1 Red line to Rho Fiera Milano metro station. The Duomo and Cadorna stations are both on the same metro line, where they connect to the city's other underground lines.

Travel time to the Expo Site is expected to be about 25 minutes from Piazza Duomo, 20 minutes from Stazione Cadorna, 35 minutes from Stazione Centrale, and 30 minutes from Stazione Garibaldi.

Once through the security checks, visitors cross the Expo-Fiera pedestrian footbridge (PEF) to reach the Expo Site. There are ticket booths and visitor services in the access area of the Rho Fiera Milano metro station.

By train (suburban and regional services):
To reach the Exposition Site by train, simply follow the signs for Rho Fiera Milano train station. Expected travel-time is about 19 minutes from Stazione Garibaldi.

By taxi
Taxis will drop passengers either at Merlata (South) or Roserio (East), which are a short walk to the security area.

For further information the web site is: www.expo2015.org

MilanoCard Full Service

Through an online platform, you can buy services and products at preferential prices and have access to a dedicated reservation system. The service includes discounts for public transportation, Expo 2015, over 20 top museums, restaurants, tours, shows, and other attractions.

You can access the service at www.milanocard.it/aim

Use the following password: aim123

Tours & Excursions

Tours and Excurions are available. More information is available at
http://www.findyouritaly.com/en/node/2157

Sunday, July 26 in the afternoon: Duomo and its Terrazze

You can't leave Milan without visiting its majestic Cathedral. The guide will introduce you the history of this gothic masterpiece, with its countless paintings, statues and stained glass windows. You will discover the unmissable anecdotes and legends hidden behind this beautiful church.

A city not only in horizontal runs, walking along the streets!

Every eye of the camera look up into the sky.

On this occasion we will be almost "suspended" on the Terraces of the Cathedral: an amazing walk between earth

and heaven discovering a different Milan and enjoying all the beauties from the top!

Monday, July 27 in the morning: Secret Milan and historical places

Visit "San Bernardino alle Ossa", the hidden crypt of "San Giovanni in Conca", and a Renaissance architectural masterpiece, the Church of "Santa Maria presso San Satiro".

Enjoy a 2.5-hour walking tour through Milan and discover some of its hidden treasures!

You'll visit out-of-the-way corners which many locals have never seen. Learn about "San Bernardino alle Ossa" and the meaning of its peculiar name.

During the tour you will also have the chance to visit the disappeared church of San Giovanni in Conca: located next to Missori Square, the crypt is hidden under the busy streets, just a few meters below ground, hidden by a red-brick wall with elegant Romanesque windows. As you get closer, a small staircase leading to the crypt of the vanished church will unexpectedly appear.

Afterwards you'll visit "Santa Maria presso San Satiro", located just a few steps away from the Duomo: built in 876 A.D., this architectural gem was later perfected by Bramante, commanding proportion and perspective into a masterpiece of Renaissance architecture.

Tuesday, July 28 in the morning: Milan City & Style Walking Tour

See the highlights of Milan, including the stunning façade of the Duomo from a unique vantage point and the elegant exterior of the world-famous La Scala opera house. Step into the magnificent Galleria di Vittorio Emanuele.

Take a walk through the famous fashion district - Il Quadrilatero della Moda - where the biggest number of designer brands are situated within the smallest area in the world.

See the outlandish group of stores of a famous designer with its hidden jewel, his personally designed shop where tailor-made suits are made to order.

Visit an important Fashion Institute, an actual designer's atelier plus a top designer's showroom normally closed to the general public. The tour concludes in a hidden concept store where you see the latest trends in fashion, browse through the design bookstore... and even make any irresistible purchases if you wish.

Tuesday, July 28 full day: Milan: Brera, Pinacoteca and Navigli

Full day guided visit to the Art Gallery and the Brera district, to Porta Ticinese and, finally, in the long canals (lunch not included).

Morning in Brera: visit the Pinacotheque and admire its treasures, then the ancient Biblioteque wanted by Maria Teresa d'Austria.

After a walk through the romantic area of Brera, with its river stones, the antiques shops and the eccentric fortune-tellers, and a stop by a beautiful lovely coffee shop, in the afternoon will visit the San Lorenzo Maggiore and Sant'Eustorgio churches (free time for lunch in between).

Walking by Corso di Porta Ticinese, an open-air museum of poetry and visual art, we will get to the Navigli, the ancient water ways of Milan, where we can discover the artists' ateliers and the Vicolo dei Lavandai, the city's fin-de-siecle face. Adviced a cold ice-cream stop in the surroundings.

Wednesday, July 29 in the afternoon: Last Supper and Sforza Castle

Skip-the-line admission to see Leonardo da Vinci's masterpiece, The Last Supper, and a guided tour of the Church of Santa Maria delle Grazie. You will also visit the Piazzale Cadorna, the Sforza Castle continue with the Arch and the great Sempione Park.

The itinerary starts with the visit of the Church of Santa Maria delle Grazie. After a short introduction, your guide will escort you inside the most famous refectory and you will discover the Leonardo Da Vinci's Last Supper.

Thursday, July 30 in the morning: Milan Gourmet Food Walk

Discover the fantastic world of Milanese food in this bustling city with your private English speaking guide.

First you will meet your guide in the center of Milan, near the Duomo. Together you will explore several different areas on foot, meandering in interesting streets and learning about the culinary culture of this important Italian city.

Your tour can be personalized to suit your tastes, and includes stops in gourmet shops and specialty stores with an explanation of the very top foodie products Milan has to offer. Your first stop is a charming cafe where you will learn about coffee culture and can begin by tasting a delicious cappuccino and breakfast pastry.

Next up perhaps a famous gelateria, where you can learn how to distinguish artisan gelato from the industrially produced variety. Now on to savory items in a salumi shop where you can learn about salt cured meats and perhaps taste some prosciutto. From here you can move on to a fish monger where you can taste both cooked and raw fish.

To finish, pull up a stool at the bar of the famous Campari shop, in the city of Milan where Campari was invented, or head to a local wine bar to sample some Franciacorta or other wines from the surrounding region.

If you are still hungry (which we doubt!) your guide is happy to make recommendations for a great lunch restaurant where you can taste local risotto!

Student Paper Competition

All IEEE student members were invited and encouraged to enter the IGARSS Student Paper Competition. Ten finalist have been selected by a committee to present their papers during a special session at the symposium in Milan, on Wednesday morning, July 29, in room Green 3, Level – 1. 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.

WE1.G3.1 IDENTIFYING AND RESOLVING A CALIBRATION ISSUE WITH GMI

John Xun Yang, Darren McKague, Christopher Ruf

WE1.G3.2 DOPSCAT: A MISSION CONCEPT FOR A DOPPLER WIND-SCATTEROMETER

Franco Fois, Peter Hoogeboom, François Le Chevalier, Ad Stoffelen

WE1.G3.3 VIBRATION ESTIMATION IN SAR IMAGES USING AZIMUTH TIME-FREQUENCY TRACKING AND A MATCHED SIGNAL TRANSFORM

Andrei Anghel, Gabriel Vasile, Cornel Ioana, Remus Cacoveanu, Silviu Ciochina

WE1.G3.4 DOWNSCALING MICROWAVE BRIGHTNESS TEMPERATURES USING SELF REGULARIZED REGRESSIVE MODELS

Subit Chakrabarti, Jasmeet Judge, Anand Rangarajan, Sanjay Ranka

WE1.G3.5 A UNIFIED FRAMEWORK FOR SPATIO-TEMPORAL-SPECTRAL FUSION OF REMOTE SENSING IMAGES

Xiangchao Meng, Huanfeng Shen, Liangpei Zhang, Qiangqiang Yuan, Huifang Li

WE2.G3.1 WEAKLY SUPERVISED ALIGNMENT OF MULTISENSOR IMAGES

Diego Marcos Gonzalez, Gustau Camps-Valls, Devis Tuia

WE2.G3.2 EFFICIENT SUPERPIXEL-ORIENTED MULTI-TASK JOINT SPARSE REPRESENTATION CLASSIFICATION FOR HYPERSPECTRAL IMAGERY

Jiayi Li, Hongyan Zhang, Liangpei Zhang

WE2.G3.3 REMOTE SENSING IMAGE CLASSIFICATION BASED ON MULTIPLE MORPHOLOGICAL COMPONENT ANALYSIS

Xiang Xu, Jun Li, Mauro Dalla Mura

WE2.G3.4 SUPERVISED HYPERSPECTRAL IMAGE CLASSIFICATION WITH REJECTION

Filipe Condessa, José Bioucas-Dias, Jelena Kovacevic

WE2.G3.5 AUTOMATIC MORPHOLOGICAL ATTRIBUTE PROFILES

Gabriele Cavallaro, Mauro Dalla Mura, Nicola Falco, Jon Atli Benediktsson

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 committee meetings open to all IGARSS participants. The following is a list of current technical committees, brief statements of interest, special sessions and their meetings at IGARSS 2015.

Earth Science Informatics

The mission of the ESI TC is to advance the application of informatics to geosciences and remote sensing and to provide a platform for ESI professionals to collaborate. The ESI fields of interest include: data and information policies, stewardship, preservation, provenance and quality; knowledge representation, information models for spatial and temporal relationships; cyberinfrastructure, interoperability, standardization, web service, sensor web and cloud computing; tools for improving data discovery, access, visualization and analysis; and emerging information technologies trends.

ESI TC Session: Why Data Matters: Value of Stewardship and Knowledge Augmentation Services, Tuesday, Yellow 2, Level +1, 13:30 – 17:20

ESI TC Meeting: Tuesday, Yellow 2, Level +1, 17:30 – 18:30

Frequency Allocations in Remote Sensing

The FARS TC mission is to interface between the GRSS membership and the frequency regulatory process through educating the membership of current frequency management issues and influencing regulatory efforts by organizing a GRSS response. FARS TC coordinates GRSS technical recommendations and responses to regulatory organizations such as the U.S. CORF, ITU etc. FARS TC also tracks current and future user spectrum requirements, investigate potential interference issues and promote the development of interference mitigation techniques.

FARS TC Session: RFI in Microwave Remote Sensing: Observations and Management Techniques, Monday, Green 3, Level –1, 13:30 – 17:20

FARS TC Meeting: Monday, Green 3, Level –1, 17:30 – 18:30

Image Analysis and Data Fusion

The IADF TC serves as a global and multidisciplinary network for researchers and professionals active in the fields of geospatial data fusion and multimodal remote sensing image analysis. IADF TC aims at connecting people and resources, to reach students and senior scientists, and promote standards and best practices for remote sensing image analysis.

IADF TC Session: Data Fusion, Wednesday, Red 2, Level +1, 13:30 – 17:20

IADF TC Session: IEEE GRSS Data Fusion Contest, Thursday, Blue 2, Level +1, 13:30 – 15:10

IADF TC Meeting: Wednesday, Red 2, Level +1, 17:30 – 18:30

Instrumentation and Future Technologies

The IFT TC vision statement is to foster international cooperation in advancing the state-of the-art in geoscience remote sensing instrumentation and technologies to improve knowledge for the betterment of society and the global environment. The aim 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; Recognize enabling technologies for future instruments; and Promote and provide insight to institutions and industry on remote sensing instrument and technology development.

IFT TC Active Microwave Session: Digital Beamforming SAR Systems and MIMO Techniques, Monday, Blue 2, Level +1, 13:30 – 17:20

IFT TC Active Optical: Space Lidar: Missions, Technologies and Observations, Thursday, Blue 1, Level +1, 08:20 – 12:10

IFT TC Small Satellite Session: Earth Remote Sensing with Small Satellites – Missions and Technology Developments, Thursday, Red 1, Level +1, 13:30 – 17:20

IFT TC GNSS and Signals of Opportunity Session: Innovative Approaches to GNSS+R: Instruments and Techniques, Friday, Green 2, Level –1, 08:20 – 12:10

IFT TC Meeting: Monday, Blue 2, Level +1, 17:30 – 18:30

International Spaceborne Imaging Spectroscopy

The International Spaceborne Imaging Spectroscopy Technical Committee (ISIS TC) provides a forum for technical and programmatic discussion and consultation among national space agencies, research institutions and other stakeholders in land surface and coastal zone oriented imaging spectroscopy. The main goal of the ISIS TC is to share information on current and future spaceborne imaging spectroscopy (hyperspectral) missions with a focus on land surface and coastal zone research. The group intends to foster the discussion between geo-scientific research groups, technology oriented and institutional Earth observation stakeholders. It seeks opportunities for new international partnerships to the benefit of the global user community. Specific discussions within the technical committee also focus on interoperability among missions, 'best practice' mission implementation, mass data management challenges, calibration and validation, and development of a forward work plan for improved coordination amongst member agencies.

ISIS TC Session: International Spaceborne Imaging Spectroscopy Missions: Updates and News, Tuesday, Blue 1, Level +1, 13:30 – 17:20

ISIS TC Session: Calibration and Validation, Inter-Calibration and Coming to Terms with Terminology, Wednesday, Blue 1, Level +1, 08:20 – 12:10

ISIS TC Meeting: Tuesday, Blue 1, Level +1, 17:30 – 18:30

NOTE: The Technical Committee meetings are open to all IGARSS participants. All are invited to learn more about their activities.

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

Technical Events & Seminars

Synthesizing Environmental Information: A New Community Created by IEEE Division IX

Speakers:

Division IX: Marina Ruggieri (Director)
AES and SPS: Sabrina Maria Greco (Division IX activities representative)
OE: René Garello (President)
GRS: Adriano Camps (Executive Vice President)

Audience: Open to all
Date: Monday, July 27
Time: 17:30 – 19:00
Room: Yellow 1, Level +1

ESA Press Event on Copernicus Sentinel 2 First Results

This event is organised jointly by the European Commission and ESA to present an update of the Sentinel 2A European Copernicus mission and first examples of images acquired in the first month of operations of the satellite. Key international and European users will present their plans for using Sentinel 2 data in the various fields of applications including agriculture, land forestry, wetlands , glaciers and Coastal and Inland waters.

Audience: Press. The event is open to all
Date: Monday, July 27
Time: 17:30 – 19:30
Room: Red 1, Level +1

A Strategy for Active Remote Sensing Amid Increased Demand for Spectrum

Speaker: Michael W. Spencer (with contributions from Fawwaz T. Ulaby, W. Linwood Jones, David B. Lang).

In 2011, and again in 2013, President Obama issued a directive to US Government agencies to identify 500 MHz of the radio spectrum for possible reallocation to the wireless industry. Such a reallocation poses a potential threat to active sensing (satellite SAR, altimeters and scatterometers, as well as radar astronomy and ionospheric radars). Prompted by NASA, the National Research Council established The Committee on Active Sensing to (a) document the societal and environmental contributions of active sensing, (b) evaluate the recent rise in radio frequency interference (RFI) and (c) offer recommendations to US Government agencies. This presentation is a summary of the recommendations issued by the Committee to Government agencies, the scientific community, and the wireless telecommunication industry.

Audience: Open to all
Date: Tuesday, July 28
Time: 17:30 – 18:30
Room: Red 1, Level +1

L-Band Inter-Comparison Working Group Meeting

Chair: David Le Vine

Co-chairs: Gary Lagerloef, Yann Kerr, Jordi Font and M. Portabella

The focus of this working group is to identify an approach for inter-comparison of data from the three L-band sensors SMOS, AQUARIUS and SMAP leading to merged data sets. This will include definition of techniques and reference sites to be used for this purpose. Initially, some issues fundamental to the understanding of L-Band remote sensing, such as sensor calibration, need to be addressed. In the long run this working group aims toward merged and validated data products using commonly agreed upon standards. It will need to be decided at what level the merging of data should occur (i.e. brightness temperatures or science products such as soil moisture and ocean salinity).

Audience: Open to all
Date: Wednesday, July 29
Time: 17:30 – 19:00
Location: Green 3, Level –1

Research Executive Agency (REA) European Commisson Seminars

Opportunities for EU Funding in H2020 for researchers: The "Marie Skłodowska-Curie Actions"

Speaker: Klaus-Günther Barthel -Research Executive Agency

This presentation will introduce the opportunities, which the EU-funded Marie Skłodowska-Curie Actions offer to researchers of all stages to spend some time abroad (Europe and beyond) in order to carry out ground-breaking research. It will guide the audience through the three ways of participating: (i) by applying directly to a vacancy in a project, (ii) by applying for an individual fellowship or (iii) by joining a consortium of European Researchers to exchange staff between different countries and/or sectors (academic and private).

Audience: individual researchers of all stages
Date: Thursday, July 30
Time: 17:30 – 18:30
Location: Yellow 1, Level +1

Opportunities for EU Funding in H2020 for the remote sensing community

Speakers: Virginia Puzzolo / Thierry Brefort - Research Executive Agency

This presentation will introduce the European funding opportunities in the Horizon 2020 programme relevant for the remote sensing community to develop innovative technologies and operational concepts 'from idea to demonstration', using earth observation data for scientific, public or commercial purposes. It will inform the audience about the upcoming calls and rules for applicants on the part of Horizon 2020 focusing on Space Research – Earth Observation, Societal Challenge 7 relating to secure societies and the opportunities for the development of Future and Emerging Technologies.

Audience: Research entities and industrial players
Date: Thursday, July 30
Time: 17:30 – 18:30
Location: Yellow 3, Level +1

Tutorials

Full Day Tutorials

Sunday, July 26, 08:30 - 17:30

FD-01: From Patch Similarity to Nonlocal Processing: Patch-based Methods & Applications in Remote Sensing
Florence Tupin, Charles Deledalle, and Loïc Denis
Location: Green 1, Level –1

FD-02: Planetary-scale Geospatial Analysis with Google Earth Engine
Dave Thau, Tyler Erickson, and Noel Gorelick
Location: Green 2, Level –1

FD-03: Recent Advances in Machine Learning and Signal Processing for Remote Sensing Data Analysis
Gustau Camps-Valls and Devis Tuia
Location: Green 3, Level –1

FD-04: Remote Sensing with Reflected Global Navigation Satellite System (GNSS-R) Signals
James L Garrison, Adriano Camps, and Estel Cardellach
Location: Orange 1, Level –1

FD-05: SAR Polarimetry: Basics, Processing Techniques and Applications
Eric Pottier and Carlos Lopez-Martinez
Location: Orange 2, Level –1

Half Day Tutorials

Sunday, July 26, 08:30 - 12:30

HD-04: From SAR Interferometry to 3D/4D Tomography: Basics and Applications
Fabrizio Lombardini and Matthias Weiss
Location:Orange 3, Level –1

HD-05: Hyperspectral Imaging Remote Sensing
Ronald Lockwood, Dimitris Manolakis, and Thomas Cooley
Location: Turquoise 1, Level –1

HD-08: On the Acceleration of Hyperspectral Image Unmixing and Compression for Time-critical Applications
Sebastian Lopez and Lucana Santos
Location: White 1, Level +2

Sunday, July 26, 13:30 - 17:30

HD-01: Advances on Signal and Image Processing for Remote Sensing
Chi Hau Chen
Location: Orange 3, Level –1

HD-02: Analysis of Remote Sensing Images using Mathematical Morphology
Mauro Dalla Mura and Jocelyn Chanussot
Location: Turquoise 1, Level –1

HD-03: Big Data from Earth Observation: Analytics, Mining, Semantics
Mihai Datcu
Location: Turquoise 2, Level –1

HD-06: Inverse Problems in Hyperspectral Imaging: Denoising, Fusion, and Compressive Acquisition
José Bioucas-Dias
Location: White 1, Level +2

HD-10: Vegetation Biomass Estimate at Both Local and Global Scale with Microwave Sensors
Simonetta Paloscia and Emanuele Santi
Location: White 2 , Level +2

IGARSS 2015 TECHNICAL PROGRAM

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 a computer in the Slide Center at least two hours prior to the session start. This will ensure that the technician has met with all presenters and that he/she is fully aware of your presentation requirements. All Speakers are expected to produce a PowerPoint (2007 or 2010 compatible) or PDF presentation. PCs will be available to make changes to the presentation. If speakers and authors created their presentation using a system different from Microsoft Windows (such as Macintosh or Linux), they are kindly requested to provide presentations in a Windows compatible format and to come earlier at the Slide Centre in order to have time enough to solve possible compatibility issues. In the Slide Centre, experienced technicians will assist Speakers in transferring slides and making changes if needed. Presentations will be uploaded from the Slide Centre to the respective session rooms.

The Slide Center is located on the right side of the main entrance of exhibition hall on Level +1, near the registration desk. This room will be available for all presenters to upload their presentations with the audio visual technician. This area will be staffed by a technician and will be open during the following times:

Sunday, July 26 ..... 17:30 – 19:00
Monday, July 27..... 08:00 –17:30
Tuesday, July 28 ..... 07:30 – 17:30
Wednesday, July 29..... 07:30 – 17:30
Thursday, July 30..... 07:30 – 17:30
Friday, July 31..... 07:30 – 17:30

Presentations from personal laptops are not allowed, to ensure smooth running of the program and to minimize transition time between presentations. Your collaboration is requested to ensure that all sessions run as smoothly as possible.

Guidelines for Poster Presenters

For each paper accepted within a poster session, a poster board is reserved with dimensions 958mm (38 in.) wide and 2380mm (94 in.) tall. Your poster must fit within a dimension of 958mm (38 in.) wide and 2380mm (94 in.) tall. The poster area is located in the exhibition room, MiCo North Wing, Level +1. Posters shall be on display during the day dedicated to the specific poster session. 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 from 17:20 to 19:00 and are invited to put up their posters in the morning so that attendees may browse them during the breaks throughout the day. 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!

Paper Identifiers

Example:	TU	4	.	G2	.	4
Meaning:	**Day**	**Time Block**	**Separator**	**Room**	**Separator**	**Sequence**

Day

MO ..... Monday, July 27
TU ..... Tuesday, July 28
WE ..... Wednesday, July 29
TH ..... Thursday, July 30
FR ..... Friday, July 31

Time Block

1 ..... First Morning Session ..... 08:20 - 10:00
2 ..... Second Morning Session ..... 10:30 - 12:10
3 ..... First Afternoon Session ..... 13:30 - 15:10
4 ..... Second Afternoon Session ..... 15:40 - 17:20
P ..... Evening Poster Session ..... 17:20 - 19:00

Room

All technical program events are held in the MiCo, North Wing.

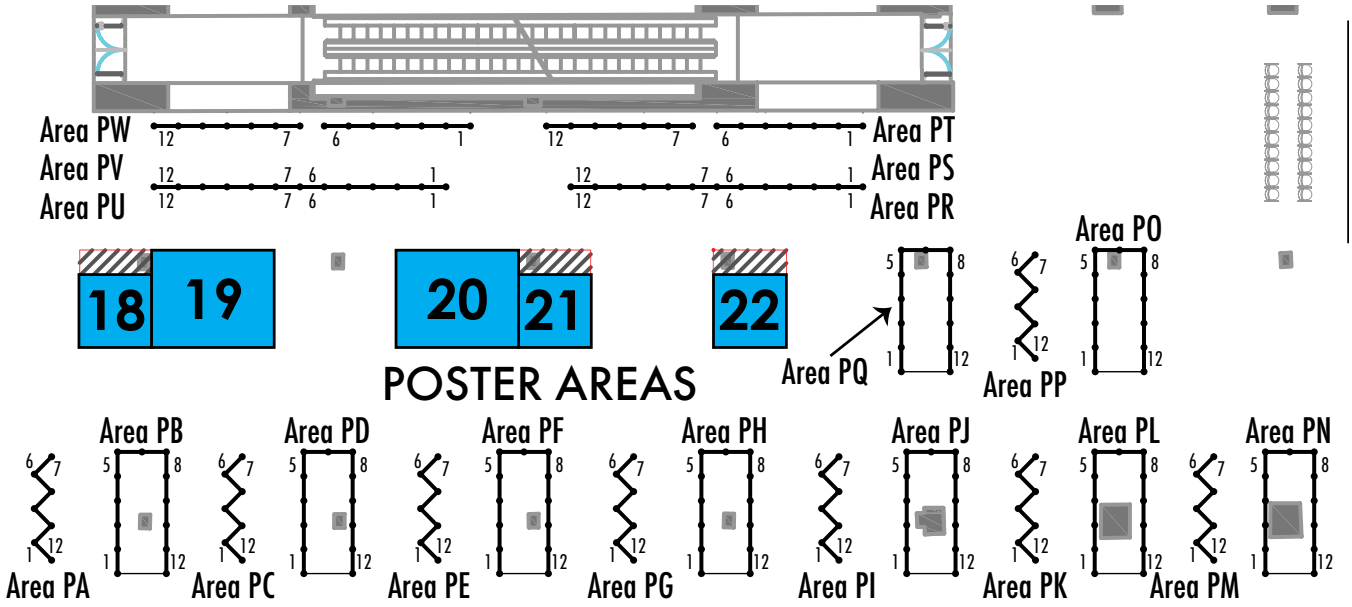
B1	Blue 1
B2	Blue 2
G1	Green 1
G2	Green 2
G3	Green 3
R1	Red 1
R2	Red 2

Y1	Yellow 1
Y2	Yellow 2
Y3	Yellow 3
W1	White 1
W2	White 2
PA–PW	Poster Areas A through W

Sequence

Oral ..... Order of presentation.
Poster ..... Board number (Complete poster board identifier is the Room plus the Sequence.)

Poster Area Detail



Monday, July 27 | 13:30 - 15:10 | White 1
Session MO3.W1 | Oral

Estimation and Regression Techniques

Session Co-Chairs: Jose Bioucas-Dias, Telecommunications Institute, Instituto Superior Tecnico; Björn Waske, Freie Universität Berlin

MO3.W1.1 13:30 **MULTI-ANGLE APPROACH FOR COHERENT RETRIEVAL OF SURFACE REFLECTANCE AND AEROSOL OPTICAL DEPTH FROM CRISM OBSERVATIONS**
Sylvain Douté, Université Grenoble Alpes, France; Xavier Ceamanos, ONERA, The French Aerospace Lab, France

MO3.W1.2 13:50 **ESTIMATION THEORETIC METHODS FOR CUBESAT DATA INTERPOLATION IN THE PRESENCE OF GEOLOCATION ERRORS**
Weitong Ruan, Tufts University, United States; Adam Milstein, William Blackwell, MIT Lincoln Laboratory, United States; Eric L. Miller, Tufts University, United States

MO3.W1.3 14:10 **SEMI-SUPERVISED HYPERSPECTRAL MANIFOLD LEARNING FOR REGRESSION**
Kuniaki Uto, Yukio Kosugi, Genya Saito, Tokyo Institute of Technology, Japan

MO3.W1.4 14:30 **BIOPHYSICAL PARAMETER RETRIEVAL WITH WARPED GAUSSIAN PROCESSES**
Jordi Muñoz-Marí, Jochem Verrelst, Universitat de València, Spain; Miguel Lázaro-Gredilla, Vicarious.com, United States; Gustau Camps-Valls, Universitat de València, Spain

MO3.W1.5 14:50 **LARGE-SCALE RANDOM FEATURES FOR KERNEL REGRESSION**
Valero Laparra, Universitat de València, Spain; Diego Marcos Gonzalez, Devis Tuia, University of Zurich, Swaziland; Gustau Camps-Valls, Universitat de València, Spain

Monday, July 27 | 13:30 - 15:10 | White 2
Session MO3.W2 | Oral

Pansharpening Techniques

Session Co-Chairs: Andrea Garzelli, University of Siena; Prashanth Marpu, Masdar Institute of Science and Technology

MO3.W2.1 13:30 **MODEL BASED PANSHARPENING METHOD BASED ON TV AND MTF DEBLURRING**
Frosti Palsson, Johannes R. Sveinsson, Magnus O. Ulfarsson, Jón Atli Benediktsson, University of Iceland, Iceland

MO3.W2.2 13:50 **COMPARISON OF NINE HYPERSPECTRAL PANSHARPENING METHODS**
Laëtitia Loncan, GIPSA-LAB/ONERA, France; Luis B. Almeida, José M. Bioucas-Dias, Instituto Superior Técnico, Portugal; Xavier Briottet, ONERA, France; Jocelyn Chanussot, GIPSA-LAB, France; Nicolas Dobigeon, ENSEEIHT University of Toulouse, France; Sophie Fabre, ONERA, France; Wenzhi Liao, Ghent University, Belgium; Giorgio Antonino Licciardi, Miguel Simoes, GIPSA-LAB, France; Jean Yves Tourneret, ENSEEIHT University of Toulouse, France; Miguel Angel Veganzones, GIPSA-LAB, France; Gemine Vivone, NATO/Science and Technology Organisation (STO)/Centre for Maritime Research and Experimentation (CMRE), Italy; Qi Wei, ENSEEIHT University of Toulouse, France; Naoto Yokoya, University of Tokyo, Japan

MO3.W2.3 14:10 **GLOBAL AND LOCAL GRAM-SCHMIDT METHODS FOR HYPERSPECTRAL PANSHARPENING**
Mauro Dalla Mura, Grenoble Institute of Technology, France; Gemine Vivone, North Atlantic Treaty Organization (NATO), Italy; Rocco Restaino, Paolo Addesso, University of Salerno, Italy; Jocelyn Chanussot, Grenoble Institute of Technology, France

MO3.W2.4 14:30 **MULTI-BAND SEMIBLIND DECONVOLUTION FOR PANSHARPENING APPLICATIONS**
Gemine Vivone, North Atlantic Treaty Organization (NATO) Science and Technology Organization (STO) Center for Maritime Research and Experimentation (CMRE), Italy; Rocco Restaino, University of Salerno, Italy; Mauro Dalla Mura, Jocelyn Chanussot, Grenoble Institute of Technology, France

MO3.W2.5 14:50 **RESOLUTION ENHANCEMENT OF HYPERSPECTRAL IMAGES USING DISTORTION OPTIMIZATION**
Tong Li, Junping Zhang, Xi Chen, Harbin Institute of Technology, China

Monday, July 27 | 15:40 - 17:20 | White 1
Session MO4.W1 | Oral

Estmation and Regression Products

Session Co-Chairs: Melba Crawford, Purdue University; Prashanth Marpu, Masdar Institute of Science and Technology

MO4.W1.1 15:40 **BAYESIAN COMBINED ACTIVE/PASSIVE (B-CAP) SOIL MOISTURE RETRIEVAL ALGORITHM: A RIGOROUS RETRIEVAL SCHEME FOR SMAP MISSION**
Matias Barber, Cintia Bruscantini, Francisco Grings, Haydee Karszenbaum, Institute for Astronomy and Space Physics, Argentina

MO4.W1.2 16:00 **MULTI-ALGORITHM ENSEMBLE APPROACH FOR PRODUCING THE PHASE-II GLOBAL LAND SURFACE SATELLITE (GLASS) PRODUCTS**
Shunlin Liang, University of Maryland, United States

MO4.W1.3 16:20 **ESTIMATION OF DAILY NET SURFACE SHORTWAVE RADIATION FROM MODIS DATA**
Bo-Hui Tang, Zhao-Liang Li, Hua Wu, Ronglin Tang, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, China

MO4.W1.4 16:40 **DEVELOPMENT OF AN EARTH OBSERVATION PROCESSING CHAIN FOR CROP BIO-PHYSICAL PARAMETERS AT LOCAL SCALE**
Manuel Campos-Taberner, Francisco Javier García-Haro, Álvaro Moreno, María Amparo Gilabert, Beatriz Martínez, Sergio Sánchez-Ruiz, Universitat de València, Spain; Gustau Camps-Valls, Image Processing Laboratory, Spain

MO4.W1.5 17:00 **PREDICTION OF SOIL CLAY CONTENT ON AN AIRBORNE HYPERSPECTRAL IMAGE BY TRANSFERRING THE CALIBRATION MODELS CONSTRUCTED IN THE LABORATORY**
Maroua Nouri, Institut national de recherche en sciences et technologies pour l'environnement et l'agriculture, France; Cecile Gomez, Institut de Recherche pour le Développement, France; Nathalie Gorretta, Jean Michel Roger, Institut national de recherche en sciences et technologies pour l'environnement et l'agriculture, France

Monday, July 27 | 15:40 - 17:20 | White 2
Session MO4.W2 | Oral

Analysis and Fusion of LiDAR data

Session Co-Chairs: Lorenzo Bruzzone, University of Trento; Antonio Plaza, University of Extremadura

MO4.W2.1 15:40 **A PRECISE ESTIMATION OF THE 3D STRUCTURE OF THE FOREST BASED ON THE FUSION OF AIRBORNE AND TERRESTRIAL LIDAR DATA**
Claudia Paris, University of Trento, Italy; Dave Kelbe, Jan van Aardt, Rochester Institute of Technology, United States; Lorenzo Bruzzone, University of Trento, Italy

MO4.W2.2 16:00 **SEMI-SUPERVISED GRAPH FUSION OF HYPERSPECTRAL AND LIDAR DATA FOR CLASSIFICATION**
Wenzhi Liao, Ghent University, Belgium; Junshi Xia, University of Bordeaux, France; Peijun Du, Nanjing University, China; Wilfried Philips, Ghent University, Belgium

MO4.W2.3 16:20 **HYPERSPECTRAL AND LIDAR DATA INTEGRATION AND CLASSIFICATION**
Maria Angeles Garcia Sopo, Aurora Cuartero, Pablo Garcia Rodriguez, Antonio Plaza, University of Extremadura, Spain

MO4.W2.4 16:40 **FUSION OF HYPERSPECTRAL AND LIDAR DATA USING GENERALIZED COMPOSITE KERNELS: A CASE STUDY IN EXTREMADURA, SPAIN**
Mahdi Khodadadzadeh, Aurora Cuartero, University of Extremadura, Spain; Jun Li, Sun Yat-Sen University, China; Angel Felicisimo, Antonio Plaza, University of Extremadura, Spain

MO4.W2.5 17:00 **A HIERARCHICAL APPROACH TO THE SEGMENTATION OF SINGLE DOMINANT AND DOMINATED TREES IN FOREST AREAS BY USING HIGH-DENSITY LIDAR DATA**
Claudia Paris, Davide Valduga, Lorenzo Bruzzone, University of Trento, Italy

Monday, July 27 13:30 - 15:10 Green 1
Session MO3.G1 Oral

Land Use I

Session Co-Chairs: Riadh Abdelfattah, Ecole Superieure des Communications; Piero Boccardo, Politecnico di Torino

MO3.G1.1 13:30 **UNSUPERVISED LAND-COVER CLASSIFICATION THROUGH HYPER-HEURISTIC-BASED HARMONY SEARCH**
Joao Papa, São Paulo State University, Brazil; Luciene Papa, Paulista School Southwest, Brazil; Rodrigo Pisani, Danillo Pereira, University of Western Sao Paulo, Brazil

MO3.G1.2 13:50 **URBAN IMPACTS ON AIR QUALITY OBSERVED WITH REMOTE SENSING AND GROUND STATION DATA FROM THE PO PLAIN FIELD CAMPAIGN**
Stefania Stevenazzi, Università degli Studi di Milano, Italy; Son V. Nghiem, Jet Propulsion Laboratory, California Institute of Technology, United States; Marco Masetti, Università degli Studi di Milano, Italy

MO3.G1.3 14:10 **LAND-COVER CLASSIFICATION THROUGH SEQUENTIAL LEARNING-BASED OPTIMUM-PATH FOREST**
Danillo Pereira, Rodrigo Pisani, University of Western Sao Paulo, Brazil; Rodrigo Nakamura, Big Data Brasil, Brazil; Joao Papa, São Paulo State University, Brazil

MO3.G1.4 14:30 **HYSPIRI FOR ENERGY AND MINERAL RESOURCE EXPLORATION, APPLICATIONS, AND IMPACTS**
Wendy Calvin, Elizabeth Pace, Gwendolyn Davies, Neil Pearson, University of Nevada - Reno, United States

MO3.G1.5 14:50 **GLOBAL MEGA URBANIZATION AND IMPACTS IN THE 2000S**
Son V. Nghiem, Jet Propulsion Laboratory, California Institute of Technology, United States

Monday, July 27 13:30 - 15:10 Green 2
Session MO3.G2 Oral

Ocean Biology I

Session Co-Chairs: Bo-Cai Gao, Naval Research Laboratory; Ronan Fablet, Telecom Bretagne

MO3.G2.1 13:30 **HICO L1 AND L2 DATA PROCESSING: RADIOMETRIC RECALIBRATION, ATMOSPHERIC CORRECTION AND RETRIEVAL OF WATER QUALITY PARAMETERS**
Jorge Vicent, Neus Sabater, Carolina Tenjo, Antonio Ruiz-Verdú, Jesús Delegido, Ramón Peña-Martínez, Jose Moreno, University of Valencia, Spain

MO3.G2.2 13:50 **REMOTE SENSING OF SURFACE OCEAN PH EXPLOITING SEA SURFACE SALINITY SATELLITE OBSERVATIONS**
Roberto Sabia, Telespazio-Vega UK Ltd for European Space Agency (ESA), Netherlands; Diego Fernández-Prieto, European Space Agency (ESA), Italy; Jamie Shutler, University of Exeter, United Kingdom; Craig Donlon, European Space Agency (ESA), Netherlands; Peter Land, PML, United Kingdom; Nicolas Reul, IFREMER, France

MO3.G2.3 14:10 **STRAY LIGHT CORRECTION OF TRIOS RAMSES HYPERSPECTRAL RADIOMETERS. EFFECTS ON THE ACCURACY OF ABOVE-WATER MEASUREMENTS.**
Marco Talone, Institute for Environment and Sustainability - IES-JRC, Italy; Ilmar Ansko, Tartu Observatory, Estonia; Giuseppe Zibordi, Andrew Clive Banks, Institute for Environment and Sustainability - IES-JRC, Italy

MO3.G2.4 14:30 **LOW-ALTITUDE REMOTE SENSING PLATFORM FOR ESTIMATING SUSPENDED SEDIMENT CONCENTRATION IN TROPICAL CLOUDY ENVIRONMENT**
Fangli Zhang, Qiming Zhou, Hong Kong Baptist University, Hong Kong SAR of China

MO3.G2.5 14:50 **ANGULAR VARIATION OF PARAMETERS RELATING PARTICULATE SCATTERING AND REMOTE-SENSING REFLECTANCE**
Chew Wai Chang, Soo Chin Liew, National University of Singapore, Singapore

Monday, July 27 15:40 - 17:20 Green 1
Session MO4.G1 Oral

Land Use II

Session Co-Chairs: Piero Boccardo, Politecnico di Torino; Fabio Del Frate, Univ. Rome "Tor Vergata"

MO4.G1.1 15:40 **VALIDATION OF FY-3B SATELLITE TEMPERATURE PRODUCT**
Huiyu Li, Yan Chen, University of Electronic Science and Technology of China, China; Wenzhu He, Sichuan Academy of Agricultural Sciences, China; Ling Tong, University of Electronic Science and Technology of China, China; Yongxing Cao, Electric Power Research Institute of Sichuan,Chengdu, China, China; Zhihang Xue, Electric Power Research Institute of Sichuan, Chengdu, China, China; Yunping Chen, University of Electronic Science and Technology of China, China

MO4.G1.2 16:00 **EVALUATION OF HIGH SPATIAL RESOLUTION BRDF-ADJUSTMENTS TECHNIQUES USING MULTI-ANGULAR SPOT4 (TAKE5) ACQUISITIONS**
Martin Claverie, Eric Vermote, Belen Franch, NASA Goddard Space Flight Center, United States; Mohamed Kadiri, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Jeff Masek, NASA Goddard Space Flight Center, United States

MO4.G1.3 16:20 **MONITORING LULC DYNAMICS IN THE SAO PAULO REGION THROUGH LANDSAT AND C-BAND SAR TIME SERIES**
Lorenzo Iannini, Ramses Molijn, Alijafar Mousivand, Ramon Hanssen, Delft University of Technology, Netherlands

MO4.G1.4 16:40 **EXTRACTION OF LAND COVER FROM ZY-3 IMAGERY USING ONTOLOGY-BASED METHOD**
Lin Li, Heng Luo, Xi Kuai, Wuhan University, China; Zhijun Zhang, Tianjin Institute of Surveying and Mapping, China; Haihong Zhu, Wuhan University, China

MO4.G1.5 17:00 **COSMO-SKYMED VERY SHORT REPEAT-PASS SAR INTERFEROMETRY OVER RURAL AREAS: THE VAL D'AGRI AND POTENZA TEST CASES IN BASILICATA, ITALY**
Pietro Milillo, University of Basilicata, Italy; Daniele Perissin, Purdue University, United States; Paul Lundgren, California Institute of Technology, United States; Carmine Serio, University of Basilicata, Italy

Monday, July 27 15:40 - 17:20 Green 2
Session MO4.G2 Oral

Ocean Temperature and Salinity I

Session Co-Chairs: Roberto Sabia, European Space Agency; Wenqing Tang, NASA Jet Propulsion Laboratory

MO4.G2.1 15:40 **PRODUCTS AND SERVICES AT CP34-BEC IN BARCELONA**
Antonio Turiel, Justino Martinez, ICM/CSIC, Spain; María Piles, Universitat Politècnica de Catalunya, Spain; Joaquim Ballabrera-Poy, Estrella Olmedo, Marta Umbert, Verónica González-Gambau, Marcos Portabella, Carolina Gabarro, Fernando Perez, Jordi Isern-Fontanet, Nina Hoareau, Jordi Font, ICM/CSIC, Spain

MO4.G2.2 16:00 **SEA SURFACE SALINITY VARIABILITY IN THE TROPICAL/SUBTROPICAL ATLANTIC FROM SMOS AND ITS LINK TO FRESHWATER FLUXES**
Eleni Tzortzi, Simon Josey, Christine Gommenginger, Meric Srokosz, National Oceanography Centre Southampton, United Kingdom

MO4.G2.3 16:20 **NEAR-SURFACE SALINITY STRATIFICATION OBSERVED BY SMOS UNDER RAINY CONDITIONS**
Andrea Santos-Garcia, University of Central Florida, United States; Maria Marta Jacob, Comisión Nacional de Actividades Espaciales, Argentina; W. Linwood Jones, University of Central Florida, United States

MO4.G2.4 16:40 **HEAVY RAINFALL EFFECTS ON THE SALINITY OF KUROSHIO SURFACE WATER EAST OF TAIWAN**
Po-Chun Hsu, Chen-Chih Lin, Chung-Ru Ho, National Taiwan Ocean University, Taiwan

MO4.G2.5 17:00 **LONG-TERM AVHRR SST CHANGE IN THE TAIWAN STRAIT USING ROTATED EOF METHOD**
Ming-An Lee, Yi-Chun Kuo, Ying-Pu Ma, National Taiwan Ocean University, Taiwan

Monday, July 27 | 13:30 - 15:10 | Green 3
Session MO3.G3 | Oral-Invited

RFI in Microwave Remote Sensing: Observations and Management Techniques I

Session Co-Chairs: Sidharth Misra, NASA Jet Propulsion Laboratory; Paolo de Matthaeis, NASA Goddard Earth Sciences Technology and Research

MO3.G3.1 13:30 **RFI DETECTION AND MITIGATION TECHNIQUES IN PASSIVE MICROWAVE REMOTE SENSING: THEORY AND EXPERIMENTS**
Joel T. Johnson, The Ohio State University, United States

MO3.G3.3 14:10 **RFI DETECTION IN GCOM-W1 AMSR2 GEOPHYSICAL RETRIEVALS**
Chelle Gentemann, Kyle Hilburn, Frank Wentz, Remote Sensing Systems, United States

MO3.G3.4 14:30 **SMOS RADIO FREQUENCY INTERFERENCES: IMPACT ON SOIL MOISTURE PRODUCTS**
Philippe Richaume, Yann Kerr, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Roi Oliva, European Space Agency, ESAC, Spain; Steven Delwart, European Space Agency, ESRIN, Italy

MO3.G3.5 14:50 **THE AQUARIUS MISSION: THREE AND HALF YEARS OF RFI OBSERVATIONS AT L-BAND**
Paolo de Matthaeis, Yan Soldo, David Le Vine, NASA Goddard Space Flight Center, United States

Monday, July 27 | 13:30 - 15:10 | Yellow 1
Session MO3.Y1 | Oral-Invited

Observations by the NASA Soil Moisture Active Passive Mission I

Session Co-Chairs: Dara Entekhabi, Massachusetts Institute of Technology; Simon Yueh, NASA Jet Propulsion Laboratory

MO3.Y1.1 13:30 **NASA SOIL MOISTURE ACTIVE PASSIVE MISSION STATUS**
Simon Yueh, Dara Entekhabi, Kent Kellogg, Eni Njoku, California Institute of Technology, United States; Peggy ONeill, NASA Goddard Space Flight Center, United States

MO3.Y1.3 14:10 **EARLY ASSESSMENT OF SMAP L-BAND RADAR CALIBRATION**
Michael Spencer, Richard West, Adam Freedman, Sermsak Jaruwatanadilok, Mario Julian Chaubell, Samuel Chan, Curtis Chen, Gregory Neumann, Jet Propulsion Laboratory, California Institute of Technology, United States; Kamal Sarabandi, Leland Pierce, University of Michigan, United States

MO3.Y1.4 14:30 **SMAP L-BAND MICROWAVE RADIOMETER CALIBRATION**
Jeffrey R. Piepmeier, NASA Goddard Space Flight Center, United States; Jinzheng Peng, University Space Research Associates, United States; Derek Hudson, David Le Vine, NASA Goddard Space Flight Center, United States; Emmanuel Dinnat, Chapman University, United States; Sidharth Misra, Jet Propulsion Laboratory, United States; Edward Kim, Giovanni DeAmici, NASA Goddard Space Flight Center, United States; Priscilla N. Mohammed, Morgan State University, United States

MO3.Y1.5 14:50 **SOIL MOISTURE ACTIVE PASSIVE (SMAP) MICROWAVE RADIOMETER RADIO-FREQUENCY INTERFERENCE (RFI) MITIGATION: INITIAL ON-ORBIT RESULTS**
Priscilla N. Mohammed, Jeffrey R. Piepmeier, NASA Goddard Space Flight Center, United States; Joel T. Johnson, Mustafa Aksoy, Alexandra Bringer, The Ohio State University, United States

Monday, July 27 | 15:40 - 17:20 | Green 3
Session MO4.G3 | Oral-Invited

RFI in Microwave Remote Sensing: Observations and Management Techniques II

Session Co-Chairs: Paolo de Matthaeis, NASA Goddard Earth Sciences Technology and Research; Sidharth Misra, NASA Jet Propulsion Laboratory

MO4.G3.1 15:40 **PERSISTENT UNDETECTED L-BAND RADIO FREQUENCY INTERFERENCE ENTERING THROUGH THE ANTENNA SIDELOBES: IMPACT ON SOIL MOISTURE AND SALINITY FROM SMAP AND AQUARIUS**
Shannon T. Brown, Sidharth Misra, Chun Sik Chae, Jet Propulsion Laboratory, United States

MO4.G3.2 16:00 **RADIO FREQUENCY INTERFERENCE DETECTION AND MITIGATION TECHNIQUES: ECOSAR 2014 FLIGHT CAMPAIGN**
Batuhan Osmanoglu, Universities Space Research Association - NASA Goddard Space Flight Center, United States; Rafael Rincon, Seung-Kuk Lee, Temilola Fatoyinbo, NASA Goddard Space Flight Center, United States; David Lagomasino, Universities Space Research Association - NASA Goddard Space Flight Center, United States

MO4.G3.3 16:20 **SOIL MOISTURE ACTIVE PASSIVE (SMAP) MICROWAVE RADIOMETER RADIO-FREQUENCY INTERFERENCE (RFI) MITIGATION PRE-LAUNCH ASSESSMENT**
Priscilla N. Mohammed, Jeffrey R. Piepmeier, NASA Goddard Space Flight Center, United States; Joel T. Johnson, Mustafa Aksoy, Omar Salama, The Ohio State University, United States

MO4.G3.4 16:40 **SMAP RADAR PROCESSING AND THE DETECTION AND MITIGATION OF RADIO FREQUENCY INTERFERENCE**
Richard West, Mario Julian Chaubell, Samuel Chan, Adam Freedman, Sermsak Jaruwatanadilok, Michael Spencer, Curtis Chen, Jet Propulsion Laboratory, United States

MO4.G3.5 17:00 **GROUND PROCESSING RFI MITIGATION STRATEGY FOR BIOMASS: A FEASIBILITY STUDY**
Michele Scagliola, Davide Giudici, Aresys srl, Italy; Sophie Ramongassié, Thales Alenia Space, France; Florence Heliere, Franco Fois, European Space Agency (ESA), Netherlands

Frequency Allocation in Remote Sensing TC Meeting to follow at 17:30

Monday, July 27 | 15:40 - 17:20 | Yellow 1
Session MO4.Y1 | Oral-Invited

Observations by the NASA Soil Moisture Active Passive Mission II

Session Co-Chairs: Dara Entekhabi, Massachusetts Institute of Technology; Simon Yueh, NASA Jet Propulsion Laboratory

MO4.Y1.1 15:40 **EARLY RESULTS FOR THE SMAP ACTIVE-PASSIVE SOIL MOISTURE PRODUCT**
Narendra N. Das, Jet Propulsion Laboratory, NASA, United States; Dara Entekhabi, Massachusetts Institute of Technology, United States; Simon Yueh, NASA Jet Propulsion Laboratory, United States; Peggy O'Neill, NASA Goddard Space Flight Center, United States; Eni Njoku, NASA Jet Propulsion Laboratory, United States

MO4.Y1.2 16:00 **AN OVERVIEW OF PRODUCTION AND VALIDATION OF THE SMAP PASSIVE SOIL MOISTURE PRODUCT**
Steven Chan, NASA Jet Propulsion Laboratory, United States; Peggy O'Neill, NASA Goddard Space Flight Center, United States; Eni Njoku, NASA Jet Propulsion Laboratory, United States; Thomas Jackson, Rajat Bindlish, Michael Cosh, U.S. Department of Agriculture - ARS Hydrology and Remote Sensing Laboratory, United States

MO4.Y1.3 16:20 **SMAP RADAR-ONLY SOIL MOISTURE RETRIEVALS: FIRST RESULTS AND EVALUATION**
Jakob van Zyl, Seungbum Kim, Jet Propulsion Laboratory, United States; Joel T. Johnson, Ohio State University, United States; Mahta Moghaddam, University of Southern California, United States; Leung Tsang, University of Washington, United States; Andreas Colliander, Jet Propulsion Laboratory, United States; Thomas Jackson, U.S. Department of Agriculture - ARS Hydrology and Remote Sensing Laboratory, United States; Dara Entekhabi, Massachusetts Institute of Technology, United States; Peggy O'Neill, NASA Goddard Space Flight Center, United States; Simon Yueh, Jet Propulsion Laboratory, United States; Jeffrey D. Ouellette, Ohio State University, United States

MO4.Y1.4 16:40 **PREPARATION FOR THE SOIL MOISTURE ACTIVE PASSIVE (SMAP) FREEZE-THAW PRODUCT USING AQUARIUS DATA**
Xiaolan Xu, Scott Dunbar, Andreas Colliander, Jet Propulsion Laboratory, United States; Chris Derksen, Environment Canada, Canada; Youngwook Kim, Kimball John, University of Montana, United States

MO4.Y1.5 17:00 **SMAP LEVEL 4 ROOT ZONE SOIL MOISTURE AND CARBON PRODUCTS**
Rolf Reichle, NASA Goddard Space Flight Center, United States; John Kimball, Lucas Jones, University of Montana, United States; Gabrielle De Lannoy, NASA Goddard Space Flight Center, United States; Dara Entekhabi, Massachusetts Institute of Technology, United States

Monday, July 27 | 13:30 - 15:10 | Yellow 2
Session MO3.Y2 | Oral

Data Management I

Session Co-Chairs: Charles Luther, Geoscience and Remote Sensing Society; Gail Skofronick-Jackson, NASA Goddard Space Flight Center

MO3.Y2.1 13:30 **ANALYSIS OF LAND SURFACE TEMPERATURE SPATIAL HETEROGENEITY USING VARIOGRAM MODEL**
Tian Hu, Qinhuo Liu, Yongming Du, Hua Li, State Key Laboratory of Remote Sensing Science, Institute of Remote Sensing and Digital Earth, CAS, China; Huaguo Huang, Key Laboratory of Silviculture and Conservation of Ministry of Education, Beijing Forestry University, China

MO3.Y2.2 13:50 **STAR ALGORITHM PROCESSING FRAMEWORK**
Shanna Sampson, IMSG, United States; Walter Wolf, NOAA/NESDIS/STAR, United States; Zhuo Zhang, Michael Walters, Aiwu Li, Rickey Rollins, Veena Jose, Yunhui Zhao, IMSG, United States; William Straka, Ray Garcia, Cooperative Insitute for Meteorological Satellite Studies, United States

MO3.Y2.3 14:10 **A RAD-HARD MANY-CORE COMPUTING PLATFORM FOR ON-BOARD QUICK HYPERSPECTRAL IMAGE PROCESSING AND INTERPRETATION**
Giovanna Ober, CGS Spa Compagnia Generale per lo Spazio, Italy; Jamin Naghmouchi, Technische Universität Braunschweig, Germany; Ole Bischoff, DSI GmbH, Germany; Peleg Aviely, Ramon Chips Ltd, Israel; Ron Nadler, David Guiser, Elbit Systems electrooptics – ELOP Ltd, Israel; Valerio Messina, Riccardo Freddi, Walter Di Nicolantonio, CGS Spa Compagnia Generale per lo Spazio, Italy

MO3.Y2.4 14:30 **CVTILE: MULTILEVEL PARALLEL GEOSPATIAL DATA PROCESSING WITH OPENCV AND CUDA**
Grant Scott, Georgi Angelov, Michael Reinig, Eric Gaudiello, Matthew England, University of Missouri, United States

Monday, July 27 | 13:30 - 15:10 | Yellow 3
Session MO3.Y3 | Oral-Invited

GEOGLAM: Earth Observation for Crop Monitoring, from Regional to Global Perspective I

Session Co-Chairs: Pietro Alessandro Brivio, CNR-IREA; Olivier Leo, IES-JRC, MARS Unit, Ispra

MO3.Y3.1 13:30 **GEOGLAM: ENHANCING THE USE OF EARTH OBSERVATION FOR AGRICULTURAL MONITORING**
Chris Justice, University of Maryland, GEOGLAM CoChair, United States; Alyssa Whitcraft, Inbal Becker-Reshef, University of Maryland,, United States; Michel Deshayes, GEO Secretariat, Switzerland

MO3.Y3.3 14:10 **INTEGRATED CROP CONDITION MONITORING METHOD WITH MULTIPLE REMOTE SENSING INDICES**
Bingfang Wu, Miao Zhang, Hongwei Zeng, Nana Yan, Wentao Zou, Yang Zheng, Rene Gommes, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China

MO3.Y3.4 14:30 **ASSIMILATING SEASONALITY INFORMATION DERIVED FROM SATELLITE DATA TIME SERIES IN CROP MODELLING FOR RICE YIELD ESTIMATION**
Mirco Boschetti, Lorenzo Busetto, Francesco Nutini, Giacinto Manfron, Alberto Crema, CNR-IREA, Italy; Roberto Confalonieri, Simone Bregaglio, Valentina Pagani, Tommaso Guarneri, University of Milan, Italy; Pietro Alessandro Brivio, CNR-IREA, Italy

MO3.Y3.5 14:50 **EXPLORING THE POTENTIAL OF GLOBAL REMOTELY-SENSED CHLOROPHYLL FLUORESCENCE DOWNSCALED AT 0.05 DEGREE SPATIAL RESOLUTION FOR ENHANCED AGRICULTURAL MONITORING**
Gregory Duveiller, Raul Lopez-Lozano, Lorenzo Seguini, Michele Meroni, Alessandro Cescatti, European Commission, Joint Research Centre, Italy

Monday, July 27 | 15:40 - 17:20 | Yellow 2
Session MO4.Y2 | Oral

Data Management II

Session Co-Chairs: Andrea Lawrence, Spelman College; Alicia Joseph, NASA Goddard Space Flight Center

MO4.Y2.1 15:40 **PROVIDING PROVENANCE TO INSTRUMENTS THROUGH THE US GLOBAL CHANGE INFORMATION SYSTEM**
Robert Wolfe, NASA Goddard Space Flight Center, United States; Brian Duggan, Steve Aulenbach, Justin Goldstein, University Corporation for Atmospheric Research, United States; Curt Tilmes, NASA Goddard Space Flight Center, United States; Andrew Buddenberg, National Climatic Data Center, United States

MO4.Y2.2 16:00 **IMAGE DATA AND METADATA WORKFLOWS AUTOMATION IN GEOSPATIAL DATA INFRASTRUCTURE DEPLOYED FOR AGRICULTURAL SECTOR**
Tomáš Kliment, Gloria Bordogna, Luca Frigerio, Alberto Crema, Mirco Boschetti, Pietro Alessandro Brivio, Simone Sterlacchini, National Research Council, Italy

MO4.Y2.3 16:20 **OGRSF: THE OPEN GEOSCIENCE AND REMOTE SENSING FRAMEWORK**
Leland Pierce, University of Michigan, United States

MO4.Y2.4 16:40 **SMAP DATA AND SERVICES AT THE NASA DAACS**
Amanda Leon, Siri Jodha Singh Khalsa, Shannon Leslie, University of Colorado, United States

MO4.Y2.5 17:00 **A COMPARATIVE STUDY TO THE 2011/2013 WATER QUALITY ASSESSMENTS IN THE PASQUOTANK WATERSHED IN NORTHEASTERN NORTH CAROLINA WITH A SEA LEVEL RISE COMPONENT**
Jamal Stevenson, Raveen Mckenzie, Mississippi Valley State University, United States; Jeff Wood, Linda Hayden, Elizbeth City State University, United States

Monday, July 27 | 15:40 - 17:20 | Yellow 3
Session MO4.Y3 | Oral-Invited

GEOGLAM: Earth Observation for Crop Monitoring, from Regional to Global Perspective II

Session Co-Chairs: Olivier Leo, IES-JRC, MARS Unit, Ispra; Pietro Alessandro Brivio, CNR-IREA

MO4.Y3.1 15:40 **ON THE USE OF TEMPORAL-SPECTRAL DESCRIPTORS FOR CROP MAPPING, MONITORING AND CROP PRACTICES CHARACTERIZATION**
Francesco Holecz, Luca Gatti, Francesco Collivignarelli, Massimo Barbieri, Sarmap S.A., Switzerland

MO4.Y3.2 16:00 **PARCEL BASED CLASSIFICATION FOR AGRICULTURAL MAPPING AND MONITORING USING MULTI-TEMPORAL SATELLITE IMAGE SEQUENCES**
Nataliia Kussul, Space Research Institute NASU-SSAU, National Technical University of Ukraine "Kyiv Polytechnic Institute", Ukraine; Guido Lemoine, Javier Gallego, European Commission, Joint Research Centre, Institute for Environment and Sustainability, MARS Unit, Italy; Sergii Skakun, Space Research Institute NASU-SSAU, Ukraine; Mykola Lavreniuk, Space Research Institute NASU-SSAU, Taras Shevchenko National University of Kyiv, Ukraine

MO4.Y3.3 16:20 **USE OF MODIS TEMPORAL SIGNATURES FOR REGIONAL-SCALE LAND COVER MAPPING AND CROP STATUS MONITORING: ACTIVITIES AT BOKU UNIVERSITY**
Clement Atzberger, Francesco Vuolo, Anja Klisch, University of Natural Resources and Life Sciences, Austria

MO4.Y3.4 16:40 **DETERMINING OPTIMAL SEASONAL INTEGRATION TIMES OF NDVI SERIES FOR INDEX-BASED LIVESTOCK INSURANCE IN EAST AFRICA**
Anton Vrieling, University of Twente, Netherlands; Michele Meroni, Joint Research Centre of the European Commission, Italy; Andrew Mude, International Livestock Research Institute, Kenya

MO4.Y3.5 17:00 **DEVELOPING HARMONIZED ASSESSMENTS OF CROP CONDITIONS: THE G20-GEOGLAM CROP MONITOR**
Inbal Becker-Reshef, Christopher Justice, Brian Barker, Katie McGaughey, Mike Humber, Jon Nordling, University of Maryland, United States; Michel Deshayes, Group on Earth Observations, Switzerland

Monday, July 27 | 13:30 - 15:10 | Blue 1
Session MO3.B1 | Oral-Invited

Recent Progresses of Microwave Remote Sensing of Oceanic and Meteorological Satellites in China I

Session Co-Chairs: Xiaolong Dong, National Space Science Center, Chinese Academy of Sciences; Mingsen Lin, National Satellite Ocean Application Service

MO3.B1.1 13:30 **STATUS, PROGRESS AND FUTURE OF MICORWAVE REMOTE SENSING FOR THE OCEANOGRAPHYIC AND METEOROGOLOGICAL SATELLTIES OF CHINA**
Xiaolong Dong, National Space Science Center, Chinese Academy of Sciences, China; Mingsen Lin, National Satellite Oceanic Application Service, State Oceanic Administration, China; Naimeng Lu, National Satellite Meteorological Center, China Meteorological Administration, China

MO3.B1.3 14:10 **TOWARD AN IMPROVED HY-2A SCATTEROMETER WIND PRODUCT**
Wenming Lin, Marcos Portabella, Institut de Ciències del Mar (ICM-CSIC), Spain; Ad Stoffelen, Anton Verhoef, Jur Vogelzang, Royal Netherlands Meteorological Institute (KNMI), Netherlands; Youguang Zhang, Mingsen Lin, Juhong Zou, Shuyan Lang, National Satellite Ocean Application Service, China

MO3.B1.4 14:30 **THE LATEST ASSESSMENT FOR THE REPROCESSED GDR PRODUCT OF HY-2A ALTIMETER**
Yalong Liu, Ke Xu, CAS Key Laboratory of Microwave Remote Sensing, National Space Science Center, Chinese Academy of Sciences, China; Youguang Zhang, National Satellite Ocean Application Service, China; Lei Wang, Xi-Yu Xu, Hua Chen, CAS Key Laboratory of Microwave Remote Sensing, National Space Science Center, Chinese Academy of Sciences, China

MO3.B1.5 14:50 **PRELIMINARY ANALYSIS OF HY-2 ACMR DATA**
Dehai Zhang, Zhen-Zhan Wang, Yun Li, Jin Zhao, Yalong Liu, National Space Science Center, China

Monday, July 27 | 13:30 - 15:10 | Blue 2
Session MO3.B2 | Oral-Invited

Digital Beamforming SAR Systems and MIMO Techniques I

Session Co-Chairs: Michael Ludwig, European Space Agency (ESA/ESTEC); Alberto Moreira, German Aerospace Center (DLR)

MO3.B2.1 13:30 **RADAR 2020: THE FUTURE OF RADAR SYSTEMS**
Werner Wiesbeck, Leen Sit, Karlsruhe Institute of Technology, Germany; Marwan Younis, Tobias Rommel, Gerhard Krieger, Alberto Moreira, German Aerospace Center (DLR), Germany

MO3.B2.3 14:10 **WAVEFORM-DIVERSE MIMO SAR DEMONSTRATION MEASUREMENTS**
Kyle Stewart, Joel T. Johnson, The Ohio State University, United States

MO3.B2.4 14:30 **DIGITAL BEAM FORMING FOR C-BAND SAR AND TECHNOLOGICAL ELEMENTS**
Michael Ludwig, Martin Süss, Natanael Ayllon, European Space Agency, ESTEC, Netherlands; Grzegorz Adamiuk, Airbus Defence and Space, Germany

MO3.B2.5 14:50 **RECENT PROGRESS OF AIRBORNE X-BAND MULTICANNEL SAR WITH DIGITAL BEAMFORMING (DBF)**
Robert Wang, Pei Wang, Yunkai Deng, Weidong Yu, Zhimin Zhang, Institute of Electronics, Chinese Academy of Sciences, China

Monday, July 27 | 15:40 - 17:20 | Blue 1
Session MO4.B1 | Oral-Invited

Recent Progresses of Microwave Remote Sensing of Oceanic and Meteorological Satellites in China II

Session Co-Chairs: Xiaolong Dong, National Space Science Center, Chinese Academy of Sciences; Mingsen Lin, National Satellite Ocean Application Service

MO4.B1.1 15:40 **NWP BENEFITS BY HY-2A AS PART OF THE INTERNATIONAL WIND SCATTEROMETER CONSTELLATION**
Ad Stoffelen, KNMI, Netherlands

MO4.B1.2 16:00 **WIND-WAVE PARAMETERIZATION AND ITS APPLICATION IN WIDE SWATH SIGNIFICANT WAVE HEIGHT DERIVED FROM HY-2 SATELLITE**
Qingtao Song, National Satellite Ocean Application Service, China; Fei Liao, Guangzhou Meteorological Observatory, China; Jiuke Wang, National Marine Environmental Forecasting Center, China; Yi Zhang, Yuxin Liu, National Satellite Ocean Application Service, China; Zhiqiu Gao, Nanjing University of Information and Technology, China

MO4.B1.3 16:20 **AN INTRODUCTION TO GNOS INSTRUMENT FOR CHINESE FY-3C AND FY-3D SATELLITE**
Qifei Du, Yueqiang Sun, Weihua Bai, Xianyi Wang, Dongwei Wang, Xiangguang Meng, Yuerong Cai, National Space Science Center, Chinese Academy of Sciences, China

MO4.B1.4 16:40 **MONITORING TROPICAL CYCLONE EVOLUTION WITH FY-3C AND NOAA SATELLITES MICROWAVE OBSERVATIONS**
Xin Wang, Xiang Fang, Hong Qiu, The National Satellite Meteorological Center of CMA, China

MO4.B1.5 17:00 **MICAP (MICROWAVE IMAGER COMBINED ACTIVE AND PASSIVE): A NEW INSTRUMENT FOR CHINESE OCEAN SALINITY SATELLITE**
Hao Liu, Di Zhu, Lijie Niu, Lin Wu, Caiyun Wang, Xue Chen, Xin Zhao, Cheng Zhang, Xiangkun Zhang, Xiaobin Yin, Ji Wu, CAS Key Laboratory of Microwave Remote Sensing, National Space Science Center, Chinese Academy of Sciences, China

Monday, July 27 | 15:40 - 17:20 | Blue 2
Session MO4.B2 | Oral-Invited

Digital Beamforming SAR Systems and MIMO Techniques II

Session Co-Chairs: Marwan Younis, German Aerospace Center (DLR); Gilda Schirinzi, Univ. Napoli

MO4.B2.1 15:40 **CEBRAS: CROSS ELEVATION BEAM RANGE AMBIGUITY SUPPRESSION FOR HIGH-RESOLUTION WIDE-SWATH AND MIMO-SAR IMAGING**
Gerhard Krieger, Sigurd Huber, Michelangelo Villano, Marwan Younis, Tobias Rommel, Paco López-Dekker, Felipe Queiroz de Aldmeida, Alberto Moreira, German Aerospace Center (DLR), Germany

MO4.B2.3 16:20 **HRWS DEMONSTRATOR CHARACTERIZATION AND VERIFICATION MEASUREMENTS**
Thomas Fügen, Christian Fischer, Christoph Heer, Airbus Defence and Space, Germany; Rolf Werninghaus, German Aerospace Center (DLR), Germany

MO4.B2.4 16:40 **DIGITAL BEAMFORMING SYNTHETIC APERTURE RADAR (DBSAR): SINGLE-PASS INTERFEROMETRY FOR FOREST STRUCTURE ESTIMATION**
Rafael Rincon, Temilola Fatoyinbo, Seung-Kuk Lee, Batuhan Osmanoglu, K. Jon Ranson, Guoqing Sun, NASA, United States

MO4.B2.5 17:00 **A STUDY ON RECONSTRUCTION ALGORITHM WITH PSEUDO INVERSE MATRIX FOR A MITIGATION OF NOISE AMPLIFICATION IN THE MULTI-CHANNEL SYNTHTIC APERTURE RADAR**
Tomoya Yamaoka, Masayoshi Tsuchida, Kei Suwa, Teruyuki Hara, Mitsubishi Electric Corporation, Japan

Instrumentation and Future Technologies TC Meeting to follow at 17:30

Monday, July 27 13:30 - 15:10 Red 1
Session MO3.R1 Oral-Invited

COSMO-SkyMed Mission: Global Results and Future Evolutions Towards the Second Generation I

Session Co-Chairs: Alessandro Coletta, Italian Space Agency; Fabio Covello, European Space Agency

MO3.R1.1 13:30 **COSMO-SKYMED MISSION STATUS: RESULTS, LESSONS LEARNT AND EVOLUTIONS**
Patrizia Sacco, Maria Libera Battagliere, Alessandro Coletta, Agenzia Spaziale Italiana (ASI), Italy

MO3.R1.3 14:10 **COSMO-SKYMED AND ALOS-1/2 X AND L BAND MULTI-FREQUENCY RESULTS IN SATELLITE DISASTER MONITORING**
Akiko Noda, Shinichi Suzuki, Japan Aerospace Exploration Agency, Japan; Masanobu Shimada, Tokyo Denki University, Japan; Kenichi Toda, Japan Aerospace Exploration Agency, Japan; Yousuke Miyagi, National Research for Earth Science and Disaster Prevention, Japan

MO3.R1.4 14:30 **COSMO-SKYMED DATA AND THE ICELANDIC VOLCANOES SUPERSITE: UNDERSTANDING MAGMA MOVEMENTS IN THE BARDARBUNGA VOLCANIC SYSTEM**
Freysteinn Sigmundsson, Michelle Parks, Stéphanie Dumont, Vincent Drouin, University of Iceland, Iceland; Karsten Spaans, Hooper Andrew, University of Leeds, United Kingdom

MO3.R1.5 14:50 **EXPLOITATION OF COSMO-SKYMED DATA FOR CIVIL PROTECTION: ITALIAN CASE STUDIES**
Paola Pagliara, Roberta Onori, Chiara Proietti, Italian Civil Protection Department, Italy; Nicola Casagli, University of Firenze-Earth Sciences Department, Italy; Fausto Guzzetti, Centro Nazionale delle Ricerche – Research institute for geo-hydrological protection, Italy; Giorgio Boni, CIMA Research Foundation, Italy; Laura Candela, Alessandro Coletta, Agenzia Spaziale Italiana (ASI), Italy

Monday, July 27 13:30 - 15:10 Red 2
Session MO3.R2 Oral-Invited

Advanced Methods for Polarimetric Information Extraction I

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

MO3.R2.1 13:30 **A REVIEW OF COHERENT AND PARTIALLY COHERENT TARGET SCATTERING DECOMPOSITION USING POLARIMETRIC SAR**
Ridha Touzi, CCRS, Canada

MO3.R2.3 14:10 **A TIME-SERIES ANALYSIS OF POLARIMETRIC RADAR DATA AND SOIL MOISTURE: A STEPPING STONE TOWARDS A GENERALIZED REGRESSION-BASED SOIL MOISTURE RETRIEVAL ALGORITHM**
Mariko Burgin, Jakob van Zyl, Jet Propulsion Laboratory, United States

MO3.R2.4 14:30 **THE BREWSTER EFFECT ON POLARIMETRIC INFORMATION**
Laetitia Thirion-Lefevre, Régis Guinvarc'h, CENTRALESUPELEC, France

MO3.R2.5 14:50 **MULTITEMPORAL POLARIMETRIC SAR IMAGES FOR URBAN AREAS**
Elise Koeniguer, ONERA, France; Flora Weissgerber, ONERA/Telecom Paris Tech, France; Nicolas Trouvé, ONERA, France; Jean-Marie Nicolas, Télécom ParisTech, France

Monday, July 27 15:40 - 17:20 Red 1
Session MO4.R1 Oral-Invited

COSMO-SkyMed Mission: Global Results and Future Evolutions Towards the Second Generation II

Session Co-Chairs: Alessandro Coletta, Italian Space Agency; Fabio Covello, European Space Agency

MO4.R1.1 15:40 **NATURAL HAZARD SCIENCE & RESPONSE RESULTS USING COSMO-SKYMED® DATA FROM THE ADVANCED RAPID IMAGING AND ANALYSIS (ARIA) PROJECT AND THE ASI-JPL COLLABORATION**
Frank Webb, Paul Lundgren, Sang-Ho Yun, Jet Propulsion Laboratory, United States; Pietro Milillo, Università degli Studi della Basilicata, Italy; Eric Jameson Fielding, Jet Propulsion Laboratory, United States; Mark Simons, California Institute of Technology, ; Hook Hua, Paul Rosen, Jet Propulsion Laboratory, United States; Giovanni Milillo, Agenzia Spaziale Italiana (ASI), Italy; Piyush Agram, Susan Owen, Gian Franco Sacco, Gerald Manipon, Jet Propulsion Laboratory, United States

MO4.R1.2 16:00 **USE OF COSMO-SKYMED DATA FOR INNOVATIVE AND OPERATIONAL APPLICATIONS**
Axel Oddone, Mario Costantini, Luca Pietranera, Achille Ciappa, Domenico Grandoni, Paola Nicolosi, e-GEOS, Italy

MO4.R1.3 16:20 **COSMO-SKYMED DATA FOR INSAR ANALYSES: AN ASSESSMENT AFTER 8 YEARS**
Alessandro Ferretti, Alfio Fumagalli, Fabrizio Novali, Alessio Rucci, TRE - Tele-Rilevamento Europa, Italy

MO4.R1.4 16:40 **THE COSMO-SKYMED SECONDA GENERAZIONE KEY IMPROVEMENTS TO RESPOND TO THE USER COMMUNITY NEEDS**
Stefano Serva, Segretariato Generale della Difesa e Direzione Nazionale degli Armamenti, Italy; Claudia Anita Maria Fiorentino, Fabio Covello, Agenzia Spaziale Italiana (ASI), Italy

MO4.R1.5 17:00 **NEW CONCEPTS AND INNOVATIVE SOLUTIONS OF THE COSMO-SKYMED "SECONDA GENERAZIONE" SYSTEM**
Diego Calabrese, Flavia Carnevale, Anna Croce, Ignazio Rana, Gerardo Spera, Roberto Venturini, Chiara Germani, Francesco Spadoni, Flaviano Bagaglini, Rita Roscigno, Luigi Corsano, Thales Alenia Space Italia S.p.A., Italy; Stefano Serva, Segretariato Generale della Difesa e Direzione Nazionale degli Armamenti, Italy; Manfredi Porfilio, Giuseppe Francesco De Luca, Agenzia Spaziale Italiana (ASI), Italy

Monday, July 27 15:40 - 17:20 Red 2
Session MO4.R2 Oral-Invited

Advanced Methods for Polarimetric Information Extraction II

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

MO4.R2.1 15:40 **INVESTIGATING SLANTED DOUBLE BOUNCE SCATTERING MECHANISMS BASED ON SCATTERING MODELS**
Jong-Sen Lee, Thomas Ainsworth, Yanting Wang, Naval Research Laboratory, United States

MO4.R2.2 16:00 **INTEGRATION OF INFORMATION-THEORETIC TOOLS FOR POLSAR IMAGE PROCESSING AND ANALYSIS**
Sidnei João Siqueira Sant'Anna, Corina da Costa Freitas, Leonardo Torres, INPE, Brazil; Alejandro C. Frery, Universidade Federal de Alagoas, Brazil

MO4.R2.3 16:20 **APPLICATIONS OF INTEGRALS OF QUADRATIC FORMS FOR POLARIMETRIC SAR DATA**
Armando Marino, Open University/ETH Zurich, United Kingdom; Irena Hajnsek, ETH Zurich/ DLR, Germany

MO4.R2.4 16:40 **CROP INFORMATION EXTRACTION BY USING ALOS-PALSAR/PALSAR-2 MEASUREMENTS**
Gulab Singh, Indian Institute of Technology Bombay, India; Yoshio Yamaguchi, Niigata University, Japan; Unmesh G. Khati, Avik Bhattacharya, Indian Institute of Technology Bombay, India

MO4.R2.5 17:00 **ASPECTS OF MODEL-BASED DECOMPOSITIONS IN RADAR POLARIMETRY**
Anthony Paul Doulgeris, Torbjørn Eltoft, UiT-The Arctic University of Norway, Norway

Tuesday, July 28 | 08:20 - 10:00 | White 1
Session TU1.W1 | Oral

Estimation and Regression I

Session Co-Chairs: Gustau Camps-Valls, University of Valencia; Alessandro Piscini, INGV

TU1.W1.1 08:20 **A NEW APPROACH TO INVERTING AND DE-NOISING SCATTER AND BACKSCATTER FROM LIDAR OBSERVATIONS**
Willem Marais, Yu Hen Hu, Robert Holz, University of Wisconsin-Madison, United States; Edwin Eloranta, University of Wisconsin, United States

TU1.W1.2 08:40 **TERRESTRIAL TOTAL WATER STORAGE DYNAMICS OF AUSTRALIA'S RECENT DRY AND WET EVENTS**
Zunyi Xie, Alfredo Huete, Natalia Restrepo Coupe, Rakhesh Devadas, Kevin Davies, Chris Waston, University of Technology, Sydney, Australia

TU1.W1.3 09:00 **SENSITIVITY ANALYSIS OF GAUSSIAN PROCESSES FOR OCEANIC CHLOROPHYLL PREDICTION**
Katalin Blix, University of Tromsø, Norway; Gustau Camps-Valls, University of Valencia, Spain; Robert Jenssen, University of Tromsø, Norway

TU1.W1.4 09:20 **HYPERSPECTRAL COMPRESSIVE SENSING FROM SPECTRAL PROJECTIONS**
Gabriel Martin, José M. Bioucas-Dias, Instituto de Telecomunicações, Portugal

TU1.W1.5 09:40 **SEMI-REALISTIC SIMULATIONS OF NATURAL HYPERSPECTRAL SCENES**
Zhipeng Hao, University of Western Sydney, Australia; Mark Berman, Yi Guo, CSIRO, Australia; Glenn Stone, University of Western Sydney, Australia; Iain Johnstone, Stanford University, United States

Tuesday, July 28 | 10:30 - 12:10 | White 1
Session TU2.W1 | Oral

Image Segmentation I

Session Co-Chairs: Yuliya Tarabalka, INRIA; Raul Queiroz Feitosa, PUC-Rio

TU2.W1.1 10:30 **POINTWISE APPROACH ON COVARIANCE MATRIX OF ORIENTED GRADIENTS FOR VERY HIGH RESOLUTION IMAGE TEXTURE SEGMENTATION**
Minh-Tan Pham, Grégoire Mercier, TELECOM Bretagne, France; Julien Michel, CNES (The French Space Agency), France

TU2.W1.2 10:50 **A BAG-OF-VISUAL WORDS APPROACH BASED ON OPTIMAL SEGMENTATION SCALE FOR HIGH RESOLUTION REMOTE SENSING IMAGE CLASSIFICATION**
Junping Zhang, Zhen Cheng, Tong Li, Harbin Institute of Technology, China

TU2.W1.3 11:10 **IMPROVED PARTITION TREES FOR MULTI-CLASS SEGMENTATION OF REMOTE SENSING IMAGES**
Emmanuel Maggiori, Yuliya Tarabalka, Inria Sophia Antipolis Méditerranée, France; Guillaume Charpiat, Inria Saclay, France

TU2.W1.4 11:30 **HYPERSPECTRAL SUPERPIXEL EXTRACTION USING BOUNDARY UPDATES BASED ON OPTIMAL SPECTRAL SIMILARITY METRIC**
Akin Caliskan, Alper Koz, Aydin Alatan, Middle East Technical University, Turkey

TU2.W1.5 11:50 **AN ENHANCED CORNER-BASED AUTOMATIC ROOFTOP EXTRACTION ALGORITHM LEVERAGING DRLSE SEGMENTATION**
Mattia Zangrandi, Enrico Baccaglini, Luca Matteo Boulard, Istituto Superiore Mario Boella, Italy

Tuesday, July 28 | 13:30 - 15:10 | White 1
Session TU3.W1 | Oral

Image Segmentation II

Session Co-Chairs: Silvana Dallepiane, Università degli Studi di Genova; Raul Queiroz Feitosa, PUC-Rio

TU3.W1.1 13:30 **SUPERPIXEL-BASED SEGMENTATION OF REMOTE SENSING IMAGES THROUGH CORRELATION CLUSTERING**
Giuseppe Masi, Raffaele Gaetano, Giovanni Poggi, Giuseppe Scarpa, University Federico II, Italy

TU3.W1.2 13:50 **NOVEL MSER-GUIDED STREET EXTRACTION FROM SATELLITE IMAGES**
Ehab Salahat, Hani Saleh, Andrzej Stefan Sluzek, Baker Mohammad, Mahmoud Al-Qutayri, Mohammad Ismail, Khalifa University, United Arab Emirates

TU3.W1.3 14:10 **AUTOMATIC COASTLINE DETECTION IN NON-LOCALLY FILTERED TANDEM-X DATA**
Michael Schmitt, Lingyun Wei, Xiao Xiang Zhu, Technische Universität München, Germany

TU3.W1.4 14:30 **EFFECTIVE SAR SEA ICE IMAGE SEGMENTATION AND TOUCH FLOE SEPARATION USING A COMBINED MULTI-STAGE APPROACH**
Jinchang Ren, University of Strathclyde, United Kingdom; Byongjun Hwang, SAMS, United Kingdom; Paul Murray, Soumitra Sakhalkar, Samuel McCormack, University of Strathclyde, United Kingdom

TU3.W1.5 14:50 **A FUZZY GRAPH-BASED SEGMENTATION FOR MARINE AND MARITIME APPLICATIONS IN SAR IMAGES**
Laura Gemme, Silvana Dellepiane, Università degli Studi di Genova, Italy

Tuesday, July 28 | 15:40 - 17:20 | White 1
Session TU4.W1 | Oral

Subsurface Sensing and Ground Penetrating Radar I

Session Co-Chairs: Lorenzo Bruzzone, University of Trento; Emmanuel Trouvé, Univ. Savoie

TU4.W1.1 15:40 **MAGNETIC FEEDBACK AMPLIFIER FOR ELECTROMAGNETIC INDUCTION SENSORS**
Waymond Scott, Georgia Tech, United States

TU4.W1.2 16:00 **CLUTTER DETECTION USING TWO-CHANNEL RADAR SOUNDER DATA**
Davide Castelletti, University of Trento, Italy; Dustin M. Schroeder, Scott Hensley, Jet Propulsion Laboratory, California Institute of Technology, United States; Cyril Grima, Gregory Ng, Duncan Young, The University of Texas, United States; Yonggyu Gim, Jet Propulsion Laboratory, California Institute of Technology, United States; Lorenzo Bruzzone, University of Trento, Italy; Alina Moussessian, Jet Propulsion Laboratory, California Institute of Technology, United States; Donald D. Blankenship, The University of Texas, United States

TU4.W1.3 16:20 **THREE-DIMENSIONAL SUBSURFACE IMAGING OF WEAK SCATTERERS BY USING COMPRESSIVE SAMPLING**
Michele Ambrosanio, Vito Pascazio, University of Napoli Parthenope, Italy

TU4.W1.4 16:40 **ESTIMATION OF VERTICAL VELOCITY PROFILE BY MULTISTATIC GPR YAKUMO**
Li Yi, Kazunori Takahashi, Motoyuki Sato, Tohoku University, Japan

TU4.W1.5 17:00 **A ROBUST ON-BOARD TRACKING TECHNIQUE FOR SPACEBORNE RADAR SOUNDERS**
Leonardo Carrer, University of Trento, Italy; Renato Croci, Thales Alenia Space Italia S.p.A., Italy; Lorenzo Bruzzone, University of Trento, Italy

Tuesday, July 28 | 08:20 - 10:00 | White 2
Session TU1.W2 | Oral

Image and Data Fusion Techniques

Session Co-Chairs: Mihai Datcu, German Aerospace Center (DLR); Mathieu Fauvel, University of Toulouse

TU1.W2.1 08:20 **CANONICAL ANALYSIS BASED ON MUTUAL INFORMATION**
Allan Nielsen, Jacob Vestergaard, Technical University of Denmark, Denmark

TU1.W2.2 08:40 **AUTOMATIC MATCHING OF OPTICAL AND SAR IMAGERY THROUGH SHAPE PROPERTY**
Yuanxin Ye, Li Shen, Jicheng Wang, Zhipeng Li, Zhu Xu, Southwest Jiaotong University, China

TU1.W2.3 09:00 **ROBUSTIFIED SMOOTHING FOR ENHANCEMENT OF THERMAL IMAGE SEQUENCES AFFECTED BY CLOUDS**
Paolo Addesso, Maurizio Longo, University of Salerno, Italy; Antonino Maltese, University of Palermo, Italy; Rita Montone, Rocco Restaino, University of Salerno, Italy; Gemine Vivone, NATO, Italy

TU1.W2.4 09:20 **CONJUGATE GRADIENT ALGORITHM IN BANACH SPACES TO ENHANCE THE SPATIAL RESOLUTION OF MICROWAVE REMOTE SENSING DATA**
Flavia Lenti, Institut de Recherche en Informatique de Toulouse, France; Claudio Estatico, Università di Genova, Italy; David Titley-Peloquin, McGill University, Canada; Ferdinando Nunziata, Maurizio Migliaccio, Università di Napoli Parthenope, Italy; Serge Gratton, Université de Toulouse, INP, IRIT et Cerfacs, France

TU1.W2.5 09:40 **SHEARLET FEATURES FOR REGISTRATION OF REMOTELY SENSED MULTITEMPORAL IMAGES**
James Murphy, University of Maryland, United States; Jacqueline Le Moigne, NASA Goddard Space Flight Center, United States

Tuesday, July 28 | 10:30 - 12:10 | White 2
Session TU2.W2 | Oral

Image Visualization and Pansharpening Techniques

Session Co-Chairs: Jacqueline Le Moigne, NASA Goddard Space Flight Center; Saurabh Prasad, Univ. of Houston

TU2.W2.1 10:30 **AN INTERACTIVE COLOR VISUALIZATION METHOD WITH MULTI-IMAGE FUSION FOR HYPERSPECTRAL IMAGERY**
Danfeng Liu, Liguo Wang, Harbin Engineering University, China; Jón Atli Benediktsson, University of Iceland, Iceland

TU2.W2.2 10:50 **LOCAL DETAIL ENHANCED HYPERSPECTRAL IMAGE VISUALIZATION**
Jialu Fang, Yuntao Qian, College of Computer Science, Zhejiang University, China

TU2.W2.3 11:10 **SALIENCY BASED VISUALIZATION OF HYPER-SPECTRAL IMAGES**
Haris Ahmad Khan, Institute of Space Technology, Pakistan; Muhammad Murtaza Khan, National University of Sciences and Technology, Pakistan; Khurram Khurshid, Institute of Space Technology, Pakistan; Jocelyn Chanussot, GIPSA-Lab, Grenoble Institute of Technology, France

TU2.W2.4 11:30 **PANSHARPENING BASED ON AN IMPROVED RATIO ENHANCEMENT**
Xinzhi Li, Beijing Key Laboratory of Digital Media, School of Comput er Science and Engineering, Beihang University, Beijing 100191, China, China; Qizhi Xu, School of Computer Science and Engineering, Beihang University, China; Feng Gao, School of Computer Science and Engineering, Beihang University, China; Lei Hu, School of Computer Information Engineering, Jiangxi Normal University, China

TU2.W2.5 11:50 **MTF-DEBLURRING PREPROCESSING FOR CS AND MRA PANSHARPENING METHODS**
Frosti Palsson, Johannes R. Sveinsson, Magnus O. Ulfarsson, Jón Atli Benediktsson, University of Iceland, Iceland

Tuesday, July 28 | 13:30 - 15:10 | White 2
Session TU3.W2 | Oral

Feature Selection Techniques in Hyperspectral Imagery

Session Co-Chairs: Mauro Dalla Mura, Gipsa-lab Grenoble-INP; Saurabh Prasad, Univ. of Houston

TU3.W2.1 13:30 **SUBSPACE CLASS-DEPENDENT SPARSE REPRESENTATION FOR AIRBORNE AND TERRESTRIAL HYPERSPECTRAL IMAGE ANALYSIS**
Minshan Cui, Saurabh Prasad, University of Houston, United States

TU3.W2.2 13:50 **A NOVEL METHOD FOR FEATURE SELECTION WITH RANDOM SAMPLING HDMR AND ITS APPLICATION TO HYPERSPECTRAL IMAGE CLASSIFICATION**
Gulsen Taskin, Huseyin Kaya, Istanbul Technical University, Turkey; Lorenzo Bruzzone, University of Trento, Italy

TU3.W2.3 14:10 **A RANDOM FOREST CLASS MEMBERSHIPS BASED WRAPPER BAND SELECTION CRITERION : APPLICATION TO HYPERSPECTRAL**
Arnaud Le Bris, IGN France, France; Nesrine Chehata, Bordeaux INP, France; Xavier Briottet, ONERA, France; Nicolas Paparoditis, IGN France, France

TU3.W2.4 14:30 **AN ENHANCED DENSITY PEAK-BASED CLUSTERING APPROACH FOR HYPERSPECTRAL BAND SELECTION**
Guihua Tang, Sen Jia, Shenzhen University, China; Jun Li, Sun Yat-sen University, China

TU3.W2.5 14:50 **FEATURE SPACE DIMENSIONALITY REDUCTION FOR THE OPTIMIZATION OF VISUALIZATION METHODS**
Andreea Griparis, Daniela Faur, Politehnica University of Bucharest, Romania; Mihai Datcu, German Aerospace Center (DLR), Germany

Tuesday, July 28 | 15:40 - 17:20 | White 2
Session TU4.W2 | Oral

Feature Extraction and Reduction

Session Co-Chairs: Tom Ainsworth, Naval Research Laboratory; Fabio Del Frate, Univ. Rome "Tor Vergata"

TU4.W2.1 15:40 **SPATIAL/SPECTRAL INFORMATION TRADE-OFF IN HYPERSPECTRAL IMAGES**
Valero Laparra, University of Valencia, Spain; Raul Santos-Rodriguez, University of Bristol, United Kingdom

TU4.W2.2 16:00 **GRADIENT-GUIDED SPARSE REPRESENTATION FOR HYPERSPECTRAL IMAGE DENOISING**
Ting Lu, Shutao Li, Hunan University, China

TU4.W2.3 16:20 **CONTEXTUAL SUPERPIXEL DESCRIPTION FOR REMOTE SENSING IMAGE CLASSIFICATION**
John Edgar Vargas, Alexandre Xavier Falcão, University of Campinas, Brazil; Jefersson Alex dos Santos, Universidade Federal de Minas Gerais, Brazil; Júlio César Dalla Mora Esquerdo, Alexandre Camargo Coutinho, João Francisco Gonçalves Antunes, Embrapa Agriculture Informatics, Brazil

TU4.W2.4 16:40 **A NOVEL POLARIMETRIC-TEXTURE-STRUCTURE DESCRIPTOR FOR HIGH-RESOLUTION POLSAR IMAGE CLASSIFICATION**
Yu Bai, Wen Yang, Gui-Song Xia, Mingsheng Liao, Wuhan University, China

TU4.W2.5 17:00 **POLARIMETRIC SAR DATA FEATURE SELECTION USING MEASURES OF MUTUAL INFORMATION**
Radu Tanase, Anamaria Radoi, University Politehnica of Bucharest, Romania; Mihai Datcu, German Aerospace Center (DLR), Germany; Dan Raducanu, Military Technical Academy, Romania

Tuesday, July 28 | 08:20 - 10:00 | Green 1
Session TU1.G1 | Oral

Heat Wave and Soil Sealing in Urban Areas

Session Co-Chairs: Fabio Dell'Acqua, University of Pavia; Yifang Ban, KTH Royal Institute of Technology

TU1.G1.1 08:20 **DOWNSCALING OF THE LAND SURFACE TEMPERATURE OVER URBAN AREA USING LANDSAT DATA**
Stefania Bonafoni, University of Perugia, Italy; Roberta Anniballe, Nazzareno Pierdicca, Sapienza University of Rome, Italy

TU1.G1.2 08:40 **ASSESSING THE URBAN FABRIC VULNERABILITY TO HEAT WAVES AND UHI USING REMOTE SENSING AND OBJECT CLASSIFICATION**
Flavio Borfecchia, Emanuela Caiaffa, Vittorio Rosato, Maurizio Pollino, Luigi De Cecco, Sandro Martini, Luigi La Porta, ENEA, Italy; Simone Ombuen, Lorenzo Barbieri, Federica Benelli, Flavio Camerata, Valeria Pellegrini, Andrea Filpa, University Roma 3, Italy

TU1.G1.3 09:00 **EXTRACTION OF URBAN IMPERVIOUS SURFACE FROM MULTI-TEMPORAL WORLDVIEW-2 IMAGERY USING SPECTRAL MIXTURE ANALYSIS: A COMPARATIVE STUDY**
Yan Chen, Peijun Li, Peking University, China

TU1.G1.4 09:20 **DETECTION OF IMPERVIOUS SURFACES WITH NIGHTTIME PHOTOGRAPHY FROM THE INTERNATIONAL SPACE STATION**
Andrzej Kotarba, Sebastian Aleksandrowicz, Centrum Badan Kosmicznych PAN, Poland

TU1.G1.5 09:40 **DERIVING SOIL SEALING DEGREE FROM NIGHTTIME VIIRS IMAGERY**
Demetris Stathakis, University of Thessaly, Greece

Tuesday, July 28 | 10:30 - 12:10 | Green 1
Session TU2.G1 | Oral

Built-up Area Extraction and Detection

Session Chair: Raffaella Guida, Univ. of Surrey

TU2.G1.1 10:30 **A PCA-BASED HYBRID APPROACH FOR BUILT-UP AREA EXTRACTION FROM LANDSAT 5, 7 AND 8 DATASETS**
Daniele De Vecchi, Mostapha Harb, Fabio Dell'Acqua, University of Pavia / EUCENTRE Foundation, Italy

TU2.G1.2 10:50 **INTEGRATION OF REMOTE SENSING, GIS AND CENSUS DATA AS A TOOL FOR URBAN ENVIRONMENTAL QUALITY ASSESSMENT**
Kamil Faisal, Ahmed Shaker, Ryerson University, Canada

TU2.G1.3 11:10 **HIGH RESOLUTION VISIBLE IMAGE COMPLETION OF URBAN REGION USING CORRESPONDING HYPERSPECTRAL IMAGE**
Xudong Kang, Shutao Li, Leyuan Fang, Hunan University, China; Jón Atli Benediktsson, University of Iceland, Iceland

TU2.G1.4 11:30 **AN URBAN EXPANSION MODEL FOR AFRICAN CITIES USING FUSED MULTI TEMPORAL OPTICAL AND SAR DATA**
Michal Shimoni, Juanfran Lopez, Signal and Image Centre (SIC-RMA), Belgium; Yann Forget, Eleonore Wolff, ULB, Belgium; Caroline Michellier, Royal Museum for Central Africa (RMCA), Belgium; Tais Grippa, Catherine Linard, Marius Gilbert, ULB, Belgium

TU2.G1.5 11:50 **BUILDING HEIGHT RETRIEVAL FROM WORLDVIEW-2 MULTI-ANGULAR IMAGES**
Andrea Garzelli, University of Siena, Italy

Tuesday, July 28 | 13:30 - 15:10 | Green 1
Session TU3.G1 | Oral

Urban Area Monitoring in the Microwave Region

Session Co-Chairs: Richard Bamler, German Aerospace Center (DLR); Yifang Ban, KTH Royal Institute of Technology

TU3.G1.1 13:30 **PRELIMINARY ASSESSMENT OF ALOS/PALSAR IMAGES FOR THE INTERNATIONAL ROUGHNESS INDEX ESTIMATION**
Flavio Fortes Camargo, Edson Eyji Sano, Gustavo Macedo de Mello Baptista, Universidade de Brasília, Brazil; Raphael de Oliveira Borges, Departamento Nacional de Infraestrutura de Transportes, Brazil

TU3.G1.2 13:50 **COMPARISON OF URBAN AREAS EXTRACTED BY USING L-BAND AND X-BAND FULLY POLARIMETRIC SAR IMAGES**
Junichi Susaki, Masaaki Kishimoto, Kyoto University, Japan

TU3.G1.3 14:10 **SENTINEL-1 FOR URBAN AREA MONITORING - ANALYSING LOCAL-AREA STATISTICS AND INTERFEROMETRIC COHERENCE METHODS FOR BUILDINGS' DETECTION**
Kalev Koppel, Software Technology and Applications Competence Center, Estonia; Karlis Zalite, Anni Sisas, Kaupo Voormansik, Tartu Observatory, Estonia; Jaan Praks, Aalto University, Finland; Mart Noorma, Tartu Observatory, Estonia

TU3.G1.4 14:30 **SENTINEL-1A SAR DATA FOR GLOBAL URBAN MAPPING: PRELIMINARY RESULTS**
Alexander Jacob, Yifang Ban, KTH Royal Institute of Technology, Sweden

TU3.G1.5 14:50 **MONITORING URBAN AREA BY MEANS OF LONG TERM DINSAR TIME SERIES**
Manuela Bonano, IREA CNR, Italy; Peppe Junior Valentino D'Aranno, Sapienza University of Rome, Italy; Michele Manunta, IREA CNR, Italy; Maria Marsella, Silvia Scifoni, Sapienza University of Rome, Italy; Marianna Scutti, Survey Lab srl Spin Off Sapienza University, Italy; Alberico Sonnessa, Sapienza University of Rome, Italy; Chandrakanta Ojha, IREA CNR, Italy

Tuesday, July 28 | 15:40 - 17:20 | Green 1
Session TU4.G1 | Oral

Wetlands Monitoring I

Session Co-Chairs: Ridha Touzi, Canada Centre for Remote Sensing; Saurabh Prasad, Univ. of Houston

TU4.G1.1 15:40 **CORRELATING PEAK NDVIS OF SALT MARSHES WITH ENVIRONMENTAL CONDITIONS IN LOUISIANA, USA, USING PRINCIPAL COMPONENT ANALYSIS**
Yu Mo, Michael Kearney, Bahram Momen, Joyce Riter, University of Maryland, College Park, United States

TU4.G1.2 16:00 **THE GLOBAL MANGROVE WATCH (GMW): MAPPING GLOBAL MANGROVE BASELINE AND TIME-SERIES CHANGES IN EXTENT WITH ALOS PALSAR**
Nathan Thomas, Peter Bunting, Andrew Hardy, Aberystwyth University, United Kingdom; Richard M. Lucas, University of New South Wales, Australia

TU4.G1.3 16:20 **MONITORING FLOODS IN THE KAFUE FLATS WITH TANDEM-X DATA**
Melchior Weber, ETH Zurich, Switzerland; Armando Marino, Open University/ETH Zurich, United Kingdom; Florian Kock, ETH Zurich, Germany; Irena Hajnsek, ETH Zurich/DLR, Germany

TU4.G1.4 16:40 **ASSESSMENT OF FIRE PEATLAND DAMAGES USING POLARIMETRIC L-BAND ALOS**
Ridha Touzi, Khalid Omari, CCRS, Canada; Bob Sleep, ESRD, Canada

TU4.G1.5 17:00 **PROGRESS IN L-BAND SAR-BASED MAPPING OF WETLANDS OF ALASKA AND CANADA**
Jane Whitcomb, University of Southern California, United States; Daniel Clewley, Plymouth Marine Laboratory, United Kingdom; Mahta Moghaddam, University of Southern California, United States; Kyle McDonald, City University of New York, United States

Tuesday, July 28 | 08:20 - 10:00 | Green 2
Session TU1.G2 | Oral

Active Sensing of Ocean Winds

Session Co-Chairs: Mark Bourassa, COAPS/Florida State University; Ernesto Rodriguez, NASA Jet Propulsion Laboratory

TU1.G2.1 08:20 **THE ISS-RAPIDSCAT MISSION: FIRST YEAR RESULTS**
Ernesto Rodriguez, Alexander Fore, Svetla Hristova-Veleva, Sermsak Jaruwatanadilok, Bryan Stiles, Jet Propulsion Laboratory, United States

TU1.G2.2 08:40 **SEA-SURFACE NRCS OBSERVATIONS IN HIGH WINDS AT LOW INCIDENCE ANGLES**
Joseph Sapp, Paul Chang, Zorana Jelenak, NOAA, United States; Stephen Frasier, Tom Hartley, University of Massachusetts, United States

TU1.G2.3 09:00 **VALIDATION AND EVALUATION OF CYGNSS WIND RETRIEVAL PERFORMANCE**
Zorana Jelenak, Paul Chang, Seubson Soisuvarn, Faozi Said, NOAA/NESDIS, United States

TU1.G2.4 09:20 **MODELING OCEAN WAVE SURFACE TO SIMULATE SPACEBORNE SCATTEROMETER OBSERVATIONS IN PRESENCE OF RAIN**
Federica Polverari, Frank Silvio Marzano, Sapienza University of Rome, Italy; Luca Pulvirenti, CIMA Research Foundation, Italy; Nazzareno Pierdicca, Sapienza University of Rome, Italy; Svetla Hristova-Veleva, Francis Joseph Turk, Jet Propulsion Laboratory, California Institute of Technology, United States

TU1.G2.5 09:40 **A C-BAND CROSS POLARIZATION GEOPHYSICAL MODEL FUNCTION**
Paul Hwang, NRL, United States; Ad Stoffelen, Gerd-Jan van Zadelhoff, KNMI, Netherlands; William Perrie, Bedford Institute of Oceanography, Canada; Biao Zhang, Nanjing University, China; Haiyan Li, Hui Shen, Chinese Academy of Sciences, China

Tuesday, July 28 | 10:30 - 12:10 | Green 2
Session TU2.G2 | Oral

Ocean Winds for Climate Studies

Session Co-Chairs: Ad Stoffelen, Koninklijk Nederlands Meteorologisch Instituut (KNMI); Naoto Ebuchi, Hokkaido University

TU2.G2.1 10:30 **A LONG-TERM OCEAN WIND AND STRESS VECTOR CDR**
Ad Stoffelen, Anton Verhoef, Jur Vogelzang, Jos de Kloe, Maria Belmonte, Jeroen Verspeek, KNMI, Netherlands

TU2.G2.2 10:50 **HADLEY CELL TRENDS AND VARIABILITY AS DETERMINED FROM SCATTEROMETER OBSERVATIONS: HOW RAPIDSCAT WILL HELP ESTABLISHING RELIABLE LONG-TERM RECORD.**
Svetla Hristova-Veleva, Ernesto Rodriguez, Ziad S. Haddad, Bryan Stiles, Francis Joseph Turk, Jet Propulsion Laboratory, California Institute of Technology, United States

TU2.G2.3 11:10 **CROSS-CALIBRATED GLOBAL OCEAN WIND SPEEDS FROM MULTIPLE ACTIVE/PASSIVE MICROWAVE SENSORS**
Lucrezia Ricciardulli, Thomas Meissner, Frank Wentz, Remote Sensing Systems, United States

TU2.G2.4 11:30 **SCATTEROMETER-BASED EVALUATION OF WIND STRESS SIMULATED BY CLIMATE MODELS**
Tong Lee, Jet Propulsion Laboratory, California Institute of Technology, United States

TU2.G2.5 11:50 **MITIGATING THE SCATTEROMETER- MODEL WIND BIASES IN THE ADRIATIC SEA**
Francesco De Biasio, Antonio della Valle, Stefano Zecchetto, National Research Council, Italy

Tuesday, July 28 | 13:30 - 15:10 | Green 2
Session TU3.G2 | Oral

High Resolution Ocean Winds and Waves

Session Co-Chairs: Ad Stoffelen, Koninklijk Nederlands Meteorologisch Instituut (KNMI); David Weissman, Hofstra University

TU3.G2.1 13:30 **A KU-BAND SAR MISSION CONCEPT FOR OCEAN SURFACE CURRENT MEASUREMENT USING DUAL BEAM ATI AND HYBRID POLARIZATION**
Steffen Wollstadt, Paco López-Dekker, Francesco De Zan, Marwan Younis, German Aerospace Center (DLR), Germany; Richard E. Danielson, Nansen Environmental and Remote Sensing Center, Norway; Volker Tesmer, OHB System AG, Germany; Luis Martins Camelo, MacDonald, Dettwiler and Associates, Canada

TU3.G2.2 13:50 **HIGH WAVENUMBER OCEAN WAVE SPECTRA DETERMINED THROUGH POLARIMETRIC IMAGING**
Christopher J Zappa, Deborah A LeBel, Lamont-Doherty Earth Observatory of Columbia University, United States; Michael L Banner, The University of New South Wales, Australia

TU3.G2.3 14:10 **RECONSTRUCTION OF OCEAN VELOCITIES FROM THE SYNERGY BETWEEN SSH AND SST MEASUREMENTS**
Jordi Isern-Fontanet, Cristina Gonzalez-Haro, Institut de Ciencies del Mar (CSIC), Spain

TU3.G2.4 14:30 **EARLY VALIDATION OF OPERATIONAL SAR WIND RETRIEVALS FROM SENTINEL-1A**
Francis Monaldo, Johns Hopkins University Applied Physics Laboratory, United States; Christopher Jackson, GST at NOAA, United States; William Pichel, NOAA, United States; Xiaofeng Li, GST at NOAA, United States

TU3.G2.5 14:50 **ANALYSIS OF SUB-MESOSCALE EDDIES IN THE BALTIC SEA BASED ON SAR IMAGERY AND MODEL WIND DATA**
Svetlana Karimova, Helmholtz-Zentrum Geesthacht, Germany; Martin Gade, Universität Hamburg, Germany

Tuesday, July 28 | 15:40 - 17:20 | Green 2
Session TU4.G2 | Oral

Ocean Altimetry I

Session Co-Chairs: Paolo Cipollini, National Oceanography Centre, United Kingdom; Ronan Fablet, Télécom Bretagne

TU4.G2.1 15:40 **MINIATURIZED ALTIMETER**
Benjamin Carayon, Sophie Ramongassié, Jacques Richard, Paddy Perottino, Jérôme Lorenzo, Thales Alenia Space, France; Michael Ludwig, Amanda Regan, Jean-Christophe Angevain, European Space Agency, ESTEC, Netherlands

TU4.G2.2 16:00 **SPATIO-TEMPORAL ALTIMETER WAVEFORM RETRACKING VIA SPARSE REPRESENTATION AND CONDITIONAL RANDOM FIELDS**
Ribana Roscher, Freie Universität Berlin, Germany; Bernd Uebbing, Jürgen Kusche, University of Bonn, Germany

TU4.G2.3 16:20 **AN EXTENDED ANALYSIS OF ALONG-TRACK ANTENNA PATTERN COMPENSATION FOR SAR ALTIMETRY**
Michele Scagliola, Aresys srl, Italy; Salvatore Dinardo, Serco / European Space Agency, Italy; Marco Fornari, European Space Agency (ESA), Netherlands

TU4.G2.4 16:40 **IMPROVED MULTI-MISSION COASTAL ALTIMETRY FROM THE ALES GLOBAL DATASET**
Marcello Passaro, Graduate School National Oceanography Centre Southampton, United Kingdom; Paolo Cipollini, National Oceanography Centre Southampton, United Kingdom; Jessica Hausman, Jet Propulsion Laboratory, United States; Graham Quartly, Plymouth Marine Laboratory, United Kingdom; Helen Snaith, British Oceanographic Data Centre, United Kingdom

TU4.G2.5 17:00 **SPATIAL DECOMPOSITION OF SST-SSH RELATIONSHIPS IN RELATION TO THE IDENTIFICATION OF SQG-LIKE UPPER OCEAN DYNAMICS FROM SPACE**
Clément Le Goff, Ronan Fablet, Pierre Tandeo, Telecom Bretagne, France; Bertrand Chapron, Ifremer centre de Brest, France

Tuesday, July 28 | 08:20 - 10:00 | Green 3
Session TU1.G3 | Oral

Sensors and Missions

Session Co-Chairs: Yves-Louis Desnos, European Space Agency; Alberto Moreira, German Aerospace Center (DLR)

TU1.G3.1 08:20 **FIRST INTERFEROMETRIC PERFORMANCE ANALYSIS OF FULL POLARIMETRIC TANDEM-X ACQUISITIONS IN THE PURSUIT MONOSTATIC PHASE**
Jose Luis Bueso Bello, Michele Martone, Carolina Gonzalez, Thomas Kraus, Benjamin Bräutigam, German Aerospace Center (DLR), Germany

TU1.G3.2 08:40 **PROBA-V'S NEW ASSETS FOR GLOBAL MONITORING OF VEGETATION GROWTH**
Wouter Dierckx, Iskander Benhadj, Sindy Sterckx, Stefan Adriaensen, Else Swinnen, Erwin Wolters, Dennis Clarijs, Tom Van Roey, Jan Dries, Bart Deronde, Flemish Institute of Technological Research (VITO nv), Belgium

TU1.G3.3 09:00 **CHARACTERISTICS AND TYPICAL APPLICATIONS OF GF-1 SATELLITE**
Chunling Lu, DongFangHong Satellite Co. LTD., China; Zhaoguang Bai, DongFangHong satellite Co. LTD., China

TU1.G3.4 09:20 **GLOBAL ASSESSMENT OF HY-2 SATELLITE**
Mingsen Lin, Yongjun Jia, Youguang Zhang, National Satellite Ocean Application Service, China

TU1.G3.5 09:40 **NANO-SATELLITE FORMATIONS FOR AEROSOL ASSESSMENT**
Sreeja Nag, Massachusetts Institute of Technology, United States; Kirk Knobelspiesse, Matthew Johnson, NASA Ames Research Center, United States; Charles Gatebe, NASA Goddard Space Flight Center, United States

Tuesday, July 28 | 10:30 - 12:10 | Green 3
Session TU2.G3 | Oral

Future Missions

Session Co-Chairs: Irena Hajnsek, ETH / German Aerospace Center (DLR); Steve Iris, Canadian Space Agency

TU2.G3.1 10:30 **THE NASA CYGNSS TROPICAL CYCLONE MISSION**
Christopher S. Ruf, Aaron Ridley, Maria-Paola Clarizia, University of Michigan, United States; Scott Gleason, Randall Rose, John Scherrer, Southwest Research Institute, United States

TU2.G3.2 10:50 **ALOS-NEXT/TANDEM-L: A HIGHLY INNOVATIVE SAR MISSION FOR GLOBAL OBSERVATION OF DYNAMIC PROCESSES ON THE EARTH'S SURFACE**
Alberto Moreira, Gerhard Krieger, German Aerospace Center (DLR), Germany; Irena Hajnsek, German Aerospace Center (DLR) / ETH Zurich, Germany; Konstantinos Papathanassiou, Marwan Younis, Paco López-Dekker, Sigurd Huber, Michael Eineder, German Aerospace Center (DLR), Germany; Masanobu Shimada, Takeshi Motohka, Manabu Watanabe, Masato Ohki, Akihisa Uematsu, Satoru Ozawa, Japan Aerospace Exploration Agency, Japan

TU2.G3.3 11:10 **JUPITER ICY MOON EXPLORER (JUICE): ADVANCES IN THE DESIGN OF THE RADAR FOR ICY MOONS**
Lorenzo Bruzzone, Department of Information Engineering and Computer Science, University of Trento, Italy; Jeffrey J. Plaut, Jet Propulsion Laboratory, California Institute of Technology, United States; Giovanni Alberti, C.O.R.I.S.T.A., Italy; Donald D. Blankenship, Institute for Geophysics, University of Texas at Austin, United States; Francesca Bovolo, Center for Information and Communication Technologies, Fondazione Bruno Kessler, Italy; Bruce Campbell, Smithsonian Institution, Center for Earth and Planetary Studies, United States; Davide Castelletti, Department of Information Engineering and Computer Science,University of Trento, Italy; Yonggyu Gim, Jet Propulsion Laboratory, California Institute of Technology, United States; Ana-Maria Ilisei, Department of Information Engineering and Computer Science, University of Trento, Italy; Wlodek Kofman, Institut de Planetologie ed d'Astrophysique de Grenoble, France; Goro Komatsu, Int. Research School of Planetary Sciences, Università d'Annunzio, Italy; William McKinnon, Washington University in St. Louis, United States; Giuseppe Mitri, Laboratoire de Planétologie et Géodynamique, Université de Nantes, France; Alina Moussessian, Jet Propulsion Laboratory, California Institute of Technology, United States; Claudia Notarnicola, EURAC, Italy; Roberto Orosei, INAF/IRA, Italy; G. Wesley Patterson, Johns Hopkins University Applied Physics Laboratory, United States; Elena Pettinelli, Università Roma Tre, Italy; Dirk Plettemeier, Technische Universität Dresden, Germany

TU2.G3.4 11:30 **THE NEW POLARIMETRIC RADIO-OCCULTATIONS MISSION ABOARD PAZ LEO FOR ATMOSPHERIC AND PRECIPITATION SOUNDING**
Estel Cardellach, Ramon Padulles, Sergio Tomas, Santiago Oliveras, Antonio Rius, Institute for Space Sciences ICE-CSIC/IEEC, Spain; Manuel de la Torre-Juarez, Francis Joseph Turk, Chi O. Ao, NASA Jet Propulsion Laboratory, United States; Robert Kursinski, Moog Broad Reach, United States; Bill Shreiner, Dave Ector, UCAR, United States; Lidia Cucurull, NOAA, United States; Jens Wickert, GFZ Potsdam, Germany

TU2.G3.5 11:50 **RAINCUBE: A PROPOSED CONSTELLATION OF PRECIPITATION PROFILING RADARS IN CUBESAT**
Eva Peral, Simone Tanelli, Ziad S. Haddad, Ousmane Sy, Graeme Stephens, Eastwood Im, Jet Propulsion Laboratory, United States

Tuesday, July 28 | 13:30 - 15:10 | Green 3
Session TU3.G3 | Oral

Satellite Products

Session Co-Chairs: Shen-En Qian, Canadian Space Agency; Wooil Moon, University of Manitoba

TU3.G3.1 13:30 **DYNAMIC CONTINUTY OF GLOBAL LAND SCIENCE PRODUCTS FROM SUOMI NPP VIIRS: OVERVIEW AND STATUS**
Miguel Román, NASA Goddard Space Flight Center, United States; Chris Justice, University of Maryland, United States; Ivan Csiszar, NOAA NESDIS Center for Satellite Applications and Research, United States; Edward Masuoka, NASA Goddard Space Flight Center, United States

TU3.G3.2 13:50 **JPSS-1 SCIENCE DATA PRODUCT VERIFICATION AND VALIDATION: PRE-LAUNCH TO POST-LAUNCH PLANS**
Murty Divakarla, Scientist/IM Systems group Inc.,, United States; Lihang Zhou, Center for Satellite Applicaitons and Research, United States; Xingpin Liu, IM Systems Group, Inc.,, United States; Walter Wolf, Center for Satellite Applicaitons and Research, United States; Eric Gottshall, NASA/GSFC JPSS Ground Project, United States; Janna Feeley, JPSS Ground Project, United States; Thomas Atkins, IM Systems Group, Inc.,, United States; Robert Steadley, Ray Godin, JPSS Ground Project, United States

TU3.G3.3 14:10 **DEMONSTRATIVE GEOSYNCHRONOUS SAR PRODUCTS AFFECTED BY CLUTTER AND APS DECORRELATION**
Andrea Recchia, Andrea Monti Guarnieri, Politecnico di Milano, Italy; Michele Belotti, Davide Giudici, Aresys srl, Italy; Antonio Leanza, Politecnico di Milano, Italy

TU3.G3.4 14:30 **COSMO-SKYMED MISSION: LESSONS LEARNT AND FUTURE IMPROVEMENTS ON USER SERVICES**
Luca Fasano, Maria Girolamo Daraio, Patrizia Sacco, Alessandro Coletta, Giuseppe Francesco De Luca, Maria Libera Battagliere, Mauro Cardone, Rosa Loizzo, Agenzia Spaziale Italiana (ASI), Italy

TU3.G3.5 14:50 **TRANSITIONING EARTH REMOTE SENSING DATA TO BENEFIT SOCIETY: A PARADIGM FOR A CENTER OF EXCELLENCE**
Gary Jedlovec, National Aeronautics and Space Administration, United States; Einar Bjorgo, United Nation Institute for Training and Research, Switzerland; Anthony Burn, Center for Advancement of Science in Space, United Kingdom

Tuesday, July 28 | 15:40 - 17:20 | Green 3
Session TU4.G3 | Oral

SAR Instruments and Calibration

Session Co-Chairs: Yves-Louis Desnos, European Space Agency; Irena Hajnsek, ETH / German Aerospace Center (DLR)

TU4.G3.1 15:40 **ORBIT ACCURACY ESTIMATION BY MULTI-SQUINT PHASE: FIRST SENTINEL-1 RESULTS**
Simone Mancon, Stefano Tebaldini, Andrea Monti Guarnieri, Politecnico di Milano, Italy; Davide Giudici, Aresys srl, Italy

TU4.G3.2 16:00 **CALIBRATION OF A MINIATURIZED FMCW ATI-SAR FOR NORMALIZED RADAR CROSS SECTION MEASUREMENT**
Gordon Farquharson, Shadi Aslebagh, John Mower, University of Washington, United States

TU4.G3.3 16:20 **A POLARIMETRIC ACTIVE TRANSPONDER WITH EXTREMELY LARGE RCS FOR ABSOLUTE RADIOMETRIC CALIBRATION OF SMAP RADAR**
Kamal Sarabandi, Mani Kashanianfard, Adib Nashashibi, Ryan Hampton, Leland Pierce, The University of Michigan, United States

TU4.G3.4 16:40 **POLARIMETRIC CALIBRATION OF PALSAR2**
Toshifumi Moriyama, Nagasaki University, Japan

TU4.G3.5 17:00 **ESTIMATION OF IONOSPHERIC DISTORTIONS FROM SAR DATA BY MEANS OF AZIMUTH SUB-BANDS**
Jun Su Kim, Konstantinos Papathanassiou, German Aerospace Center (DLR), Germany

Tuesday, July 28 08:20 - 10:00 Yellow 1

Session TU1.Y1 Oral

Soil Moisture Validation: A Session in Memoriam of A. Shutko

Session Co-Chairs: Adriano Camps, Universitat Politècnica de Catalunya; Peggy O'Neill, NASA

TU1.Y1.1 08:20 EARLY ASSESSMENT OF SMAP LEVEL 2/3 SOIL MOISTURE PRODUCTS OVER CORE VALIDATION SITES

Andreas Colliander, Jet Propulsion Laboratory, California Institute of Technology, United States; Thomas Jackson, U.S. Department of Agriculture - ARS Hydrology and Remote Sensing Laboratory, United States; Steven Chan, Narendra N. Das, Seungbum Kim, Scott Dunbar, Jet Propulsion Laboratory, California Institute of Technology, United States; Rajat Bindlish, U.S. Department of Agriculture - ARS Hydrology and Remote Sensing Laboratory, United States; Lan Dang, Lala Pashaian, Jet Propulsion Laboratory, California Institute of Technology, United States; Aaron Berg, Tracy Rowlandson, University of Guelph, Canada; Kelly Caylor, Princeton University, United States; Michael Cosh, U.S. Department of Agriculture - ARS Hydrology and Remote Sensing Laboratory, United States; Hala Khalid Al Jassar, Princeton University, Kuwait; Ernesto Lopez-Baeza, University of Valencia, Spain; Jose Martínez-Fernández, Ángel González-Zamora, University of Salamanca, Spain; Heather McNairn, Anna Pacheco, Agriculture and Agri-Food Canada, Canada; Mahta Moghaddam, University of Southern California, United States; Carsten Montzka, Research Center Juelich, Germany; Claudia Notarnicola, EURAC-Institute for Applied Remote Sensing, Italy; Georg Niedrist, EURAC-Institute for Alpine Environment, Italy; Thierry Pellarin, University of Grenoble, France; Jouni Pulliainen, Kimmo Rautiainen, Finnish Meteorological Institute, Finland; Judith Ramos, Autonomous University of Mexico, Mexico; M. Seyfried, U.S. Department of Agriculture ARS Northwest Watershed Management Research, United States; Zhongbo Su, Y. Zeng, Rogier van der Velde, ITC Faculty, University of Twente, Netherlands; Marouane Temimi, The City College of New York, United States; Marc Thibeault, Comisión Nacional de Actividades Espaciales, Argentina; Wouter Dorigo, Mariette Vreugdenhil, Vienna University of Technology, Austria; Jeffrey Walker, Xiaoling Wu, Alessandra Monerris-Belda, Monash University, Australia; Michael Spencer, Jet Propulsion Laboratory, California Institute of Technology, United States; Peggy O'Neill, NASA Goddard Space Flight Center, United States; Dara Entekhabi, Massachusetts Institute of Technology, United States; Simon Yueh, Eni Njoku, Jet Propulsion Laboratory, California Institute of Technology, United States

TU1.Y1.2 08:40 THE FOURTH SMAP EXPERIMENT (SMAPEX-4): TOWARDS VALIDATION OF SMAP OBSERVATIONS AND SOIL MOISTURE RETRIEVALS

Nan Ye, Jeffrey Walker, Christoph Rüdiger, Xiaoling Wu, Monash University, Australia; Thomas Jackson, United States Department of Agriculture, United States; Dara Entekhabi, Massachusetts Institute of Technology, United States; Richard de Jeu, Vrije University of Amsterdam, Netherlands; Olivier Merlin, Center for the Study of the Biosphere from Space, France; Edward Kim, NASA, United States; Luigi Renzullo, CSIRO, Australia

TU1.Y1.3 09:00 ROBUST ASSESSMENT OF AN OPERATIONAL ALGORITHM FOR THE RETRIEVAL OF SOIL MOISTURE FROM AMSR-E DATA IN CENTRAL ITALY

Emanuele Santi, Simonetta Paloscia, Simone Pettinato, Luca Brocca, Luca Ciabatta, National Research Council, Italy

TU1.Y1.4 09:20 AQUARIUS SOIL MOISTURE PRODUCT DEVELOPMENT AND VALIDATION

Rajat Bindlish, Thomas Jackson, Michael Cosh, Evan Coopersmith, U.S. Department of Agriculture, United States; Aaron Berg, University of Guelph, Canada; Heather McNairn, Agriculture and Agri-Food Canada, Canada; Jeffrey Walker, Monash University, Australia; Yijian Zeng, Zhongbo Su, Rogier Velde, University of Twente, Netherlands; José Martínez-Fernández, Universidad de Salamanca, Spain

TU1.Y1.5 09:40 APPLICATION OF TRIPLE COLLOCATION FOR THE GROUND-BASED VALIDATION OF SOIL MOISTURE ACTIVE/ PASSIVE (SMAP) SOIL MOISTURE DATA PRODUCTS

Wade Crow, U.S. Department of Agriculture - ARS Hydrology and Remote Sensing Laboratory, United States; Fan Chen, U.S. Department of Agriculture - ARS Hydrology and Remote Sensing Laboratory / SSAI, United States; Andreas Colliander, Michael Cosh, California Institute of Technology / NASA JPL, United States

Tuesday, July 28 10:30 - 12:10 Yellow 1

Session TU2.Y1 Oral

Soil Moisture Algorithms and Downscaling

Session Co-Chairs: Alicia Joseph, NASA Goddard Space Flight Center; Maria Piles, Universitat Politècnica de Catalunya

TU2.Y1.1 10:30 DOWNSCALING SATELLITE SOIL MOISTURE FOR THE NASA SMAP MISSION

Venkat Lakshmi, Bin Fang, University of South Carolina, United States

TU2.Y1.2 10:50 A MULTITEMPORAL ALGORITHM FOR SMAP DATA: OVERVIEW AND PRELIMINARY RESULTS USING EXPERIMENTAL DATA

Fascetti Fabio, Nazzareno Pierdicca, Sapienza University of Rome, Italy; Luca Pulvirenti, CIMA Research Foundation, Italy

TU2.Y1.3 11:10 EVALUATION OF RADAR VEGETATION INDICES FOR VEGETATION WATER CONTENT ESTIMATION USING DATA FROM A GROUND-BASED SMAP SIMULATOR

Prashant Srivastava, Peggy O'Neill, NASA Goddard Space Flight Center, United States; Michael Cosh, U.S. Department of Agriculture - ARS, United States; Roger Lang, George Washington University, United States; Alicia Joseph, NASA Goddard Space Flight Center, United States

TU2.Y1.4 11:30 PHYSICALLY-BASED ACTIVE-PASSIVE MODELLING AND RETRIEVAL FOR SMAP SOIL MOISTURE INVERSION ALGORITHM

Thomas Jagdhuber, German Aerospace Center (DLR), Germany; Dara Entekhabi, Massachusetts Institute of Technology, United States; Irena Hajnsek, ETH Zurich, Switzerland; Alexandra G. Konings, Kaighin A. McColl, Seyed Hamed Alemohammad, Massachusetts Institute of Technology, United States; Narendra N. Das, Jet Propulsion Laboratory, United States; Carsten Montzka, Research Centre Juelich, Germany

TU2.Y1.5 11:50 SOIL MOISTURE RETRIEVAL WITH S-BAND SAR DATA

Raffaella Guida, University of Surrey, United Kingdom; Vasillis Fotias, Aratos Technologies S.A, Greece

Tuesday, July 28 13:30 - 15:10 Yellow 1

Session TU3.Y1 Oral

Soil Moisture Data Assimilation

Session Co-Chairs: Thomas Holmes, United States Department of Agriculture; Tom Jackson, USDA

TU3.Y1.1 13:30 ASSIMILATING SMOS OBSERVATIONS INTO GLEAM TO IMPROVE EVAPORATION ESTIMATES OVER AUSTRALIA

Diego G. Miralles, VU Amsterdam / Ghent University, Netherlands; Brecht Martens, Ghent University, Belgium; Diego Fernández-Prieto, European Space Research Institute (ESRIN), Italy; Hans Lievens, Niko E.C. Verhoest, Ghent University, Belgium

TU3.Y1.2 13:50 A COMBINED HIERARCHICAL DOWNSCALING AND ASSIMILATION FRAMEWORK FOR RETRIEVAL OF HIGH RESOLUTION ROOT ZONE SOIL MOISTURE AND CROP YIELD FROM REMOTELY SENSED BRIGHTNESS TEMPERATURES

Subit Chakrabarti, Pang-Wei Liu, Tara Bongiovanni, Jasmeet Judge, Anand Rangarajan, Sanjay Ranka, University of Florida, United States; Rajat Bindlish, U.S. Department of Agriculture - ARS, United States; Thomas Jackson, U.S. Department of Agriculture - ARS Hydrology and Remote Sensing, United States

TU3.Y1.3 14:10 ASSIMILATION OF REMOTE SENSING OBSERVATIONS INTO A CONTINUOUS DISTRIBUTED HYDROLOGICAL MODEL: IMPACTS ON THE HYDROLOGIC CYCLE

Paola Laiolo, Simone Gabellani, Lorenzo Campo, Luca Cenci, Francesco Silvestro, Fabio Delogu, Giorgio Boni, Roberto Rudari, CIMA Research Foundation, Italy; Silvia Puca, Italian National Civil Protection Department, Italy; Anna Rita Pisani, Agenzia Spaziale Italiana (ASI), Italy

TU3.Y1.4 14:30 JOINT RADAR-RADIOMETER MULTI-PARAMETER ESTIMATION OF SURFACE SOIL MOISTURE AND ROUGHNESS

Ruzbeh Akbar, Pratik Shah, Mahta Moghaddam, University of Southern California, United States

TU3.Y1.5 14:50 ASSIMILATION OF SMOS OBSERVATIONS TO IMPROVE HYDROLOGIC SIMULATIONS IN THE MURRAY DARLING BASIN, AUSTRALIA

Hans Lievens, Ghent University, Belgium; Ahmad Al Bitar, Centre d'Etudes Spatiales de la Biosphère, France; Gabrielle De Lannoy, NASA Goddard Space Flight Center, United States; Matthias Drusch, European Space Agency (ESA), Netherlands; Gift Dumedah, Monash University, Australia; Harrie-Jan Hendricks Franssen, Forschungszentrum Jülich, Germany; Yann Kerr, Sat Kumar Tomer, Centre d'Etudes Spatiales de la Biosphère, France; Brecht Martens, Ghent University, Belgium; Ming Pan, Princeton University, United States; Joshua Roundy, NASA Goddard Space Flight Center, United States; Harry Vereecken, Forschungszentrum Jülich, Germany; Niko Verhoest, Ghent University, Belgium; Jeffrey Walker, Monash University, Australia; Eric Wood, Princeton University, United States; Valentijn Pauwels, Monash University, Australia

Tuesday, July 28 15:40 - 17:20 Yellow 1

Session TU4.Y1 Oral

Soil Moisture Radar Algorithms

Session Co-Chairs: Thomas Jagdhube, German Aerospace Center (DLR); Nicolas Baghdadi, IRSTEA

TU4.Y1.1 15:40 RETRIEVAL OF SOIL MOISTURE USING MULTI-TEMPORAL HYBRID POLARIMETRIC RISAT-1 DATA

Ponnurangam Gramini Ganesan, Indian Institute of Technology Bombay, India; Thomas Jagdhuber, Irena Hajnsek, German Aerospace Center (DLR), Germany; Rao Y.S, Indian Institute of Technology Bombay, India

TU4.Y1.2 16:00 DEVELOPMENT OF A BIOMASS CORRECTED SOIL MOISTURE RETRIEVAL MODEL FOR DUAL-POLARIZATION ALOS-2 DATA BASED ON ALOS/PALSAR AND PI-SAR-L2 OBSERVATIONS

Christian N. Koyama, Tohoku University, Japan; Karl Schneider, University of Cologne, Germany; Motoyuki Sato, Tohoku University, Japan

TU4.Y1.3 16:20 BARE SOIL MOISTURE RETRIEVAL FROM MULTI-TEMPORAL X-BAND TERRASAR-X SAR IMAGES

Azza Gorrab, CESBIO (CNRS/UPS/IRD/CNES) 2-University of Carthage/INAT, France; Mehrez Zribi, CESBIO (CNRS/UPS/IRD/CNES), France; Nicolas Baghdadi, IRSTEA, UMR TETIS, France; Zohra Lili Chabaane, University of Carthage/INAT, Tunisia

TU4.Y1.4 16:40 STUDY OF SOIL RESPONS UNDER A VEGETATION LAYER USING TOMSAR DATA AND GROUND-BASED TOMSAR DATA

Nabil Lahlou, Laurent Ferro-Famil, Sophie Allain-Bailhache, IETR, France

TU4.Y1.5 17:00 SOIL MOISTURE RETRIEVAL OVER IRRIGATED GRASSLANDS USING X-BAND SAR DATA COMBINED WITH OPTICAL DATA ACQUIRED AT HIGH RESOLUTION

Mohammad El Hajj, Nicolas Baghdadi, IRSTEA, UMR TETIS, France; Mehrez Zribi, CESBIO (CNRS/IRD/UPS/CNES), France; Gilles Belaud, SupAgro, UMR G-EAU, France; Bruno Cheviron, IRSTEA, UMR G-EAU, France; Dominique Courault, INRA, UMR 1114 EMMAH, France; Francois Charron, SupAgro, UMR G-EAU, France

Tuesday, July 28 | 08:20 - 10:00 | Yellow 2
Session TU1.Y2 | Oral

Policy Decision

Session Co-Chairs: Charles Luther, Geoscience and Remote Sensing Society; Elizabeth Middleton, NASA

TU1.Y2.1 08:20 **AROUND MONGOLIAN PROTECTED AREAS: LAND USE CHANGE MANAGEMENT TO BALANCE HUMAN NEEDS AND ECOLOGICAL FUNCTION**
Erdenee Batzorig, Bolormaa Purevjav, The Mongolian Remote Sensing Society, Mongolia

TU1.Y2.2 08:40 **CENTER FOR ARCTIC SUSTAINABLE DEVELOPMENT AT THE UNIVERSITY OF ALASKA FAIRBANKS**
Nettie La Belle-Hamer, Jessica Garron, University of Alaska Fairbanks, United States

TU1.Y2.3 09:00 **A NEW APPROACH FOR CCSDS IMAGE COMPRESSION RECOMMENDATION FOR MULTICOMPONENT IMAGES TO CHINA-BRASIL EARTH RESOURCES SATELLITE**
Oscavo Prata, Marcelo Pinho, Instituto Tecnologico de Aeronautica, Brazil

TU1.Y2.4 09:20 **STREAMLINED LOOK UP TABLE (LUT) UPDATE PROCESS FOR THE S-NPP OZONE MAPPING AND PROFILER SUITE (OMPS) WEEKLY DARKS AND PROPOSED PROCESS IMPROVEMENTS FOR JPSS**
Maria Caponi, Seamm_s, Caponi&Assoc/The Aerospace Corporation, United States; Bigyani Das, IMSG, United States; Lawrence Flynn, NOAA/NESDIS/STAR, United States; Glen Jaross, NASA Goddard Space Flight Center, United States; Michael Haken, Thomas Kelly, M.K.Rama Varma Raja, SSAI, United States; Chunhui Pan, ESSIC, Univ of Md, United States; Pat Purcell, NASA Goddard Space Flight Center, United States; Bhaswar Sen, Northrop Grumman, United States; Ryan Williams, Stellar Solutions, United States

TU1.Y2.5 09:40 **OVERVIEW OF US JOINT POLAR SATELLITE SYSTEM (JPSS) SENSOR AND ENVIRONMENTAL PRODUCTS**
Lihang Zhou, Fuzhong Weng, Ivan Csiszar, NOAA, United States; Murty Divakarla, Xingpin Liu, Thomas Atkins, IMSG, United States

Tuesday, July 28 | 10:30 - 12:10 | Yellow 2
Session TU2.Y2 | Oral

Remote Sensing Education

Session Co-Chairs: Yves-Louis Desnos, European Space Agency; Linda Hayden, Elizabeth City State University

TU2.Y2.1 10:30 **STRENGTHENING UN WFP'S CAPACITY BUILDING PROGRAMMES THROUGH THE IDENTIFICATION, DESIGN AND STANDARIZATION OF GIS AND REMOTE SENSING TRAININGS ACCORDING TO THE NEEDS AND CONTEXT**
Lara Prades, UN World Food Programme, Italy; Piero Boccardo, Information Technology for Humanitarian Assistance Cooperation And Action (ITHACA), Italy; Andrea Amparore, UN World Food Programme, Italy

TU2.Y2.2 10:50 **STATE OF THE ORFEO TOOLBOX**
Julien Michel, Manuel Grizonnet, CNES, France

TU2.Y2.3 11:10 **AALTO-1 EARTH OBSERVATION CUBESAT MISSION – EDUCATIONAL OUTCOMES**
Jaan Praks, Antti Kestilä, Tuomas Tikka, Hannu Leppinen, Osama Khurshid, Martti Hallikainen, Aalto University, Finland

TU2.Y2.4 11:30 **RESEARCH EXPERIENCES IN SATELLITE AND GROUND-BASED REMOTE SENSING: A MODEL FOR PREPARING THE NEXT GENERATION OF REMOTE SENSING UNDERGRADUATES**
Reginald Blake, New York City College of Technology (CUNY), United States; Janet Liou-Mark, Mathematics Department, New York City College of Technology (CUNY), United States

TU2.Y2.5 11:50 **A SMALL STEP TOWARDS THE CITIZEN SENSOR: A MULTI-PURPOSE FRAMEWORK FOR MOBILE APPS**
Daniel Aurelio Galeazzo, EUCENTRE Foundation, Italy; Daniele De Vecchi, Fabio Dell'Acqua, University of Pavia / EUCENTRE Foundation, Italy; Pietro Demattei, EUCENTRE Foundation, Italy

Tuesday, July 28 | 13:30 - 15:10 | Yellow 2
Session TU3.Y2 | Oral-Invited

Why Data Matters: Value of Stewardship and Knowledge Augmentation Services I

Session Co-Chairs: Rahul Ramachandran, NASA Marshall Space Flight Center; Peng Yue, Wuhan University

TU3.Y2.1 13:30 **WHY WE NEED TO GET SMART ABOUT DATA TO BE BETTER STEWARDS: MAKING SMARTER VIRTUAL OBSERVATORIES**
Peter Fox, Rensselaer Polytechnic Institute, United States

TU3.Y2.3 14:10 **LINKING FROM OBSERVATIONS TO DATA TO ACTIONABLE SCIENCE IN THE CLIMATE DATA INITIATIVE**
Curt Tilmes, NASA Goddard Space Flight Center, United States; Ana Pinheiro Privette, Climate Data Solutions, LLC, United States; Jeffrey Chen, NASA Headquarters, United States; Rahul Ramachandran, Kaylin M. Bugbee, NASA Marshall Space Flight Center, United States; Robert Wolfe, NASA Goddard Space Flight Center, United States

TU3.Y2.4 14:30 **DATA MANAGEMENT IN THE ERA OF A RAPIDLY CHANGING CRYOSPHERE**
Brian Johnson, Amanda Leon, Siri Jodha Singh Khalsa, National Snow and Ice Data Center, United States

TU3.Y2.5 14:50 **SCIENTIFIC KNOWLEDGE FROM GEOSPATIAL OBSERVATIONS**
George Percivall, Ingo Simonis, Terry Idol, The Open Geospatial Consortium, United States

Tuesday, July 28 | 15:40 - 17:20 | Yellow 2
Session TU4.Y2 | Oral-Invited

Why Data Matters: Value of Stewardship and Knowledge Augmentation Services II

Session Co-Chairs: Siri Jodha Khalsa, University of Colorado; Curt Tilmes, NASA

TU4.Y2.1 15:40 **UPDATE OF THE CERSER TERASCAN CATALOGUING SYSTEM AND THE TERASCAN IMAGE PROCESSING SCRIPTS**
Jefferson Ridgeway, Tori Wilbon, Andrew Brumfield, Linda Hayden, Elizbeth City State University, United States

TU4.Y2.2 16:00 **SCALABLE DEVELOPMENTS FOR BIG DATA ANALYTICS IN REMOTE SENSING**
Gabriele Cavallaro, University of Iceland, Iceland; Morris Riedel, Christian Bodenstein, Philipp Glock, Matthias Richerzhagen, Markus Goetz, Juelich Supercomputing Centre, Germany; Jón Atli Benediktsson, University of Iceland, Iceland

TU4.Y2.3 16:20 **ADVANCES IN AUTOMATED EVENT SERVICE**
Kwo-Sen Kuo, NASA Goddard Space Flight Center/Bayesics, LLC, United States; Gyorgy Fekete, NASA Goddard Space Flight Center/CSC, United States; Amidu Oloso, NASA Goddard Space Flight Center/SSAI, United States; Michael Bauer, Columbia University/GISS, United States; Ramon Ramirez-Linan, NASA Goddard Space Flight Center/Navteca, United States; John Rushing, University of Alabama-Huntsville, United States; Thomas Clune, NASA Goddard Space Flight Center, United States; Rahul Ramachandran, NASA Marshall Space Flight Center, United States

TU4.Y2.4 16:40 **REMOTE SENSING DERIVED DATASETS SUPPORTING DISASTER ALERT SYSTEMS ON MULTISCALES VIA WEB SERVICES**
Aneta Jadwiga Florczyk, Ioannis Andredakis, Sergio Freire, Stefano Ferri, Martino Pesaresi, European Commission, Joint Research Centre, Italy

TU4.Y2.5 17:00 **MOVING TOWARDS INTELLIGENT GISERVICES**
Lianlian He, Hubei University of Education, China; Peng Yue, Wuhan University, China

Earth Science Informatics TC Meeting to follow at 17:30

Tuesday, July 28 | 08:20 - 10:00 | Yellow 3
Session TU1.Y3 | Oral

Monitoring Natural Disaster: Floods

Session Co-Chairs: Alberto Refice, CNR-ISSIA; Patrick Matgen, Luxembourg Institute of Science and Technology (LIST)

TU1.Y3.1 08:20 **RIVER FLOODS SHORT-TERM FORECASTING SYSTEM BASED ON INTEGRATED USE OF SPACE-GROUND DATA**
Semen Potryasaev, Boris Sokolov, Viacheslav Zelentsov, St. Petersburg Institute for Informatics and Automation of the Russian Academy of Sciences, Russian Federation

TU1.Y3.2 08:40 **TOWARDS HIGH-PRECISION FLOOD MAPPING: MULTI-TEMPORAL SAR/INSAR DATA, BAYESIAN INFERENCE, AND HYDROLOGIC MODELING**
Alberto Refice, Annarita D'Addabbo, Guido Pasquariello, Francesco Paolo Lovergine, CNR - ISSIA, Italy; Domenico Capolongo, Università degli Studi di Bari, Italy; Salvatore Manfreda, Università degli Studi della Basilicata, Italy

TU1.Y3.3 09:00 **SAR-BASED FLOOD MAPPING COMBINING HIERARCHICAL SPLIT-BASED APPROACH AND CHANGE DETECTION**
Marco Chini, Renaud Hostache, Laura Giustarini, Patrick Matgen, Luxembourg Institute of Science and Technology, Luxembourg

TU1.Y3.4 09:20 **INTEGRATION OF SAR INTENSITY AND COHERENCE DATA TO IMPROVE FLOOD MAPPING**
Luca Pulvirenti, CIMA Research Foundation, Italy; Marco Chini, Luxembourg Institute of Science and Technology, Luxembourg; Nazzareno Pierdicca, Sapienza University of Rome, Italy; Giorgio Boni, CIMA Research Foundation, Italy

TU1.Y3.5 09:40 **FLOOD RISK WEB-MAPPING FOR DECISION MAKERS: A SERVICE PROPOSAL BASED ON SATELLITE-DERIVED PRECIPITATION ANALYSIS AND GEONODE**
Elena Isotta Cristofori, Politecnico di Torino, Italy; Simone Balbo, ITHACA, Italy; Walther Cámaro, Politecnico di Torino, Italy; Paolo Pasquali, ITHACA, Italy; Piero Boccardo, Alessandro Demarchi, Politecnico di Torino, Italy

Tuesday, July 28 | 10:30 - 12:10 | Yellow 3
Session TU2.Y3 | Oral

Monitoring Natural Disaster: Landslides

Session Co-Chairs: Fabio Bovenga, Consiglio Nazionale delle Ricerche CNR; Maria Lucia Tampellini, CGS Copagnia genereale per lo Spazio SpA

TU2.Y3.1 10:30 **DEVELOPMENT INTEGRATION METHOD OF PREDICTION AND VALIDATION FOR LANDSLIDE VULNERABILITY IN KOREA**
Moung-Jin Lee, KEI, Republic of Korea; Saro Lee, Jeong-Ho Lee, KIGAM, Republic of Korea

TU2.Y3.2 10:50 **RESOLUTION ANALYSIS OF SECTOR SCAN GB-SAR FOR WIDE LANDSLIDES MONITORING**
Qi Nie, Bing Sun, Zhuo Li, Beihang University, China

TU2.Y3.3 11:10 **INTEGRATION OF SBAS-DINSAR AND IN-SITU OBSERVATIONS FOR 3D NUMERICAL OPTIMIZATION MODELLING: THE CASE STUDY OF IVANCICH LANDSLIDE (ASSISI, ITALY)**
Michele Manunta, Raffaele Castaldo, Vincenzo De Novellis, IREA-CNR, Italy; Piernicola Lollino, IRPI-CNR, Italy; Pietro Tizzani, IREA-CNR, Italy

TU2.Y3.4 11:30 **MONITORING GROUND DISPLACEMENTS AT CENTIMETER LEVEL EXPLOITING TERRASAR-X RANGE MEASUREMENTS**
Andrea Nascetti, Paola Capaldo, Francesca Fratarcangeli, Augusto Mazzoni, Mattia Crespi, University of Rome, Italy

TU2.Y3.5 11:50 **COSMO-SKYMED MULTI-TEMPORAL SAR INTERFEROMETRY OVER LIGURIA REGION FOR ENVIRONMENTAL MONITORING AND RISK MANAGEMENT**
Raffaele Nutricato, Davide Oscar Nitti, Geophysical Applications Processing s.r.l., Italy; Fabio Bovenga, Alberto Refice, Janusz Wasowski, Consiglio Nazionale delle Ricerche (CNR), Italy; Maria Teresa Chiaradia, Politecnico di Bari, Italy; Giovanni Milillo, Agenzia Spaziale Italiana (ASI), Italy

Tuesday, July 28 | 13:30 - 15:10 | Yellow 3
Session TU3.Y3 | Oral

Monitoring Natural Disaster: Multisource Data Integration

Session Co-Chairs: Daniela Stroppiana, IREA-CNR; Piero Boccardo, Politecnico di Torino

TU3.Y3.1 13:30 **REMOTE SENSING OF BURNED AREA: A FUZZY-BASED FRAMEWORK FOR JOINT PROCESSING OF OPTICAL AND MICROWAVE DATA**
Daniela Stroppiana, Ramin Azar, Fabiana Calò, Antonio Pepe, Pasquale Imperatore, Mirco Boschetti, Institute for Electromagnetic Sensing of the Environment (CNR IREA), Italy; Joao M. N. Silva, University of Lisbon, School of Agriculture, Forest Research Centre, Portugal, Portugal; Pietro Alessandro Brivio, Riccardo Lanari, Institute for Electromagnetic Sensing of the Environment (CNR IREA), Italy

TU3.Y3.2 13:50 **PREFER: SPACE-BASED INFORMATION SUPPORT FOR PREVENTION AND RECOVERY OF FOREST FIRES EMERGENCY IN THE MEDITERRANEAN AREA**
Maria Lucia Tampellini, CGS Copagnia genereale per lo Spazio SpA, Italy; Giovanni Laneve, Lorenzo Fusilli, Università di Roma "La Sapienza", Italy; Marco Vimercati, CGS Copagnia genereale per lo Spazio SpA, Italy; Barbara Hirn, IES Consulting S.r.l, Italy; Ana A. Sebastian-Lopez, GMV Aerospace and Defence SA, Spain; Dimitris Diagourtas, SATWAYS, Greece; Georgios Eftychidis, KEMEA-Center for Security Studies, Greece; Stephen Clandillon, Mathilde Caspard, Université de Strasbourg, France; Sandra Oliveira, Luciano Lourenço, Universidade de Coimbra, Portugal

TU3.Y3.3 14:10 **CLIMATE CHANGE IMPACT ON BUSHFIRE RISK IN NEW SOUTH WALES, AUSTRALIA**
Qinggaozi Zhu, University of Technology, Sydney, Australia; Xihua Yang, NSW Office of Environment and Heritage, Australia; Qiang Yu, University of Technology, Sydney, Australia

TU3.Y3.4 14:30 **INTEGRATING SATELLITE-BASED RAINFALL AND SOIL MOISTURE DATA FOR FLOOD PREDICTION OVER THREE CATCHMENTS IN ITALY**
Luca Ciabatta, Luca Brocca, Christian Massari, Tommaso Moramarco, National Research Council, Italy; Simone Gabellani, International Centre on Environmental Monitoring, Italy; Silvia Puca, Civil Protection Department, Italy; Wolfgang Wagner, Vienna University of Technology, Austria

TU3.Y3.5 14:50 **REMOTE SENSING FOR COASTAL RISK REDUCTION PURPOSES: OPTICAL AND MICROWAVE DATA FUSION FOR SHORELINE EVOLUTION MONITORING AND MODELLING**
Luca Cenci, Institute for Advanced Study of Pavia, Italy; Maria Giuseppina Persichillo, University of Pavia, Italy; Leonardo Disperati, University of Siena, Italy; Eduardo Rocha Oliveira, Fátima Lopes Alves, University of Aveiro, Portugal; Luca Pulvirenti, Nicola Rebora, Giorgio Boni, CIMA Research Foundation, Italy; Mike Phillips, University of Wales Trinity Saint David (Swansea Metropolitan), United Kingdom

Tuesday, July 28 | 15:40 - 17:20 | Yellow 3
Session TU4.Y3 | Oral

Monitoring Natural Disaster: Subsidence, Deformation and Displacement I

Session Co-Chairs: Pau Prats, German Aerospace Center (DLR); Gianfranco Fornaro, IREA

TU4.Y3.1 15:40 **ALOS/PALSAR AND TERRASAR-X PERSISTENT SCATTERER INTERFEROMETRY AROUND TOKYO: INTERFEROMETRIC PHASE EVALUATION AND VALIDATION**
Kazuya Ishitsuka, Kyoto University, Japan; Pau Prats-Iraora, Matteo Nannini, German Aerospace Center (DLR), Germany

TU4.Y3.2 16:00 **USING INSAR AND GRACE TO MONITOR GROUNDWATER CHANGES IN NORTHWEST INDIA**
Diane Evans, Tom Farr, Felix Landerer, Jet Propulsion Laboratory, United States

TU4.Y3.3 16:20 **INSAR RAILWAY MONITORING VALIDATION THROUGH HIGH DENSITY LEVELING CAMPAIGN**
Qingli Luo, Tianjin University, China; Guoqing Zhou, Guilin University of Technology, China; Daniele Perissin, Purdue University, United States

TU4.Y3.4 16:40 **COHERENCE OPTIMISATION AND ITS LIMITATIONS FOR DEFORMATION MONITORING IN AGRICULTURAL REGIONS**
Jeanine Engelbrecht, Council For Scientific and Industrial Research, South Africa; Michael Inggs, University of Cape Town, South Africa

TU4.Y3.5 17:00 **GROUND SUBSIDENCE MONITORING IN THE SIBARI PLAIN (SOUTHERN ITALY) BY ENVISAT AND COSMO-SKYMED TIME SERIES ANALYSIS**
Giuseppe Cianflone, Università della Calabria, Italy; Cristiano Tolomei, Carlo Alberto Brunori, Istituto Nazionale di Geofisica e Vulcanologia, Italy; Rocco Dominici, Università della Calabria, Italy

Tuesday, July 28 | 08:20 - 10:00 | Blue 1
Session TU1.B1 | Oral

Microwave Synthetic Aperture Radiometry

Session Co-Chairs: Niels Skou, Technical University of Denmark; Shannon Brown, NASA Jet Propulsion Laboratory

TU1.B1.1 08:20 **MITIGATION OF LAND-SEA CONTAMINATION IN SMOS**
Ignasi Corbella, Israel Durán, Universitat Politècnica de Catalunya, Spain; Wu Lin, National Space Science Center & University of Chinese Academy of Sciences, China; Francesc Torres, Nuria Duffo, Universitat Politècnica de Catalunya, Spain; Ali Khazâal, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Manuel Martín-Neira, European Space Agency (ESA), Netherlands

TU1.B1.2 08:40 **SMOS FLOOR ERROR IMPACT AND MIGATION ON OCEAN IMAGING**
Israel Durán, Universitat Politècnica de Catalunya, Spain; Lin Wu, NSSC, China; Ignasi Corbella, Francesc Torres, Nuria Duffo, Universitat Politècnica de Catalunya, Spain; Manuel Martín-Neira, European Space Agency (ESA), Netherlands

TU1.B1.3 09:00 **DUAL FREQUENCY FPIR DEMONSTRATOR AND TESTS**
Jingye Yan, Ji Wu, Lin Wu, National Space Science Center & University of Chinese Academy of Sciences, China

TU1.B1.4 09:20 **DESIGN OF AN INTERFEROMETRIC RADIOMETER FOR AN ADVANCED SST/OVW MISSION**
Juha Kainulainen, Josu Uusitalo, Harp Technologies Ltd., Finland; Magnus Hansen, Morten Pedersen, Terma A/S, Denmark; Janne Lahtinen, Harp Technologies Ltd., Finland; Manuel Martín-Neira, European Space Agency (ESA), Netherlands

TU1.B1.5 09:40 **ADDITIONAL NEDT REQUIREMENT TO CONSTRAIN NOISE CORRELATIONS OF POLAR-ORBITING MICROWAVE SOUNDERS**
L.L. Williams, David Kunkee, Aerospace Corporation, United States

Tuesday, July 28 | 10:30 - 12:10 | Blue 1
Session TU2.B1 | Oral

Microwave Radiometer Technology

Session Co-Chairs: Sidharth Misra, NASA Jet Propulsion Laboratory; Niels Skou, Technical University of Denmark

TU2.B1.1 10:30 **A COMPACT LOW-POWER 183-GHZ HETERODYNE RECEIVER WITH LOW-NOISE AMPLIFIER FRONT END FOR CUBESATS**
Eric Bryerton, Jeffrey Hesler, Thomas Crowe, Virginia Diodes, Inc., United States

TU2.B1.2 10:50 **PROCESSOR BREADBOARD FOR ON-BOARD RFI DETECTION AND MITIGATION IN METOP-SG RADIOMETERS**
Niels Skou, Steen Kristensen, Technical University of Denmark, Denmark; Arhippa Kovanen, Janne Lahtinen, Harp technologies, Finland

TU2.B1.3 11:10 **HIGH-RESOLUTION RETRIEVALS OF WET-TROPOSPHERIC PATH DELAY OVER COASTAL AREAS AND INLAND WATER FROM THE HIGH-FREQUENCY AIRBORNE MICROWAVE AND MILLIMETER-WAVE RADIOMETER (HAMMR) WEST COAST FLIGHT CAMPAIGN**
Steven C. Reising, Xavier Bosch-Lluis, Colorado State University, United States; Pekka Kangaslahti, Alan B. Tanner, Shannon T. Brown, Sharmila Padmanabhan, NASA/Caltech Jet Propulsion Laboratory, United States; Victoria D. Hadel, Thaddeus P. Johnson, Karen Ng, Colorado State University, United States; Oliver Montes, Chaitali Parashare, Behrouz Khayatian, Douglas E. Dawson, Todd C. Gaier, NASA/Caltech Jet Propulsion Laboratory, United States; Behzad Razavi, University of California, Los Angeles, United States

TU2.B1.4 11:30 **UPPER-STRATOSPHERE/MESOSPHERE TEMPERATURE, WIND SPEED, H2O AND O3 MEASUREMENTS USING SUB-MM LIMB SOUNDER**
Naohiro Manago, Chiba University, Japan; Philippe Baron, Satoshi Ochiai, National Institute of Information and Communications Technology, Japan; Hiroyuki Ozeki, Toho University, Japan; Makoto Suzuki, Japan Aerospace Exploration Agency, Japan

TU2.B1.5 11:50 **GEOLOCALIZING SMOS RFI SOURCES ON THE DENSELY POPULATED EAST ASIA**
Hyuk Park, Universitat Politècnica de Catalunya, Spain; Verónica González-Gambau, Institut de Ciències del Mar (ICM) of the Spanish Research Council, SMOS Barcelona Expert Centre, Spain; Adriano Camps, Universitat Politècnica de Catalunya, Spain

Tuesday, July 28 | 13:30 - 15:10 | Blue 1
Session TU3.B1 | Oral-Invited

International Spaceborne Imaging Spectroscopy Missions: Updates and News I

Session Co-Chairs: John Kerekes, Rochester Institute of Technology; Guanter Luis, GeoResearch Center Potsdam

TU3.B1.1 13:30 **CURRENT DEVELOPMENT OF SPACEBORNE IMAGING SPECTROSCOPY MISSIONS – OVERVIEW, POTENTIAL CROSS-LINKS AND SYNERGIES**
Andreas Müller, Uta Heiden, German Aerospace Center (DLR), Germany; Cindy Ong, CSIRO, Australia

TU3.B1.3 14:10 **DESIS (DLR EARTH SENSING IMAGING SPECTROMETER FOR THE ISS-MUSES PLATFORM)**
Andreas Eckardt, German Aerospace Center (DLR), Germany; John Horack, Teledyne, United States; Frank Lehmann, David Krutz, Jürgen Drescher, German Aerospace Center (DLR), Germany; Mark Whorton, Mike Soutullo, Teledyne, United States

TU3.B1.4 14:30 **CURRENT STATUS OF HYPERSPECTRAL IMAGER SUITE (HISUI)**
Tsuneo Matsunaga, National Institute for Environmental Studies, Japan; Akira Iwasaki, The University of Tokyo, Japan; Satoshi Tsuchida, National Institute of Advanced Industrial Science and Technology, Japan; Jun Tanii, Osamu Kashimura, Japan Space Systems, Japan; Ryosuke Nakamura, Hirokazu Yamamoto, National Institute of Advanced Industrial Science and Technology, Japan; Koichiro Mouri, Tetsushi Tachikawa, Japan Space Systems, Japan; Shuichi Rokugawa, The University of Tokyo, Japan

TU3.B1.5 14:50 **SHALOM – A COMMERCIAL HYPERSPECTRAL SPACE MISSION**
Eyal Ben Dor, Tel Aviv University, Israel; Tal Feingersh, MBT-SPACE, Israel Aerospace Industries (IAI), Israel; Avia Kafri, Israel Space Agency, Israel; Giancarlo Varacalli, Agenzia Spaziale Italiana (ASI), Italy

Tuesday, July 28 | 15:40 - 17:20 | Blue 1
Session TU4.B1 | Oral-Invited

International Spaceborne Imaging Spectroscopy Missions: Updates and News II

Session Co-Chairs: Andreas Mueller, German Aerospace Center (DLR); Michael Rast, European Space Agency

TU4.B1.1 15:40 **AN INTRODUCTION TO HYSPECIQ - A COMMERCIAL SPACE HYPERSPECTRAL REMOTE SENSING INFORMATICS PLATFORM ENABLING GEOSCIENCE APPLICATIONS**
Joseph D. Fargnoli, HySpecIQ, United States

TU4.B1.2 16:00 **RECENT ADVANCES IN CHINESE SPACEBORNE HYPERSPECTRAL MISSIONS**
Lifu Zhang, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China

TU4.B1.3 16:20 **STATUS AND UPDATE FOR NASA'S HYSPIRI MISSION CONCEPT AND ONGOING PREPARATORY AIRBORNE CAMPAIGN**
Robert Green, Simon Hook, Jet Propulsion Laboratory, California Institute of Technology, United States; Elizabeth Middleton, NASA Goddard Space Flight Center, United States; Michael Mercury, Jet Propulsion Laboratory, California Institute of Technology, United States; Woody Turner, NASA HQ, United States; Michael Eastwood, Jet Propulsion Laboratory, California Institute of Technology, United States

TU4.B1.4 16:40 **OVERVIEW OF THE ENMAP IMAGING SPECTROSCOPY MISSION**
Luis Guanter, Hermann Kaufmann, Karl Segl, Sabine Chabrillat, Saskia Förster, Christian Rogass, Theres Kuester, Helmholtz Center Potsdam, German Research Center for Geosciences (GFZ), Germany; Godela Rossner, Christian Chlebek, Christof Straif, Sebastian Fischer, Stefanie Schrader, German Aerospace Center (DLR), Germany; Tobias Storch, Uta Heiden, Andreas Mueller, Earth Observation Center (EOC), German Aerospace Center (DLR), Germany; Joachim Hill, Henning Buddenbaum, University of Trier, Germany; Patrick Hostert, Sebastian van der Linden, Pedro J. Leitão, Andreas Rabe, Humboldt-Universität zu Berlin, Germany; Roland Doerffer, Hajo Krasemann, Hong Yan Xi, Helmholtz-Centre Geesthacht, Institute of Coastal Research, Germany; Wolfram Mauser, Tobias Hank, Matthias Locherer, Ludwig-Maximilian University of Munich, Germany; Michael Rast, European Space Agency, ESRIN, Italy; Karl Staenz, University of Lethbridge, Canada; Bernhard Sang, OHB System AG, Germany

International Spaceborne Imaging Spectroscopy TC Meeting to follow at 17:30

Tuesday, July 28 | 08:20 - 10:00 | Blue 2
Session TU1.B2 | Oral-Invited

Big SAR Data Tools, Applications, Experiences and Solutions I

Session Co-Chairs: Michele Manunta, CNR-IREA; Francesco Casu, CNR-IREA

TU1.B2.1 08:20 **FROM ERS-1 TO SENTINEL-1: A BIG DATA CHALLENGE FOR 25 YEARS OF DINSAR OBSERVATIONS**
Riccardo Lanari, CNR-IREA, Italy

TU1.B2.3 09:00 **THE ADVANCED RAPID IMAGING AND ANALYSIS DATA SYSTEM: AUTOMATING SAR DATA ANALYSIS FOR SCIENCE AND HAZARD RESPONSE**
Hook Hua, Gerald Manipon, Gian Franco Sacco, Susan Owen, Eric Jameson Fielding, Sang-Ho Yun, Paul Lundgren, Angelyn Moore, Jet Propulsion Laboratory, California Institute of Technology, United States; Pietro Milillo, Università degli Studi della Basilicata, Italy; Paul Rosen, Frank Webb, Jet Propulsion Laboratory, California Institute of Technology, United States; Mark Simons, California Institute of Technology, United States; Alexander Smith, Brian Wilson, Jet Propulsion Laboratory, California Institute of Technology, United States

TU1.B2.4 09:20 **GETTING READY FOR THE GENERATION OF A NATIONWIDE GROUND MOTION PRODUCT FOR GREAT BRITAIN USING SAR DATA STACKS: FEASIBILITY, DATA VOLUMES AND PERSPECTIVES**
Francesca Cigna, British Geological Survey, United Kingdom

TU1.B2.5 09:40 **AUTOMATIC PROCESSING OF SENTINEL-1 SAR DATA FOR VOLCANO AND TECTONIC DEFORMATION: THE LICS PROJECT**
Pablo J. Gonzalez, University of Leeds, United Kingdom; Santosh Bhattarai, University College London, United Kingdom; Paola Crippa, University of Newcastle, United Kingdom; Susanna Ebmeier, University of Bristol, United Kingdom; John Elliott, University of Oxford, United Kingdom; Andrew Hooper, University of Leeds, United Kingdom; Yngvar Larsen, Norut, Norway; Petar Marinkovic, PPO.labs, Netherlands; Richard Walters, Tim Wright, University of Leeds, United Kingdom

Tuesday, July 28 | 10:30 - 12:10 | Blue 2
Session TU2.B2 | Oral-Invited

Big SAR Data Tools, Applications, Experiences and Solutions II

Session Co-Chairs: Francesco Casu, CNR-IREA; Michele Manunta, CNR-IREA

TU2.B2.1 10:30 **COMPUTATIONALLY EFFICIENT AND OPERATIONAL SOLUTIONS FOR THE PROCESSING OF VERY LARGE SAR DATASETS BASED ON MODERN MULTICORE AND GPGPU TECHNOLOGIES**
Achille Peternier, Marco Defilippi, Alessio Cantone, Paolo Pasquali, Sarmap S.A., Switzerland

TU2.B2.2 10:50 **GPU-BASED KERNELIZED LOCALITY-SENSITIVE HASHING FOR SATELLITE IMAGE RETRIEVAL**
Niko Lukac, Borut Zalik, University of Maribor, Slovenia; Shiyong Cui, Mihai Datcu, German Aerospace Center (DLR), Germany

TU2.B2.3 11:10 **NATIONWIDE GROUND DEFORMATION MONITORING BY PERSISTENT SCATTERER INTERFEROMETRY**
Mario Costantini, Federico Minati, Maria Grazia Ciminelli, e-GEOS - ASI/Telespazio, Italy; Alessandro Ferretti, Tele-Rilevamento Europa - T.R.E. srl., Italy; Salvatore Costabile, Ministero dell'Ambiente e dellaTutela del Territorio e del Mare, Italy

TU2.B2.4 11:30 **THE SENTINEL-1 TOOBOX CLOUD EXPLOITATION PLATFORM: OPEN SOURCE TOOLS FOR EO PROCESSING WITHIN CLOUD ENVIRONMENTS**
Luis Veci, Jun Lu, Array Systems Computing Inc, Canada; Norman Fomferra, Brockmann-Consult GmbH, Germany; Pau Prats-Iraola, German Aerospace Center (DLR), Germany; Marcus Engdahl, European Space Agency, ESRIN, Italy

TU2.B2.5 11:50 **ENABLING SAR DATA EXPLOITATION BY PROCESSING ON-DEMAND**
Roberto Cuccu, Giovanni Sabatino, José Manuel Delgado Blasco, Giancarlo Rivolta, Progressive Systems Srl, Italy

Tuesday, July 28 | 13:30 - 15:10 | Blue 2
Session TU3.B2 | Oral-Invited

Big Data Methodologies in Remote Sensing and Astronomy I

Session Co-Chairs: Marco Quartulli, VICOMTech; Dejan Vinkovic, Science and Society Synergy Institute

TU3.B2.1 13:30 **BIG-SKY-EARTH: REINFORCING THE BRIDGE BETWEEN ASTRO- AND GEO-INFORMATICS**
Dejan Vinkovic, Science and Society Synergy Institute, Croatia; Marco Quartulli, Vicomtech-IK4, Spain

TU3.B2.3 14:10 **LUCAS VISUAL BROWSER: A TOOL FOR LAND COVER VISUAL ANALYTICS**
Kevin Alonso, Daniela Espinoza-Molina, Mihai Datcu, German Aerospace Center (DLR), Spain

TU3.B2.4 14:30 **OPTIMISED DATA STRUCTURES FOR LARGE SCALE CONTENT-BASED GEO-INDEXING**
Luigi Mascolo, Dian s.r.l., Italy; Marco Quartulli, Vicomtech-ik4, Italy; Giovanni Nico, National Research Council, Italy; Pietro Guccione, Polytechnic University of Bari, Italy; Igor Olaizola, Vicomtech-ik4, Spain

TU3.B2.5 14:50 **BEYOND THE LAMBDA ARCHITECTURE: EFFECTIVE SCHEDULING FOR LARGE SCALE EO INFORMATION MINING AND INTERACTIVE THEMATIC MAPPING**
Marco Quartulli, Javier Lozano, Igor Olaizola, Vicomtech-IK4, Spain

Tuesday, July 28 | 15:40 - 17:20 | Blue 2
Session TU4.B2 | Oral-Invited

Big Data Methodologies in Remote Sensing and Astronomy II

Session Co-Chairs: Dejan Vinkovic, Science and Society Synergy Institute; Marco Quartulli, VICOMTech

TU4.B2.1 15:40 **CROP MAPPING APPLICATIONS AT SCALE: USING GOOGLE EARTH ENGINE TO ENABLE GLOBAL CROP AREA AND STATUS MONITORING USING FREE AND OPEN DATA SOURCES**
Guido Lemoine, Olivier Leo, European Commission, Italy

TU4.B2.2 16:00 **NONLINEAR ENDMEMBER EXTRACTION IN EARTH OBSERVATIONS AND ASTROINFORMATICS DATA INTERPRETATION AND COMPRESSION**
Andrea Marinoni, Paolo Gamba, University of Pavia, Italy

TU4.B2.3 16:20 **LARGE SCALE THEMATIC MAPPING BY SUPERVISED MACHINE LEARNING ON `BIG DATA' DISTRIBUTED CLUSTER COMPUTING FRAMEWORKS**
Javier Lozano, Naiara Aginako, Marco Quartulli, Igor Olaizola, Vicomtech-IK4, Spain; Ekaitz Zulueta, Pedro Iriondo, EHU, Spain

TU4.B2.4 16:40 **ON THE ARCHITECTURE OF A BIG DATA CLASSIFICATION TOOL BASED ON A MAP REDUCE APPROACH FOR HYPERSPECTRAL IMAGE ANALYSIS**
Victor Andres Ayma Quirita, Rodrigo Ferreira, Patrick Happ, Dário Oliveira, Gilson A.O.P. Costa, Raul Queiroz Feitosa, Pontifical Catholic University of Rio de Janeiro, Brazil; Antonio Plaza, University of Extremadura, Spain; Paolo Gamba, University of Pavia, Italy

Tuesday, July 28 | 08:20 - 10:00 | Red 1
Session TU1.R1 | Oral-Invited

RADARSAT I

Session Co-Chairs: Satish Srivastava, Canadian Space Agency; Heather McNairn, Agriculture and Agri-Food Canada

TU1.R1.1 08:20 **RADARSAT PROGRAM**
Satish Srivastava, Stephen Schaller, Steve Iris, Ahmed Mahmood, Surendra Parashar, Canadian Space Agency, Canada

TU1.R1.3 09:00 **RADARSAT-2 SYSTEM OPERATIONS AND PERFORMANCE**
Marielle Chabot, Camille Decoust, Casey Lambert, Philippe Rolland, Pierre le Dantec, Daniel Williams, MDA, Canada

TU1.R1.4 09:20 **ENHANCED MANAGEMENT OF ORDERS AND CONFLICTS (EMOC) PROCESS: COORDINATING RADARSAT-2 DATA ORDERS FOR CANADIAN GOVERNMENT USERS**
Dean Flett, Eric Arsenault, Ron Pietsch, Daniel Bujold, Stephen Schaller, Satish Srivastava, Canadian Space Agency, Canada

TU1.R1.5 09:40 **RADARSAT CONSTELLATION MISSION STATUS**
Steve Iris, Canadian Space Agency, Canada

Tuesday, July 28 | 10:30 - 12:10 | Red 1
Session TU2.R1 | Oral-Invited

RADARSAT II

Session Co-Chairs: Satish Srivastava, Canadian Space Agency; Heather McNairn, Agriculture and Agri-Food Canada

TU2.R1.1 10:30 **A SUCCESS STORY: THE JOURNEY TO MONITOR CANADIAN AGRICULTURE USING RADARSAT**
Heather McNairn, Andrew Davidson, Thierry Fisette, Amine Merzouki, Anna Pacheco, Jarrett Powers, Jiali Shang, Catherine Champagne, Agriculture and Agri-Food Canada, Canada

TU2.R1.2 10:50 **OIL SLICK DISCRIMINATION USING RADARSAT-2 QUAD POLARIZED DATA**
Gordon Staples, MDA, Canada

TU2.R1.3 11:10 **HIGH RESOLUTION, WIDE AREA DETECTION OF ANTHROPOGENIC AND NATURAL FOREST CHANGE USING RADARSAT-2**
Gordon Staples, Marco van der Kooij, Suzanne Brunke, MDA, Canada; David Goodenough, Consultant, Canada

TU2.R1.4 11:30 **COHERENT STACKS OF RADARSAT-2 SPOTLIGHT MODE INTERFEROMETRY DATA FOR MONITORING ARCTIC DEW LINE CLEAN-UP**
Karim E. Mattar, Jeff Secker, Defence Research and Development Canada, Canada

TU2.R1.5 11:50 **RADARSAT CONSTELLATION MISSION: IMPACTS OF COMPACT POLARIMETRY ON RAPID REVISIT APPLICATIONS**
Francois Charbonneau, Vincent Decker, Natural Resources Canada, Canada

Tuesday, July 28 | 13:30 - 15:10 | Red 1
Session TU3.R1 | Oral-Invited

Exploring COSMO-SkyMed and RADARSAT-2 Synergies I

Session Co-Chairs: Simona Zoffoli, Italian Space Agency; Stéphane Chalifoux, Canadian Space Agency

TU3.R1.1 13:30 **INSAR DEFORMATION MONITORING OF THE CANADIAN OIL SANDS FROM RADARSAT 2 AND COSMO SKYMED IMAGES.**
Vern Singhroy, Junhua Li, Canada Centre for Remote Sensing, Canada

TU3.R1.3 14:10 **RICE MONITORING USING SAR AND OPTICAL DATA IN NORTHERN ITALY**
Giacomo Fontanelli, Daniela Stroppiana, Ramin Azar, Lorenzo Busetto, Mirco Boschetti, IREA-CNR, Italy; Luca Gatti, Francesco Collivignarelli, Massimo Barbieri, Francesco Holecz, Sarmap S.A., Switzerland

TU3.R1.4 14:30 **INFORMING WATER MANAGEMENT BY DIRECT USE OF SAR RETRIEVED SNOW INFORMATION IN SNOW-RAINFALL DOMINATED WATERSHEDS**
Simona Denaro, Umberto Del Gobbo, Andrea Castelletti, Stefano Tebaldini, Andrea Monti Guarnieri, Politecnico di Milano, Italy

TU3.R1.5 14:50 **WIND FIELDS FROM COSMO-SKYMED AND RADARSAT-2 SAR IN COASTAL AREAS**
Stefano Zecchetto, Francesco De Biasio, Antonio della Valle, Andrea Cucco, Giovanni Quattrocchi, Consiglio Nazionale delle Ricerche (CNR), Italy; Enrico Cadau, Sardegna Clima Onlus, Italy

Tuesday, July 28 | 15:40 - 17:20 | Red 1
Session TU4.R1 | Oral-Invited

Exploring COSMO-SkyMed and RADARSAT-2 Synergies II

Session Co-Chairs: Stéphane Chalifoux, Canadian Space Agency; Simona Zoffoli, Italian Space Agency

TU4.R1.1 15:40 **COMPARISON OF COSMO-SKYMED AND RADARSAT-2 OFFSET TRACKING RESULTS ON DAVID-DRYGALSKI GLACIER (ANTARCTICA) SURFACE VELOCITIES**
Andrea Lugli, Luca Vittuari, University of Bologna, Italy

TU4.R1.2 16:00 **NEW CASCADE MODEL FOR HIERARCHICAL JOINT CLASSIFICATION OF MULTISENSOR AND MULTIRESOLUTION REMOTE SENSING DATA**
Ihsen Hedhli, INRIA-DITEN, France; Gabriele Moser, Sebastiano Bruno Serpico, University of Genoa, Italy; Josiane Zerubia, INRIA, France

TU4.R1.3 16:20 **RADARSAT-2 AND COSMO-SKYMED SAR INVESTIGATION FOR GEOLOGICAL MAPPING OF THE TUNNUNIK IMPACT STRUCTURE IN THE CANADIAN ARCTIC**
Byung-Hun Choe, Livio Tornabene, Gordon Osinski, University of Western Ontario, Canada

TU4.R1.4 16:40 **OIL SPILL MONITORING ON WATER SURFACES BY RADAR L, C AND X BAND SAR IMAGERY: A COMPARISON OF RELEVANT CHARACTERISTICS**
Pablo Marzialetti, Giovanni Laneve, Università di Roma "La Sapienza", Italy; Martin Montes, Université du Québec à Rimouski, Canada

TU4.R1.5 17:00 **COSMO-SKYMED AND RADARSAT-2 JOINT ANALYSIS AND MODELING FOR THE EVALUATION OF POTENTIAL DEFORMATIONS CAUSED BY THE LARGE MASS MOVEMENTS SURROUNDING THE FIASTRA LAKE DAM**
Matteo Albano, Marco Polcari, Marco Moro, Christian Bignami, Istituto Nazionale di Geofisica e Vulcanologia, Italy; Fabrizio Lombardini, Federico Viviani, University of Pisa and CNIT-RaSS, Italy; Sergey Samsonov, Canada Centre for Mapping and Earth Observation - Natural Resources, Canada; Michele Saroli, Department of Civil and Mechanical Engineering, University of Cassino and Southern Lazio, Italy; Roberto Devoti, Salvatore Stramondo, Istituto Nazionale di Geofisica e Vulcanologia, Italy

Tuesday, July 28 | 08:20 - 10:00 | Red 2
Session TU1.R2 | Oral-Invited

Temporal Effects in PolInSAR/TomoSAR Applications to Vegetation I

Session Co-Chairs: Marco Lavalle, NASA Jet Propulsion Laboratory; Paul Siqueira, University of Massachusetts

TU1.R2.1 08:20 **VOLUME STRUCTURE PARAMETER ESTIMATION BY MEANS OF POL-INSAR TECHNIQUES: STATUS AND CHALLENGES.**
Konstantinos Papathanassiou, German Aerospace Center (DLR), Germany

TU1.R2.3 09:00 **4D CHARACTERIZATION OF SHORT- AND LONG-TERM HEIGHT-VARYING DECORRELATED FOREST SAR BACKSCATTERING**
Fabrizio Lombardini, Federico Viviani, University of Pisa, Italy

TU1.R2.4 09:20 **NEW EXPERIMENTS AND THEORETICAL DEVELOPMENTS WITH REPEAT-PASS POLARIMETRIC INSAR OVER FORESTED TERRAINS**
Marco Lavalle, Naiara Pinto, Jet Propulsion Laboratory, United States; Marc Simard, Scott Hensley, Ron Muellerschoen, Thierry Michel, Jet Propulsion Laboratory, California Institute of Technology, United States

TU1.R2.5 09:40 **ELECTROMAGNETIC SIMULATIONS SUPPORTING THE ANALYSIS OF TEMPORAL DECORRELATION OBSERVED IN TOWER-BASED SCATTEROMETER EXPERIMENTS**
Ludovic Villard, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Alia Hamadi, ONERA, France; Clément Albinet, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Pierre Borderies, ONERA, France; Thierry Koleck, Thuy Le Toan, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France

Tuesday, July 28 | 10:30 - 12:10 | Red 2
Session TU2.R2 | Oral-Invited

Temporal Effects in PolInSAR/TomoSAR Applications to Vegetation II

Session Co-Chairs: Marco Lavalle, NASA Jet Propulsion Laboratory; Paul Siqueira, University of Massachusetts

TU2.R2.1 10:30 **QUANTIFYING THE IMPACT OF WIND ON SAR AND IFSAR FOREST MAPPING**
Michael Benson, Leland Pierce, Kamal Sarabandi, University of Michigan, United States

TU2.R2.2 10:50 **MEASURES OF TEMPORAL DECORRELATION FROM ALOS-2 AND ITS AFFECTS ON RETRIEVALS OF VEGETATION PHYSICAL CHARACTERISTICS**
Paul Siqueira, Yang Lei, University of Massachusetts, United States

TU2.R2.3 11:10 **SPACEBORNE SAR TOMOGRAPHY OVER FORESTS: PERFORMANCE AND TRADE-OFFS FOR REPEATED SINGLE PASS POLINSAR ACQUISITIONS**
Matteo Pardini, Konstantinos Papathanassiou, German Aerospace Center (DLR), Germany

TU2.R2.4 11:30 **TEMPORAL DECORRELATION IMPACTS ON REPEAT PASS TOMOGRAPHY IN A TROPICAL FOREST**
Dinh Ho Tong Minh, IRSTEA, France; Stefano Tebaldini, Polimi, Italy; Thuy Le Toan, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Fabio Rocca, Polimi, Italy

TU2.R2.5 11:50 **ESTIMATING FOREST STRUCTURE AND BIOMASS FROM ECOSAR, TANDEM-X AND HIGH RESOLUTION DIGITAL ELEVATION MODELS: FIRST RESULTS FROM ANDROS ISLAND**
Lola Fatoyinbo, Rafael Rincon, NASA Goddard Space Flight Center, United States; Batuhan Osmanoglu, NASA GSFC/USRA GESTAR, United States; Seung-Kuk Lee, NASA GSFC/Oak Ridge National Laboratory, United States; David Lagomasino, Amanda Armstrong, NASA GSFC/USRA GESTAR, United States

Tuesday, July 28 | 13:30 - 15:10 | Red 2
Session TU3.R2 | Oral-Invited

SAR Polarimetry: Theory and Applications I

Session Co-Chairs: Carlos Lopez-Martinez, Universitat Politècnica de Catalunya; Eric Pottier, University of Rennes 1

TU3.R2.1 13:30 **POLSAR-AP: EXPLOITATION OF FULLY POLARIMETRIC SAR DATA FOR APPLICATION DEMONSTRATION**
Irena Hajnsek, ETH Zurich / DLR Oberpfaffenhofen, Germany; Yves-Louis Desnos, European Space Agency (ESA), Italy; J. David Ballester-Berman, University of Alicante, Spain; Shane Cloude, AEL Consultants, United Kingdom; Thomas Jagdhuber, German Aerospace Center (DLR), Germany; Elise Koeniguer, ONERA, France; Carlos Lopez-Martinez López-Martínez, Universitat Politècnica de Catalunya, Spain; Juan Manuel López Sánchez, University of Alicante, Spain; Armando Marino, ETH, Switzerland; Maurizio Migliaccio, University Parthenelope, Italy; Andrea Minchella, European Space Agency (ESA), Italy; Ferdinando Nunziata, University Parthenelope, Italy; Konstantinos Papathanassiou, Matteo Pardini, Giuseppe Parrella, German Aerospace Center (DLR), Germany; Eric Pottier, University of Rennes 1, France; Nicolas Trouvé, ONERA, France

TU3.R2.3 14:10 **DISSIMILARITY MEASUREMENTS FOR PROCESSING AND ANALYZING POLSAR DATA: A SURVEY**
Wen Yang, Hui Song, Gui-Song Xia, Wuhan University, China; López-Martínez Carlos, Universitat Politècnica de Catalunya, Spain

TU3.R2.4 14:30 **DEVELOPMENT OF NEW MULTI-BAND EQUATORIALLY ORBITING POLINSAR SATELLITE SENSORS SYSTEM CONFIGURATIONS FOR VARYING LATITUDINAL COVERAGE WITHIN THE TROPICAL BELT**
Wolfgang Martin Boerner, University of Illinois at Chicago, United States

Tuesday, July 28 | 15:40 - 17:20 | Red 2
Session TU4.R2 | Oral-Invited

SAR Polarimetry: Theory and Applications II

Session Co-Chairs: Carlos Lopez-Martinez, Universitat Politècnica de Catalunya; Eric Pottier, University of Rennes 1

TU4.R2.1 15:40 **ON THE ROBUSTNESS OF THE ICA BASED ICTD WITH RESPECT TO THE SPHERICAL SYMMETRY OF THE POLSAR DATA**
Leandro Pralon, GIPSA-lab / Grenoble INP, France; Gabriel Vasile, GIPSA-lab / CNRS, France; Andrei Anghel, Nikola Besic, GIPSA-lab / Grenoble INP, France

TU4.R2.2 16:00 **A CRITICAL LOOK AT MODEL-BASED POLARIMETRIC DECOMPOSITION ALGORITHMS**
Jakob van Zyl, Yunjin Kim, Jet Propulsion Laboratory, United States

TU4.R2.3 16:20 **CORRELATION BETWEEN L-BAND SAR POLARIMETRIC PARAMETERS AND LIDAR METRICS OVER A FORESTED AREA**
Manabu Watanabe, Takeshi Motohka, Rajesh Thapa, Masanobu Shimada, Japan Aerospace Exploration Agency, Japan

TU4.R2.4 16:40 **USE OF POLARIMETRY IN FOREST BIOMASS RETRIEVAL : THE P-BAND BIOMASS MISSION**
Ludovic Villard, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Pierre-Louis Frison, Université Paris-Est Marne-La-Vallée, France; Thuy Le Toan, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France

TU4.R2.5 17:00 **NON-CIRCULAR SIGNATURE IN HIGH-RESOLUTION POLSAR IMAGES AND MAN-MADE TARGETS DETECTION**
Yanting Wang, Thomas Ainsworth, Jong-Sen Lee, Naval Research Laboratory, United States

Wednesday, July 29 08:20 - 10:00 White 1
Session WE1.W1 Oral

Classification Techniques

Session Co-Chairs: Jocelyn Chanussot, Grenoble Institute of Technology; Andrea Garzelli, University of Siena

WE1.W1.1 08:20 **PARAMETER OPTIMIZATION FOR MARKOV RANDOM FIELD MODELS FOR REMOTE SENSING IMAGE CLASSIFICATION THROUGH SEQUENTIAL MINIMAL OPTIMIZATION**
Andrea De Giorgi, Gabriele Moser, Sebastiano Bruno Serpico, University of Genoa, Italy

WE1.W1.2 08:40 **FAST AND ACCURATE IMAGE CLASSIFICATION WITH HISTOGRAM BASED FEATURES AND ADDITIVE KERNEL SVM**
Begüm Demir, Lorenzo Bruzzone, University of Trento, Italy

WE1.W1.3 09:00 **AN ADVANCED CLASSIFIER FOR THE JOINT USE OF LIDAR AND HYPERSPECTRAL DATA: CASE STUDY IN QUEENSLAND, AUSTRALIA**
Pedram Ghamisi, University of Iceland, Iceland; Dan Wu, University of Queensland, Australia; Gabriele Cavallaro, Jón Atli Benediktsson, University of Iceland, Iceland; Stuart Phinn, University of Queensland, Australia; Nicola Falco, University of Iceland, Iceland

WE1.W1.4 09:20 **LANDCOVER CLASSIFICATION WITH SELF-TAUGHT LEARNING ON ARCHETYPAL DICTIONARIES**
Ribana Roscher, Freie Universität Berlin, Germany; Christoph Römer, University of Bonn, Germany; Björn Waske, Freie Universität Berlin, Germany; Lutz Plümer, University of Bonn, Germany

WE1.W1.5 09:40 **LBP-BASED MULTICLASS CLASSIFICATION METHOD FOR UAV IMAGERY**
Thomas Moranduzzo, Mohamed L. Mekhalfi, Farid Melgani, University of Trento, Italy

Wednesday, July 29 10:30 - 12:10 White 1
Session WE2.W1 Oral

Techniques for Classification of SAR Data

Session Co-Chairs: Raffaella Guida, Univ. of Surrey; Vito Pascazio, Univ. Napoli

WE2.W1.1 10:30 **POLARIMETRIC SAR IMAGES CLASSIFICATION USING DEEP BELIEF NETWORKS WITH LEARNING FEATURES**
Biao Hou, Xiaohuan Luo, Shuang Wang, Licheng Jiao, Xiangrong Zhang, Key Laboratory of Intelligent Perception and Image Understanding of Ministry of Education of China, China

WE2.W1.2 10:50 **A HIERARCHICAL PATCH CLUSTERING METHOD FOR HIGH-RESOLUTION TERRASAR-X IMAGES**
Wei Yao, Otmar Loffeld, University of Siegen, Germany; Mihai Datcu, German Aerospace Center (DLR), Germany

WE2.W1.3 11:10 **PATCH-BASED SAR IMAGE CLASSIFICATION: THE POTENTIAL OF MODELING THE STATISTICAL DISTRIBUTION OF PATCHES WITH GAUSSIAN MIXTURES**
Sonia Tabti, Télécom ParisTech, France; Charles-Alban Deledalle, Université de Bordeaux, France; Loïc Denis, Laboratoire Hubert Curien, France; Florence Tupin, Télécom ParisTech, France

WE2.W1.4 11:30 **SAR DESPECKLING BASED ON SOFT CLASSIFICATION**
Diego Gragnaniello, Giovanni Poggi, Giuseppe Scarpa, Luisa Verdoliva, Università Federico II di Napoli, Italy

WE2.W1.5 11:50 **A NOVEL APPROACH FOR H-α DECOMPOSITION OF COMPACT POLARIMETRIC SAR USING RADARSAT-2 DATA**
Sara Ghods, Vahhab Shojaeddini, Iranian Research Organization for Science and Technology, Iran; Yasser Maghsoudi, K.N.Toosi University of Technology, Iran

Wednesday, July 29 13:30 - 15:10 White 1
Session WE3.W1 Oral

Techniques for Classification of Multispectral Images

Session Co-Chairs: Melba Crawford, Purdue University; Jocelyn Chanussot, Grenoble Institute of Technology

WE3.W1.1 13:30 **A SUPERVISED BAYESIAN APPROACH FOR SIMULTANEOUS SEGMENTATION AND CLASSIFICATION**
Daniel Capella Zanotta, IFRS - Rio Grande, Brazil; Matheus Pinheiro Ferreira, INPE, Brazil; Maciel Zortea, Instituto de Informática - Universidade Federal do Rio Grande do Sul, Brazil; Jean Marcel Almeida Espinoza, IFRS - Rio Grande, Brazil; Yosio Edemir Shimabukuro, INPE, Brazil

WE3.W1.2 13:50 **A MARKOV RANDOM FIELD MODEL FOR DECISION LEVEL FUSION OF MULTI-SOURCE IMAGE SEGMENTS**
Willem Olding, Jan Olivier, Brian Salmon, University of Tasmania, Australia

WE3.W1.3 14:10 **A COMPARATIVE STUDY OF SAMPLING ANALYSIS IN SCENE CLASSIFICATION OF HIGH-RESOLUTION REMOTE SENSING IMAGERY**
Jingwen Hu, Gui-Song Xia, Fan Hu, Hong Sun, Liangpei Zhang, Wuhan University, China

WE3.W1.4 14:30 **SUP-PIXEL MAPPING OF URBAN SURFACES USING ENMAP DATA**
Johannes Rosentreter, Björn Waske, Freie Universität Berlin, Germany

WE3.W1.5 14:50 **HISTOGRAM BASED ATTRIBUTE PROFILES FOR CLASSIFICATION OF VERY HIGH RESOLUTION REMOTE SENSING IMAGES**
Begüm Demir, Lorenzo Bruzzone, University of Trento, Italy

Wednesday, July 29 15:40 - 17:20 White 1
Session WE4.W1 Oral

Clustering Techniques

Session Co-Chairs: Jacqueline Le Moigne, NASA Goddard Space Flight Center; Ronan Fablet, Télécom Bretagne

WE4.W1.1 15:40 **SIMULTANEOUS CLUSTERING AND EMBEDDING FOR MULTIPLE INTIMATE MIXTURES**
Arun Saranathan, Mario Parente, University of Massachusetts Amherst, United States

WE4.W1.2 16:00 **A DEEP LEARNING APPROACH FOR UNSUPERVISED DOMAIN ADAPTATION IN MULTITEMPORAL REMOTE SENSING IMAGES**
Essam Othman, Yakoub Bazi, Haikel Alhichri, Naif Alajlan, King Saud University, Saudi Arabia

WE4.W1.3 16:20 **SAMPLING BASED APPROXIMATE SPECTRAL CLUSTERING ENSEMBLE FOR UNSUPERVISED LAND COVER IDENTIFICATION**
Yaser Moazzen, Berna Yalcin, Istanbul Technical University, Turkey; Kadim Tasdemir, Antalya International University, Turkey

WE4.W1.4 16:40 **JOINT SPECTRAL UNMIXING AND CLUSTERING FOR IDENTIFYING HOMOGENEOUS REGIONS IN HYPERSPECTRAL IMAGES**
Eleftheria Mylona, Olga Sykioti, Konstantinos Koutroumbas, Athanasios Rontogiannis, National Observatory of Athens, Greece

WE4.W1.5 17:00 **UNSUPERVISED CLASSIFICATION OF VHR PANCHROMATIC IMAGES USING GUIDED CHINESE RESTAURANT FRANCHISE MIXTURE MODEL**
Yang Shu, Ting Mao, Hong Tang, Jing Li, Xin Yang, Beijing Normal University, China

Wednesday, July 29 08:20 - 10:00 White 2
Session WE1.W2 Oral

SAR Processing II

Session Co-Chairs: Riccardo Lanari, IREA; Akira Hirose, University of Tokyo

WE1.W2.1 08:20 **DETECTION AND IMAGING OF MOVING OBJECTS WITH MULTICHANNEL SAR SYSTEM**
Yun Zhang, Xu Zhang, Hongbo Li, Zhuoqun Wang, Yuan Zhuang, Harbin Institute of Technology, China

WE1.W2.2 08:40 **A SEGMENTED BLOCK PROCESSING APPROACH TO FOCUS SYNTHETIC APERTURE RADAR DATA ON MULTICORE PROCESSORS**
Pasquale Imperatore, Antonio Pepe, Paolo Berardino, Riccardo Lanari, Institute for Electromagnetic Sensing of the Environment (CNR IREA), Italy

WE1.W2.3 09:00 **AZIMUTH AMBIGUITY SUPPRESSION BASED ON MINIMUM MEAN SQUARE ERROR ESTIMATION**
Youming Wu, Ze Yu, Peng Xiao, Chunsheng Li, Beihang University, China

WE1.W2.4 09:20 **SUPPRESSION OF AZIMUTH AMBIGUITIES IN SPACEBORNE STRIPMAP SAR USING ACCURATE RESTORATION MODELING**
Kai Wang, Jie Chen, Wei Yang, Zhuo Li, Beihang University, China

WE1.W2.5 09:40 **UNIFIED DESCRIPTIVE EXPERIMENT DESIGN REGULARIZATION AND COMPONENT DICTIONARY-BASED IMAGE RESTORATION APPROACH FOR ENHANCED RADAR/ SAR SENSING**
Yuriy Shkvarko, Research Professor/CINVESTAV del IPN, Unidad Guadalajara, Mexico; Joel Amao, Juan I. Yañez, CINVESTAV del IPN, Unidad Guadalajara, Mexico

Wednesday, July 29 10:30 - 12:10 White 2
Session WE2.W2 Oral

SAR Processing III

Session Co-Chairs: Andreas Reigber, German Aerospace Center (DLR); Joachim Ender, Fraunhofer Insitute

WE2.W2.1 10:30 **TERRASAR-X STARING SPOTLIGHT IMAGING: A CHANCE TO ESTIMATE ABSOLUTE HEIGHTS**
Sergi Duque, Helko Breit, Ulrich Balss, Alessandro Parizzi, German Aerospace Center (DLR), Germany

WE2.W2.2 10:50 **A MULTIPLE-SUBAPERTURES AUTOFOCUSING ALGORITHM FOR CIRCULAR SAR IMAGING**
Bo-Jun Zhang, Xiao-Ling Zhang, Shun-Jun Wei, University of Electronic Science and Technology of China, China

WE2.W2.3 11:10 **ISAR MOTION COMPENSATION BASED ON A NEW DOPPLER PARAMETERS ESTIMATION PROCEDURE**
Carlo Noviello, Gianfranco Fornaro, CNR, Italy; Paolo Braca, NATO STO, Italy; Marco Martorella, Università di Pisa, Italy

WE2.W2.4 11:30 **CORRECTION OF WIDE-BAND INTERFERENCE SIGNATURES IN REAL MEASURED SYNTHETIC APERTURE RADAR DATA**
MingLiang Tao, Feng Zhou, ZiJing Zhang, Xidian University, China

WE2.W2.5 11:50 **DISCRETE STEPPED STRIP AND SPOILED BEAM: COMPARATIVE ANALYSIS**
Diego Calabrese, Thales Alenia Space Italia S.p.A., Italy

Wednesday, July 29 13:30 - 15:10 White 2
Session WE3.W2 Oral

SAR Statistics: Speckle & Texture

Session Co-Chairs: Paul Rosen, NASA Jet Propulsion Laboratory; Carlos Lopez-Martinez, Universitat Politècnica de Catalunya

WE3.W2.1 13:30 **A BAYESIAN METHOD FOR SPECKLE REDUCTION IN SINGLE-LOOK SAR IMAGES**
Fabio Baselice, Giampaolo Ferraioli, Angel Caroline Johnsy, Vito Pascazio, Gilda Schirinzi, Università di Napoli Parthenope, Italy

WE3.W2.2 13:50 **DENOISING OF FULL RESOLUTION DIFFERENTIAL SAR INTERFEROGRAM BASED ON K-SVD TECHNIQUE**
Chandrakanta Ojha, Adele Fusco, Michele Manunta, IREA-CNR, Italy

WE3.W2.3 14:10 **AN UNSUPERVISED METHOD FOR EQUIVALENT NUMBER OF LOOKS ESTIMATION IN COMPLEX SAR SCENES**
Dingsheng Hu, Anthony Paul Doulgeris, University of Tromsø, Norway; Xiaolan Qiu, Chinese Academy of Sciences, China

WE3.W2.4 14:30 **COVARIANCE-BASED TEXTURE DESCRIPTION FROM WEIGHTED COHERENCY MATRIX AND GRADIENT TENSORS FOR POLARIMETRIC SAR IMAGE CLASSIFICATION**
Minh-Tan Pham, Grégoire Mercier, TELECOM Bretagne, France; Julien Michel, CNES (The French Space Agency), France

WE3.W2.5 14:50 **SPATIAL TEXTURE ANALYSIS OF HIGH-RESOLUTION SAR IMAGERY EMPLOYING A STATISTICS-BASED APPROACH**
Thomas Ainsworth, Yanting Wang, Jong-Sen Lee, Naval Research Laboratory, United States

Wednesday, July 29 15:40 - 17:20 White 2
Session WE4.W2 Oral

SAR Remote Sensing Applications

Session Co-Chairs: Mark Sletten, Naval Research Laboratory; Alfonso Farina

WE4.W2.1 15:40 **AUTOMATIC SHIP DETECTION IN SAR SATELLITE IMAGES: PERFORMANCE ASSESSMENT**
Mattia Stasolla, Carlos Santamaria, European Commission, Joint Research Centre, Italy; Jordi Mallorqui, Universitat Politècnica de Catalunya, Spain; Gerard Margarit, GMV Aerospace and Defense, S.A.U., Spain; Nick Walker, eOsphere Limited, United Kingdom

WE4.W2.2 16:00 **AMBIGUITY DISCRIMINATION FOR SHIP DETECTION USING SENTINEL-1 REPEAT ACQUISITION OPERATIONS**
Carlos Santamaria, Harm Greidanus, European Commission, Joint Research Centre, Italy

WE4.W2.3 16:20 **BUILDING IDENTIFICATION FROM SAR IMAGE BASED ON THE MODIFIED MARKER-CONTROLLED WATERSHED ALGORITHM**
Yuanyuan Yang, Yong Wang, Jiang Qian, University of Electronic Science and Technology of China, China

WE4.W2.4 16:40 **COMBINING PATCH-BASED ESTIMATION AND TOTAL VARIATION REGULARIZATION FOR 3D INSAR RECONSTRUCTION**
Charles-Alban Deledalle, NRS-Université Bordeaux, IMB, France; Loïc Denis, CNRS-Univ. Saint-Etienne, Laboratoire Hubert Curien, France; Giampaolo Ferraioli, Dipartimento di Scienze e Tecnologie - Università Parthenope Napoli, Italy; Florence Tupin, Institut Mines-Télécom, Télécom ParisTech CNRS-LTCI, France

WE4.W2.5 17:00 **ANALYSIS AND CORRECTION OF MARITIME SAR SIGNATURES WITH THE NRL MSAR**
Mark Sletten, Paul Hwang, Jakov Toporkov, Steve Menk, U.S. Naval Research Laboratory, United States; Luke Rosenberg, Defense Science and Technology Organization, Australia; Robert Jansen, U.S. Naval Research Laboratory, United States

Wednesday, July 29 08:20 - 10:00 Green 1
Session WE1.G1 Oral-Invited

ESA's SMOS Mission: Continuing to Provide Global Soil Moisture and Ocean Salinity Data I

Session Co-Chairs: Susanne Mecklenburg, European Space Agency; Yann Kerr, Centre D'Etudes Spatiales de la Biosphère (CESBIO)

WE1.G1.1 08:20 **SMOS OBSERVATIONS OVER LAND AND OCEAN: AN OVERVIEW**
Yann Kerr, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Susanne Mecklenburg, Steven Delwart, Jacqueline Boutin, European Space Agency, ESRIN, Italy; Paolo Ferrazzoli, Tor Vergata University of Rome, Italy; Jordi Font, ICM-CSIC, Spain; Ali Mahmoodi, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Nicolas Reul, IFREMER, France; Philippe Richaume, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Jean-Pierre Wigneron, INRA ISPA, France

WE1.G1.3 09:00 **ESA'S SOIL MOISTURE AND OCEAN SALINITY MISSION - FROM SCIENCE TO OPERATIONAL APPLICATIONS**
Susanne Mecklenburg, Matthias Drusch, European Space Agency (ESA), Italy; Yann Kerr, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Jordi Font, CMIMA – CSIC, Spain; Nicolas Reul, IFREMER, France; Manuel Martín-Neira, Steven Delwart, Raffaele Crapolicchio, Jorge Fauste, Elena Daganzo-Eusebio, Antonio de la Fuente, Mariano Kornberg, European Space Agency (ESA), Netherlands

WE1.G1.4 09:20 **SMOS INSTRUMENT PERFORMANCE AND CALIBRATION AFTER 5 YEARS IN ORBIT**
Manuel Martín-Neira, European Space Agency (ESA), Netherlands; Ignasi Corbella, Francesc Torres, Israel Durán, Nuria Duffo, Universitat Politècnica de Catalunya, Spain; Juha Kainulainen, Harp Technologies Ltd., Finland; Roger Oliva, European Space Agency (ESA), Spain; Josep Closa, EADS-CASA Espacio, Spain; François Cabot, Ali Khazâal, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Eric Anterrieu, IRAP, France; Jose Barbosa, Gonçalo Lopes, DEIMOS Engenharia SA, Portugal; Joe Tenerelli, OceanDataLab, France; Raúl Díez-García, IDEAS, Spain; Jorge Fauste, European Space Agency (ESA), Spain; Verónica González-Gambau, Antonio Turiel, SMOS BEC, Spain; Steven Delwart, Raffaele Crapolicchio, Martin Suess, European Space Agency (ESA), Italy

WE1.G1.5 09:40 **AN OVERVIEW OF NEW INSIGHTS FROM 5 YEARS OF DATA FROM SATELLITE SALINITY MISSIONS**
Nicolas Reul, IFREMER, France

Wednesday, July 29 10:30 - 12:10 Green 1
Session WE2.G1 Oral-Invited

ESA's SMOS Mission: Continuing to Provide Global Soil Moisture and Ocean Salinity Data II

Session Co-Chairs: Susanne Mecklenburg, European Space Agency; Yann Kerr, Centre D'Etudes Spatiales de la Biosphère (CESBIO)

WE2.G1.1 10:30 **ASSIMILATION OF L-BAND BRIGHTNESS TEMPERATURES IN THE ECMWF LAND DATA ASSIMILATION SYSTEM: ADVANCEMENTS AND FUTURE PLANS**
Joaquin Muñoz Sabater, Patricia de Rosnay, Clement Albergel, Gianpaolo Balsamo, Lars Isaksen, ECMWF, United Kingdom; Matthias Drusch, European Space Agency, ESTEC, Netherlands

WE2.G1.2 10:50 **FIVE-YEAR PERFORMANCE OF THE SMOS REFERENCE RADIOMETERS**
Juha Kainulainen, Harp Technologies Ltd., Finland; Andreas Colliander, Jet Propulsion Laboratory, California Institute of Technology, United States; Manuel Martín-Neira, European Space Agency (ESA), Netherlands

WE2.G1.3 11:10 **GEOLOCATION OF RFI SOURCES WITH SUB-KILOMETRIC ACCURACY FROM SMOS INTERFEROMETRIC DATA**
Eric Anterrieu, IRAP, Université de Toulouse & CNRS, France; Ali Khazâal, François Cabot, Yann Kerr, CESBIO, Université de Toulouse, CNRS, CNES & IRD, France

WE2.G1.4 11:30 **EVALUATION OF THE MOST RECENT REPROCESSED SMOS SOIL MOISTURE PRODUCTS: COMPARISON BETWEEN SMOS LEVEL 3 V246 AND V272**
Amen Al-Yaari, Jean-Pierre Wigneorn, INRA, France; Agnes Ducharne, UMR 7619 METIS, Université Pierre-et-Marie Curie/CNRS, France; Yann Kerr, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Roberto Fernandez-Moran, University of Valencia, Spain; Marie Parrens, Ahmad Al Bitar, Arnaud Mialon, Philippe Richaume, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France

WE2.G1.5 11:50 **ADVANCES IN NODAL SAMPLING OF SMOS IMAGES: IMPROVING QUALITY ON SEA AND LAND**
Verónica González-Gambau, Antonio Turiel, Estrella Olmedo, Justino Martinez, ICM/CSIC, Spain

Wednesday, July 29 13:30 - 15:10 Green 1
Session WE3.G1 Oral

Inland Waters and Lakes

Session Co-Chairs: Manabu Watanabe, Japan Aerospace Exploration Agency; Frédéric Frappart, Observatoire Midi-Pyrénées

WE3.G1.1 13:30 **HARMONIC ANALYSIS OF LAKE BALATON PHYTOPLANKTON BLOOMS USING 9 YEARS OF MERIS-DERIVED CHLOROPHYLL-A**
Heiko Balzter, University of Leicester, United Kingdom; Stephanie C.J. Palmer, Balaton Limnological Institute, Hungary; Daniel Odermatt, Brockmann-Consult GmbH, Germany; Peter Hunter, University of Stirling, United Kingdom; Carsten Brockmann, Brockmann-Consult GmbH, Germany; Matyas Presing, Viktor Toth, Balaton Limnological Institute, Hungary

WE3.G1.2 13:50 **ANALYSIS OF WATER TEMPERATURE VARIABILITY OF ARCTIC LAKES USING LANDSAT-8 DATA**
Yan Huang, Hongxing Liu, Kenneth Hinkel, Richard Beck, University of Cincinnati, United States; Bailang Yu, Jianping Wu, East China Normal University, United States

WE3.G1.3 14:10 **VALIDATION OF HYDRODYNAMIC MODEL BY REMOTE SENSING DATA FOR CHINA'S LARGEST FRESHWATER LAKE**
Jianzhong Lu, Hengda Qi, Xiaoling Chen, Liqiong Chen, Wuhan University, China; Sabine Sauvage, José-Miguel Sánchez-Pérez, University of Toulouse, France

WE3.G1.4 14:30 **AN APPLICATION OF THREE-BAND MODEL FOR CHLOROPHYLL-A ESTIMATION IN A TURBID CASE-2 RESERVOIR IN NORTHERN CHINA**
Xia Lei, Ziqi Guo, Yanchao Qiao, Ye Tian, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China

WE3.G1.5 14:50 **UNDERSTANDING OPEN WATER SEASONAL DYNAMICS OVER ALASKA FROM ALOS-PALSAR SCANSAR DATA**
Marzieh Azarderakhsh, Fairleigh Dickinson University, United States; Kyle McDonald, City College of New York, United States

Wednesday, July 29 15:40 - 17:20 Green 1
Session WE4.G1 Oral

Inland Waters and River Floods

Session Co-Chairs: Xiaofeng Li, NOAA/NESDIS; Maurizio Migliaccio, Università di Napoli Parthenope

WE4.G1.1 15:40 **ALBEDO VARIABILITY IN RELATION TO SURFACE HYDROLOGY IN THE HUDSON BAY LOWLANDS, MANITOBA, CANADA FROM SATELLITE OBSERVATIONS**
Kyung-Kuk (Kevin) Kang, Claude R. Duguay, University of Waterloo/H2O Geomatics Inc, Canada

WE4.G1.2 16:00 **RIVER WATER LEVEL TIME SERIES ESTIMATION FROM SATELLITE ALTIMETRY WITH OPTIMIZED SPATIAL COVERAGE AND TEMPORAL RESOLUTION DENSIFICATION, CASE STUDY: PO RIVER (ITALY)**
Mohammad J. Tourian, Tao Qin, Omid Elmi, Institute of Geodesy, University of Stuttgart, Germany; Angelica Tarpanelli, Luca Brocca, Tommaso Moramarco, Hydrology Research Group at CNR IRPI, Perugia, Italy, Italy; Nico Sneeuw, Institute of Geodesy, University of Stuttgart, Germany

WE4.G1.3 16:20 **EVALUATION AND HYDROLOGICAL APPLICATIONS OF TRMM RAINFALL PRODUCTS OVER MEKONG RIVER BASIN WITH A DISTRIBUTIED MODEL**
Wei Wang, Hui Lu, Tsinghua University, China

WE4.G1.4 16:40 **APPLICATION OF IMAGE-BASED RIVER VELOCIMETRY TECHNIQUES TO FLOOD HOME VIDEOS**
Lionel Pénard, Raphaël Le Boursicaud, Fabien Thollet, Mickaël Lagouy, Musaab Khalid, Jérôme Le Coz, Alexandre Hauet, IRSTEA, France

WE4.G1.5 17:00 **SPATIO-TEMPORAL DYNAMICS OF THE FLOODS IN THE GUAYAS WATERSHED (ECUATORIAN PACIFIC COAST) USING ENVISAT ASAR IMAGES**
Frédéric Frappart, Luc Bourrel, Ximena Riofrio Salazar, Frédéric Baup, José Darrozes, Observatoire Midi-Pyrénées, France; Rodrigo Pombosa, INAMHI, Ecuador

Wednesday, July 29 08:20 - 10:00 Green 2
Session WE1.G2 Oral-Invited

High-resolution Satellite SAR Retrievals of Ocean Winds, Waves, Currents, and Sea Ice I

Session Co-Chairs: Will Perrie, Bedford Institute of Oceanography; Susanne Lehner, German Aerospace Center (DLR)

WE1.G2.1 08:20 **HIGH RESOLUTION WIND AND WAVE MEASUREMENTS FROM TERRASAR-X AND TANDEM-X SATELLITES IN COMPARISON TO MARINE FORECAST**
Susanne Lehner, Andrey Pleskachevsky, Claus Gebhardt, Wolfgang Rosenthal, German Aerospace Center (DLR), Germany; Thomas Bruns, Peter Hoffmann, Jens Kieser, DWD, Germany

WE1.G2.3 09:00 **SIMULTANEOUS MULTI-POLARIZATION SAR RETRIEVAL OF OCEAN SURFACE WAVES AND WINDS FROM MODERATE TO HIGH STATES**
Biao Zhang, Nanjing University of Information Science and Technology, China; William Perrie, Bedford Institute of Oceanography, Canada; Yijun He, Nanjing University of Information Science and Technology, China

WE1.G2.4 09:20 **TROPICAL CYCLONE BOUNDARY LAYER ROLLS DERIVED FROM SAR**
Astrid Werkmeister, Hans Graber, Rosenstiel School of Marine and Atmospheric Science, United States; Ralph Foster, University of Washington, United States; Roland Romeiser, Rosenstiel School of Marine and Atmospheric Science, United States

WE1.G2.5 09:40 **INFERRING SURFACE ROUGHNESS AND BREAKING WAVE PROPERTIES FROM POLARIMETRIC RADAR BACKSCATTERING**
Paul Hwang, Naval Research Laboratory, United States; Franco Fois, Delft University of Technology, Netherlands

Wednesday, July 29 10:30 - 12:10 Green 2
Session WE2.G2 Oral-Invited

High-resolution Satellite SAR Retrievals of Ocean Winds, Waves, Currents, and Sea Ice II

Session Co-Chairs: Will Perrie, Bedford Institute of Oceanography; Susanne Lehner, German Aerospace Center (DLR)

WE2.G2.1 10:30 **USE OF SAR WINDS IN MARINE WEATHER FORECASTING**
Birgitte Furevik, Knut-Frode Dagestad, Gunnar Noer, Norwegian Meteorological Institute, Norway; Pierre Jaccard, Norwegian Institute for Water Research, Norway

WE2.G2.2 10:50 **WIND SPEED RETRIEVAL WITH RECONSTRUCTED CROSS-POL FROM COMPACT POLARIZATION SAR IMAGES**
Haiyan Li, University of Chinese Academy of Sciences 2.Bedford Institute of Oceanography, China; William Perrie, Bedford Institute of Oceanography, Canada

WE2.G2.3 11:10 **CROSS-POLARIZATION GEOPHYSICAL MODEL FUNCTION FOR MARINE WIND SPEED RETRIEVAL: LABORATORY MODELING AND EXAMPLES OF HURRICANE WIND SPEED RETRIEVAL FROM SATELLITE IMAGERY**
Yuliya Troitskaya, Instutute of Applied Physics, Russian Federation; Victor Abramov, Radiophysical Research Institute, Russian Federation; Alexey Ermoshkin, Emma Zuikova, Vassili Kazakov, Daniil Sergeev, Alexander Kandaurov, Instutute of Applied Physics, Russian Federation

WE2.G2.4 11:30 **TOWARDS UNSUPERVISED SEA ICE DETECTION FROM COMPLEX SAR IMAGES**
Hui Shen, William Perrie, Bedford Institute of Oceanography, Canada

WE2.G2.5 11:50 **SNOWSCAT TOMOGRAPHY: FIRST EXPERIMENTAL RESULTS**
Othmar Frey, Gamma Remote Sensing / ETH Zurich, Switzerland; Charles L. Werner, Andreas Wiesmann, Gamma Remote Sensing, Switzerland

Wednesday, July 29 13:30 - 15:10 Green 2
Session WE3.G2 Oral-Invited

Remote Sensing and Population Data Integration for Global Change and Disaster Risk Research I

Session Co-Chairs: Alex de Sherbinin, CIESIN, Columbia University; Ryuei Nishii, Kyushu University

WE3.G2.1 13:30 **INTEGRATION OF REMOTE SENSING AND POPULATION DATA: LESSONS FROM THE NASA SOCIOECONOMIC DATA AND APPLICATIONS CENTER**
Alex de Sherbinin, CIESIN, Columbia University, United States

WE3.G2.3 14:10 **GRIDDED POPULATION OF THE WORLD, VERSION 4 (GPWV4): A TECHNICAL REVIEW OF THE DEVELOPMENT AND METHODS**
Erin Doxsey-Whitfield, Kytt MacManus, Susana B. Adamo, Columbia University, United States

WE3.G2.4 14:30 **COMBINING GHSL AND GPW TO IMPROVE GLOBAL POPULATION MAPPING**
Sergio Freire, Thomas Kemper, Martino Pesaresi, Aneta Jadwiga Florczyk, Vasileios Syrris, European Commission, Joint Research Centre, Italy

WE3.G2.5 14:50 **ASSESSING THE RELATIONSHIP BETWEEN SPATIAL FEATURES DERIVED FROM HIGH RESOLUTION SATELLITE IMAGERY AND CENSUS VARIABLES IN ACCRA, GHANA**
Ryan Engstrom, Avery Sandborn, Qin Yu, George Washington University, United States; Jordan Graesser, McGill University, Canada

Wednesday, July 29 15:40 - 17:20 Green 2
Session WE4.G2 Oral-Invited

Remote Sensing and Population Data Integration for Global Change and Disaster Risk Research II

Session Co-Chairs: Alex de Sherbinin, CIESIN, Columbia University; Ryuei Nishii, Kyushu University

WE4.G2.1 15:40 **INCORPORATION OF GRIDDED DATA INTO THE ANALYSIS OF REMOTELY-SENSED IMAGES: BASIC QUANTITATIVE STRATEGY TO ANALYZE DEFOERESTATION BY POPULATION GROWTH**
Shojiro Tanaka, Hiroshima University of Economics, Japan; Ryuei Nishii, Kyushu University, Japan

WE4.G2.2 16:00 **UNIFIED MODELING BASED ON SVM AND SVR FOR PREDICTION OF FOREST AREA RATIO BY HUMAN POPULATION DENSITY AND RELIEF ENERGY**
Ryuei Nishii, Kyushu University, Japan; Shojiro Tanaka, Hiroshima University of Economics, Japan

WE4.G2.3 16:20 **DYNAMIC POPULATION EXPOSURE MODELING: APPLICATION OF DYNAPOP-X FOR STORM SURGE RELATED COASTAL FLOOD CRISIS MANAGEMENT**
Christoph Aubrecht, Klaus Steinnocher, Mario Köstl, AIT Austrian Institute of Technology, Austria; Marianne Grisel, ARTELIA Eau & Environnement, France

WE4.G2.4 16:40 **UNDERSTANDING THE LINK BETWEEN POPULATION DYNAMICS AND BIODIVERSITY CONSERVATION THROUGH REMOTE SENSING AND GRIDDED POPULATION DATA INTEGRATION**
Alex Zvoleff, Jorge Ahumada, Conservation International, United States

WE4.G2.5 17:00 **A SPATIAL ANALYSIS OF CLIMATE-RELATED CHILD MALNUTRITION IN THE LAKE VICTORIA BASIN**
Lopez-Carr David, Mwenda Kevin, University of California, Santa Barbara, United States; Narcisa Pricope, Phaedon Kyriakidis, University of North Carolina, Wilmington, United States; Marta Jankowska, University of California, San Diego, United States; John Weeks, San Diego State University, United States; Chris Funk, Gregory Husak, U.S. Geological Survey, United States; Joel Michaelsen, University of California, Santa Barbara, United States

Student Paper Contest I

Session Co-Chairs: David LeVine, NASA Goddard Space Flight Center; Paolo Gamba, University of Pavia

WE1.G3.1 08:20 **IDENTIFYING AND RESOLVING A CALIBRATION ISSUE WITH GMI**
John Xun Yang, Darren McKague, Christopher S. Ruf, University of Michigan, Ann Arbor, United States

WE1.G3.2 08:40 **DOPSCAT: A MISSION CONCEPT FOR A DOPPLER WIND-SCATTEROMETER**
Franco Fois, Peter Hoogeboom, Fran?ois Le Chevalier, Delft University of Technology, Netherlands; Ad Stoffelen, Royal Netherlands Meteorological Institute (KNMI), Netherlands

WE1.G3.3 09:00 **VIBRATION ESTIMATION IN SAR IMAGES USING AZIMUTH TIME-FREQUENCY TRACKING AND A MATCHED SIGNAL TRANSFORM**
Andrei Anghel, GIPSA-lab/UPB, Romania; Gabriel Vasile, GIPSA-lab/CNRS, France; Cornel Ioana, GIPSA-lab/Grenoble INP, France; Remus Cacoveanu, Silviu Ciochina, UPB, Romania

WE1.G3.4 09:20 **DOWNSCALING MICROWAVE BRIGHTNESS TEMPERATURES USING SELF REGULARIZED REGRESSIVE MODELS**
Subit Chakrabarti, Jasmeet Judge, Anand Rangarajan, Sanjay Ranka, University of Florida, United States

WE1.G3.5 09:40 **A UNIFIED FRAMEWORK FOR SPATIO-TEMPORAL-SPECTRAL FUSION OF REMOTE SENSING IMAGES**
Xiangchao Meng, Huanfeng Shen, Liangpei Zhang, Qiangqiang Yuan, Huifang Li, Wuhan University, China

Student Paper Contest II

Session Co-Chairs: Paolo Gamba, University of Pavia; David LeVine, NASA Goddard Space Flight Center

WE2.G3.1 10:30 **WEAKLY SUPERVISED ALIGNMENT OF MULTISENSOR IMAGES**
Diego Marcos Gonzalez, University of Zurich, Switzerland; Gustau Camps-Valls, University of Valencia, Spain; Devis Tuia, University of Zurich, Switzerland

WE2.G3.2 10:50 **EFFICIENT SUPERPIXEL-ORIENTED MULTI-TASK JOINT SPARSE REPRESENTATION CLASSIFICATION FOR HYPERSPECTRAL IMAGERY**
Jiayi Li, Hongyan Zhang, Liangpei Zhang, Wuhan University, China

WE2.G3.3 11:10 **REMOTE SENSING IMAGE CLASSIFICATION BASED ON MULTIPLE MORPHOLOGICAL COMPONENT ANALYSIS**
Xiang Xu, Jun Li, Sun Yat-sen University, China; Dalla Mura, GIPSA-Lab, France

WE2.G3.4 11:30 **SUPERVISED HYPERSPECTRAL IMAGE CLASSIFICATION WITH REJECTION**
Filipe Condessa, Instituto Superior Técnico / Carnegie Mellon University, Portugal; José M. Bioucas-Dias, Instituto Superior Técnico, Portugal; Jelena Kovacevic, Carnegie Mellon University, United States

WE2.G3.5 11:50 **AUTOMATIC MORPHOLOGICAL ATTRIBUTE PROFILES**
Gabriele Cavallaro, University of Iceland, Iceland; Mauro Dalla Mura, Grenoble Institute of Technology, France; Nicola Falco, University of Trento, Italy; Jón Atli Benediktsson, University of Iceland, Iceland

Clouds and Precipitation III

Session Co-Chairs: Toshio Iguchi, National Institute of Information and Communications Technology; Evan Ruzanski, Vaisala, Inc.

WE3.G3.1 13:30 **SHORT-TERM PREDICTABILITY OF WEATHER RADAR QUANTITIES AND LIGHTNING ACTIVITY**
Evan Ruzanski, Vaisala, Inc., United States; V. Chandrasekar, Colorado State University, United States

WE3.G3.2 13:50 **NUBF CORRECTION METHODS FOR THE GPM/DPR LEVEL-2 ALGORITHMS**
Shinta Seto, Nagasaki University, Japan; Toshio Iguchi, NICT, Japan; Tatsuya Shimozuma, Shota Hayashi, Nagasaki University, Japan

WE3.G3.3 14:10 **AN INITIAL EVALUATION OF MEASUREMENTS AND RAIN ESTIMATES FROM GPM DUAL-FREQUENCY PRECIPITATION RADAR**
Liang Liao, Morgan State University, United States; Robert Meneghini, NASA Goddard Space Flight Center, United States

WE3.G3.4 14:30 **CURRENT STATUS OF GPM/DPR LEVEL 1 ALGORITHM DEVELOPMENT AND DPR CALIBRATION**
Takeshi Masaki, Takuji Kubota, Riko Oki, Kinji Furukawa, Masahiro Kojima, Takeshi Miura, Toshio Iguchi, Hiroshi Hanado, Japan Aerospace Exploration Agency, Japan; Hiroki Kai, Naofumi Yoshida, Tomohiko Higashiuwatoko, RESTEC, Japan

WE3.G3.5 14:50 **ACCOUNTING FOR SURFACE ICE AND SNOW IN THE GODDARD PROFILING ALGORITHM RAIN RATE RETRIEVALS**
Patrick Meyers, CICS-MD/ESSIC, United States; Ralph R. Ferraro, NOAA/NESDIS/STAR, United States

Clouds and Precipitation IV

Session Co-Chairs: Sanghun Lim, Korea Institute of Civil Engineering and Building Technology; Rachael Kroodsma, NASA Goddard Space Flight Center

WE4.G3.1 15:40 **THE IMPACT OF TIME DIFFERENCE BETWEEN SATELLITE OVERPASS AND GROUND OBSERVATION ON CLOUD COVER PERFORMANCE STATISTICS**
Jedrzej S. Bojanowski, Reto Stöckli, Anke Tetzlaff, Heike Kunz, Federal Office of Meteorology and Climatology MeteoSwiss, Switzerland

WE4.G3.2 16:00 **SPATIAL AND DIURNAL VARIATIONS OF STORM HEIGHT IN EAST ASIA SUMMER MONSOON RETRIEVED FROM THE TRMM MEASUREMENTS**
Myong-In Lee, Myung-Sook Park, Hyerim Kim, Ulsan National Institute of Science and Technology, Republic of Korea; Jung-Moon Yoo, Ewha Womans University, Republic of Korea

WE4.G3.3 16:20 **GRIDDED TEXT PRODUCTS FOR GPM PARTNER DATA**
Erich Stocker, NASA Goddard Space Flight Center code 610.2, United States; Owen Kelley, George Mason University, United States; George Huffman, NASA Goddard Space Flight Center, United States; Christian D. Kummerow, Colorado State University, United States

WE4.G3.4 16:40 **DEPLOYMENT AND PERFORMANCE OF NASA D3R DURING GPM IPHEX FIELD CAMPAIGN**
V. Chandrasekar, Robert M. Beauchamp, Haonan Chen, Colorado State University, United States; Manuel A. Vega, Mathew Schwaller, NASA Goddard Space Flight Center, United States; Walter Petersen, David Wolff, NASA Wallops Flight Facility, United States

WE4.G3.5 17:00 **CHARACTERIZATION AND ESTIMATION OF LIGHT RAINFALL USING NASA D3R OBSERVATIONS DURING GPM IFLOODS AND IPHEX FIELD CAMPAIGNS**
Haonan Chen, V. Chandrasekar, Colorado State University, United States

Wednesday, July 29 08:20 - 10:00 Yellow 1
Session WE1.Y1 Oral

Forest Vegetation Mapping

Session Co-Chairs: Siri Jodha Khalsa, University of Colorado; Björn Waske, Freie Universität Berlin

WE1.Y1.1 08:20 **CONTRIBUTION OF ALOS PALSAR DATA TO FOREST CHARACTERIZATION AND MONITORING IN AUSTRALIA.**
Richard M. Lucas, University of New South Wales, Australia; John Armston, Peter Scarth, Department of Science, Information Technology, Innovation and the Arts, Australia; Peter Bunting, Aberystwyth University, United Kingdom

WE1.Y1.2 08:40 **L-BAND RADAR SCATTERING OF WHEAT AND CANOLA FOR SMAP APPLICATIONS**
Huanting Huang, University of Michigan, Ann Arbor, United States; Seungbum Kim, Jet Propulsion Laboratory, California Institute of Technology, United States; Leung Tsang, University of Michigan, Ann Arbor, United States; Xiaolan Xu, Jet Propulsion Laboratory, California Institute of Technology, United States; Thomas Jackson, U.S. Department of Agriculture - ARS Hydrology and Remote Sensing Laboratory, United States; Simon Yueh, Jet Propulsion Laboratory, California Institute of Technology, United States

WE1.Y1.3 09:00 **A METHOD FOR GENERATING FOREST/NON-FOREST MAPS FROM TANDEM-X INTERFEROMETRIC DATA**
Michele Martone, Paola Rizzoli, Benjamin Bräutigam, Gerhard Krieger, German Aerospace Center (DLR), Germany

WE1.Y1.4 09:20 **LAND MANAGEMENT MONITORING OF NEAR-NATURAL AREAS THROUGH AN INTEGRATED ANALYSIS OF MULTI-TEMPORAL SATELLITE DATA IN A MODEL FRAMEWORK**
Florian Schlenz, Philipp Klug, Tobias Hank, Ludwig-Maximilian University of Munich, Germany; Silke Migdall, Heike Bach, VISTA Remote Sensing in Geosciences GmbH, Germany; Wolfram Mauser, Ludwig-Maximilian University of Munich, Germany

Wednesday, July 29 10:30 - 12:10 Yellow 1
Session WE2.Y1 Oral

Lidar Forest Vegetation

Session Co-Chairs: Grant Scott, University of Missouri; Benoit Rivard, University of Alberta

WE2.Y1.1 10:30 **FUSION BETWEEN UAV-SFM AND TERRESTRIAL LASER SCANNER FOR FIELD VALIDATION OF SATELLITE REMOTE SENSING**
Akira Kato, Hiroyuki Obanawa, Chiba University, Japan; Yuichi Hayakawa, The University of Tokyo, Japan; Manabu Watanabe, Japan Aerospace Exploration Agency, Japan; Yoshio Yamaguchi, Tsutomu Enoki, Niigata University, Japan

WE2.Y1.2 10:50 **ESTIMATING PAR TRANSMITTANCE OF INDIVIDUAL TREES USING MULTI-RETURN AIRBORNE LIDAR AND RADIATIVE TRANSFER SIMULATION**
Haruki Oshio, Takashi Asawa, Tokyo Institute of Technology, Japan; Akira Hoyano, The Open University of Japan, Japan; Satoshi Miyasaka, Nakanihon Air Service CO., LTD., Japan

WE2.Y1.3 11:10 **RETRIEVAL OF CANOPY STRUCTURE TYPES FOR FOREST CHARACTERIZATION USING MULTI-TEMPORAL AIRBORNE LASER SCANNING**
Reik Leiterer, University of Zurich, Remote Sensing Laboratories, Switzerland; Reinhard Furrer, University of Zurich Institute of Mathematics, Switzerland; Michael E. Schaepman, Felix Morsdorf, University of Zurich, Remote Sensing Laboratories, Switzerland

WE2.Y1.4 11:30 **PROBABILISTIC CLUTTER MAPS OF FORESTED TERRAIN FROM AIRBORNE LIDAR POINT CLOUDS**
Heezin Lee, University of California, Berkeley, United States; Michael Starek, Texas A&M University-Corpus Christi, United States; Bruce Blundell, Christopher Gard, Harry Puffenberger, U.S. Army, United States

WE2.Y1.5 11:50 **ESTIMATING AND MAPPING FOREST STRUCTURAL NATURALNESS USING AIRBORNE LASER SCANNING DATA AND THE K-NEAREST NEIGHBORS TECHNIQUE**
Matteo Mura, University of Molise, Italy; Ronald E. McRoberts, U.S. Department of Agriculture - Forest Service, United States; Gherardo Chirici, University of Florence, Italy; Marco Marchetti, University of Molise, Italy

Wednesday, July 29 13:30 - 15:10 Yellow 1
Session WE3.Y1 Oral

Optical Forest Vegetation I

Session Co-Chairs: Jose Moreno, Univ. Valencia; Enrico Borgogno Mondino, Univ. of Torino

WE3.Y1.1 13:30 **LINKING OMI HCHO AND MODIS PRI SATELLITE DATA WITH BVOCS EMISSIONS IN NE SPAIN**
Shawn Kefauver, University of Barcelona, Spain; Iolanda Filella, Chao Zhang, Josep Penuelas, Autnomous University of Barcelona, Spain

WE3.Y1.2 13:50 **ON THE RELEVANCE OF RADIOMETRIC NORMALIZATION OF DENSE LANDSAT TIME SERIES FOR FOREST MONITORING**
Frank Thonfeld, University of Bonn, Germany; Michael Schmidt, Department of Science, Information Technology, Innovation and the Arts, Australia; Olena Dubovyk, Gunter Menz, University of Bonn, Germany

WE3.Y1.3 14:10 **A SUN-INDUCED VEGETATION FLUORESCENCE RETRIEVAL METHOD FROM TOP OF ATMOSPHERE RADIANCE FOR THE FLEX/SENTINEL-3 TANDEM MISSION**
Neus Sabater, Luis Alonso, University of Valencia, Spain; Sergio Cogliati, University of Milano-Bicocca, Italy; Jorge Vicent, Carolina Tenjo, Jochem Verrelst, Jose Moreno, University of Valencia, Spain

WE3.Y1.4 14:30 **A WAVELET-BASED TECHNIQUE FOR EXTRACTING THE RED EDGE POSITION FROM VEGETATION REFLECTANCE SPECTRA**
Tao Cheng, Dong Li, Xia Yao, Yongchao Tian, Yan Zhu, Weixing Cao, Nanjing Agricultural University, China

WE3.Y1.5 14:50 **RELATIVE WATER CONTENT, BIDIRECTIONAL REFLECTANCE AND BIDIRECTIONAL TRANSMITTANCE OF THE INTERIOR OF DETACHED LEAVES DURING DRY DOWN**
Vern C. Vanderbilt, NASA Ames Research Center, United States; Craig S.T. Daughtry, U.S. Department of Agriculture-Agricultural Research Service, United States; Robert P. Dahlgren, California State University Monterrey Bay / NASA-ARC, United States

Wednesday, July 29 15:40 - 17:20 Yellow 1
Session WE4.Y1 Oral

Optical Forest Vegetation II

Session Co-Chairs: Jose Moreno, Univ. Valencia; Enrico Borgogno Mondino, Univ. of Torino

WE4.Y1.1 15:40 **FOLIAGE CLUMPING - WHAT CAN THE SWIR PART OF THE SPECTRUM TELL US ABOUT IT?**
Kairi Raabe, Jan Pisek, Tartu Observatory, Estonia

WE4.Y1.2 16:00 **AN OBJECT-BASED LIDAR APPROACH TO ESTIMATE VASCULAR PLANT RICHNESS IN MEDITERRANEAN FORESTS WITH COMPLEX STRUCTURE**
Javier Lopatin, Karlsruhe Institute of Technology, Germany; Mauricio Galleguillos, University of Chile, Chile; Fabian Fassnacht, Karlsruhe Institute of Technology, Germany; Andrés Ceballos, Jaime Hernández, University of Chile, Chile

WE4.Y1.3 16:20 **DETECTING TEMPORAL CHANGES IN SUB-ARCTIC VEGETATION CAUSED BY SNOW GEESE ON COATS ISLAND, NUNAVUT, CANADA**
Karissa Reischke, Mark Mallory, Acadia University, Canada; Paul Smith, Environment Canada, Canada; David Colville, Nova Scotia Community College, Canada

WE4.Y1.4 16:40 **EFFECTS OF DIFFUSE AND DIRECT RADIATION PARTITIONING ON MODELING CROP GROSS PRIMARY PRODUCTION USING MODIS DATA**
Qinchuan Xin, Peng Gong, Tsinghua University, China

WE4.Y1.5 17:00 **GAUSSIAN PROCESS FOR POSSIBILISTIC CLASSIFICATION OF HYPERSPECTRAL DATA**
Leila Kalantari, Paul Gader, Ron Fick, University of Florida, United States

Exposure and Hazard Monitoring II

Session Co-Chairs: Sergio Freire, JRC; Fabio Dell'Acqua, University of Pavia

WE1.Y2.1 08:20 **REMOTE SENSING DERIVED CONTINENTAL HIGH RESOLUTION BUILT-UP AND POPULATION GEOINFORMATION FOR CRISIS MANAGEMENT**
Sergio Freire, Aneta Jadwiga Florczyk, Daniele Ehrlich, Martino Pesaresi, Joint Research Centre, Institute for the Protection and Security of the Citizen, Italy

WE1.Y2.2 08:40 **EVALUATION AND PERFORMANCE ANALYSIS OF HYDROCARBON DETECTION METHODS USING HYPERSPECTRAL DATA**
Andreas Lenz, Hendrik Schilling, Wolfgang Gross, Wolfgang Middelmann, Fraunhofer Institute for Optronics, System Technologies and Image Exploitation, Germany

WE1.Y2.3 09:00 **MAPPING OF SOIL SALINITY USING AN AIRBORNE HYPERSPECTRAL SENSOR IN WESTERN AUSTRALIA**
Chiaki Kobayashi, Infoserve Inc., Japan; Ian Lau, CSIRO Mineral Resources Flagship, Australia; Buddy Wheaton, Department of Agriculture and Food, Western Australis, Australia; Lindsay Bourke, Department of Parks and Wildlife, DPaW, Australia; Satomi Kakuta, Tetsushi Tachikawa, Japan Space Systems, Japan

WE1.Y2.4 09:20 **GPS AND DINSAR TIMESERIES SISTEM INTEGRATION FOR INTERSEISMIC MOTION DETECTION - A CASE STUDY FROM THE HYBLEAN PLATEAU IN SOUTH-EAST SICILY**
Andreas Vollrath, University of Pavia, Italy; David Bekaert, The University of Leeds, United Kingdom; Alessandro Bonforte, Istituto Nazionale di Geofisica e Vulcanologia, Italy; Andrew Hooper, The University of Leeds, United Kingdom; Francesco Guglielmino, Salvatore Stramondo, Istituto Nazionale di Geofisica e Vulcanologia, Italy; Francesco Zucca, University of Pavia, Italy

WE1.Y2.5 09:40 **UNSUPERVISED ON-DEMAND WEB SERVICE FOR DINSAR PROCESSING: THE P-SBAS IMPLEMENTATION WITHIN THE ESA G-POD ENVIRONMENT**
Claudio De Luca, CNR-IREA, Italy; Roberto Cuccu, European Space Agency, ESRIN, Italy; Stefano Elefante, Ivana Zinno, Michele Manunta, CNR-IREA, Italy; Giancarlo Rivolta, European Space Agency, ESRIN, Italy; Valentina Casola, Università degli Studi di Napoli Federico II, Italy; Riccardo Lanari, Francesco Casu, CNR-IREA, Italy

Emergency Response I

Session Co-Chairs: Salvatore Stramondo, INGV; Christian Bignami, INGV

WE2.Y2.1 10:30 **BIG DINSAR DATA PROCESSING THROUGH THE P-SBAS ALGORITHM**
Stefano Elefante, Ivana Zinno, Claudio De Luca, Michele Manunta, Riccardo Lanari, Francesco Casu, CNR-IREA, Italy

WE2.Y2.2 10:50 **MULTITEMPORAL SAR COHERENCE ANALYSIS: LAVA FLOW MONITORING CASE STUDY**
Piero Boccardo, Politecnico di Torino, Italy; Vittorio Gentile, e-GEOS, Italy; Fabio Giulio Tonolo, ITHACA, Italy; Domenico Grandoni, e-GEOS, Italy; Magdalena Vassileva, Politecnico di Torino, Italy

WE2.Y2.3 11:10 **MULTI-PAYLOAD MULTI-PLATFORM SIMULTANEOUS TACTICAL MONITORING OF MAJOR EFFUSIVE ERUPTIONS IN 2014**
Fabrizio Ferrucci, The Open University, United Kingdom; Barbara Hirn, IES Consulting Intelligence for Environment and Security, Italy; Bruno Faria, Instituto Nacional de Meteorologia e Geofisica, Cape Verde; Simona Zoffoli, Agenzia Spaziale Italiana (ASI), Italy

WE2.Y2.4 11:30 **COUPLING CROWDSOURCING, EARTH OBSERVATIONS, AND E-GNSS IN A NOVEL FLOOD EMERGENCY SERVICE IN THE CLOUD**
Claudio Rossi, ISMB, Italy; Wolfgang Stemberger, GeoVille Information Systems GmbH, Austria; Conrad Bielski, EOXPLORE UG, Germany; Gunter Zeug, Terranea UG, Germany; Nina Costa, NDConsult, United Kingdom; Davide Poletto, UNESCO, Italy; Emiliano Spaltro, ALPHA Consult, Italy; Fabrizio Dominici, ISMB, Italy

WE2.Y2.5 11:50 **UNSUPERVISED FLOOD EXTENT DETECTION FROM SAR IMAGERY APPLYING SHADOW FILTERING FROM SAR SIMULATED IMAGE**
Magdalena Vassileva, Politecnico di Torino, Italy; Andrea Nascetti, Università di Roma, Italy; Fabio Giulio Tonolo, ITHACA, Italy; Piero Boccardo, Politecnico di Torino, Italy

Damage Mapping I

Session Co-Chairs: Richard Lepage, Ecole de technologie superieure; Nazzareno Pierdicca, La Sapienza University

WE3.Y2.1 13:30 **DISASTER DAMAGE ASSESSMENT FOR BUILDINGS USING SELF-SIMILARITY DESCRIPTOR**
Fatih Kahraman, Mumin Imamoglu, The Scientific and Technological Research Council of Turkey, Turkey; Hasan Fehmi Ates, Isik University, Turkey

WE3.Y2.2 13:50 **ENSEMBLE CLASSIFIERS FOR BUILDING DAMAGE DETECTION**
David Dubois, Richard Lepage, École de technologie supérieure, Canada

WE3.Y2.3 14:10 **FULL POLARIMETRIC UWB GB-SAR FOR DAMAGE ASSESSMENT OF WOODEN BUILDING STRUCTURES**
Christian N. Koyama, Yasushi Iitsuka, Kazunori Takahashi, Motoyuki Sato, Tohoku University, Japan

WE3.Y2.4 14:30 **IDENTIFICATION OF BUILDING DOUBLE-BOUNCES FEATURE IN VERY HIGH RESOULTION SAR DATA FOR EARTHQUAKE DAMAGE MAPPING**
Marco Chini, Luxembourg Institute of Science and Technology, Luxembourg; Roberta Anniballe, Sapienza University of Rome, Italy; Christian Bignami, Istituto Nazionale di Geofisica e Vulcanologia, Italy; Nazzareno Pierdicca, Saverio Mori, Sapienza University of Rome, Italy; Salvatore Stramondo, Istituto Nazionale di Geofisica e Vulcanologia, Italy

WE3.Y2.5 14:50 **TSUNAMI INUNDATION DAMPING PERFORMANCE OF MANGROVE BASED ON TWO-DIMENSIONAL NUMERICAL SIMULATION**
Wataru Ohira, The University of Tokyo, Japan; Kiyoshi Honda, Chubu University, Japan; Masahiko Nagai, The University of Tokyo, Japan

Global Crop Monitoring and Food Security

Session Co-Chairs: Mirco Boschetti, CNR-IREA; Inbal Becker-Reshef, University of Maryland

WE4.Y2.1 15:40 **PROCESSING SENTINEL-2 IMAGE TIME SERIES FOR DEVELOPING A REAL-TIME CROPLAND MASK**
Silvia Valero, David Morin, Jordi Inglada, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Guadalupe Sepulcre, Université catholique de Louvain, Belgium; Marcela Arias, Olivier Hagolle, Gérard Dedieu, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Sophie Bontemps, Pierre Defourny, Université catholique de Louvain, Belgium

WE4.Y2.2 16:00 **EVAPORATIVE FRACTION FROM TIME SERIES OF MODIS DATA TO MONITOR CROP STATUS IN NORTHERN ITALY**
Francesco Nutini, Daniela Stroppiana, National Research Council, Italy; Dario Bellingeri, Lombardy Regional Environmental Protection Agency, Italy; Mirco Boschetti, National Research Council, Italy; Enrico Zini, Lombardy Regional Environmental Protection Agency, Italy; Pietro Alessandro Brivio, National Research Council, Italy

WE4.Y2.3 16:20 **REMOTE SENSING BASED CROP GROWTH STAGE ESTIMATION MODEL**
Liping Di, Eugene Yu, George Mason University, United States; Zhengwei Yang, United States Department of Agriculture, United States; Ranjay Shrestha, Lingjun Kang, Bei Zhang, Weiguo Han, George Mason University, United States

WE4.Y2.4 16:40 **GLOBAL SENSITIVITY ANALYSIS OF A MORPHOLOGY BASED ELECTROMAGNETIC SCATTERING MODEL**
Onur Yüzügüllü, Stefano Marelli, ETH Zurich, Switzerland; Esra Erten, Istanbul Technical University, Turkey; Bruno Sudret, ETH Zurich, Switzerland; Irena Hajnsek, German Aerospace Center (DLR), Germany

WE4.Y2.5 17:00 **HYDROLOGICAL MODELING IN UNGAUGED BASINS USING SAR DATA**
Donato Amitrano, Gerardo Di Martino, Antonio Iodice, University of Napoli Federico II, Italy; Youssouf Koussoube, University of Ouagadougou, Burkina Faso; Francesco Mitidieri, Maria Nicolina Papa, University of Salerno, Italy; Daniele Riccio, Giuseppe Ruello, University of Napoli Federico II, Italy

Wednesday, July 29 08:20 - 10:00 Yellow 3

Session WE1.Y3 Oral

Volume and Surface Scattering

Session Co-Chairs: Xiaolan Xu, NASA Jet Propulsion Laboratory; Kun-Shan Chen, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences

WE1.Y3.1 08:20 **A NUMERICAL MODEL FOR SCATTERING PHENOMENOLOGY OF ARCTIC LAKE ICE**
Jiangfeng Wu, University of Michigan, United States; Don Atwood, Michigan Tech. Research Institute, United States; Kamal Sarabandi, University of Michigan, United States

WE1.Y3.2 08:40 **AN EXAMINATION OF MODELS FOR PREDICTING THE 0.5-2 GHZ BRIGHTNESS TEMPERATURES OF ICE SHEETS**
Alexandra Bringer, Joel T. Johnson, Mustafa Aksoy, ElectroScience Laboratory, Ohio State University, United States; Shurun Tan, Tian Lin Wang, Leung Tsang, Radiation Laboratory, United States; Marco Brogioni, Giovanni Macelloni, IFAC-CNR, Italy; Michael Durand, Kenneth Jezek, School of Earth Sciences & Byrd Polar Research Center, United States; Mark Drinkwater, European Space Agency, ESTEC, Netherlands; Ludovic Brucker, NASA Goddard Space Flight Center, United States

WE1.Y3.3 09:00 **PARTIALLY COHERENT MODEL FOR THE MICROWAVE BRIGHTNESS TEMPERATURE OF LAYERED SNOW FIRN WITH DENSITY VARIATIONS AND INTERFACE ROUGHNESS**
Tian Lin Wang, Leung Tsang, University of Michigan, United States; Joel T. Johnson, Kenneth Jezek, The Ohio State University, United States; Shurun Tan, University of Michigan, United States

WE1.Y3.4 09:20 **AN EXPERIMENTAL AND THEORETICAL COMPARATIVE STUDY OF RADAR KA BAND BACKSCATTER**
Daniele Mapelli, Aresys srl - a POLIMI spin off, Italy; Nazzareno Pierdicca, Università di Roma "La Sapienza", Italy; Luca Pulvirenti, CIMA Research Foundation, Italy; Leila Guerriero, Paolo Ferrazzoli, Università di Roma Tor Vergata, Italy; Eduardo Calleja, STARLAB, Spain; Björn Rommen, European Space Agency (ESA), Netherlands; Davide Giudici, Aresys srl - a POLIMI spin off, Italy; Andrea Monti Guarnieri, Politecnico di Milano, Italy

WE1.Y3.5 09:40 **A FULLY COHERENT SNOWPACK FULL WAVE SCATTERING MODEL BASED ON NUMERICAL SIMULATION OF MAXWELL'S EQUATION USING BICONTINUOUS MEDIA AND HALF SPACE GREEN'S FUNCTION**
Shurun Tan, University of Michigan, United States; Xiaolan Xu, Jet Propulsion Laboratory, United States; Leung Tsang, University of Michigan, United States

Wednesday, July 29 10:30 - 12:10 Yellow 3

Session WE2.Y3 Oral

Surface Backscattering and Bistatic Scattering

Session Co-Chairs: Leung Tsang, University of Michigan, Ann Arbor; Pierfrancesco Lombardo, Univ. Roma "La Sapienza"

WE2.Y3.1 10:30 **ANGULAR VARIATIONS OF RADAR SEA CLUTTER: AIRBORNE EXPERIMENT AND MODEL COMPARISON**
Zaynab Guerraou, Sébastien Angelliaume, Office national d'études et de recherches aérospatiales (ONERA), France; Charles-Antoine Guérin, Institut méditerranéen d'océanologie (MIO), France

WE2.Y3.2 10:50 **AN INTERCOMPARISON OF MODELS FOR PREDICTING BISTATIC SCATTERING FROM ROUGH SURFACES**
Caglar Yardim, Joel T. Johnson, Robert Burkholder, Fernando Teixeira, Jeffrey D. Ouellette, The Ohio State University, United States; Kun-Shan Chen, Chinese Academy of Sciences, United States; Marco Brogioni, IFAC-CNR, United States; Nazzareno Pierdicca, Sapienza University of Rome, United States

WE2.Y3.3 11:10 **POLARIMETRIC SIMULATIONS OF BISTATIC SCATTERING FROM OCEAN SURFACES AT L BAND**
Jingsong Yang, Second Institute of Oceanography, China; Yang Du, Zhejiang University, China; Jiancheng Shi, Institute of Remote Sensing Applications, Chinese Academy of Sciences, China

WE2.Y3.4 11:30 **RADAR LGA SCATTERING ABOVE A SEA SURFACE IN A STRATIFIED MEDIUM SOLVED BY PHYSICAL OPTICS**
Dusan Cvetkovic, Christophe Bourlier, Laboratoire IETR, France; Nicolas Pinel, Alyotech, France

WE2.Y3.5 11:50 **EXPERIMENTAL CHARACTERIZATION OF THE RADAR BACKSCATTER RESPONSE OF NATURAL SURFACES AT 222 GHZ**
Adib Nashashibi, Amr Ibrahim, Samuel Cook, Kamal Sarabandi, The University of Michigan, United States

Wednesday, July 29 13:30 - 15:10 Yellow 3

Session WE3.Y3 Oral

Bistatic and DBF SAR

Session Co-Chairs: Marc Rodriguez-Cassola, German Aerospace Center (DLR); Hubert Cantalloube, ONERA

WE3.Y3.1 13:30 **NEXT GENERATION DIGITAL BEAMFORMING SYNTHETIC APERTURE RADAR (DBSAR-2)**
Rafael Rincon, NASA, United States; Temilola Fatoyinbo, NASA Goddard Space Flight Center, United States; Batuhan Osmanoglu, NASA, United States; Seung-Kuk Lee, K. Jon Ranson, Victor Marrero, NASA Goddard Space Flight Center, United States; Mark Yeary, NASA, United States

WE3.Y3.2 13:50 **SIGNAL-TO-NOISE RATIO GAIN IN MULTI-CHANNEL SAR WITH DIGITAL BEAMFORMIN**
Marwan Younis, Paco López-Dekker, Gerhard Krieger, Alberto Moreira, German Aerospace Center (DLR), Germany

WE3.Y3.3 14:10 **LOW-LEVEL END-TO-END SIMULATION OF REFLECTOR BASED DIGITAL BEAMFORMING SAR SYSTEMS**
Paco López-Dekker, Marc Rodriguez-Cassola, Pau Prats-Iraola, Octavio Ponce, Marwan Younis, German Aerospace Center (DLR), Germany

WE3.Y3.4 14:30 **RANGE MIGRATION CORRECTION OF TRANSLATIONAL VARIANT BISTATIC FORWARD-LOOKING SAR BASED ON ITERATIVE KEYSTONE TRANSFORMATION**
Min Li, Wei Pu, Wenchao Li, Jianyu Yang, Yulin Huang, School of Electronic Engineering, University of Electronic Science and Technology of China, China; Haiguang Yang, Xiaobo Yang, University of Electronic Science and Technology of China, China

WE3.Y3.5 14:50 **A GEOSTATIONARY MIMO SAR SWARM FOR QUASI-CONTINUOUS OBSERVATION**
Andrea Monti Guarnieri, Politecnico di Milano, Italy; Antoni Broquetas, Universitat Politècnica de Catalunya, Spain; Paco López-Dekker, German Aerospace Center (DLR), Germany; Fabio Rocca, Politecnico di Milano, Italy

Wednesday, July 29 15:40 - 17:20 Yellow 3

Session WE4.Y3 Oral

Analysis of Multitemporal Images II

Session Chair: Farid Melgani, University of Trento

WE4.Y3.1 15:40 **DISCRIMINANT CANONICAL CORRELATION ANALYSIS FOR INTERACTIVE SATELLITE IMAGE CHANGE DETECTION**
Hichem Sahbi, CNRS TELECOM ParisTech, France

WE4.Y3.2 16:00 **A CLUSTER-BASED APPRAOCH TO CONTENT BASED TIME SERIES RETRIEVAL (CBTSR)**
Francesca Bovolo, Fondazione Bruno Kessler, Italy; Begüm Demir, Lorenzo Bruzzone, Department of Information Engineering and Computer Science, University of Trento, Italy

WE4.Y3.3 16:20 **AUTOMATIC CHANGE DETECTION IN MULTITEMPORAL X- AND P-BAND SAR IMAGES USING GRAM-SCHMIDT PROCESS**
Rafael Rosa, Bradar Indústria S/A, Brazil; David Fernandes, Instituto Tecnológico de Aeronáutica, Brazil; João Nogueira Jr., Santo Antônio Energia S/A, Brazil; Christian Wimmer, Bradar Indústria S/A, Brazil

WE4.Y3.4 16:40 **ROBUST CHANGE DETECTION IN URBAN AREA USING MULTI-TEMPORAL POLARIMETRIC UAVSAR DATA**
Duk-Jin Kim, Scott Hensley, Sang-Ho Yun, Jet Propulsion Laboratory, United States

WE4.Y3.5 17:00 **HIGH LATITUDE WATER BODIES DYNAMICS ALONG ALASKA COASTAL AREA OVER DIFFERENT PERMAFROST TYPES**
Zhuosen Wang, Miguel Román, James Tilton, Bin Tan, NASA Goddard Space Flight Center, United States; Yun Yang, United States Department of Agriculture - Agricultural Research Service, United States

Imaging Spectroscopy Calibration And Validation, Inter-Calibration And Coming To Terms With Terminology I

Session Co-Chairs: Cindy Ong, Commonwealth Scientific and Industrial Research Organisation (CSIRO); Martin Bachmann, German Remote Sensing Data Center (DLR-DFD)

WE1.B1.1 08:20 **COORDINATION OF INTERNATIONAL EFFORTS TO ENSURE SI-TRACEABILITY AND HARMONIZATION OF SATELLITE SENSOR DATA**
Kurtis Thome, NASA Goddard Space Flight Center, United States

WE1.B1.3 09:00 **RADCALNET: AN AUTOMATED LAND RADIOMETRIC CALIBRATION NETWORK WORKING GROUP**
Jeffrey Czapla-Myers, University of Arizona, United States; Marc Bouvet, European Space Agency (ESA), Netherlands; Nigel Fox, National Physical Laboratory, United Kingdom; Philippe Goryl, European Space Agency (ESA), Italy; Patrice Henry, Centre National d'Etudes Spatiales, France; Chuanrong Li, Ling-Ling Ma, Chinese Academy of Sciences, China; Aime Meygret, Centre National d'Etudes Spatiales, France; Ling-Li Tang, Chinese Academy of Sciences, China; Kurtis Thome, National Aeronautics and Space Administration, United States; Emma Woolliams, National Physical Laboratory, United Kingdom

WE1.B1.4 09:20 **THE USE OF LONG TERM EARTH OBSERVATION DATA ARCHIVES TO IDENTIFY POTENTIAL VICARIOUS CALIBRATION TARGETS IN AUSTRALIA**
Cindy Ong, Michael Caccetta, Ian Lau, Tim Malthus, Nandika Thapar, CSIRO, Australia

WE1.B1.5 09:40 **VICARIOUS CALIBRATION OF SPACE-BASED IMAGING SPECTROMETERS EMPLOYING PSEUDO-INVARIANT SITES**
Ronald Lockwood, MIT Lincoln Laboratory, United States; Kurtis Thome, Joel McCorkel, NASA Goddard Space Flight Center, United States; Nathan Leisso, The National Ecological Observatory Network, Inc., United States; Michael Brueggeman, Andrew Weisner, United States Air Force, United States; Thomas Cooley, United States Air Force Research Laboratory, United States

Imaging Spectroscopy Calibration And Validation, Inter-Calibration And Coming To Terms With Terminology II

Session Co-Chairs: Martin Bachmann, German Remote Sensing Data Center (DLR-DFD); Cindy Ong, Commonwealth Scientific and Industrial Research Organisation (CSIRO)

WE2.B1.1 10:30 **DUAL SPECTRAL RADIANCE STANDARDS CAN MINIMIZE CALIBRATION UNCERTAINTY IN THE SWIR REGION, 1-2 MICRONS**
Christopher MacLellan, University of Edinburgh, United Kingdom

WE2.B1.2 10:50 **ASSESSMENT OF HISUI RADIOMETRIC PERFORMANCE USING VICARIOUS CALIBRATION AND CROSS-CALIBRATION**
Hirokazu Yamamoto, Toru Kouyama, Kenta Obata, Satoshi Tsuchida, AIST, Japan

WE2.B1.3 11:10 **ENMAP RADIOMETRIC INFLIGHT CALIBRATION, POST-LAUNCH PRODUCT VALIDATION, AND INSTRUMENT CHARACTERIZATION ACTIVITIES**
André Hollstein, Christian Rogass, Karl Segl, Luis Guanter, Helmholtz Centre Potsdam, Germany; Martin Bachmann, Tobias Storch, Rupert Müller, Harald Krawczyk, German Aerospace Center (DLR), Germany

WE2.B1.4 11:30 **USING SPACEBORNE HYPERSPECTRAL DATA FOR SPECTRAL CROSS-CALIBRATION OF MULTISPECTRAL SENSORS**
Martin Bachmann, German Aerospace Center (DLR), Germany; Tassilo Mueller, German Aerospace Center (DLR), University of Innsbruck, Austria, Germany

WE2.B1.5 11:50 **STATUS OF THE ISO/TS 19159-X TECHNICAL SPECIFICATIONS: GEOGRAPHIC INFORMATION – CALIBRATION AND VALIDATION OF REMOTE SENSING IMAGERY**
Wolfgang Kresse, University of Applied Sciences Neubrandenburg, Germany

Sentinel-1 Operational and Scientific Results after 1 Year in Orbit I

Session Co-Chairs: Pierre Potin, European Space Agency; Betlem Rosich, European Space Agency

WE3.B1.1 13:30 **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'Connel, Ramon Torres, Mike Krassenburg, European Space Agency (ESA), Italy

WE3.B1.3 14:10 **THE SENTINEL-1A INSTRUMENT AND OPERATIONAL PRODUCT PERFORMANCE STATUS**
Nuno Miranda, European Space Agency (ESA), Italy; Peter Meadows, BAE Systems, United Kingdom; Guillaume Hajduch, CLS, France; Alan Pilgrim, BAE Systems, United Kingdom; Riccardo Piantanida, Davide Giudici, Aresys Srl, Italy; David Small, Adrian Schubert, University of Zurich, Switzerland; Romain Husson, Pauline Vincent, CLS, France; Alexis Mouche, IFREMER, France; Harald Johnsen, Norut, Norway; Giovanna Palumbo, Serco, Italy

WE3.B1.4 14:30 **SENTINEL-1 RESULTS: SEA ICE OPERATIONAL MONITORING**
Leif Toudal Pedersen, Copernicus Marine Core Service & DMI, Denmark; Roberto Saldo, Copernicus Marine Core Service & DTU, Denmark; Rasmus Fenger, DHI-GRAS, Denmark

WE3.B1.5 14:50 **USE OF SENTINEL 1A IN COPERNICUS EMERGENCY MANAGEMENT SERVICE**
Jan Kucera, Marco Broglia, Peter Spruyt, Christophe Louvrier, Annett Wania, Joint Research Centre, Italy

Sentinel-1 Operational and Scientific Results after 1 Year in Orbit II

Session Co-Chairs: Pierre Potin, European Space Agency; Betlem Rosich, European Space Agency

WE4.B1.1 15:40 **SENTINEL-1 RESULTS: SEA STATE APPLICATIONS**
Alexis Mouche, Bertrand Chapron, IFREMER, France; Harald Johnsen, Norut, Norway; Fabrice Collard, Ocean Data Lab, France; Romain Husson, CLS, France; He Wang, IFREMER, France; Gilles Guitton, Ocean Data Lab, France; Fabrice Ardhuin, IFREMER, France

WE4.B1.2 16:00 **SENTINEL-1 FOR WHEAT MAPPING AND SOIL MOISTURE RETRIEVAL**
Francesco Mattia, Giuseppe Satalino, Anna Balenzano, Consiglio Nazionale delle Ricerche (CNR), Italy; Michele Rinaldi, Consiglio per la Ricerca e la Sperimentazione in Agricoltura (CRA), Italy; Pasquale Steduto, Food and Agriculture Organization (FAO), Egypt; Jose Moreno, University of Valencia, Spain

WE4.B1.3 16:20 **SENTINEL-1 RESULTS: TECTONIC AND VOLCANIC PROCESSES**
Tim Wright, Andrew Hooper, University of Leeds, United Kingdom; Petar Marinkovic, PPO. labs, Netherlands; Pablo J. Gonzalez, Richard Walters, University of Leeds, United Kingdom; Yngvar Larsen, Norut, Norway; John Elliott, University of Oxford, United Kingdom; Marco Bagnardi, University of Leeds, United Kingdom; Susanna Ebmeier, University of Bristol, United Kingdom

WE4.B1.4 16:40 **SENTINEL-1 RESULTS: SBAS-DINSAR PROCESSING CHAIN DEVELOPMENTS AND LAND SUBSIDENCE ANALYSIS**
Riccardo Lanari, Paolo Berardino, Manuela Bonano, Francesco Casu, Claudio De Luca, Stefano Elefante, Adele Fusco, Michele Manunta, Mariarosaria Manzo, Chandrakanta Ojha, Antonio Pepe, Eugenio Sansosti, Ivana Zinno, CNR-IREA, Italy

WE4.B1.5 17:00 **RAPID DYNAMIC ACTIVATION OF A MARINE-BASED ARCTIC ICE CAP**
Noel Gourmelen, University of Edinburgh, United Kingdom; Malcolm McMillan, Anna Hogg, Andrew Shepherd, University of Leeds, United Kingdom

Wednesday, July 29 08:20 - 10:00 Blue 2

Session WE1.B2 Oral-Invited

Sparse Reconstruction and Compressive Sensing in Remote Sensing I

Session Co-Chairs: Xiaoxiang Zhu, German Aerospace Center (DLR) and Technische Universitaet Muenchen (TUM); Richard Bamler, German Aerospace Center (DLR)

WE1.B2.1 08:20 **EXPLOITING SPARSITY IN REMOTE SENSING AND EARTH OBSERVATION: THEORY, APPLICATIONS AND FUTURE TRENDS**
Xiao Xiang Zhu, Bamler Richard, German Aerospace Center (DLR) / Technische Universität München, Germany

WE1.B2.3 09:00 **SAR IMAGING OF MOVING TARGET IN A SPARSE SCENE BASED ON SPARSE CONSTRAINTS: PRELIMINARY EXPERIMENT RESULTS**
Zhe Zhang, Bingchen Zhang, Wen Hong, Hui Bi, Yirong Wu, Institute of Electronics, Chinese Academy of Sciences, China

WE1.B2.4 09:20 **ESTIMATION AND EXTRACTION OF RADIO-FREQUENCY INTERFERENCE FROM ULTRA-WIDEBAND RADAR SIGNALS**
Lam Nguyen, U.S. Army Research Laboratory, United States; Trac Tran, Johns Hopkins University, United States

WE1.B2.5 09:40 **GENERALIZED-HOUGH-TRANSFORM OBJECT DETECTION USING CLASS-SPECIFIC SPARSE REPRESENTATION FOR LOCAL-FEATURE DETECTION**
Naoto Yokoya, Akira Iwasaki, University of Tokyo, Japan

Wednesday, July 29 10:30 - 12:10 Blue 2

Session WE2.B2 Oral-Invited

Sparse Reconstruction and Compressive Sensing in Remote Sensing II

Session Co-Chairs: Richard Bamler, German Aerospace Center (DLR); Xiaoxiang Zhu, German Aerospace Center (DLR) and Technische Universitaet Muenchen (TUM)

WE2.B2.1 10:30 **B-HYCA: BLIND HYPERSPECTRAL COMPRESSIVE SENSING**
Gabriel Martin, José M. Bioucas-Dias, Instituto de Telecomunicações, Portugal; Antonio Plaza, University of Extremadura, Spain

WE2.B2.2 10:50 **SPARSE PIXEL-WISE SPECTRAL UNMIXING - WHICH ALGORITHM TO USE AND HOW TO IMPROVE THE RESULTS**
Jakub Bieniarz, Rupert Müller, Xiao Xiang Zhu, Peter Reinartz, German Aerospace Center (DLR), Germany

WE2.B2.3 11:10 **HYPERSPECTRAL IMAGE CLASSIFICATION WITH LOW-RANK SUBSPACE AND SPARSE REPRESENTATION**
Alex Sumarsono, Qian Du, Mississippi State University, United States

WE2.B2.4 11:30 **TASK-DRIVEN DICTIONARY LEARNING WITH DIFFERENT LAPLACIAN PRIORS FOR HYPERSPECTRAL IMAGE CLASSIFICATION**
Boyu Lu, University of Maryland, College Park, United States; Nasser M. Nasrabadi, U.S. Army Research Laboratory, United States

WE2.B2.5 11:50 **TOWARDS A COMBINED SPARSE REPRESENTATION AND UNMIXING BASED HYBRID HYPERSPECTRAL RESOLUTION ENHANCEMENT METHOD**
Claas Grohnfeldt, Xiao Xiang Zhu, German Aerospace Center (DLR), Germany

Wednesday, July 29 13:30 - 15:10 Blue 2

Session WE3.B2 Oral-Invited

Remote Sensing in the Oil and Gas Industry I

Session Co-Chairs: Fabio Rocca, Politecnico di Milano; Riccardo De Paulis, eni S.p.A.

WE3.B2.1 13:30 **REMOTE SENSING FROM SPACE FOR OIL EXPLORATION**
Fabio Rocca, Politecnico di Milano (emeritus), Italy

WE3.B2.3 14:10 **APPLICATIONS OF MULTI-TEMPORAL SAR DATA TO THE OIL&GAS SECTOR**
Alessandro Ferretti, Davide Colombo, Alfio Fumagalli, Fabrizio Novali, Alessio Rucci, TRE - Tele-Rilevamento Europa, Italy; Alessandro Mosconi, Gianluca Dell'Elce, eni - E&P division, Italy

WE3.B2.4 14:30 **SBAS DINSAR AS A SERVICE FOR OIL & GAS MARKET**
Chadi Jaber, Marc Ferrer, Atos, France; Michele Manunta, Stefano Elefante, IREA-CNR, France

WE3.B2.5 14:50 **MAPPING WITH HIGH RESOLUTION OPTICAL AND SAR IMAGERY FOR OIL&GAS EXPLORATION: POTENTIALITIES AND PROBLEMS**
Mattia Crespi, University of Rome La Sapienza, Italy; Riccardo De Paulis, Francesco Pellegri, ENI SpA, Italy; Paola Capaldo, Francesca Fratarcangeli, Andrea Nascetti, University of Rome La Sapienza, Italy; Rossana Gini, Federica Selva, Exelis Visual Information Solutions Italia, Italy

Wednesday, July 29 15:40 - 17:20 Blue 2

Session WE4.B2 Oral-Invited

Remote Sensing in the Oil and Gas Industry II

Session Co-Chairs: Marco Gianinetto, Politecnico di Milano; Riccardo De Paulis, eni S.p.A.

WE4.B2.1 15:40 **GEOLITHOLOGICAL MAPPING OF CARBONATE SYSTEM DEPOSITS FOR HYDROCARBON EXPLORATION USING HYPERSPECTRAL IMAGERY**
Monica Pepe, Mirco Boschetti, Gabriele Candiani, Paolo Villa, National Research Council, Italy; Fabrizio Piero Righetti, Valentina Clementi, Eni, Italy

WE4.B2.2 16:00 **SATELLITE REMOTE SENSING FOR HYDROCARBON EXPLORATION IN NEW VENTURE AREAS**
Federico Frassy, Pieralberto Maianti, Andrea Marchesi, Francesco Rota Nodari, Giorgio Dalla Via, Politecnico di Milano, Italy; Riccardo De Paulis, Paolo G. Biffi, Eni SpA, Italy; Marco Gianinetto, Politecnico di Milano, Italy

WE4.B2.3 16:20 **SEEPAGE DETECTION BASED ON REMOTE SENSING MODELS AND APPLICATIONS IN EXPOSED AND VEGETATED TERRAINS**
Carlos Roberto de Souza Filho, Luciola Alves Magalhaes, University of Campinas, Brazil; Wilson Jose Oliveira, Talita Lammoglia, Petrobras, Brazil

WE4.B2.4 16:40 **SPECTRAL SENSING OF BITUMINOUS OIL SAND DRILL CORE AND MINE FACE IN SUPPORT OF MINE OPERATION**
Benoit Rivard, Jilu Feng, Michelle Speta, Michael Lipsett, University of Alberta, Canada

WE4.B2.5 17:00 **REMOTE SENSING OF HYDROCARBON IMPACTS ON VEGETATION IN AREAS AFFECTED BY THE DEEPWATER HORIZON SPILL**
Raymond Kokaly, U.S. Geological Survey, United States; Seth Peterson, University of California, Santa Barbara, United States; Michael Beland, San Diego State University, United States; Dar Roberts, University of California, Santa Barbara, United States

TanDEM-X: Mission Status and Science Activities I

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

WE1.R1.1 08:20 **TANDEM-X: A SINGLE-PASS SAR INTERFEROMETER FOR GLOBAL DEM GENERATION AND DEMONSTRATION OF NEW SAR TECHNIQUES**
Manfred Zink, Markus Bachmann, Benjamin Braeutigam, Thomas Fritz, Irena Hajnsek, Gerhard Krieger, Alberto Moreira, Birgit Wessel, German Aerospace Center (DLR), Germany

WE1.R1.3 09:00 **TANDEM-X: SCIENCE ACTIVITIES**
Irena Hajnsek, ETH Zurich / DLR Oberpfaffenhofen, Germany; Thomas Busche, DLR Oberpfaffenhofen, Germany

WE1.R1.4 09:20 **LARGE-SCALE MANGROVE CANOPY HEIGHT MAP GENERATION FROM TANDEM-X DATA BY MEANS OF POL-INSAR TECHNIQUES**
Seung-Kuk Lee, Temilola Fatoyinbo, David Lagomasino, Batuhan Osmanoglu, NASA Goddard Space Flight Center, United States; Marc Simard, NASA Jet Propulsion Laboratory, United States; Carl Trettin, U.S. Department of Agriculture, United States; Mizanur Rahman, CEGIS, Bangladesh; Imran Ahmed, Bangladesh Forest Department, Bangladesh

WE1.R1.5 09:40 **COMPARISON OF THE TANDEM-X RESPONSE BETWEEN VERTICAL AND HORIZONTAL ORIENTED VEGETATION**
Esra Erten, Istanbul Technical University, Turkey; Cristian Rossi, German Aerospace Center (DLR), Germany; Onur Yüzügüllü, ETH Zurich, Switzerland

TanDEM-X: Mission Status and Science Activities II

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

WE2.R1.1 10:30 **MEASURING LAVA FLOW VOLUME WITH BISTATIC TANDEM-X IMAGERY**
Julia Kubanek, Malte Westerhaus, Bernhard Heck, Karlsruhe Institute of Technology, Germany; Sylvain J. Charbonnier, University of South Florida, United States

WE2.R1.2 10:50 **INTEGRATING TANDEM-X AND OTHER REMOTE SENSING TIME SERIES FOR GLACIOLOGICAL APPLICATIONS**
Matthias Braun, Universoty of Erlangen-Nuremberg, Germany; Veit Helm, AWI Bremerhaven, Germany; Sebastian Marinsek, Instituto Antártico Argentino, Argentina; Melanie Rankl, Björn Saß, Thorsten Seehaus, University of Erlangen-Nuremberg, Germany; Pedro Skvarca, Glaciarium, Argentina; Saurabh Vijay, University of Erlangen-Nuremberg, Germany

WE2.R1.3 11:10 **TANDEM-X FOR MASS BALANCE OF GLACIERS AND SUBGLACIAL VOLCANIC ACTIVITIES**
Dana Floricioiu, Wael Abdel Jaber, Christian Minet, Cristian Rossi, Michael Eineder, German Aerospace Center (DLR), Germany

WE2.R1.4 11:30 **COMPARISON OF TERRASAR-X/TANDEM-X ATI MEASUREMENTS WITH A HIGH-RESOLUTION OCEAN CIRCULATION SIMULATION**
Gordon Farquharson, University of Washington, United States; Paco López-Dekker, German Aerospace Center (DLR), Germany

WE2.R1.5 11:50 **DETECTION OF THINNING AND CLEAR-CUTS USING TANDEM-X**
Henrik J. Persson, Swedish University of Agricultural Sciences, Sweden; Maciej J. Soja, Lars M. H. Ulander, Chalmers University of Technology, Sweden; Johan E.S. Fransson, Swedish University of Agricultural Sciences, Sweden

The Joint Polar Satellite System: NOAA's New Global Operational Capability to Monitor the Planet I

Session Co-Chairs: John Furgerson, Joint Polar Satellite System; Mitch Goldberg, Joint Polar Satellite System

WE3.R1.1 13:30 **THE JOINT POLAR SATELLITE SYSTEM - OVERVIEW, INSTRUMENTS, PROVING GROUND AND RISK REDUCTION ACTIVITIES**
Mitch Goldberg, Arron Layns, Bill Sjoberg, NOAA/NESDIS/JPSS, United States

WE3.R1.3 14:10 **IMPROVE ASSIMILATION OF CRIS RADIANCES IN HWRF FOR BETTER HURRICANE AND TYPHOON FORECASTS**
Fuzhong Weng, Mitch Goldberg, NOAA, United States; Xiaolei Zou, Yong Chen, University of Maryland, United States; Lin Lin, IMSG Inc, United States; Banglin Zhang, IMSG Inc., United States; Vijay Tallapragada, NOAA, United States

WE3.R1.4 14:30 **REAL-TIME NATURAL DISASTER MONITORING AND ASSESSMENT USING JPSS DIRECT BROADCAST DATA AND ACCELERATOR COMPUTING TECHNOLOGY**
Allen Huang, University of Wisconsin-Madison, United States

WE3.R1.5 14:50 **THE USE OF JPSS PRODUCTS TO SUPPORT FIRE MANAGEMENT**
Ivan Csiszar, NOAA/NESDIS, United States; Evan Ellicott, Louis Giglio, Wilfrid Schroeder, University of Maryland, United States

The Joint Polar Satellite System: NOAA's New Global Operational Capability to Monitor the Planet II

Session Co-Chairs: John Furgerson, Joint Polar Satellite System; Mitch Goldberg, Joint Polar Satellite System

WE4.R1.1 15:40 **TRACKING THE IMPACTS OF WILDFIRES ON EXO-URBAN AREAS USING HIGH RESOLUTION SNPP VIIRS AEROSOL PRODUCTS**
Shobha Kondragunta, National Oceanic and Atmospheric Administration, United States; Amy Huff, The Pennsylvannia State University, United States

WE4.R1.2 16:00 **AUTOMATIC NEAR REAL-TIME FLOOD DETECTION USING SUOMI-NPP/VIIRS DATA**
Sanmei Li, Donglian Sun, George Mason University, United States; Mitch Goldberg, Bill Sjoberg, National Oceanic and Atmospheric Administration, United States

WE4.R1.3 16:20 **IMPROVED GLOBAL DROUGHT WATCH FROM NEW GENERATION OF NOAA POLAR-ORBITING SATELLITES & FOOD SECURITY**
Felix Kogan, NOAA/NESDIS/STAR-JPSS, United States

WE4.R1.4 16:40 **ADVANCES IN VOLCANIC CLOUD MONITORING: THE ROLE OF JPSS INSTRUMENTS**
Michael Pavolonis, National Oceanic and Atmospheric Administration, United States; Justin Sieglaff, John Cintineo, University of Wisconsin, United States

WE4.R1.5 17:00 **VIIRS OCEAN COLOR RESEARCH AND APPLICATIONS**
Menghua Wang, NOAA, United States; Xiaoming Liu, Lide Jiang, Seunghyun Son, NOAA & CIRA, United States; Junqiang Sun, NOAA & GST, United States; Wei Shi, Liqin Tan, Puneeta Naik, NOAA & CIRA, United States; Karlis Mikelsons, NOAA & GST, United States; Xiaolong Wang, NOAA & CIRA, United States; Veronica Lance, NOAA & GST, United States

Wednesday, July 29 08:20 - 10:00 Red 2
Session WE1.R2 Oral-Invited

SAR Tomography: Techniques and Applications I

Session Co-Chairs: Fabrizio Lombardini, Universita di Pisa; Andreas Reigber, German Aerospace Center (DLR)

WE1.R2.1 08:20 **THREE-DIMENSIONAL AND HIGHER-ORDER IMAGING WITH TOMOGRAPHIC SAR: TECHNIQUES, APPLICATIONS, ISSUES**
Andreas Reigber, German Aerospace Center (DLR), Germany; Fabrizio Lombardini, Federico Viviani, University of Pisa, Italy; Matteo Nannini, Antonio Martinez Del Hoyo, German Aerospace Center (DLR), Germany

WE1.R2.3 09:00 **SAR TOMOGRAPHY WITH REDUCED NUMBER OF TRACKS: URBAN OBJECT RECONSTRUCTION**
Stéphane Guillaso, Olivier D'Hondt, Olaf Hellwich, Technische Universität Berlin, Germany

WE1.R2.4 09:20 **SAR TOMOGRAPHY USING STARING AND HIGH-RESOLUTION SPOTLIGHT DATA FROM THE TANDEM-X PURSUIT MONOSTATIC MODE**
Nan Ge, German Aerospace Center (DLR), Germany; Xiao Xiang Zhu, German Aerospace Center (DLR) / Technische Universität München, Germany

WE1.R2.5 09:40 **ASPECTS OF MULTILOOK SAR TOMOGRAPHY**
Gianfranco Fornaro, Walter Franzé, Antonio Pauciullo, Diego Reale, Simona Verde, Institute for Electromagnetic Sensing of the Environment (CNR IREA), Italy

Wednesday, July 29 10:30 - 12:10 Red 2
Session WE2.R2 Oral-Invited

SAR Tomography: Techniques and Applications II

Session Co-Chairs: Andreas Reigber, German Aerospace Center (DLR); Fabrizio Lombardini, Universita di Pisa

WE2.R2.1 10:30 **UNDER-FOLIAGE TARGET DETECTION USING L-BAND MULTI-BASELINE POLARIMETRIC SAR TOMOGRAPHY**
Yue Huang, Intermap Technologies Corporation, Canada; Laurent Ferro-Famil, University of Rennes 1, France; Andreas Reigber, Microwaves and Radar Institute, Germany

WE2.R2.2 10:50 **SIMULATION OF FACADE REFERENCE DATA FOR 3D SAR ALGORITHMS**
Stefan Auer, German Aerospace Center (DLR), Germany; Stefan Gernhardt, Konrad Eder, Christoph Gisinger, Technische Universität München, Germany

WE2.R2.3 11:10 **ASSESSMENT OF THE P- AND L-BAND SAR TOMOGRAPHY FOR THE CHARACTERIZATION OF TROPICAL FORESTS**
Dinh Ho Tong Minh, IRSTEA, France; Thuy Le Toan, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Stefano Tebaldini, Fabio Rocca, Polimi, Italy; Lorenzo Iannini, TUDELFT, Netherlands

WE2.R2.4 11:30 **FIRST INVESTIGATION ON THE INFORMATION CONTENT OF MULTIBASELINE POLINSAR DATA AT S-BAND FOR FOREST STRUCTURE OBSERVATION**
Matteo Pardini, Konstantinos Papathanassiou, German Aerospace Center (DLR), Germany

WE2.R2.5 11:50 **A PROCESSING DRIVEN APPROACH TO AIRBORNE MULTI-BASELINE SAR TOMOGRAPHY**
Stefano Tebaldini, Fabio Rocca, Politecnico di Milano, Italy; Adriano Meta, Alex Coccia, Metasensing, Italy

Wednesday, July 29 13:30 - 15:10 Red 2
Session WE3.R2 Oral-Invited

Data Fusion I

Session Co-Chairs: Gabriele Moser, University of Genoa; Devis Tuia, University of Zurich

WE3.R2.1 13:30 **CHALLENGES OF DATA FUSION FOR GLOBAL URBAN REMOTE SENSING**
Paolo Gamba, University of Pavia, Italy

WE3.R2.3 14:10 **UN-SENSORED VERY HIGH RESOLUTION LAND-COVER MAPPING**
Adrien Gressin, Clément Mallet, Mathias Paget, IGN, France; Clara Barbanson, IGN-UPEM, France; Pierre-Louis Frison, Jean-Paul Rudant, UPEM, France; Nicolas Paparoditis, IGN, France; Nicole Vincent, University Paris-Descartes, France

WE3.R2.4 14:30 **WATER RUN-OFF MODELLING BASED ON UAV IMAGERY**
Piotr Tokarczyk, ETH Zürich, Switzerland; Frank Blumensaat, ETH Zürich/Swiss Federal Institute of Aquatic Science and Technology (Eawag), Switzerland; Joao Paulo Leitao, Jörg Rieckermann, Swiss Federal Institute of Aquatic Science and Technology (Eawag), Switzerland; Jan Dirk Wegner, Konrad Schindler, ETH Zürich, Switzerland

WE3.R2.5 14:50 **AUTOMATIC FUSION AND CLASSIFICATION USING RANDOM FORESTS AND FEATURES EXTRACTED WITH DEEP LEARNING**
Andreas Merentitis, Christian Debes, AGT International, Germany

Wednesday, July 29 15:40 - 17:20 Red 2
Session WE4.R2 Oral-Invited

Data Fusion II

Session Co-Chairs: Devis Tuia, University of Zurich; Gabriele Moser, University of Genoa

WE4.R2.1 15:40 **THE KOHONEN MAP FOR CREDAL FUSION OF HETEROGENEOUS DATA**
Imen Hammami, Grégoire Mercier, Télécom Bretagne, France; Atef Hamouda, Université de Tunis El Manar,, Tunisia

WE4.R2.2 16:00 **MARKOVIAN GRAPH LABELING FOR 3D RECONSTRUCTION IN DENSE URBAN AREA USING SAR AND OPTICAL IMAGES**
Paul Riot, Florence Tupin, Jean-Marie Nicolas, Télécom ParisTech, France

WE4.R2.3 16:20 **WEIGHTED JOINT SPARSE REPRESENTATION FOR MULTI-SOURCE GEOSPATIAL IMAGE CLASSIFICATION**
Yuhang Zhang, Saurabh Prasad, University of Houston, United States; Melba M. Crawford, Purdue University, United States

WE4.R2.4 16:40 **DATA FUSION FOR IMPROVING THERMAL EMISSIVITY SEPARATION FROM HYPERSPECTRAL DATA**
Michal Shimoni, Signal and Image Centre (SIC-RMA), Belgium; Rob Haelterman, Peter Lodewyckx, Royal Military Academy, Belgium

WE4.R2.5 17:00 **ATMOSPHERIC AND SHADOW COMPENSATION OF HYPERSPECTRAL IMAGERY USING VOXELIZED LIDAR**
Shea Hagstrom, Joshua Broadwater, Johns Hopkins University Applied Physics Laboratory, United States

Image Analysis and Data Fusion TC Meeting to follow at 17:30

Thursday, July 30 | 08:20 - 10:00 | White 1
Session TH1.W1 | Oral

Object Detection and Recognition Techniques

Session Co-Chairs: Silvana Dallepiane, Università degli Studi di Genova; Clement Mallet, IGN

TH1.W1.1 08:20 **RESEARCH ON ADJACENCY EFFECT IN OFF-NADIR OPTICAL REMOTE SENSING OF THE EARTH BY MONTE CARLO SIMULATION**
Xiaoshan Ma, Xin Meng, Zhen Yang, Xiaodong Peng, Ligang Li, Center for Space Science and Applied Research, Chinese Academy of Sciences, China

TH1.W1.2 08:40 **SHIP DETECTION FROM OPTICAL SATELLITE IMAGES BASED ON VISUAL SEARCH MECHANISM**
Feng Yang, Qizhi Xu, Feng Gao, Buaa University, China; Lei Hu, Jiangxi Normal University, China

TH1.W1.3 09:00 **GGSOR: A GAUSSIAN-GAMMA-SHAPED BI-WINDOWS BASED DESCRIPTOR FOR OPTICAL AND SAR IMAGES MATCHING**
Min Chen, Qing Zhu, Jun Zhu, Southwest Jiaotong University, China

TH1.W1.4 09:20 **URBAN INDICATOR FOR DATABASE UPDATING**
Benedicte Navaro, Sandy Allibert, Nicolas Saporiti, Geo212, France

TH1.W1.5 09:40 **TYPICAL DATA MODELS ARE INADEQUATE FOR HYPERTEMPORAL IMAGERY**
Dalton Rosario, U.S. Army Research Laboratory, United States; Joao Romano, U.S. Army Armament RDEC, United States

Thursday, July 30 | 10:30 - 12:10 | White 1
Session TH2.W1 | Oral

SAR and Ocean Applications

Session Co-Chairs: Maurizio Migliaccio, Università di Napoli Parthenope; Franco Fois, Technical University of Delft

TH2.W1.1 10:30 **SEA CLUTTER MODELLING BY STATISTICAL MAJORITY CONSISTENCY FOR SHIP DETECTION IN SAR IMAGERY**
Di Zhao, Haitao Lang, Beijing University of Chemical Technology, China; Xi Zhang, Junmin Meng, The First Institute of Oceanography, China; Laiquan Jin, Inner Mongolia Normal University, China

TH2.W1.2 10:50 **REFOCUSING OF SHIP SIGNATURES AND AZIMUTH SPEED ESTIMATION BASED ON FRFT AND SAR SLC IMAGERY**
Ramona Pelich, Télécom Bretagne, Image et traitement de l'information; CLS, DAR, France; Nicolas Longepe, CLS, DAR, France; Grégoire Mercier, Télécom Bretagne, Image et traitement de l'information, France; Guillaume Hajduch, CLS, DAR, France; Rene Garello, Télécom Bretagne, Image et traitement de l'information, France

TH2.W1.3 11:10 **TARGET CLASSIFICATION IN OCEANOGRAPHIC SAR IMAGES WITH DEEP NEURAL NETWORKS: ARCHITECTURE AND INITIAL RESULTS**
Carlos Bentes, Domenico Velotto, Susanne Lehner, German Aerospace Center (DLR), Germany

TH2.W1.4 11:30 **A CA-CFAR AND LOCALIZED WAVELET SHIP DETECTOR FOR SENTINEL-1 IMAGERY**
Colin Schwegmann, Waldo Kleynhans, Brian Salmon, Lizwe Mdakane, Council For Scientific and Industrial Research, South Africa

TH2.W1.5 11:50 **SHIP DETECTION IN SENTINEL-1 IMAGERY USING THE H-DOME TRANSFORMATION**
Colin Schwegmann, Waldo Kleynhans, Brian Salmon, Lizwe Mdakane, Council For Scientific and Industrial Research, South Africa

Thursday, July 30 | 13:30 - 15:10 | White 1
Session TH3.W1 | Oral

Advanced Data Analysis

Session Co-Chairs: Nicolas Baghdadi, IRSTEA; Francois Charbonneau, Canada Centre for Mapping and Earth Observation

TH3.W1.1 13:30 **FUSION OF LIDAR AND RADAR DATA FOR LAND-COVER MAPPING IN NATURAL ENVIRONMENTS**
Clara Barbanson, IGN-UPEM, France; Clément Mallet, Adrien Gressin, IGN, France; Pierre-Louis Frison, Jean-Paul Rudant, UPEM, France

TH3.W1.2 13:50 **COMPARISON OF KULLBACK-LEIBLER DIVERGENCE APPROXIMATION METHODS BETWEEN GAUSSIAN MIXTURE MODELS FOR SATELLITE IMAGE RETRIEVAL**
Shiyong Cui, Mihai Datcu, German Aerospace Center (DLR), Germany

TH3.W1.3 14:10 **SEGMENTATION AS POSTPROCESSING FOR HYPERSPECTRAL IMAGE CLASSIFICATION**
Luis Ignacio Jimenez, Hyperspectral Computing Laboratory, Spain; Victor Andres Ayma Quirita, Pedro M. Achanccaray, Gilson A.O.P. Costa, Raul Queiroz Feitosa, Computer Vision Laboratory, Brazil; Antonio Plaza, Hyperspectral Computing Laboratory, Spain

TH3.W1.4 14:30 **SPARSE MODELING OF THE LAND USE CLASSIFICATION PROBLEM**
Mohamed L. Mekhalfi, Farid Melgani, University of Trento, Italy

TH3.W1.5 14:50 **ILLUMINATION AND ATMOSPHERIC CONDITIONS INVARIANT TRANSFORM FOR OBJECT DETECTION IN HYPERSPECTRAL IMAGES**
Nicola Acito, Accademia Navale di Livorno - Italian Navy, Italy; Marco Diani, Giovanni Corsini, University of Pisa, Italy

Thursday, July 30 | 15:40 - 17:20 | White 1
Session TH4.W1 | Oral

Object Detection in SAR Images

Session Co-Chairs: Luca Pulvirenti, Cima Foundation; Alfonso Farina

TH4.W1.1 15:40 **TRACKING AND REFOCUSSING OF MOVING TARGETS IN MULTICHANNEL SAR DATA**
Daniel Henke, Erich Meier, University of Zurich, Switzerland

TH4.W1.2 16:00 **SAR IMAGERY FEATURE EXTRACTION USING 2DPCA-BASED TWO-DIMENSIONAL NEIGHBORHOOD VIRTUAL POINTS DISCRIMINANT EMBEDDING**
Jifang Pei, Yulin Huang, Weibo Huo, Hao Han, Xiaojia Liu, Yuanyuan Wang, Jianyu Yang, University of Electronic Science and Technology of China, China

TH4.W1.3 16:20 **CALIBRATED METHOD FOR DISCRIMINATING SEA SURFACE SLICKS USING RADARSAT-2 CO-POLARIZED SAR IMAGES**
Dmitry Ivonin, Andrey Ivanov, P.P. Shirshov Institute of Oceanology RAS, Russian Federation; Camilla Brekke, Stine Skrunes, University of Tromsø, Norway

TH4.W1.4 16:40 **APPLICATION OF DEEP-LEARNING ALGORITHMS TO MSTAR DATA**
Haipeng Wang, Sizhe Chen, Feng Xu, Ya-Qiu Jin, Fudan University, China

TH4.W1.5 17:00 **CS-BASED RADAR MEASUREMENT OF SILOS LEVEL**
Enes Yigit, Karamanoglu Mehmetbey University, Turkey; Hakan Isiker, Mersin University, Turkey; Abdurrahim Toktas, Karamanoglu Mehmetbey University, Turkey; Saibun Tjuatja, The University of Texas at Arlington, United States

Thursday, July 30 | 08:20 - 10:00 | White 2
Session TH1.W2 | Oral

Geo SAR, etc.

Session Co-Chairs: Andrea Monti Guanieri, Politecnico di Milano; Cheng Hu, Beijing Institute of Technology

TH1.W2.1 08:20 **EXPERIMENT VALIDATION OF INCLINED GEOSYNCHRONOUS SAR FOUCUSING USING BEIDOU IGSO SATELLITE**
Xichao Dong, Cheng Hu, Weiming Tian, Beijing Institute of Technology, China; Mingming Bian, Institute of Spacecraft System Engineering, CAST, China; Tian Zhang, Teng Long, Beijing Institute of Technology, China

TH1.W2.2 08:40 **IMPACTS OF IONOSPHERIC SCINTILLATION ON GEOSYNCHRONOUS SAR**
Yuanhao Li, Cheng Hu, Xichao Dong, Tao Zeng, Teng Long, Beijing Institute of Technology, China; Lixiang Ma, Chinese Academy of Space Technology, Beijing, China; Xiaopeng Yang, Beijing Institute of Technology, China

TH1.W2.3 09:00 **ORTHOGONAL COPRIME SAR**
Gerardo Di Martino, Antonio Iodice, Stefano Medagli, Università di Napoli Federico II, Italy

TH1.W2.4 09:20 **SIMULATION OF SIGNAL RECONSTRUCTION BASED SPARSE FLIGHT DOWNWARD-LOOKING 3D IMAGING SAR**
He Tian, Daojing Li, Liechen Li, Institute of Electronics, Chinese Academy of Sciences, China

TH1.W2.5 09:40 **CONDITIONAL INDEPENDENT MAP-MRF FILTERING AND UNWRAPPING OF INSAR PHASE**
Wajih Ben Abdallah, Riadh Abdelfattah, Higher School of Communications of Tunis, Tunisia

Thursday, July 30 | 10:30 - 12:10 | White 2
Session TH2.W2 | Oral

POLSAR Decomposition Techniques

Session Co-Chairs: Eric Pottier, University of Rennes 1; Wolfang-Martin Boerner, University of Illinois-Chicago

TH2.W2.1 10:30 **INSTRUMENT-DRIVEN CONSTRAINS ON SCATTERING MODELING FOR TERRASAR-X POLSAR DATA**
Eduardo Makhoul, Carlos Lopez-Martinez López-Martínez, Antoni Broquetas, Universitat Politècnica de Catalunya, Spain

TH2.W2.2 10:50 **POLSAR IMAGES CLASSIFICATION THROUGH GA-BASED SELECTIVE ENSEMBLE LEARNING**
Lamei Zhang, Xiao Wang, Harbin Institute of Technology, China; Wooil Moon, University of Manitoba, Canada

TH2.W2.3 11:10 **NEW METHOD FOR POLARIMETRIC SAR SCATTERING MECHANISM CLASSIFICATION**
Junjun Yin, Wooil Moon, Geophysics, Faculty of Environment, Earth and Resources, University of Manitoba, Canada; Jian Yang, Dept. of Electronic Engineering, Tsinghua University, China

TH2.W2.4 11:30 **MODEL-BASED SCATTERING COMPONENT DECOMPOSITION BY USING MULTI-BASELINE POLSAR DATA**
Hiroyoshi Yamada, Niigata University, Japan; Motofumi Arii, Mitsubishi Space Software Co. Ltd., Japan; Ryoichi Sato, Yoshio Yamaguchi, Niigata University, Japan; Syoichiro Kojima, National Institute of Information and Communications Technology, Japan

TH2.W2.5 11:50 **ASSESSMENT OF THE RELEVANCE OF INFORMATION DERIVED FROM THE UNMIXING OF POLARIMETRIC RADAR IMAGES**
Sébastien Giordano, IGN, France; Grégoire Mercier, Telecom Bretagne, France; Jean-Paul Rudant, Université Paris-Est, France

Thursday, July 30 | 13:30 - 15:10 | White 2
Session TH3.W2 | Oral

POLSAR Applications II

Session Co-Chairs: Tom Ainsworth, Naval Research Laboratory; Hiroyoshi Yamada, Niigata University

TH3.W2.1 13:30 **WIDE AREA FOREST HEIGHT MAPPING USING TANDEM-X STANDARD MODE DATA**
Hao Chen, Natural Resources Canada, Canada; David Goodenough, University of Victoria, Canada; Shane Cloude, AEL Consultants, United Kingdom; Pritpaul Padda, Natural Resources Canada, Canada

TH3.W2.2 13:50 **EVALUATION OF ICA BASED ICTD FOR POLSAR DATA ANALYSIS IN TROPICAL FOREST SCENARIO**
Leandro Pralon, Gabriel Vasile, Mauro Dalla Mura, Jocelyn Chanussot, Nikola Besic, Grenoble INP, France

TH3.W2.3 14:10 **URBAN DAMAGE MAPPING USING SCATTERING MECHANISM INVESTIGATION TECHNIQUE FOR FULLY POLARIMETRIC SAR DATA**
Si-Wei Chen, Yong-Zhen Li, Xue-Song Wang, National University of Defense Technology, China; Christian N. Koyama, Motoyuki Sato, Tohoku University, Japan

TH3.W2.4 14:30 **POLARIMETRIC PARAMETERS FOR OIL SLICKS DETECTION USING SAR DATA REMOTE SENSING - AN EVALUATION**
Sébastien Angelliaume, Pascale Dubois-Fernandez, ONERA, France; Veronique Miegebielle, Dominique Dubucq, TOTAL, France

TH3.W2.5 14:50 **COASTLINE EXTRACTION AND COASTAL AREA CLASSIFICATION VIA SAR HYBRID-POLARIMETRY ARCHITECTURE**
Rafael Paes, Institute of Advanced Studies (IEAv), Brazil; Ferdinando Nunziata, Maurizio Migliaccio, Università di Napoli Parthenope, Italy

Thursday, July 30 | 15:40 - 17:20 | White 2
Session TH4.W2 | Oral

POLSAR Analytic Techniques

Session Co-Chairs: Jacob Van Zyl, NASA Jet Propulsion Laboratory; Kostas Papathanassiou, German Aerospace Center (DLR)

TH4.W2.1 15:40 **ANALYSIS OF TEXTURE DISTRIBUTIONS OF POLARIMETRIC SAR DATA**
Xinping Deng, Carlos Lopez-Martinez López-Martínez, Universitat Politècnica de Catalunya, Spain

TH4.W2.2 16:00 **A CHANGE DETECTOR FOR POLARIMETRIC SAR DATA BASED ON THE RELAXED WISHART DISTRIBUTION**
Vahid Akbari, Stian Normann Anfinsen, Anthony Paul Doulgeris, Torbjørn Eltoft, University of Tromsø, Norway

TH4.W2.3 16:20 **POLARIMETRIC SCATTERING ANALYSIS FOR DETECTING LARGELY-ORIENTED MAN-MADE OBJECTS BASED ON EIGENVALUES/EIGENVECTORS ANALYSIS TO THE ROTATED COHERENCY MATRIX**
Ryoichi Sato, Yuhei Ikarashi, Motoki Masaka, Yoshio Yamaguchi, Hiroyoshi Yamada, Niigata University, Japan

TH4.W2.4 16:40 **EFFECT OF COORDINATE ROTATION ON STOKES VECTOR BASED POLARIMETRIC SAR DATA INTERPRETATION**
Fang Shang, University of Electro-Communications, Japan; Akira Hirose, University of Tokyo, Japan

TH4.W2.5 17:00 **VERY HIGH RESOLUTION POLARIMETRIC SYNTHETIC APERTURE RADAR IMAGING THROUGH REPEAT-PASS ACQUISITIONS**
Hubert Cantalloube, Helene Oriot, ONERA, France

Digital Elevation Models

Session Co-Chairs: Francesco Zucca, University of Pavia; Diego Reale, IREA

TH1.G1.1 08:20 **STATUS OF "ALOS WORLD 3D (AW3D)" GLOBAL DSM GENERATION**
Takeo Tadono, Japan Aerospace Exploration Agency, Japan; Junichi Takaku, Remote Sensing Technology Center of Japan, Japan; Ken Tsutsui, NTT DATA Corporation, Japan; Fumiko Oda, Hiroto Nagai, Japan Aerospace Exploration Agency, Japan

TH1.G1.2 08:40 **A FRAMEWORK FOR AN AUTOMATICAL EDITING OF TANDEM-X DIGITAL ELEVATION MODELS**
Martin Huber, Birgit Wessel, Anna Wendleder, Jörn Hoffmann, Achim Roth, German Aerospace Center (DLR), Germany

TH1.G1.3 09:00 **TANDEM-X DSM UNCERTAINTY MEASURES AND DEMONSTRATIONS**
Cristian Rossi, Thomas Fritz, Michael Eineder, German Aerospace Center (DLR), Germany

TH1.G1.4 09:20 **IMPROVING SATELLITE DERIVED DEMS BY USING AIRBORNE INSAR DATA: THE TANDEM-X / F-SAR CASE OF STUDY**
Muriel Pinheiro, Andreas Reigber, Jesus Lloredo, German Aerospace Center (DLR), Germany

TH1.G1.5 09:40 **MAXIMUM LIKELIHOOD APPROACH FOR THE PHASE OFFSET ESTIMATION IN INSAR DEM GENERATION**
Antonio Pauciullo, Carmen Esposito, Giuseppe Jackson, Riccardo Lanari, Stefano Perna, IREA, Consiglio Nazionale delle Ricerche (CNR), Napoli, Italy, Italy

Topography, Geology and Geomorphology

Session Co-Chairs: Jin-King Liu, LIDAR Technology Co., Ltd.; Francesco Zucca, University of Pavia

TH2.G1.1 10:30 **KINEMATICS OF THE SLUMGULLION LANDSLIDE FROM UAVSAR DERIVED INTERFEROGRAMS**
Brent Delbridge, Roland Bürgmann, University of California, Berkeley, United States; Eric Jameson Fielding, Scott Hensley, NASA Jet Propulsion Laboratory, United States

TH2.G1.2 10:50 **STEREORADARGRAMMETRIC GENERATION OF DIGITAL SURFACE MODELS WITH RADARSAT-2 IN NORTHERN CANADA**
Jean-Samuel Proulx-Bourque, Natural Resources Canada, Canada; Ramata Magagi, Université de Sherbrooke, Canada

TH2.G1.3 11:10 **A LAND COVER ADAPTIVE TOPOGRAPHIC CORRECTION AND EVALUATION METHOD FOR REMOTE SENSING DATA**
Huifang Li, Liming Xu, Zhenwei Zhang, Huanfeng Shen, Wei Li, Liqin Cao, Wuhan University, China

TH2.G1.4 11:30 **QUALITY STATUS OF HIGH RESOLUTION GLOBAL DSM GENERATED FROM ALOS PRISM**
Junichi Takaku, Remote Sensing Technology Center of Japan, Japan; Takeo Tadono, Japan Aerospace Exploration Agency, Japan; Ken Tsutsui, Mayumi Ichikawa, NTT DATA Corporation, Japan

TH2.G1.5 11:50 **KITE-BORNE PHOTOGRAMMETRY FOR DECIMETRIC 3D MAPPING OF SEVERAL SQUARE KILOMETRES AREAS**
Denis Feurer, IRD, France; Mohamed Amine El Maaoui, ENIT, Tunisia; Olivier Planchon, IRD, France; Mohamed Rached Boussema, ENIT, Tunisia; Marc Pierrot-Deseilligny, IGN, France

Forest Monitoring III

Session Co-Chairs: Yang Zhengwei, United States Department of Agriculture; Björn Waske, Freie Universität Berlin

TH3.G1.1 13:30 **COMBINING TANDEM-X AND LANDSAT 8 DATA FOR IMPROVED MAPPING OF FOREST BIOMASS**
Oleg Antropov, Yrjö Rauste, Tuomas Häme, VTT Technical Research Centre of Finland, Finland; Jaan Praks, Aalto University, Finland

TH3.G1.2 13:50 **JAXA SUPER SITES 500: LARGE-SCALE ECOLOGICAL MONITORING SITES FOR SATELLITE VALIDATION IN JAPAN**
Tomoko Akitsu, Kenlo Nasahara, University of Tsukuba, Japan; Hideki Kobayashi, Japan Agency for Marine-Earth Science and Technology, Japan; Nobuko Saigusa, Masato Hayashi, National Institute for Environmental Studies, Japan; Tatsuro Nakaji, Hokkaido University, Japan; Hajime Kobayashi, Tetsuo Okano, Shinsyu University, Japan; Yoshiaki Honda, Chiba University, Japan

TH3.G1.3 14:10 **SELECTIVE LOGGING OF TROPICAL FORESTS OBSERVED USING L- AND C-BAND SAR SATELLITE DATA**
Oleg Antropov, Yrjö Rauste, VTT Technical Research Centre of Finland, Finland; Frank Martin Seifert, European Space Agency (ESA), Italy; Tuomas Häme, VTT Technical Research Centre of Finland, Finland

TH3.G1.4 14:30 **A SET OF OPERATIONAL RADIATION, CARBON AND WATER FLUXES PRODUCTS FROM MODIS DATA AND A PROCESS-BASED MODEL**
Chongya Jiang, Youngryel Ryu, Seoul National University, Republic of Korea; Hideki Kobayashi, Japan Agency for Marine-Earth Science and Technology, Japan

TH3.G1.5 14:50 **EVALUATION OF UAV-BASED FOREST INVENTORY SYSTEM COMPARED WITH LIDAR DATA**
Wenjian Ni, Jianli Liu, Zhiyu Zhang, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China; Guoqing Sun, Department of Geographical Sciences, University of Maryland, United States; Aqiang Yang, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China

Forest Monitoring IV

Session Co-Chairs: Hao Chen, Natural Resources Canada; Zegang Ding, Beijing Institute of Technology

TH4.G1.1 15:40 **NOVEL LEAF-LEVEL MEASUREMENTS OF CHLOROPHYLL FLUORESCENCE FOR PHOTOSYNTHETIC EFFICIENCY**
Elizabeth Middleton, NASA Goddard Space Flight Center, United States; Tommaso Julitta, Universita di Milano-Bicocca, Italy; Petya Campbell, Karl Fred Huemmrich, University of Maryland, Baltimore County, United States; Anke Schickling, Forschungszentum Juelich GmbH, Germany; Micol Rossini, Sergio Cogliati, Universita di Milano-Bicocca, Italy; David Landis, Global Science & Technology, Inc., United States; Luis Alonso, University of Valencia, Spain

TH4.G1.2 16:00 **AIRBORNE REMOTE SENSING TO DEFINE ECOSYSTEM FORM & FUNCTION OVER A LOBLOLLY PINE PLANTATION**
Lawrence Corp, Science Systems and Applications Inc., United States; Bruce Cook, NASA Goddard Space Flight Center, United States; Franscisco Pinto, Forschungszentrum Jülich, Germany; Elizabeth Middleton, NASA Goddard Space Flight Center, United States; Karl Fred Huemmrich, Petya Campbell, Joint Center for Earth Systems Technology, UMBC, United States; Uwe Rascher, Forschungszentrum Jülich, Germany; Asko Noormets, North Carolina State University, United States

TH4.G1.3 16:20 **UNDER-ESTIMATION OF BIOMASS LOSS WITH REDD+ STANDARD REPORTING METHOD**
Stephane Mermoz, Alexandre Bouvet, Thuy Le Toan, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Renaud Mathieu, CSIR, South Africa

TH4.G1.4 16:40 **DETECTION OF FOREST CHANGE AND ROBUST ESTIMATION OF FOREST HEIGHT FROM TWO-LEVEL MODEL INVERSION OF MULTI-TEMPORAL, SINGLE-PASS INSAR DATA**
Maciej J. Soja, Chalmers University of Technology, Sweden; Henrik J. Persson, Swedish University of Agricultural Sciences, Sweden; Lars M. H. Ulander, Chalmers University of Technology, Sweden

TH4.G1.5 17:00 **INTRODUCING LIDAR CANOPY COVER OF LARGE TREES AS THE REGIONALLY INVARIANT ESTIMATOR OF TROPICAL FOREST CARBON DENSITY**
Victoria Meyer, Jet Propulsion Laboratory, California Institute of Technology / Université Paul Sabatier, Toulouse, United States; Sassan Saatchi, Fernando Santo, Dahlia Kaki, Jet Propulsion Laboratory, California Institute of Technology, United States; David Clark, University of Missouri, St. Louis, Missouri, U.S.A., United States; Michael Keller, U.S. Department of Agriculture Forest Service / International Institute of Tropical Forestry, San Juan, Puerto Rico, United States; Jerome Chave, Université Paul Sabatier, Toulouse, France, France

Thursday, July 30 | 08:20 - 10:00 | Green 2
Session TH1.G2 | Oral

Coastal Zone Remote Sensing II

Session Co-Chairs: Naoto Ebuchi, Hokkaido University; Gilson A O P Costa, PUC-Rio

TH1.G2.1 08:20 **CLASSIFICATION OF OYSTER HABITATS BY COMBINING WAVELET-BASED TEXTURE FEATURES AND POLARIMETRIC SAR DESCRIPTORS**
Olivier Regniers, Lionel Bombrun, Ioana Ilea, Virginie Lafon, Christian Germain, Université de Bordeaux, France

TH1.G2.2 08:40 **BATHYMETRY RETRIEVAL USING VERY HIGH RESOLUTION REMOTE SENSING IMAGERY OF CANARY ISLANDS LITTORAL ZONES**
Francisco Eugenio González, Javier Marcello, Javier Martin, Universidad de Las Palmas de Gran Canaria, Spain; Ferran Marques, Universitat Politècnica de Catalunya - BarcelonaTech, Spain

TH1.G2.3 09:00 **ADVANCED BATHYMETRY RETRIEVAL FROM SWELL PATTERNS IN HIGH-RESOLUTION SAR IMAGES**
Fernando Monteiro, Roland Romeiser, University of Miami - Rosenstiel School of Marine and Atmospheric Science, United States

TH1.G2.4 09:20 **ENHANCEMENT IN INTERFERENCE PATTERN TECHNIQUE FOR ALTIMETRY AND TIDE/WAVE MEASUREMENTS: OFFSHORE 60-METER LIGHTHOUSE CASE STUDY**
Nicolas Roussel, Université Paul Sabatier, France; Guillaume Ramillien, Centre National de la Recherche Scientifique, France; Frédéric Frappart, Geosciences Environnement Toulouse, France; José Darrozes, Université Paul Sabatier, France; Adrien Gay, Groupe de Recherche en Géodésie Spatiale, France; Nicolas Striebig, Groupe d'Instrumentation Scientifique, France; Richard Biancale, Centre National d'Etudes Spatiales, France

TH1.G2.5 09:40 **FLOATING RAFT AQUACULTURE INFORMATION AUTOMATIC EXTRACTION BASED ON HIGH RESOLUTION SAR IMAGES**
Jianchao Fan, Jialan Chu, Jie Geng, Fengshou Zhang, National Marine Environment Monitoring Center, China

Thursday, July 30 | 10:30 - 12:10 | Green 2
Session TH2.G2 | Oral

Optical Sensors Calibration and Atmospheric Correction

Session Co-Chairs: Andreas Mueller, German Aerospace Center (DLR); Cindy Ong, Commonwealth Scientific and Industrial Research Organisation (CSIRO)

TH2.G2.1 10:30 **S-NPP OZONE MAPPING PROFILER SUITE (OMPS) NADIR INSTRUMENTS SOLAR OBSERVATION**
Chunhui Pan, Univrsity of Maryland, United States; Lawrence Flynn, NOAA, United States

TH2.G2.2 10:50 **MODTRAN6: A MAJOR UPGRADE OF THE MODTRAN RADIATIVE TRANSFER CODE**
Alexander Berk, Patrick Conforti, Rosemary Kennett, Timothy Perkins, Frederick Hawes, Robert Sundberg, Spectral Sciences, Inc., United States; Jeannette van den Bosch, Air Force Research Laboratory, United States

TH2.G2.3 11:10 **GOES-R ABI DETECTOR-LEVEL SPECTRAL RESPONSE FUNCTION PERFORMANCE CHARACTERIZATION**
Francis Padula, GeoThinkTank LLC, United States; Changyong Cao, NOAA/NESDIS/STAR, United States

TH2.G2.4 11:30 **TOWARD AN OPTICAL FIBER SPECTRAL RADIOMETER FOR SURFACE REFLECTANCE MEASUREMENTS**
Steven Golowich, Ronald Lockwood, Sarah Klein, MIT Lincoln Laboratory, United States; Kurtis Thome, NASA, United States

TH2.G2.5 11:50 **INVESTIGATION THE UNCERTAINTY IN METHANE ABSORPTION BAND USING FULL SPECTRUM DATA OF CRIS ON S-NPP AND RADIATIVE TRANSFER MODELS**
Xiaozhen Xiong, Earth Resources Technology, Inc,, United States; Yong Han, NOAA/NESDIS/STAR, United States; Yong Chen, University of Maryland, United States; Lihang Zhou, Fuzhong Weng, NOAA/NESDIS/STAR, United States

Thursday, July 30 | 13:30 - 15:10 | Green 2
Session TH3.G2 | Oral

Optical Sensors Calibration and Validation II

Session Co-Chairs: Mario Parente, University of Massachusetts Amherst; Kurt Thome, NASA

TH3.G2.1 13:30 **VIIRS REFLECTIVE SOLAR BANDS CALIBRATION REPROCESSING**
Slawomir Blonski, University of Maryland, College Park, United States; Changyong Cao, NOAA/NESDIS/STAR, United States

TH3.G2.2 13:50 **AN OVERVIEW OF S-NPP VIIRS LUNAR CALIBRATION**
Xiaoxiong Xiong, NASA Goddard Space Flight Center, United States; Jon Fulbright, Zhipeng Wang, Science Systems and Applications Inc., United States; Jim Butler, NASA Goddard Space Flight Center, United States

TH3.G2.3 14:10 **PROTOCOL FOR VALIDATION OF THE LAND SURFACE REFLECTANCE FUNDAMENTAL CLIMATE DATA RECORD USING AERONET : APPLICATION TO THE GLOBAL MODIS AND VIIRS DATA RECORDS.**
Jean-Claude Roger, University of Maryland, United States; Eric Vermote, Brent Holben, NASA Goddard Space Flight Center, United States

TH3.G2.4 14:30 **DEVELOPMENT OF CO-BORESIGHTED VIS-NIR-SWIR HYPERSPECTRAL IMAGING SYSTEM**
Kwok-Keung Wong, Samuel L. Hill, Headwall Photonics Inc., United States

TH3.G2.5 14:50 **ON THE EVALUATION OF PRISMA HYPERSPECTRAL SATELLITE SENSITIVITY TO SIGNIFICANT LOADINGS OF CARBON DIOXIDE**
Walter Di Nicolantonio, CGS SpA Compagnia Generale per lo Spazio, Italy; Alessandro Tiesi, Institute of Atmospheric Sciences and Climate - National Research Council (ISAC-CNR), Italy; Demetrio Labate, Selex ES, Italy; Cristina Ananasso, Laura Candela, Agenzia Spaziale Italiana (ASI), Italy; Claudio Tomasi, Institute of Atmospheric Sciences and Climate - National Research Council (ISAC-CNR), Italy

Thursday, July 30 | 15:40 - 17:20 | Green 2
Session TH4.G2 | Oral

GNSS-R Sensors I

Session Co-Chairs: Cinzia Zuffada, NASA Jet Propulsion Laboratory; Valery Zavorotny, NOAA/ESRL

TH4.G2.1 15:40 **GEROS-ISS, A DEMONSTRATION MISSION OF GNSS REMOTE SENSING CAPABILITIES TO DERIVE GEOPHYSICAL PARAMETERS OF THE EARTH SURFACES: ALTIMETRY PERFORMANCE EVALUATION**
Adriano Camps, Hyuk Park, Ali Ghavidel, Juan Manuel Rius, Ivan Sekulic, Universitat Politècnica de Catalunya - BarcelonaTech, Spain

TH4.G2.2 16:00 **ON THE SPATIAL RESOLUTION OF GNSS-REFLECTOMETRY FROM SPACE**
Maria-Paola Clarizia, Christopher S. Ruf, University of Michigan, United States; Scott Gleason, Southwest Research Institute, United States

TH4.G2.3 16:20 **TWO DEDICATED SOIL MOISTURE EXPERIMENTS USING THE SCATTEROMETRIC PROPERTIES OF GNSS-REFLECTOMETRY**
Alberto Alonso-Arroyo, Sandra Torrecilla, Jorge Querol, Adriano Camps, Daniel Pascual, Hyuk Park, Raul Onrubia, Universitat Politècnica de Catalunya - BarcelonaTech, Spain

TH4.G2.4 16:40 **GNSS-R GEOPHYSICAL MODEL FUNCTION FOR OCEAN BISTATIC RADAR CROSS SECTION BASED ON THE SMALL SLOPE APPROXIMATION**
Valery Zavorotny, Alexander Voronovich, NOAA/Earth System Research Laboratory, United States

TH4.G2.5 17:00 **JOINT ESTIMATION OF WIND SPEED AND WIND DIRECTION FROM GNSS-R DELAY-DOPPLER MAPS**
Pia Addabbo, Tiziana Beltramonte, Maurizio Di Bisceglie, Carmela Galdi, Generoso Giangregorio, Università degli Studi del Sannio, Italy

Thursday, July 30 | 08:20 - 10:00 | Green 3
Session TH1.G3 | Oral

Atmospheric Sounding I

Session Co-Chairs: William Blackwell, MIT Lincoln Laboratory; Albin Gasiewski, University of Colorado

TH1.G3.1 08:20 **THE PROOF OF CONCEPT FOR PROFILES RETRIEVALS FROM CRIS RADIANCES USING A DETERMINISTIC METHOD**
Prabhat Koner, Andy Harris, NOAA/University of Maryland, United States

TH1.G3.2 08:40 **GROMOS-C, A NOVEL GROUND BASED MICROWAVE RADIOMETER FOR OZONE MEASUREMENT CAMPAIGNS**
Susana Fernandez, Axel Murk, Niklaus Kämpfer, University of Bern, Switzerland

TH1.G3.3 09:00 **IMPLEMENTATION OF THE PHASE MATCHING (PM) METHOD FOR THE GPS AIRBORNE RADIO OCCULTATION (ARO) SYSTEM**
Kuo-Nung Wang, James Garrison, Purdue University, United States; Jennifer Haase, University of California, San Diego, United States; Brian Murphy, Purdue University, United States; Chi O. Ao, Jet Propulsion Laboratory, United States

TH1.G3.4 09:20 **OBSERVATIONS OF FIELD-ALIGNED IRREGULARITIES IN THE IONOSPHERE USING MULTI-FREQUENCY RANGE IMAGING TECHNIQUE**
Jenn-Shyong Chen, China Medical University, Taiwan; Yen-Hsyang Chu, Ching-Lun Su, National Central University, Taiwan; Hiroyuki Hashiguchi, Kyoto University, Japan; Ying Li, Yuan Ze University, Taiwan

TH1.G3.5 09:40 **CHARACTERISTICS OF CONVENTIONAL RADIOSONDE DATA AND THEIR USE IN SATELLITE SOUNDING PRODUCTS VALIDATION**
Bomin Sun, I.M. Systems Group, United States; Anthony Reale, NOAA/NESDIS Center for Satellite Applications and Research, United States; Frank Tilley, Michael Pettey, I.M. Systems Group, United States

Thursday, July 30 | 10:30 - 12:10 | Green 3
Session TH2.G3 | Oral

Aerosols and Atmospheric Chemistry II

Session Co-Chairs: Andrea Marinoni, University of Pavia; Frank Marzano, Università dell'Aquila

TH2.G3.1 10:30 **AERUS-GEO : A NEW AEROSOL PRODUCT BASED ON MSG GEOSTATIONARY SATELLITE OBSERVATIONS**
Dominique Carrer, Meteo France (CNRM-GAME), France; Xavier Ceamanos, ONERA, France; Jean-Louis Roujean, Meteo France (CNRM-GAME), France; Bruno Six, ICARE Data and Services Center, France

TH2.G3.2 10:50 **COMPARISON OF ATMOSPHERIC METHANE OBSERVATIONS FROM AIRS AND IASI**
Xiaozhen Xiong, Earth Resources Technology, Inc, United States; Quanhua Liu, Yong Han, Fuzhong Weng, NOAA Center for Satellite Applications and Research, United States

TH2.G3.3 11:10 **INFERRING AIR QUALITY MAPS FROM REMOTELY SENSED DATA TO EXPLOIT GEOREFERENCED CLINICAL ONSETS: THE PAVIA 2013 CASE**
Andrea Marinoni, Arianna Dagliati, Riccardo Bellazzi, Paolo Gamba, University of Pavia, Italy

TH2.G3.4 11:30 **THE HYPERSPECTRAL UNMIXING OF NITROGEN DIOXIDE FROM THE ESA-SCIAMACHY NADIR MEASUREMENTS**
Pia Addabbo, di Bisceglie Maurizio, Carmela Galdi, Silvia Liberata Ullo, Università degli Studi del Sannio, Italy

TH2.G3.5 11:50 **SYNERGETIC USE OF LIDAR AND MICROWAVE RADIOMETER OBSERVATIONS FOR BOUNDARY-LAYER HEIGHT DETECTION**
Umar Saeed, Universitat Politècnica de Catalunya, Spain; Francesc Rocadenbosch, Universitat Politècnica de Catalunya / Institut d'Estudis Espacials de Catalunya, Spain; Susanne Crewell, University of Cologne, Germany

Thursday, July 30 | 13:30 - 15:10 | Green 3
Session TH3.G3 | Oral

Numerical Weather Prediction Models and Methods I

Session Co-Chairs: Chandrasekar V Chandra, Colorado State University; Leila Farhadi, George Washington University

TH3.G3.1 13:30 **ASSESSMENT THE IMPACT OF HIMAWARI-8 AHI RADIANCE DATA ON THE NOAA GDAS SYSTEM**
Zaizhong Ma, Sid-Ahmed Boukabara, Tong Zhu, Joint Center for Satellite Data Assimilation, United States

TH3.G3.2 13:50 **EVALUATION OF WRF PLANETARY BOUNDARY LAYER SCHEMES FOR HIGH-RESOLUTION WIND SIMULATIONS IN NORTHEASTERN THAILAND**
Chinnawat Surussavadee, Wanchen Wu, Prince of Songkla University, Phuket Campus, Thailand

TH3.G3.3 14:10 **LAPS DATA ANALYSIS AND MODEL INITIALIZATION AT ISAC-CNR**
Alessandro Tiesi, Mario Marcello Miglietta, National Research Council, Italy; Dario Conte, Euro-Mediterranean Centre on Climate Changes (CMCC), Italy; Oxana Drofa, Silvio Davolio, Piero Malguzzi, Andrea Buzzi, National Research Council, Italy

TH3.G3.4 14:30 **NEW RADIOSONDE TEMPERATURE BIAS ADJUSTMENTS FOR POTENTIAL NWP APPLICATIONS BASED ON GPS RO DATA**
Bomin Sun, I.M. Systems Group, United States; Anthony Reale, NOAA/NESDIS Center for Satellite Applications and Research, United States; Bradley Ballish, NOAA/NWP National Centers for Environmental Prediction, United States; Dian Seidel, NOAA/OAR Air resources Laboratory, United States; Andrew Collard, I.M. Systems Group, United States

TH3.G3.5 14:50 **FOUR-DIMENSIONAL VARIATIONAL DATA ASSIMILATION OF HIGH RESOLUTION X-BAND RADAR OBSERVATIONS OVER THE DALLAS-FORT WORTH METROPLEX**
Renzo Bechini, V. Chandrasekar, Colorado State University, United States; Juanzhen Sun, National Center for Atmospheric Research, United States

Thursday, July 30 | 15:40 - 17:20 | Green 3
Session TH4.G3 | Oral

Numerical Weather Prediction Models and Methods II

Session Co-Chairs: Fuzhong Weng, NOAA; Alessandro Tiesi, ISAC CNR

TH4.G3.1 15:40 **ON THE IMPROVEMENT OF ASCAT-DERIVED CYCLONE WINDS**
Marcos Portabella, Wenming Lin, Institut de Ciències del Mar (ICM-CSIC), Spain; Jur Vogelzang, Ad Stoffelen, Anton Verhoef, Royal Netherlands Meteorological Institute (KNMI), Netherlands; Ana Trindade, Institut de Ciències del Mar (ICM-CSIC), Spain

TH4.G3.2 16:00 **MAPPING LAND WATER AND ENERGY BALANCE RELATIONS THROUGH CONDITIONAL SAMPLING OF REMOTELY SENSED SURFACE SOIL MOISTURE AND TEMPERATURE STATES**
Leila Farhadi, George Washington University, United States; Dara Entekhabi, Massachusetts Institute of Technology, United States; Guido Salvucci, Boston University, United States

TH4.G3.3 16:20 **A NEURAL NETWORK-BASED WIND FORECASTING MODEL FOR WIND POWER MANAGEMENT IN NORTHEASTERN THAILAND**
Chinnawat Surussavadee, Wanchen Wu, Prince of Songkla University, Phuket Campus, Thailand

TH4.G3.4 16:40 **ESTIMATION OF SURFACE FLUXES OF HEAT AND MOISTURE AND THEIR UNCERTAINTY USING VARIATIONAL DATA ASSIMILATION METHODOLOGY**
Abedeh Abdolghafoorian, Leila Farhadi, George Washington University, United States

Thursday, July 30 | 08:20 - 10:00 | Yellow 1
Session TH1.Y1 | Oral

Land Cover Dynamics I

Session Co-Chairs: Francois Charbonneau, Canada Centre for Mapping and Earth Observation; Fabio Del Frate, Univ. Rome

TH1.Y1.1 08:20 **ESTIMATION OF SOYBEAN YIELD FROM ASSIMILATED OPTICAL AND RADAR DATA INTO A SIMPLIFIED AGROMETEOROLOGICAL MODEL**
Frédéric Baup, Rémy Fieuzal, Julie Betbeder, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France

TH1.Y1.2 08:40 **REGIONAL RETROSPECTIVE HIGH RESOLUTION LAND COVER FOR UKRAINE: METHODOLOGY AND RESULTS**
Mykola Lavreniuk, Nataliia Kussul, Sergii Skakun, Space Research Institute NASU-SSAU, Ukraine; Andrii Shelestov, National University of Life and Environmental Sciences of Ukraine, Ukraine; Bohdan Yailymov, Space Research Institute NASU-SSAU, Ukraine

TH1.Y1.3 09:00 **CLASSIFICATION PROBABILITYS OF FLORISTIC SPECIES IN HEATHLAND HABITATS USING HIGH SPATIAL AND TEMPORAL REMOTE SENSING DATA**
Kristin Fenske, Bjoern Waske, Ribana Roscher, Freie Universität Berlin, Germany

TH1.Y1.4 09:20 **OBSERVING VEGETATION DYNAMICS AT MEDIUM SPATIAL SCALE: LESSONS FROM AFRICA AND ASIA**
Olena Dubovyk, University of Bonn, Germany; Tobias Landmann, International Center of Insect Physiology and Ecology (ICIPE), Kenya; Barend Erasmus, University of the Witwatersrand, South Africa; Frank Thonfeld, Jürgen Schellberg, Gunter Menz, University of Bonn, Germany

TH1.Y1.5 09:40 **SENTINEL-1 MULTITEMPORAL SAR PRODUCTS**
Donato Amitrano, University of Napoli Federico II, Italy; Francesca Cecinati, University of Bristol, United Kingdom; Gerardo Di Martino, Antonio Iodice, Daniele Riccio, Giuseppe Ruello, University of Napoli Federico II, Italy

Thursday, July 30 | 10:30 - 12:10 | Yellow 1
Session TH2.Y1 | Oral

Radar Observations of Crops

Session Chair: Liping Di, George Mason University

TH2.Y1.1 10:30 **SENTINEL-1 AND RADARSAT-2 DATA FOR RICE FIELDS MONITORING IN THE MEKONG DELTA, VIETNAM**
Alexandre Bouvet, Thuy Le Toan, Hoa Phan, Ludovic Villard, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Nguyen Lam Dao, Vietnam Academy of Science and Technology, Viet Nam

TH2.Y1.2 10:50 **RETRIEVING RICE PHENOLOGY WITH X-BAND CO-POLAR DATA: A MULTI-INCIDENCE MULTI-YEAR EXPERIMENT**
Juan Manuel López Sánchez, Fernando Vicente-Guijalba, J. David Ballester-Berman, University of Alicante, Spain; Shane R. Cloude, AEL Consultants, United Kingdom

TH2.Y1.3 11:10 **SENSITIVITY OF X-BAND SAR DATA TO CROP STATUS: PEA AND CARROT CASES**
Luigi Dini, Rocchina Guarini, Agenzia Spaziale Italiana (ASI), Italy; Francesco Vuolo, University of Natural Resources and Life Sciences, Austria; Claudia Notarnicola, EURAC Research, Italy

TH2.Y1.4 11:30 **AGRICULTURAL FIELD OBSERVATION BY SPACE AND AIRBORNE POLARIMETRIC L-BAND SAR DATA**
Chinatsu Yonezawa, Tohoku University, Japan; Manabu Watanabe, Japan Aerospace Exploration Agency, Japan

TH2.Y1.5 11:50 **APPLICATIONS OF LAND SURFACE TEMPERATURE FROM MICROWAVE OBSERVATIONS**
Thomas Holmes, U.S. Department of Agriculture /SSAI, United States; Wade Crow, U.S. Department of Agriculture, United States; Christopher Hain, CMNS-Earth System Science Interdisciplinary Center, United States; Martha Anderson, U.S. Department of Agriculture, United States; Richard de Jeu, VU Amsterdam, Netherlands

Thursday, July 30 | 13:30 - 15:10 | Yellow 1
Session TH3.Y1 | Oral

Agricultural Products I

Session Co-Chairs: Heather McNairn, Agriculture and Agri-Food Canada; Kadim Tasdemir, Antalya International University

TH3.Y1.1 13:30 **GENERATING CONTINUOUS INFORMATION PRODUCTS ON LAND USE AND THE INTENSITY OF AGRICULTURAL PRODUCTION FROM HIGH RESOLUTION SATELLITE DATA**
Philipp Klug, Florian Schlenz, Tobias Hank, Ludwig-Maximilian University of Munich, Germany; Silke Migdall, Heike Bach, VISTA GmbH, Germany; Wolfram Mauser, Ludwig-Maximilian University of Munich, Germany

TH3.Y1.2 13:50 **BENCHMARKING OF ALGORITHMS FOR CROP TYPE LAND-COVER MAPS USING SENTINEL-2 IMAGE TIME SERIES**
Jordi Inglada, Marcela Arias, Benjamin Tardy, David Morin, Silvia Valero, Olivier Hagolle, Gérard Dedieu, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Guadalupe Sepulcre, Sophie Bontemps, Pierre Defourny, UCLouvain-Geomatics, Belgium

TH3.Y1.3 14:10 **ENVIRONMENTAL PRODUCTS OVERVIEW OF THE ITALIAN HYPERSPECTRAL PRISMA MISSION: THE SAP4PRISMA PROJECT**
Stefano Pignatti, CNR IMAA, Italy; Nicola Acito, Università di Pisa; Accademia Navale, Livorno, Italy, Italy; Umberto Amato, CNR IAC, Italy; Raffaele Casa, Fabio Castaldi, Università degli Studi della Tuscia, Italy; Rosa Coluzzi, CNR IMAA, Italy; Roberto De Bonis, Università di Roma "La Sapienza", Italy; Marco Diani, Università di Pisa, Italy; Vito Imbrenda, CNR IMAA, Italy; Giovanni Laneve, Università di Roma "La Sapienza", Italy; Stefania Matteoli, Università di Pisa, Italy; Angelo Palombo, Simone Pascucci, Federico Santini, Tiziana Simoniello, CNR IMAA, Italy; Cristina Ananasso, Agenzia Spaziale Italiana (ASI), Italy; Giovanni Corsini, Università di Pisa, Italy; Vincenzo Cuomo, CNR IMAA, Italy

TH3.Y1.4 14:30 **ESTIMATION OF SUNFLOWER YIELD USING MULTI-SPECTRAL SATELLITE DATA (OPTICAL OR RADAR) IN A SIMPLIFIED AGRO-METEOROLOGICAL MODEL**
Rémy Fieuzal, Frédéric Baup, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France

TH3.Y1.5 14:50 **DEVELOPMENT OF FARMLAND DROUGHT ASSESSMENT TOOLS BASED ON THE ASSIMILATION OF REMOTELY SENSED CANOPY BIOPHYSICAL VARIABLES INTO CROP WATER RESPONSE MODELS**
Raffaele Casa, Paolo Cosmo Silvestro, University of Tuscia, Italy; Hao Yang, Beijing Research Center for Information Technology in Agriculture, China; Stefano Pignatti, Simone Pascucci, Consiglio Nazionale delle Ricerche (CNR), Italy; Guijun Yang, Institute of Forest Resource Information Techniques, China

Thursday, July 30 | 15:40 - 17:20 | Yellow 1
Session TH4.Y1 | Oral

Agricultural Products II

Session Co-Chairs: Kadim Tasdemir, Antalya International University; Raffaele Casa, Univ. Tuscia

TH4.Y1.1 15:40 **ANALYIZING UNCERTAINTIES IN SIMULATED CANOPY REFLECTANCE THROUGH EXHAUSTIVE COMPARISON WITH IN-SITU MEASURED OPTICAL PROPERTIES**
Martin Danner, Tobias Hank, Matthias Locherer, Wolfram Mauser, Ludwig-Maximilian University of Munich, Germany

TH4.Y1.2 16:00 **SYSTEMATIC ANALYSIS OF THE LUT-BASED INVERSION OF PROSAIL USING FULL RANGE HYPERSPECTRAL DATA FOR THE RETRIEVAL OF LEAF AREA INDEX IN VIEW OF THE FUTURE ENMAP MISSION**
Matthias Locherer, Tobias Hank, Martin Danner, Wolfram Mauser, Ludwig-Maximilian University of Munich, Germany

TH4.Y1.3 16:20 **A NOVEL METHOD FOR AREA FRAME STRATIFICATION BASED ON GEOSPATIAL CROP PLANTING FREQUENCY DATA LAYERS**
Claire Boryan, Zhengwei Yang, Patrick Willis, United States Department of Agriculture - National Agricultural Statistics Service, United States

TH4.Y1.4 16:40 **SIMULATION OF FIELD-SCALE WINTER WHEAT NITROGEN DYNAMICS USING A REMOTE SENSING SUPPORTED LAND SURFACE MODEL**
Tobias Hank, Ludwig-Maximilian University of Munich, Germany; Heike Bach, VISTA - Remote Sensing in Geosciences GmbH, Germany; Wolfram Mauser, Ludwig-Maximilian University of Munich, Germany

Thursday, July 30 | 08:20 - 10:00 | Yellow 2
Session TH1.Y2 | Oral-Invited

Active/Passive Microwave Remote Sensing of Terrestrial Snow I

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

TH1.Y2.1 08:20 **READING SNOW: A NOTE ON MICROWAVE REMOTE SENSING OF SNOW COVER**
Paolo Pampaloni, National Research Council-Institute of Applied Physics, Italy

TH1.Y2.3 09:00 **STUDY OF THE GRAIN SIZES IN SNOW MICROWAVE SCATTERING AND EMISSION MODELS**
Chuan Xiong, Jiancheng Shi, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China

TH1.Y2.4 09:20 **INTERFEROMETRIC AND POLARIMETRIC METHODS TO DETERMINE SWE, FRESH SNOW DEPTH AND THE ANISOTROPY OF DRY SNOW**
Silvan Leinss, Swiss Federal Institute of Technology, ETH Zurich, Switzerland; Juha Lemmetyinen, Finnish Meteorological Institute, Finland; Andreas Wiesmann, GAMMA Remote Sensing Research and Consulting AG, Switzerland; Irena Hajnsek, German Aerospace Center (DLR), Germany

TH1.Y2.5 09:40 **POTENTIAL OF L-BAND PASSIVE MICROWAVE RADIOMETRY FOR SNOW PARAMETER RETRIEVAL**
Juha Lemmetyinen, Finnish Meteorological Institute, Finland; Mike Schwank, Gamme Remote Sensing AG, Switzerland; Kimmo Rautiainen, Anna Kontu, Tiina Parkkinen, Finnish Meteorological Institute, Finland; Christian Mätzler, Andreas Wiesmann, Urs Wegmüller, Gamma Remote Sensing AG, Switzerland; Chris Derksen, Peter Toose, Environment Canada, Canada; Alexandre Roy, University of Sherbrooke, Canada; Jouni Pulliainen, Finnish Meteorological Institute, Finland

Thursday, July 30 | 10:30 - 12:10 | Yellow 2
Session TH2.Y2 | 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

TH2.Y2.1 10:30 **MICROSTRUCTURE CHARACTERIZATION OF DRY SNOW AND COMPARISONS BETWEEN QCA/DMRT AND BICONTINUOUS/DMRT MODELS**
Leung Tsang, University of Michigan, United States; Wenmo Chang, University of Washington, United States; Kung-Hau Ding, Air Force Wright-patterson Lab, United States; Xiaolan Xu, Jet Propulsion Laboratory, United States; Shurun Tan, University of Michigan, United States

TH2.Y2.2 10:50 **AN OVERVIEW OF THE CURRENT NASA OPERATIONAL AMSR-E/AMSR2 SNOW SCIENCE TEAM ACTIVITIES**
Marco Tedesco, City College of New York, United States; Mattia Sartori, University of Brescia / CCNY, Italy; Jeyavinoth Jeyaratnam, City College of New York, United States

TH2.Y2.3 11:10 **MULTIFREQUENCY MICROWAVE RADIOMETRY OF SNOW ON LAKE ICE: OBSERVATIONS AND SIMULATIONS**
Martti Hallikainen, Aalto University, Finland; Juha Lemmetyinen, Finnish Meteorological Institute, Finland; Matti Vaaja, Jaakko Seppänen, Jaan Praks, Aalto University, Finland

TH2.Y2.4 11:30 **ANALYSIS OF L-BAND BRIGHTNESS TEMPERATURE TIME SERIES AT DOME C - ANTARCTICA**
Giovanni Macelloni, Marco Brogioni, Francesco Montomoli, IFAC-CNR, Italy; Paride Legovini, PNRA, Italy; Tania Casal, European Space Agency, ESTEC, Netherlands

TH2.Y2.5 11:50 **A MICROWAVE SCATTERING MODEL FOR GROUND-BASED REMOTE SENSING OF SNOWFALL AND FREEZING RAIN**
Seda Ermis, The University of Texas at Arlington, United States; Krzysztof Orzel, University of Massachusetts Amherst, United States; Saibun Tjuatja, The University of Texas at Arlington, United States; Stephen Frasier, University of Massachusetts, United States

Thursday, July 30 | 13:30 - 15:10 | Yellow 2
Session TH3.Y2 | Oral-Invited

Multi-sensor Remote Sensing of Snow: An Important Part of the Terrestrial Cryosphere I

Session Co-Chairs: Kari Luojus, Finnish Meteorological Institute; David Small, University of Zurich

TH3.Y2.1 13:30 **REMOTE SENSING OF SEASONAL SNOW COVER AND SNOW ACCUMULATION: COMBINING MULTI-SENSOR OBSERVATIONS OF THE EARTH FOR SNOW MAPPING**
Richard Kelly, University of Waterloo, Canada

TH3.Y2.3 14:10 **GLOBAL MONITORING OF SNOW COVER FOR CLIMATE RESEARCH USING OPTICAL AND MICROWAVE INSTRUMENTS**
Jouni Pulliainen, Kari Luojus, Juha Lemmetyinen, Matias Takala, Kimmo Rautiainen, Finnish Meteorological Institute, Finland; Sari Metsämäki, Finnish Environment Institute, Finland; Jaakko Ikonen, Miia Salminen, Juval Cohen, Finnish Meteorological Institute, Finland

TH3.Y2.4 14:30 **SNOW COVER FROM SATELLITE DATA: VALUABLE INFORMATION FOR CLIMATE RESEARCH**
Stefan Wunderle, Fabia Huesler, University of Bern, Switzerland

TH3.Y2.5 14:50 **DETECTION OF SNOW MELT-OFF USING OPTICAL AND MICROWAVE EARTH OBSERVATION SNOW DATA – A STUDY FOR EUROPE**
Sari Metsämäki, Kristin Böttcher, Finnish Environment Institute, Finland; Jouni Pulliainen, Juval Cohen, Matias Takala, Kari Luojus, Finnish Meteorological Institute, Finland

Thursday, July 30 | 15:40 - 17:20 | Yellow 2
Session TH4.Y2 | Oral-Invited

Multi-sensor Remote Sensing of Snow: An Important Part of the Terrestrial Cryosphere II

Session Co-Chairs: David Small, University of Zurich; Kari Luojus, Finnish Meteorological Institute

TH4.Y2.1 15:40 **A VISION FOR AN INTERNATIONAL MULTI-SENSOR SNOW OBSERVING MISSION**
Edward Kim, NASA Goddard Space Flight Center, United States

TH4.Y2.2 16:00 **COMBINING OPTICAL AND PASSIVE MICROWAVE OBSERVATIONS FOR HEMISPHERIC SNOW COVER MONITORING**
Kari Luojus, Jouni Pulliainen, Matias Takala, Juha Lemmetyinen, Tuomo Smolander, Jaakko Ikonen, Juval Cohen, Finnish Meteorological Institute, Finland; Sari Metsämäki, Finnish Environment Institute, Finland; Chris Derksen, Environment Canada, Canada

TH4.Y2.3 16:20 **MULTISENSOR C- AND X-BAND SAR OBSERVATIONS OF ALPINE SNOW MELT AT HIGH TEMPORAL RESOLUTION**
Small David, University of Zurich, Switzerland; Tobias Jonas, WSL Institute for Snow and Avalanche Research SLF, Switzerland

TH4.Y2.4 16:40 **PREPARATIONS FOR SNOW COVER MONITORING USING SENTINEL-1 SAR AND SENTINEL-3 SLSTR / OLCI DATA**
Thomas Nagler, Gabriele Bippus, Elisabeth Ripper, Helmut Rott, Markus Hetzenecker, Petra Malcher, Ursula Blumthaler, ENVEO Environmental Earth Observation IT GmbH, Austria

TH4.Y2.5 17:00 **POTENTIAL OF X AND C BAND SAR COMBINED WITH OPTICAL DATA FOR SNOW MONITORING IN ITALIAN ALPS**
Simonetta Paloscia, Simone Pettinato, Emanuele Santi, CNR-IFAC, Italy

Thursday, July 30 | 08:20 - 10:00 | Yellow 3
Session TH1.Y3 | Oral

Long Wavelength SAR Interferometry

Session Co-Chairs: Micheal Eineder, German Aerospace Center (DLR); Nazzareno Pierdicca, La Sapienza University

TH1.Y3.1 08:20 **TANDEM-L PERFORMANCE ANALYSIS FOR THREE DIMENSIONAL EARTH DEFORMATION MONITORING**
Homa Ansari, Kanika Goel, Alessandro Parizzi, Francesco De Zan, Nico Adam, Michael Eineder, German Aerospace Center (DLR), Germany

TH1.Y3.2 08:40 **L-BAND MULTISTATIC RADAR INTERFEROMETRY FOR 3D DEFORMATION VECTOR DECOMPOSITION**
Ramon Hanssen, Freek van Leijen, Delft University of Technology, Netherlands; Nazzareno Pierdicca, Sapienza University of Rome, Italy; Nicolas Floury, European Space Agency (ESA), Netherlands; Urs Wegmüller, Gamma Remote Sensing, Switzerland

TH1.Y3.3 09:00 **IMPACT OF TEC GRADIENTS AND HIGHER-ORDER IONOSPHERIC DISTURBANCES ON SPACEBORNE SINGLE-PASS SAR INTERFEROMETRY**
Gerhard Krieger, Francesco De Zan, Paco López-Dekker, Jun Su Kim, Marc Rodriguez-Cassola, Alberto Moreira, German Aerospace Center (DLR), Germany

TH1.Y3.4 09:20 **ESTIMATION OF IONOSPHERIC HEIGHT VARIATIONS DURING AN AURORA EVENT USING MULTIPLE SEMI-FOCUSING LEVELS**
Giorgio Gomba, Francesco De Zan, German Aerospace Center (DLR), Germany

TH1.Y3.5 09:40 **ON OPERATIONAL SPLIT-SPECTRUM PROCESSING FOR INSAR IONOSPHERIC EFFECT CORRECTION**
Heming Liao, Franz Meyer, UAF/GI, United States

Thursday, July 30 | 10:30 - 12:10 | Yellow 3
Session TH2.Y3 | Oral

Interferometric Wide Swath Altimetry

Session Co-Chairs: Bertrand Chapron, IFREMER; Ronald Romeier, University of Miami

TH2.Y3.1 10:30 **SWOT HR WATER HEIGHT RESTITUTION WITHOUT CONTROL POINTS**
Damien Desroches, Roger Fjørtoft, Jean-Marc Gaudin, Nadine Pourthié, Didier Massonnet, Centre National d'Etudes Spatiales, France; Javier Duro, Altamira-Information, Spain

TH2.Y3.2 10:50 **DUAL BEAM ALONG-TRACK INTERFEROMETIC SAR TO MAP TOTAL OCEAN SURFACE CURRENT VECTORS WITH THE AIRBORNE WAVEMILL PROOF-OF-CONCEPT INSTRUMENT: IMPACT OF WIND-WAVES**
Adrien Martin, Christine Gommenginger, National Oceanography Center, United Kingdom; Bertrand Chapron, IFREMER, France; José Marquez, Starlab, Spain; Sam Doody, Airbus Defence and Space, United Kingdom; David Cotton, Satoc, United Kingdom; Chris Buck, European Space Agency, ESTEC, Netherlands

TH2.Y3.3 11:10 **SIMULATION OF NEAR-NADIR BISTATIC INSAR DATA IN KA-BAND FOR THE SWOT MISSION**
François Soulat, Collecte Localisation Satellites, France; Javier Duro, Altamira-Information, Spain; Roger Fjørtoft, CNES, France; Pierre Dubois, Collecte Localisation Satellites, France; Xavier Banqué, Roberto Robledo, Altamira-Information, Spain; Damien Desroches, Jean-Marc Gaudin, Nadine Pourthié, Denis Carbonne, Nicolas Picot, CNES, France

TH2.Y3.4 11:30 **PROCESSING ISSUES FOR VERY LOW INCIDENT ANGLE SYNTHETIC APERTURE INTERFEROMETRIC SPACE-BORNE RADAR**
Hubert Cantalloube, Helene Oriot, ONERA, France; Roger Fjørtoft, CNES, France

TH2.Y3.5 11:50 **OCEAN CURRENT FIELDS FROM TANDEM-X ALONG-TRACK INTERFEROMETRY**
Roland Romeiser, University of Miami, United States

Thursday, July 30 | 13:30 - 15:10 | Yellow 3
Session TH3.Y3 | Oral

InSAR and Topographic Methods

Session Co-Chairs: Pau Prats, German Aerospace Center (DLR); Fabio Rocca, Politecnico di Milano

TH3.Y3.1 13:30 **MONITORING FROZEN DEBRIS LOBES IN NORTHERN ALASKA USING SATELLITE RADAR INTERFEROMETRY**
Wenyu Gong, Franz Meyer, Geophysical Institute, United States; Margaret Darrow, Mining and Geological Engineering, United States; Ronald Daanen, Department of Natural Resources, United States

TH3.Y3.2 13:50 **REPEAT-PASS INTERFEROMETRIC EXPERIMENTS WITH THE TANDEM-X CONSTELLATION FOR ACCURATE ALONG-TRACK MOTION ESTIMATION**
Pau Prats-Iraola, Marc Rodriguez-Cassola, Nestor Yague-Martinez, Paco López-Dekker, Rolf Scheiber, Francesco De Zan, Thomas Kraus, Steffen Wollstadt, German Aerospace Center (DLR), Germany

TH3.Y3.3 14:10 **REGION GROWING BASED NONLOCAL FILTERING FOR INSAR**
Gerald Baier, German Aerospace Center (DLR), Germany; Xiao Xiang Zhu, German Aerospace Center (DLR) / Technische Universität München, Germany

TH3.Y3.4 14:30 **TEXTURE-FREE ABSOLUTE DEM RETRIEVAL FROM OPPOSITE-SIDE MULTI-BASELINE INSAR DATA**
Francesco Banda, Stefano Tebaldini, Politecnico di Milano, Italy

TH3.Y3.5 14:50 **ESTIMATING A PRELIMINARY TERRAIN MODEL FROM THE X-BAND INSAR AND THE RVOG MODEL**
Gustavo Hiroshi Xavier Shiroma, Karlus Alexander Camara de Macedo, Bradar, Brazil

Thursday, July 30 | 15:40 - 17:20 | Yellow 3
Session TH4.Y3 | Oral

D-InSAR Performance

Session Co-Chairs: Gianfranco Fornaro, IREA; Diego Reale, IREA

TH4.Y3.1 15:40 **IMPROVING DEFORMATION AND DISPLACEMENT MEASUREMENTS THROUGH INTEGRATED USE OF GB-SAR, COSMO-SKYMED, TERRASAR-X AND RADARSAT-2**
Arpik Hakobyan, Peter McGuire, C-CORE, MUN, Canada; Desmond Power, Thomas Puestow, Cecilia Moloney, Guido Luzi, C-CORE, Canada; Oriol Monserrat, CTTC, Spain; Pietro Guccione, Politecnico Di Bari, Italy

TH4.Y3.2 16:00 **COMPARISON OF SMALL BASELINE INTERFEROMETRY MODULES IN GROUND DEFORMATION MONITORING**
Wenyu Gong, Antje Thiele, Geophysical Institute, United States; Stefan Hinz, Institute of Photogrammetry and Remote Sensing, Germany; Franz Meyer, Geophysical Institute, United States; Andrew Hooper, School of Earth and Environment, United Kingdom; Piyush Agram, California Institute of Technology, United States

TH4.Y3.3 16:20 **IMPROVING WATER RESOURCES MANAGEMENT USING INSAR**
Howard Zebker, Jingyi Chen, Rosemary Knight, Stanford University, United States

TH4.Y3.4 16:40 **THE IMPACT OF GROUND-BASED UNCORRELATED RADIO FREQUENCY INTERFERENCE (RFI) SOURCES ON SATELLITE RADAR INTERFEROMETRIC GROUND MOTION ANALYSIS**
Freek van Leijen, Delft University of Technology, Netherlands; Björn Rommen, Malcolm Davidson, European Space Agency (ESA), Netherlands; Ramon Hanssen, Delft University of Technology, Netherlands

TH4.Y3.5 17:00 **HIGH-PERFORMANCE PARALLEL COMPUTATION OF THE MULTICHANNEL PHASE UNWRAPPING PROBLEM**
Pasquale Imperatore, Antonio Pepe, Riccardo Lanari, Institute for Electromagnetic Sensing of the Environment (CNR IREA), Italy

Thursday, July 30 | 08:20 - 10:00 | Blue 1

Session TH1.B1 | Oral-Invited

Space Lidar: Missions, Technologies and Observations I

Session Co-Chairs: Upendra Singh, NASA Langley Research Center; Georgios Tzeremes, European Space Agency (ESTEC)

TH1.B1.1 08:20 **GLOBAL ECOSYSTEM DYNAMICS INVESTIGATION (GEDI) LIDAR FOR MAPPING THE VERTICAL STRUCTURE OF VEGETATION FROM THE INTERNATIONAL SPACE STATION**
Bryan Blair, NASA Goddard Space Flight Center, United States; Ralph Dubayah, University of Maryland, United States

TH1.B1.3 09:00 **ADVANCEMENTS IN DIRECT AND COHERENT WIND LIDAR FOR SPACE-BASED MEASUREMENTS OF GLOBAL WINDS**
Michael Hardesty, University of Colorado/NOAA, United States

TH1.B1.4 09:20 **LATEST DEVELOPMENTS IN ESA DETECTORS FOR SPACE-BORNE LIDARS**
Kyriaki Minoglou, Georgios Tzeremes, Nicholas Nelms, European Space Agency (ESA), Netherlands

TH1.B1.5 09:40 **DESIGN AND DEVELOPMENT RULES FOR A SPACE HIGH ENERGY, SINGLE LONGITUDINAL AND QUASI SINGLE TRANSVERSE MODE ALL SOLID STATE LASER**
Alberto Cosentino, Alessandro D'Ottavi, Adalberto Sapia, Enrico Suetta, SELEX ELECTRONIC SYSTEMS, Italy

Thursday, July 30 | 10:30 - 12:10 | Blue 1

Session TH2.B1 | Oral-Invited

Space Lidar: Missions, Technologies and Observations II

Session Co-Chairs: Georgios Tzeremes, European Space Agency (ESTEC); Upendra Singh, NASA Langley Research Center

TH2.B1.1 10:30 **KEY TECHNOLOGY CHALLENGES FOR SPACEBORNE ACTIVE OPTICAL SENSING OF EARTH SCIENCE MEASUREMENTS**
George Komar, Pamela Millar, Parminder Ghuman, Keith Murray, NASA, United States

TH2.B1.2 10:50 **LOREY'S HEIGHT REGRESSION FOR ICESAT-GLAS WAVEFORMS IN HYRCANIAN DECIDUOUS FORESTS OF IRAN**
Manizheh Rajab Pourrahmati, University of Tehran / University of Montpellier2, Iran; Nicolas Baghdadi, IRSTEA, UMR TETIS, France; Ali Asghar Darvishsefat, Manouchehr Namiranian, University of Tehran, Iran; Valéry Gond, CIRAD, UPR B&SEF, France; Jean-Stéphane Bailly, AgroParisTech, UMR LISAH, France

TH2.B1.3 11:10 **SPACE LASER COMPONENTS RELIABILITY**
Wolfgang Riede, Helmut Schroeder, German Aerospace Center (DLR), Germany

TH2.B1.4 11:30 **REGIONAL SCALE RAIN-FOREST HEIGHT MAPPING USING REGRESSION-KRIGING OF SPACEBORNE AND AIRBORNE LIDAR DATA: APPLICATION ON FRENCH GUIANA**
Ibrahim Fayad, Nicolas Baghdadi, IRSTEA, France; Jean-Stéphane Bailly, AgroParisTech, France; Nicolas Barbier, IRD, France; Valéry Gond, CIRAD, France; Bruno Hérault, INRA, France; Mahmoud El Hajj, NOVELTIS, France; Jeremie Lochard, Airbus Defence and Space, France; Jose Perrin, BRGM, France

TH2.B1.5 11:50 **SPACE LASER STABILITY AND MODELLING**
Gianluca Galzerano, Nicola Coluccelli, Paolo Laporta, Politecnico di Milano, Italy

Thursday, July 30 | 13:30 - 15:10 | Blue 1

Session TH3.B1 | Oral-Invited

ALOS-2/PALSAR-2 Calval and Science I

Session Co-Chairs: Masanobu Shimada, Japan Aerospace Exploration Agency; Yukihiro Kankaku, Japan Aerospace Exploration Agency

TH3.B1.1 13:30 **CALIBRATION AND VALIDATION OF THE PALSAR-2**
Masanobu Shimada, Manabu Watanabe, Takeshi Motooka, Yukihiro Kankaku, Shinichi Suzuki, Japan Aerospace Exploration Agency, Japan

TH3.B1.3 14:10 **CALIBRATION AND VALIDATION OF POLARIMETRIC ALOS2**
Ridha Touzi, CCRS, Canada; Masanobu Shimada, Japan Aerospace Exploration Agency, Japan

TH3.B1.4 14:30 **ALOS-2 PRELIMINARY CALIBRATION ASSESSMENT**
Mario Azcueta, Mauro Mariotti d'Alessandro, Tomas Zajc, Nicolas Grunfeld, Marc Thibeault, Comisión Nacional de Actividades Espaciales, Argentina

TH3.B1.5 14:50 **STUDY OF DEFORMATION USING ALOS-2/PALSAR-2**
Manabu Hashimoto, Kyoto University, Japan

Thursday, July 30 | 15:40 - 17:20 | Blue 1

Session TH4.B1 | Oral-Invited

ALOS-2/PALSAR-2 Calval and Science II

Session Co-Chairs: Masanobu Shimada, Japan Aerospace Exploration Agency; Yukihiro Kankaku, Japan Aerospace Exploration Agency

TH4.B1.1 15:40 **ALOS-2 FIRST YEAR OPERATION RESULT**
Yukihiro Kankaku, Shinichi Suzuki, Masanobu Shimada, Japan Aerospace Exploration Agency, Japan

TH4.B1.2 16:00 **GEOMETRIC AND INTERFEROMETRIC CALVAL OF ALOS-2 PALSAR ALONG THE SAN ANDREAS FAULT SYSTEM**
David Sandwell, Xiaohua Xu, University of California, San Diego, United States

TH4.B1.3 16:20 **CALIBRATION OF POL-INSAR ALOS-2 DATA: ANALYSIS AND RESULTS FROM THE CAL-VAL PHASE**
Konstantinos Papathanassiou, Jun Su Kim, German Aerospace Center (DLR), Germany

TH4.B1.4 16:40 **EVALUATION OF COMPACT POLARIMETRY AND ALONG TRACK INTERFEROMETRY AS EXPERIMENTAL MODE OF PALSAR-2**
Yuya Yokota, Shohei Nakamura, Jun Endo, Kei Suwa, Tsutomu Endo, Masao Tsuji, Kenichi Hariu, Mitsubishi Electric, Japan; Yukihiro Kankaku, Shinichi Suzuki, Masanobu Shimada, Japan Aerospace Exploration Agency, Japan

TH4.B1.5 17:00 **LANDSLIDE MONITORING USING ALOS-1 AND 2 DATA**
Motofumi Arii, Mitsubishi Electric Co., Ltd., Japan; Takeshi Nishimura, Mitsubishi Space Software Co., Ltd., Japan

Thursday, July 30 08:20 - 10:00 Blue 2
Session TH1.B2 Oral

Analysis of Multitemporal SAR Images

Session Co-Chairs: Lorenzo Bruzzone, University of Trento; Florence Tupin, Télécom ParisTech

TH1.B2.1 08:20 **GIS BASED GROUND MOVING TARGET INDICATION IN TIME SERIES OF SAR AMPLITUDE IMAGES**
Markus Boldt, Fraunhofer IOSB, Germany; Antje Thiele, Fraunhofer IOSB / Karlsruhe Institute of Technology KIT, Germany; Karsten Schulz, Fraunhofer IOSB, Germany; Stefan Hinz, Karlsruhe Institute of Technology, Germany

TH1.B2.2 08:40 **AN ANALYSIS OF THE CAPABILITIES OF COSMO-SKYMED AND RADARSAT SYSTEMS FOR AGRICULTURAL AREA MONITORING**
Simonetta Paloscia, Simone Pettinato, Emanuele Santi, CNR-IFAC, Italy; Claudia Notarnicola, Felix Greifeneder, Giovanni Cuozzo, EURAC, Italy; I. Nicolini, Begüm Demir, Lorenzo Bruzzone, University of Trento, Italy

TH1.B2.3 09:00 **CO-POLAR SAR DATA CLASSIFICATION AS A TOOL FOR REAL TIME PADDY-RICE MONITORING**
Çaglar Küçük, Gülsen Taskin Kaya, Esra Erten, Istanbul Technical University, Turkey

TH1.B2.4 09:20 **CHANGE ANALYSIS USING MULTITEMPORAL SENTINEL-1 SAR IMAGES**
Thu Trang Le, Abdourrahmane M. Atto, Emmanuel Trouvé, University Savoie Mont Blanc, France

TH1.B2.5 09:40 **DISTRIBUTED SAR IMAGE CHANGE DETECTION BASED ON SPARK**
Huming Zhu, Yuqi Guo, Mingwei Niu, Guodong Yang, Licheng Jiao, Xidian University, China

Thursday, July 30 10:30 - 12:10 Blue 2
Session TH2.B2 Oral

Change Detection Techniques for Multispectral and Hyperspectral Images

Session Co-Chairs: Francesca Bovolo, University of Trento; Gabriele Moser, University of Genoa

TH2.B2.1 10:30 **MULTITEMPORAL BURNT AREA MAPPING USING LANDSAT 8: MERGING MULTIPLE BURNT AREA INDICES TO HIGHLIGHT BURNT AREAS**
Lufuno Vhengani, Philip Frost, Cheewai Lai, Ndumiso Booi, Riaan van den Dool, Werner Raath, Council For Scientific and Industrial Research, South Africa

TH2.B2.2 10:50 **SEMANTIC INTERPRETATION OF MULTI-LEVEL CHANGE DETECTION IN MULTI-TEMPORAL SATELLITE IMAGES**
Anamaria Radoi, University Politehnica of Bucharest, Romania; Radu Tanase, Technical Military Academy, Romania; Mihai Datcu, German Aerospace Center (DLR), Germany

TH2.B2.3 11:10 **NEW INSIGHTS AND PRACTICAL CONSIDERATIONS IN HYPERSPECTRAL CHANGE DETECTION**
Michael Pieper, Dimitris Manolakis, MIT Lincoln Laboratory, United States; Thomas Cooley, Air Force Research Laboratory, United States; Michael Brueggeman, Andrew Weisner, John Jacobson, National Air and Space Intelligence Center, United States

TH2.B2.4 11:30 **MULTITEMPORAL SPECTRAL UNMIXING FOR CHANGE DETECTION IN HYPERSPECTRAL IMAGES**
Sicong Liu, Lorenzo Bruzzone, University of Trento, Italy; Francesca Bovolo, Fondazione Bruno Kessler, Italy; Peijun Du, Nanjing University, China

TH2.B2.5 11:50 **SPARSE UNMIXING FOR HYPERSPECTRAL CHANGE DETECTION**
Alp Ertürk, Antonio Plaza, University of Extremadura, Spain

Thursday, July 30 13:30 - 15:10 Blue 2
Session TH3.B2 Oral-Invited

IEEE GRSS Data Fusion Contest

Session Co-Chairs: Devis Tuia, University of Zurich; Michal Shimoni, Belgian Royal Military Academy

TH3.B2.1 13:30 **EXTREMELY HIGH RESOLUTION LIDAR AND OPTICAL DATA: A DATA FUSION CHALLENGE**
Gabriele Moser, University of Genoa, Italy; Devis Tuia, University of Zurich, Switzerland; Michal Shimoni, Belgian Royal Military Academy, Belgium

TH3.B2.2 13:50 **SHARED FEATURE REPRESENTATIONS OF LIDAR AND OPTICAL IMAGES: TRADING SPARSITY FOR SEMANTIC DISCRIMINATION**
Manuel Campos-Taberner, Universitat de València, Spain; Adriana Romero, Universitat de Barcelona, Spain; Carlo Gatta, Universitat Autònoma de Barcelona, Spain; Gustau Camps-Valls, Universitat de València, Spain

TH3.B2.3 14:10 **BENCHMARKING CLASSIFICATION OF EARTH-OBSERVATION DATA: FROM LEARNING EXPLICIT FEATURES TO CONVOLUTIONAL NETWORKS**
Adrien Lagrange, Bertrand Le Saux, Anne Beaupère, Alexandre Boulch, Adrien Chan Hon Tong, Stéphane Herbin, Hicham Randrianarivo, ONERA, France; Marin Ferecatu, CNAM, France

TH3.B2.4 14:30 **AERIAL LASER SCANNING AND IMAGERY DATA FUSION FOR ROAD DETECTION IN CITY SCALE**
Anh-Vu Vo, Linh Truong-Hong, Debra F. Laefer, University College Dublin, Ireland

TH3.B2.5 14:50 **GEOSPATIAL 2D AND 3D OBJECT-BASED CLASSIFICATION AND 3D RECONSTRUCTION OF ISO-CONTAINERS DEPICTED IN A LIDAR DATA SET AND AERIAL IMAGERY OF A HARBOR**
Dirk Tiede, Sebastian D'oleire-Oltmanns, Andrea Baraldi, University of Salzburg, Austria

Thursday, July 30 15:40 - 17:20 Blue 2
Session TH4.B2 Oral-Invited

Sentinel-2 Mission Status and Preparation for Mission Exploitation I

Session Co-Chairs: Bianca Hoersch, European Space Agency; Olivier Arino, European Space Agency

TH4.B2.1 15:40 **SENTINEL-2: OPTICAL HIGH-RESOLUTION MISSION FOR COPERNICUS OPERATIONAL SERVICES**
Bianca Hörsch, European Space Agency, ESRIN, Italy; Francois Spoto, Philippe Martimort, European Space Agency, ESTEC, Netherlands; Olivier Colin, Ferran Gascon, European Space Agency, ESRIN, Italy

TH4.B2.2 16:00 **PROTOTYPE SENTINEL 2 PRODUCTS FROM THE COPERNICUS GLOBAL LAND SERVICE**
A. Belward, M. Cherlet, A. Brink, Z. Szantoi, Jean-Francois Pekel, A. Cottam, European Commission, Joint Research Centre, Institute for Environment and Sustainability, Italy; N. Gorelick, Google Earth Engine Team, United States

TH4.B2.3 16:20 **"SENTINEL-2 FOR AGRICULTURE": SUPPORTING GLOBAL AGRICULTURE MONITORING**
Sophie Bontemps, UCLouvain-Geomatics, Belgium; Marcela Arias, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Cosmin Cara, CS Romania SA, Romania; Gérard Dedieu, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Eric Guzzonato, CS Systèmes d'Information, France; Olivier Hagolle, Jordi Inglada, David Morin, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Thierry Rabaute, Mickael Savinaud, CS Systèmes d'Information, France; Guadalupe Sepulcre, UCLouvain-Geomatics, Belgium; Silvia Valero, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Pierre Defourny, UCLouvain-Geomatics, Belgium; Benjamin Koetz, European Space Agency, ESRIN, Italy

TH4.B2.4 16:40 **A DECAMETRIC LAND COVER MAP OVER AFRICA USING SENTINEL-2 – THE ESA CLIMATE CHANGE INITIATIVE LAND COVER PROJECT**
Pierre Defourny, UCLouvain-Geomatics, Belgium; Martin Boettcher, Brockmann-Consult GmbH, Germany; Sophie Bontemps, UCLouvain-Geomatics, Belgium; Carsten Brockmann, Brockmann-Consult GmbH, Germany; Thomas De Maet, UCLouvain-Geomatics, Belgium; Grit Kirches, Brockmann-Consult GmbH, Germany; Céline Lamarche, Eric Van Bogaert, UCLouvain-Geomatics, Belgium; Fabrizio Ramoino, Olivier Arino, European Space Agency, ESRIN, Italy

TH4.B2.5 17:00 **SIMULATION OF SENTINEL-2 TIME SERIES WITH SPOT (TAKE5) EXPERIMENTS**
Olivier Hagolle, S. Sylvander, M. Huc, Gérard Dedieu, CESBIO - CNES - CNRS, France; Bianca Hoersch, Benjamin Koetz, Olivier Arino, European Space Agency, ESRIN, Italy

Thursday, July 30 08:20 - 10:00 Red 1

Session TH1.R1 Oral-Invited

The European Space Agency Earth Explorer Science Missions I

Session Co-Chairs: Maurice Borgeaud, European Space Agency; Henri Laur, European Space Agency

TH1.R1.1 08:20 **STATUS OF THE ESA EARTH EXPLORER MISSIONS AND THE NEW ESA EARTH OBSERVATION SCIENCE STRATEGY**
Maurice Borgeaud, Mark Drinkwater, Pierluigi Silvestrin, Michael Rast, European Space Agency (ESA), Italy

TH1.R1.3 09:00 **GOCE: THE MISSION, THE SCIENCE, THE RESULTS**
Fernando Sanso', Mirko Reguzzoni, Politecnico di Milano, Italy

TH1.R1.4 09:20 **SMOS AFTER FIVE YEARS IN OPERATIONS: FROM TENTATIVE REASERCH TO OPERATIONAL APPLICATIONS**
Yann Kerr, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Susanne Mecklenburg, Steven Delwart, European Space Agency, ESRIN, Italy; Matthias Drusch, European Space Agency, ESTEC, Netherlands; Paolo Ferrazzoli, Tor Vergata University of Rome, Italy; Jordi Font, ICM-CSIC, Spain; Achim Hahne, European Space Agency (ESA), Germany; Ali Mahmoodi, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Nicolas Reul, IFREMER, France; Philippe Richaume, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Philippe Waldteufel, Jean-Pierre Wigneron, LATMOS, France

TH1.R1.5 09:40 **CRYOSAT: ESA'S ICE EXPLORER MISSION. 5 YEARS IN OPERATIONS: STATUS AND ACHIEVEMENTS**
Tommaso Parrinello, European Space Agency (ESA), Italy; Andrew Shepherd, University of Leeds, United Kingdom

Thursday, July 30 10:30 - 12:10 Red 1

Session TH2.R1 Oral-Invited

The European Space Agency Earth Explorer Science Missions II

Session Co-Chairs: Maurice Borgeaud, European Space Agency; Henri Laur, European Space Agency

TH2.R1.1 10:30 **THE AEOLUS MISSION ON ATMOSPHERIC DYNAMICS**
Ad Stoffelen, KNMI, Netherlands; Maurice Borgeaud, European Space Agency (ESA), Italy

TH2.R1.2 10:50 **THE EARTHCARE SATELLITE: THE NEXT STEP FORWARD IN GLOBAL MEASUREMENTS OF CLOUDS, AEROSOLS, PRECIPITATION AND RADIATION.**
Anthony Illingworth, University of Reading, United Kingdom

TH2.R1.3 11:10 **THE BIOMASS MISSION: A STEP FORWARD IN QUANTIFYING THE EARTH'S CARBON BALANCE**
Shaun Quegan, University of Sheffield, United Kingdom; Thuy Le Toan, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France

TH2.R1.4 11:30 **FOREST BIOMASS RETRIEVAL FROM BIOSAR 2010 P-BAND SAR DATA USING A REGRESSION-BASED MODEL**
Erik Blomberg, Maciej J. Soja, Lars M. H. Ulander, Chalmers University of Technology, Sweden

TH2.R1.5 11:50 **THE ESA EXPERIENCE WITH THE EXPLOITATION PHASE OF EARTH EXPLORER MISSIONS**
Henri Laur, Rune Floberghagen, Susanne Mecklenburg, Tommaso Parrinello, European Space Agency (ESA), Italy

Thursday, July 30 13:30 - 15:10 Red 1

Session TH3.R1 Oral-Invited

Earth Remote Sensing with Small Satellites I

Session Co-Chairs: Boon Lim, NASA Jet Propulsion Laboratory; William Blackwell, MIT Lincoln Laboratory

TH3.R1.1 13:30 **THE RISE OF SMALL SATELLITE MISSIONS**
Boon H. Lim, Jet Propulsion Laboratory, United States

TH3.R1.3 14:10 **THE MICROMAS AND MIRATA CUBESAT RADIOMETER PAYLOADS**
William Blackwell, MIT Lincoln Laboratory, United States

TH3.R1.4 14:30 **MICROWAVE ATMOSPHERIC SOUNDER ON A 6U CUBESAT**
Sharmila Padmanabhan, Shannon T. Brown, Pekka Kangaslahti, Damon Russell, Dan Hoppe, Richard Cofield, Robert Stachnik, Boon H. Lim, Jet Propulsion Laboratory, United States

TH3.R1.5 14:50 **HIGH RESOLUTION PASSIVE MICROWAVE CUBESATS FOR ACHIEVNG PATH MISSION GOALS**
Albin J. Gasiewski, Brian Sanders, David Gallaher, Glenda Alvarenga, Lavanya Periasamy, Brendan Hogan, David Kraft, Jacob Broadway, Ron Weaver, Ted Scambos, University of Colorado, United States

Thursday, July 30 15:40 - 17:20 Red 1

Session TH4.R1 Oral-Invited

Earth Remote Sensing with Small Satellites II

Session Co-Chairs: Boon Lim, NASA Jet Propulsion Laboratory; William Blackwell, MIT Lincoln Laboratory

TH4.R1.1 15:40 **CYGNSS MISSION OVERVIEW AND IMPLEMENTATION UPDATE**
Randall Rose, Southwest Research Institute, United States; Christopher S. Ruf, University of Michigan, United States; Keith Smith, Debra Rose, Southwest Research Institute, United States

TH4.R1.2 16:00 **DESIGN AND DEVELOPMENT OF COWVR: ENABLING LOW-COST CONICALLY IMAGING MICROWAVE RADIOMETERS FOR ENVIRONMENTAL MONITORING ON SMALL SATELLITES**
Shannon T. Brown, Paolo Focardi, Amarit Kitiyakara, Kevin Knarr, Frank Maiwald, Lance Milligan, Oliver Montes, Sharmila Padmanabhan, Richard Redick, Damon Russell, Jet Propulsion Laboratory, United States

TH4.R1.3 16:20 **RESULTS OF DEVELOPMENT AND OPERATION OF HODOYOSHI TYPE MICROSATELLITES FOR REMOTE SENSING**
Korehiro Maeda, Shinichi Nakasuka, The University of Tokyo, Japan

TH4.R1.4 16:40 **UNDERSTANDING THE PROCESSES GOVERNING STRATOSPHERE-TROPOSPHERE EXCHANGE WITH A CONSTELLATION OF SOLAR OCCULATION INSTRUMENTS**
Scott Bailey, Virginia Tech, United States; Richard Bevilacqua, Michael Fromm, Naval Research Laboratory, United States; Larry Gordley, GATS Inc., United States; Chad Fish, Astra Inc., United States

TH4.R1.5 17:00 **THE ROLE OF LARGE CONSTELLATIONS OF SMALL SATELLITES IN EMERGENCY RESPONSE SITUATIONS**
Oesa Weaver, John Kerekes, Rochester Institute of Technology, United States

Thursday, July 30 | 08:20 - 10:00 | Red 2
Session TH1.R2 | Oral-Invited

Richard K. Moore Memorial Session on Ocean, Ice and ScanSAR I

Session Co-Chairs: Prasad Gogineni, University of Kansas; David Braaten, University of Kansas

TH1.R2.1 08:20 **ULTRA-WIDEBAND RADARS FOR MEASUREMENTS OVER ICE AND SNOW**
Sivaprasad Gogineni, Jie-Bang Yan, Daniel Gomez-Garcia, Fernando Rodriguez-Morales, Carl Leuschen, Zongbo Wang, John Paden, Richard Hale, Emily Arnold, David Braaten, University of Kansas, United States

TH1.R2.3 09:00 **EARLY DAYS OF MICROWAVE SCATTEROMETRY: RADSCAT TO SASS**
W. Linwood Jones, Central Florida Remote Sensing Lab, United States

TH1.R2.4 09:20 **QUAD-POLARIZED SAR MEASUREMENTS OF OCEAN CURRENTS IN C- AND L-BANDS**
Vladimir Kudryavtsev, Igor Kozlov, Russian State Hydrometeorological University, Russian Federation; Bertrand Chapron, Institute Francais de Recherche pour l'Exploitation de la Mer, France; Johnny Johannessen, Nansen Environmental and Remote Sensing Center, Norway

TH1.R2.5 09:40 **STUDIES OF THE EFFECT OF RAIN ON SEA SURFACE BRIGHTNESS TEMPERATURE AT C-BAND**
David Weissman, Hofstra University, United States; Vladimir Irisov, Environmental Research Laboratories/NOAA, United States; William J. Plant, University of Washington, United States

Thursday, July 30 | 10:30 - 12:10 | Red 2
Session TH2.R2 | Oral-Invited

Richard K. Moore Memorial Session on Ocean, Ice and ScanSAR II

Session Co-Chairs: Prasad Gogineni, University of Kansas; David Braaten, University of Kansas

TH2.R2.1 10:30 **CHARACTERIZING STRATIFORM AND CONVECTIVE PRECIPITATION FOR CORRECTING RADAR BACKSCATTER FROM THE OCEAN**
David Braaten, Bhaskar Natarajakumar, Vivek Kurisunkal, University of Kansas, United States

TH2.R2.2 10:50 **ACTIVE MICROWAVE REMOTE SENSING IN ESA, FROM RESEARCH TO OPERATIONAL SERVICES**
Paul Snoeij, Evert Attema, European Space Agency (ESA), Netherlands

TH2.R2.3 11:10 **SCATTEROMETER AND RISAT-1: ISRO'S CONTRIBUTION TO RADAR REMOTE SENSING**
Tapan Misra, Space Applications Centre (ISRO), India; A. S. Kirankumar, ISRO Head Quarter, India

TH2.R2.4 11:30 **SCANSAR AND SWEEPSAR PERFORMANCE IN NEXT GENERATION EARTH SCIENCE MISSIONS**
Paul Rosen, Scott Hensley, Scott Shaffer, Louise Veilleux, Jet Propulsion Laboratory, United States; Manab Chakraborty, Tapan Misra, Rakesh Bhan, Indian Space Research Organisation, India

TH2.R2.5 11:50 **FEATURES OF OCEAN WAVE SPECTRA IN THE WAVENUMBER-FREQUENCY PLANE**
William J. Plant, Gordon Farquharson, University of Washington, United States

Thursday, July 30 | 13:30 - 15:10 | Red 2
Session TH3.R2 | Oral

Analysis of Image Time Series

Session Co-Chairs: Francesca Bovolo, University of Trento; Florence Tupin, Télécom ParisTech

TH3.R2.1 13:30 **CHARACTERISING THE LONG TERM BEHAVIOUR OF SURFACE WATER ACROSS A CONTINENT FROM THE LANDSAT ARCHIVE**
Norman Mueller, Leo Lymburner, Shane Crossman, Geoscience Australia, Australia

TH3.R2.2 13:50 **SEASONAL METRICS AND ANOMALY DETECTION BASED ON SPOT-VEGETATION ARCHIVE IN EUROPE**
Julien Radoux, Corentin Rousseau, Céline Lamarche, Thomas De Maet, Pierre Defourny, Université catholique de Louvain, Belgium

TH3.R2.3 14:10 **SNOW COVER ANOMALIES FROM 2000 TO 2014: HIGHLIGHT OF TWO EXCEPTIONAL YEARS OVER EUROPE**
Corentin Rousseau, Julien Radoux, Thomas De Maet, Céline Lamarche, Pierre Defourny, Université catholique de Louvain, Belgium

TH3.R2.4 14:30 **MULTI-SEASONAL SPECTRAL MIXTURE ANALYSIS USING LANDSAT DATA FOR MAPPING URBAN LAND COVER IN OUAGADOUGOU, BURKINA FASO**
Franz Schug, Sebastian van der Linden, Jonas Østergaard Nielsen, Akpona Okujeni, Humboldt-Universität zu Berlin, Germany

TH3.R2.5 14:50 **ROAD DAMAGE DETECTION FROM VHR REMOTE SENSING IMAGES BASED ON MULTISCALE TEXTURE ANALYSIS AND DEMPSTER SHAFER THEORY**
Moslem Ouled Sghaier, Richard Lepage, École de technologie supérieure, Canada

Thursday, July 30 | 15:40 - 17:20 | Red 2
Session TH4.R2 | Oral

Analysis of Multitemporal Images IV

Session Co-Chairs: Gregoire Mercier, Télécom Bretagne; Jun Li, Sun-Yat Sen University

TH4.R2.1 15:40 **MULTI-TEMPORAL HYPERSPECTRAL DATA CLASSIFICATION WITHOUT EXPLICIT REFLECTANCE CORRECTION**
Nathalie Gorretta, Xavier Hadoux, Sylvain Jay, IRSTEA, France

TH4.R2.2 16:00 **PRECISE CO-REGISTRATION OF VERY HIGH RESOLUTION OPTICAL IMAGES BY REGISTRATION-NOISE ESTIMATION**
Youkyung Han, Francesca Bovolo, Fondazione Bruno Kessler, Italy; Lorenzo Bruzzone, University of Trento, Italy

TH4.R2.3 16:20 **ANALYSIS OF BINARY LAND COVER CHANGE DETECTION METHODS USING OPTICAL AND RADAR DATA**
Mariane Souza Reis, Sidnei João Siqueira Sant'Anna, Brazilian National Institute for Space Research - INPE, Brazil

TH4.R2.4 16:40 **ASSESSING WOODY VEGETATION COVER DYNAMICS IN THE KRUGER NATIONAL PARK, SOUTH AFRICA: LINKING HISTORICAL AERIAL PHOTOGRAPHS AND SPOT IMAGERY**
Christopher Munyati, North-West University, South Africa; Ndidzulafhi I. Sinthumule, University of Venda, South Africa

TH4.R2.5 17:00 **DETECTION OF LANDSLIDES DUE TO THE 2013 THYPOON WIPHA FROM HIGH-RESOLUTION AIRBORNE SAR IMAGES**
Wen Liu, Fumio Yamazaki, Chiba University, Japan

Object Detection in Optical Images

Session Co-Chairs: José A. Sobrino, University of Valencia; Marco Chini, Lippmann

FR1.W1.1 08:20 **AUTOMATIC DETECTION OF CLOUDS IN MULTISPECTRAL IMAGES SUBJECTED TO INTERCHANNEL PARALLAX**
Victor Eremeev, Andrei Kochergin, Aleksei Kuznetcov, Ryazan State Radio Engineering University, Russian Federation

FR1.W1.2 08:40 **GRABCUT BASED BUILDING DETECTION ON VHR AERIAL IMAGES BY USING DSM**
Orkun Ozturk, Caglar Senaras, Emre Baseski, Havelsan Incorporatoin, Turkey

FR1.W1.3 09:00 **FULLY AUTOMATIC DETECTION, FEATURE EXTRACTION AND CLASSIFICATION OF OBSTACLES TO AIR NAVIGATION**
Marco Messina, Gianpaolo Pinelli, I.D.S. Ingegneria Dei Sistemi S.p.A., Italy

FR1.W1.4 09:20 **SOFT SEGMENTATION WEIGHTED IECO DESCRIPTORS FOR OBJECT RECOGNITION IN SATELLITE IMAGERY**
Stanton Price, Derek Anderson, Mississippi State University, United States; Matthew England, Grant Scott, University of Missouri, United States

FR1.W1.5 09:40 **FLUORESCENCE LIDAR SYSTEM MODELING FOR UNDERWATER OBJECT RECOGNITION PERFORMANCE EVALUATION**
Stefania Matteoli, Laura Zotta, Marco Diani, Giovanni Corsini, University of Pisa, Italy

Techniques for Classification of Hyperspectral Images II

Session Co-Chairs: Mauro Dalla Mura, Gipsa-lab Grenoble-INP; Bing Zhang, RADI

FR2.W1.1 10:30 **TO BE OR NOT TO BE CONVEX? A STUDY ON REGULARIZATION IN HYPERSPECTRAL IMAGE CLASSIFICATION**
Devis Tuia, University of Zurich, Switzerland; Remi Flamary, Michel Barlaud, Université de Nice Sophia Antipolis, France

FR2.W1.2 10:50 **DEEP FEATURE REPRESENTATION FOR HYPERSPECTRAL IMAGE CLASSIFICATION**
Jiming Li, Zhejiang Police College, China; Lorenzo Bruzzone, Sicong Liu, University of Trento, Italy

FR2.W1.3 11:10 **ADAPTIVE SPARSE REPRESENTATION FOR HYPERSPECTRAL IMAGE CLASSIFICATION**
Wei Li, Beijing University of Chemical Technology, China; Qian Du, Mississippi State University, United States

FR2.W1.4 11:30 **DEEP SUPERVISED LEARNING FOR HYPERSPECTRAL DATA CLASSIFICATION THROUGH CONVOLUTIONAL NEURAL NETWORKS**
Konstantinos Makantasis, Technical University of Crete, Greece; Konstantinos Karantzalos, Anastasios Doulamis, Nikolaos Doulamis, National Technical University of Athens, Greece

FR2.W1.5 11:50 **AN ENSEMBLE ACTIVE LEARNING APPROACH FOR SPECTRAL-SPATIAL CLASSIFICATION OF HYPERSPECTRAL IMAGES**
Zhou Zhang, Melba M. Crawford, Purdue University, United States

Techniques for Classification of Hyperspectral Images III

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

FR3.W1.1 13:30 **SEMISUPERVISED HYPERSPECTRAL IMAGE CLASSIFICATION BASED ON AFFINITY SCORING**
Zhao Chen, Bin Wang, Yubin Niu, Fudan University, China; Wei Xia, China Transport Telecommunications & Information Center, China; Jian Qiu Zhang, Bo Hu, Fudan University, China

FR3.W1.2 13:50 **SPECTRAL-SPATIAL HYPERSPECTRAL IMAGE CLASSIFICATION VIA SUPERPIXEL MERGING AND SPARSE REPRESENTATION**
Wei Fu, Shutao Li, Leyuan Fang, Hunan University, China

FR3.W1.3 14:10 **SHAPELY VALUE BASED RANDOM SUBSPACE SELECTION FOR HYPERSPECTRAL IMAGE CLASSIFICATION**
Prudhvi Gurram, Heesung Kwon, U. S. Army Research Laboratory, United States; Charles Davidson, Science and Technology Corporation, United States

FR3.W1.4 14:30 **QUADRATIC CONSTRAINED ENERGY MINIMIZATION FOR HYPERSPECTRAL TARGET DETECTION**
Zhengxia Zou, Zhenwei Shi, Beihang University, China; Jun Wu, Hongqiang Wang, Space Star Technology Company Limited, China

FR3.W1.5 14:50 **CLASS-ORIENTED SPECTRAL PARTITIONING FOR HYPERSPECTRAL IMAGE CLASSIFICATION**
Yi Liu, University of Extremadura, Spain; Jun Li, Sun Yat-Sen University, China; Antonio Plaza, University of Extremadura, Spain; Kun Tan, China University of Mining and Technology, China

Classification and Validation Techniques

Session Co-Chairs: Francesca Bovolo, University of Trento; Craig Donlon, European Space Agency

FR4.W1.1 15:40 **THE EFFECT OF MIS-LABELED TRAINING DATA ON THE ACCURACY OF SUPERVISED IMAGE CLASSIFICATION BY SVM**
Giles Foody, University of Nottingham, United Kingdom

FR4.W1.2 16:00 **IDENTIFICATION AND CORRECTION OF MISLABELED TRAINING DATA FOR LAND COVER CLASSIFICATION BASED ON ENSEMBLE MARGIN**
Wei Feng, Samia Boukir, Li Guo, Bordeaux INP, France

FR4.W1.3 16:20 **RELIABILITY ASSESSMENT FOR REMOTE SENSING DATA: BEYOND COHEN'S KAPPA**
Grégoire H. G. Kerr, Christian Fischer, Ralf Reulke, German Aerospace Center (DLR), Germany

FR4.W1.4 16:40 **A GROUND TRUTH DESIGN TOOL FOR MULTIRESOLUTION IMAGES**
Giuseppe Masi, Raffaele Gaetano, Giovanni Poggi, Giuseppe Scarpa, University Federico II, Italy

FR4.W1.5 17:00 **A BENCHMARK FOR SCENE CLASSIFICATION OF HIGH SPATIAL RESOLUTION REMOTE SENSING IMAGERY**
Jingwen Hu, Tianbi Jiang, Xinyi Tong, Gui-Song Xia, Liangpei Zhang, Wuhan University, China

Friday, July 31 | 08:20 - 10:00 | White 2
Session FR1.W2 | Oral

Geographic Information Science

Session Co-Chairs: Liangpei Zhang, Wuhan University; Peijun Li, Peking University

FR1.W2.1 08:20 **A CHAN VESE BASED METHOD OF TEXTURE EXTRACTION FOR AUTOMATED TEXTURE DRAPING OF 3D GEOSPATIAL OBJECTS**
Vishal Tiwari, K. S. Rajan, International Institute of Information Technology Hyderabad, India

FR1.W2.2 08:40 **ACCURACY ASSESSMENT OF SRTM V4.1 AND ASTER GDEM V2 IN HIGH-ALTITUDE MOUNTAINOUS AREAS: A CASE STUDY IN YULONG SNOW MOUNTAIN, CHINA**
Linwei Yue, Wei Yu, Huanfeng Shen, Liangpei Zhang, Wuhan University, China; Yuanqing He, Chinese Academy of Sciences, China

FR1.W2.3 09:00 **AZIMUTH-SCALE EFFECT ON SAR BACKSCATTER OF URBAN TARGETS**
Yong Wang, Ao Du, University of Electronic Science and Technology of China, China; Hong Li, East Carolina University, United States; Yuanyuan Yang, University of Electronic Science and Technology of China, China

FR1.W2.4 09:20 **SEMANTIC INTERPRETATION OF INSAR POINT CLOUDS**
Yuanyuan Wang, Technische Universität München, Germany; Xiao Xiang Zhu, German Aerospace Center and Technische Universität München, Germany

FR1.W2.5 09:40 **LINKED OPEN DATA FOR RASTER AND VECTOR GEOSPATIAL INFORMATION PROCESSING**
Jon Arocena, NA, Belgium; Javier Lozano, Marco Quartulli, Igor Olaizola, Vicomtech-IK4, Spain; Jesus Bermudez, University of the Basque Country-UPV/EHU, Spain

Friday, July 31 | 10:30 - 12:10 | White 2
Session FR2.W2 | Oral

Spectral Unmixing Techniques II

Session Co-Chairs: Jose Bioucas-Dias, Telecommunications Institute, Instituto Superior Tecnico; Gianni Lisini, University of Pavia

FR2.W2.1 10:30 **SPATIAL PREPROCESSING FOR SPECTRAL ENDMEMBER EXTRACTION BY LOCAL LINEAR EMBEDDING**
Shaohui Mei, Northwestern Polytechnical University, China; Qian Du, Mississippi State University, United States; Mingyi He, Yihang Wang, Northwestern Polytechnical University, China

FR2.W2.2 10:50 **LOSSY COMPRESSION OF HYPERSPECTRAL IMAGES OPTIMIZING SPECTRAL UNMIXING**
Azam Karami, Rob Heylen, Paul Scheunders, Visionlab, University of Antwerp, Belgium, Belgium

FR2.W2.3 11:10 **ANOMALY DETECTION WITH SPARSE UNMIXING AND GAUSSIAN MIXTURE MODELING OF HYPERSPECTRAL IMAGES**
Acar Erdinc, Selim Aksoy, Bilkent University, Turkey

FR2.W2.4 11:30 **MULTIPLE ENDMEMBERS BASED UNMIXING USING ARCHETYPAL ANALYSIS**
Genping Zhao, Harbin Engineering University, China; Xiuping Jia, The University of New South Wales, Canberra Campus, Australia; Chunhui Zhao, Harbin Engineering University, China

FR2.W2.5 11:50 **UNMIXING-BASED DENOISING AND ANOMALOUS ENDMEMBER DETECTION**
Alp Ertürk, University of Extremadura, Spain

Friday, July 31 | 13:30 - 15:10 | White 2
Session FR3.W2 | Oral

Spectral Unmixing Techniques III

Session Co-Chairs: Antonio Plaza, University of Extremadura; Mario Parente, University of Massachusetts Amherst

FR3.W2.1 13:30 **GPU IMPLEMENTATION OF SPATIAL PREPROCESSING FOR SPECTRAL UNMIXING OF HYPERSPECTRAL DATA**
Jaime Delgado, University of Extremadura, Spain; Gabriel Martin, Instituto de Telecomunicações, Portugal; Javier Plaza, Luis Ignacio Jimenez, Antonio Plaza, University of Extremadura, Spain

FR3.W2.2 13:50 **ENDMEMBER EXTRACTION USING A NOVEL CLUSTER-BASED SPATIAL BORDER REMOVAL PREPROCESSOR**
Fatemeh Kowkabi, Islamic azad university of Marvdasht, Iran; Hassan Ghassemian, Tarbiat Modares University, Iran; Ahmad Keshavarz, Persian Gulf University, Iran

FR3.W2.3 14:10 **UNIFIED MIXING MODEL FOR HYPERSPECTRAL IMAGERY**
Joshua Broadwater, The Johns Hopkins University, United States

FR3.W2.4 14:30 **SPARSITY-CONSTRAINED GENERALIZED BILINEAR MODEL FOR HYPERSPECTRAL UNMIXING**
Xiangrong Zhang, Cai Cheng, Jinliang An, Yaoguo Zheng, Erlei Zhang, Biao Hou, Xidian University, China

FR3.W2.5 14:50 **HYPERSPECTRAL UNMIXING WITH PROJECTION ONTO CONVEX SETS USING DISTANCE GEOMETRY**
Muhammad Awais Akhter, Rob Heylen, Paul Scheunders, University of Antwerp, Belgium

Friday, July 31 | 15:40 - 17:20 | White 2
Session FR4.W2 | Oral

Target Detection Techniques

Session Co-Chairs: Maurizio Migliaccio, Università di Napoli Parthenope; Nasser M. Nasrabadi, U.S. Army Research Laboratory

FR4.W2.1 15:40 **EXTENDED TARGET TRACKING USING JOINT PROBABILISTIC DATA ASSOCIATION FILTER ON X-BAND RADAR DATA**
Gemine Vivone, Paolo Braca, Borja Errasti-Alcala, North Atlantic Treaty Organization, Science and Technology Organization, Centre for Maritime Research and Experimentation, Italy

FR4.W2.2 16:00 **DETECTION OF GROUND MOVING TARGETS VIA MIMO SAR SYSTEMS**
Pierfrancesco Lombardo, Debora Pastina, Fabrizio Turin, University of Rome La Sapienza, Italy

FR4.W2.3 16:20 **DETECTION OF UNEXPLODED ORDNANCE USING AIRBORNE LWIR EMISSIVITY SIGNATURES**
Josée Lévesque, Defence Research and Development Canada, Canada; Eldon Puckrin, Pierre Lahaie, Caroline Turcotte, DRDC Valcartier, Canada

FR4.W2.4 16:40 **QUANTIFYING GAS FLARING IN THE BAKKEN FIELD USING VIIRS**
Xiaodong Zhang, University of North Dakota, United States; Beau Scheving, Minnesota State University Moorhead, United States; Bahareh Shoghli, Chris Zygarlicke, Chad Wocken, University of North Dakota, United States

FR4.W2.5 17:00 **VALIDATION OF FORWARD MODELING TARGET DETECTION APPROACH ON A NEW HYPERSPECTRAL DATA SET FEATURING AN URBAN SCENARIO AND VARIABLE ILLUMINATION CONDITIONS**
Nicola Acito, Accademia Navale, Italy; Giovanni Corsini, Marco Diani, Stefania Matteoli, University of Pisa, Italy; Aldo Riccobono, Selex ES, Italy; Alessandro Rossi, Altran Italy S.p.a., Italy

Friday, July 31 | 08:20 - 10:00 | Green 1
Session FR1.G1 | Oral-Invited

AirMOSS P-band SAR Mission: Addressing Grand Challenge of Connecting Soil Moisture and Carbon Cycle I

Session Co-Chairs: Mahta Moghaddam, University of Southern California; Lars Ulander, Chalmers University

FR1.G1.1 08:20 **AIRMOSS MISSION OVERVIEW**
Mahta Moghaddam, University of Southern California, United States; Elaine Chapin, Jet Propulsion Laboratory, United States; Richard Cuenca, Oregon State University, United States; Wade Crow, U.S. Department of Agriculture - ARS, United States; Dara Entekhabi, Massachusetts Institute of Technology, United States; Scott Hensley, Yunling Lou, Jet Propulsion Laboratory, United States; Paul Moorcroft, Harvard University, United States; Rolf Reichle, NASA Goddard Space Flight Center, United States; Sassan Saatchi, Jet Propulsion Laboratory, United States; Paul Shepson, Purdue University, United States

FR1.G1.3 09:00 **ANALYSIS OF AIRMOSS RADAR PERFORMANCE**
Elaine Chapin, Brian Hawkins, Leif Harcke, Scott Hensley, Yunling Lou, Thierry Michel, Ron Muellerschoen, Joanne Shimada, Kean Tham, Michael Tope, Jet Propulsion Laboratory, California Institute of Technology, United States

FR1.G1.4 09:20 **MONO- AND BISTATIC UHF-BAND SAR MEASUREMENTS OF A HEMI-BOREAL FOREST**
Lars M. H. Ulander, Swedish Defence Research Agency (FOI), Sweden; Maciej J. Soja, Chalmers University of Technology, Sweden; Anders Gustavsson, Swedish Defence Research Agency (FOI), Sweden; Erik Blomberg, Chalmers University of Technology, Sweden; Johan E.S. Fransson, Swedish University of Agricultural Sciences, Sweden

FR1.G1.5 09:40 **INTERPRETATION OF IN SITU OBSERVATIONS IN SUPPORT OF P-BAND RADAR RETRIEVALS**
Richard Cuenca, Yutaka Hagimoto, Oregon State University, United States

Friday, July 31 | 10:30 - 12:10 | Green 1
Session FR2.G1 | Oral-Invited

AirMOSS P-band SAR Mission: Addressing Grand Challenge of Connecting Soil Moisture and Carbon Cycle II

Session Co-Chairs: Sassan Saatchi, NASA Jet Propulsion Laboratory; Yunling Lou, NASA Jet Propulsion Laboratory

FR2.G1.1 10:30 **RETRIEVING VEGETATION AND SOIL PARAMETERS FROM ACTIVE POLARIMETRIC P-BAND OBSERVATIONS**
Seyed Hamed Alemohammad, Alexandra G. Konings, Massachusetts Institute of Technology, United States; Thomas Jagdhuber, German Aerospace Center (DLR), Germany; Dara Entekhabi, Massachusetts Institute of Technology, United States

FR2.G1.2 10:50 **VALIDITY DEPTH OF P-BAND ROOT-ZONE SOIL MOISTURE RETRIEVALS: SIMULATION VS. AIRMOSS RESULTS**
Alireza Tabatabaeenejad, Richard Chen, Mahta Moghaddam, University of Southern California, United States

FR2.G1.3 11:10 **P-BAND AIRMOSS ESTIMATES OF FOREST BIOMASS AND UNDERLYING SOIL MOISTURE**
Sassan Saatchi, My-Linh Truong-Loï, Sermsak Jaruwatanadilok, California Institute of Technology, United States

FR2.G1.4 11:30 **SOIL MOISTURE PROFILE RETRIEVAL ALGORITHM, PERFORMANCE AND UNCERTAINTY BASED ON AIRMOSS P-BAND DATA IN FORESTED ENVIRONMENTS**
Sermsak Jaruwatanadilok, Sassan Saatchi, My-Linh Troung-Loi, Jet Propulsion Laboratory, United States

FR2.G1.5 11:50 **A MULTISTATIC RADAR APPROACH TO SOIL MOISTURE AND VEGETATION MONITORING AT L BAND**
Nazzareno Pierdicca, Sapienza University of Rome, Italy; Marco Brogioni, CNR-IFAC, Italy; Leila Guerriero, Tor Vergata University of Rome, Italy; Simonetta Paloscia, CNR-IFAC, Italy; Nicolas Floury, European Space Agency, ESTEC, Netherlands; Joel T. Johnson, Jeffrey D. Ouellette, Caglar Yardim, Tho Ohio State University, United States

Friday, July 31 | 13:30 - 15:10 | Green 1
Session FR3.G1 | Oral-Invited

GCOM Status I

Session Co-Chairs: Haruhisa Shimoda, Japan Aerospace Exploration Agency; Paul Chang, NOAA/NESDIS

FR3.G1.1 13:30 **GCOM SCIENCE OVERVIEW**
Haruhisa Shimoda, Japan Aerospace Exploration Agency, Japan

FR3.G1.3 14:10 **STATUS OF GCOM-W1**
Marehito Kasahara, Keiji Imaoka, Takashi Maeda, Norimasa Ito, Japan Aerospace Exploration Agency, Japan

FR3.G1.4 14:30 **AN OVERVIEW OF NOAA'S GCOM-W1/AMSR-2 PRODUCT PROCESSING AND UTILIZATION**
Paul Chang, Zorana Jelenak, Suleiman Alsweiss, Jun Park, Seubson Soisuvarn, Patrick Meyers, Ralph R. Ferraro, NOAA/NESDIS, United States

FR3.G1.5 14:50 **THE WATER-RELATED PARAMETERS AND DATASETS DERIVED FROM GCOM-W/AMSR2**
Misako Kachi, Takashi Maeda, Hiroyuki Tsutsui, Keiji Imaoka, Japan Aerospace Exploration Agency, Japan

Friday, July 31 | 15:40 - 17:20 | Green 1
Session FR4.G1 | Oral-Invited

GCOM Status II

Session Co-Chairs: Paul Chang, NOAA/NESDIS; Haruhisa Shimoda, Japan Aerospace Exploration Agency

FR4.G1.1 15:40 **THE NEW VERSION OF GCOM-W1 AMSR2 LEVEL 1R PRODUCT: DATASET OF BRIGHTNESS TEMPERATURE MODIFIED USING ANTENNA PATTERN MATCHING TECHNIQUE**
Takashi Maeda, Keiji Imaoka, Japan Aerospace Exploration Agency, Japan

FR4.G1.2 16:00 **THE DEVELOPMENT STATUS OF SECOND GENERATION GLOBAL IMAGER (SGLI)**
Takamasa Itahashi, Kazuhiro Tanaka, Japan Aerospace Exploration Agency, Japan; Takahiro Amano, NEC, Japan

FR4.G1.3 16:20 **CLOUD OBSERVATION BY SPACE-BORNE MULTI-SPECTRAL IMAGERS**
Takashi Nakajima, Tokai University, Japan; Haruma Ishida, Yamaguchi University, Japan; Letu Husi, Takeshi Watanabe, Seiko Takagi, Yu Oishi, Tokai University, Japan; Teruyuki Nakajima, Makiko Hashimoto, University of Tokyo, Japan

FR4.G1.4 16:40 **CURRENT STATUS OF GCOM-C OCEAN PRODUCT DEVELOPMENT**
Hiroshi Murakami, Hisashi Yamaguchi, Yukio Kurihara, Japan Aerospace Exploration Agency, Japan; Mitsuhiro Toratani, Tokai University, Japan; Takafumi Hirata, Toru Hirawake, Hokkaido University, Japan; Robert Frouin, Scripps Institution of Oceanography, United States; Koji Suzuki, Hokkaido University, Japan; Hiroshi Kobayashi, University of Yamanashi, Japan; Sei-Ichi Saitoh, Hokkaido University, Japan; Amane Fujiwara, National Institute of Polar Research, Japan; Bryan Franz, National Aeronautics and Space Administration, United States; Menghua Wang, National Oceanic and Atmospheric Administration, United States; Joji Ishizaka, Nagoya University, Japan

FR4.G1.5 17:00 **THE EXAMINATION OF LAND PRODUCTS FROM GCOM-C1 / SGLI**
Yoshiaki Honda, Chiba University, Japan; Masao Moriyama, Nagasaki University, Japan; Yusaku Ono, Japan Aerospace Exploration Agency, Japan; Koji Kajiwara, Satoshi Tanigawa, Chiba University, Japan

Friday, July 31 | 08:20 - 10:00 | Green 2
Session FR1.G2 | Oral-Invited

Innovative Approaches to GNSS+R: Instruments and Techniques I

Session Co-Chairs: Estel Cardellach, Institut d'Estudis Espacials de Catalunya; Adriano Camps, Universitat Politècnica de Catalunya

FR1.G2.1 08:20 **GNSS-R FUTURE EVOLUTION**
Manuel Martín-Neira, European Space Agency (ESA), Netherlands

FR1.G2.3 09:00 **GNSS-R ALTIMETER BASED ON DELAY-DOPPLER MAPS**
Salvatore D'Addio, Manuel Martín-Neira, European Space Agency (ESA), Netherlands; Maurizio Di Bisceglie, Carmela Galdi, Universita' Degli Studi Del Sannio, Italy; Francisco Martin, Universitat Politècnica de Catalunya and IEEC/UPC, Spain

FR1.G2.4 09:20 **SYNOPTIC CAPABILITIES OF THE GNSS-R INTERFEROMETRIC TECHNIQUE: BALTIC FLIGHT EXPERIMENT WITH THE SPIR INSTRUMENT**
Antonio Rius, Fran Fabra, Estel Cardellach, Institut d'Estudis Espacials Catalunya/Consejo Superior Investigaciones Científicas, Spain; Manuel Martín-Neira, European Space Agency (ESA), Netherlands

FR1.G2.5 09:40 **INVESTIGATION OF SEA SURFACE HEIGHT RETRIEVAL ALGORITHMS USING GNSS-REFLECTOMETRY**
Maria-Paola Clarizia, University of Michigan, United States; Cinzia Zuffada, Jet Propulsion Laboratory, United States; Christopher S. Ruf, University of Michigan, United States; Estel Cardellach, Institut de Ciències de l'Espai (ICE-CSIC/IEEC), Spain; Stephen Lowe, Jet Propulsion Laboratory, United States

Friday, July 31 | 10:30 - 12:10 | Green 2
Session FR2.G2 | Oral-Invited

Innovative Approaches to GNSS+R: Instruments and Techniques II

Session Co-Chairs: Manuel Martin-Neira, European Space Agency (ESTEC); James Garrison, Purdue University

FR2.G2.1 10:30 **STUDY OF PHASE COHERENCY IN SPACEBORNE GNSS ICE REFLECTIONS FOR ALTIMETRY APPLICATIONS**
Scott Gleason, Southwest Research Institute, United States; Estel Cardellach, Institut de Ciències de l'Espai/CSIC-IEEC, Spain

FR2.G2.2 10:50 **MULTI-FREQUENCY REFLECTOMETRY FOR TERRESTRIAL SNOW COVER USING SIGNALS OF OPPORTUNITY**
Xiaolan Xu, Simon Yueh, Rashmi Shah, Jet Propulsion Laboratory, United States; James Garrison, Purdue University, United States; Yunjin Kim, Jet Propulsion Laboratory, United States; Abi Komanduru, Purdue University, United States; Kelly Elder, United States Forest Service, United States

FR2.G2.3 11:10 **MULTI-CONSTELLATION, DUAL-POLARIZATION, AND DUAL-FREQUENCY GNSS-R STRATOSPHERIC BALLOON EXPERIMENT OVER BOREAL FORESTS**
Hugo Carreno-Luengo, Universitat Politècnica de Catalunya / Institut d'Estudis Espacials de Catalunya, Spain; Adria Amezaga, Albert Bolet, David Vidal, Jaume Jane, JuanFran Munoz, Roger Olive, Universitat Politècnica de Catalunya, Spain; Adriano Camps, Universitat Politècnica de Catalunya / Institut d'Estudis Espacials de Catalunya, Spain

FR2.G2.4 11:30 **AN AIRBORNE P-BAND (UHF) SIGNAL OF OPPORTUNITY (SOOP) REFLECTOMETER INSTRUMENT FOR REMOTE SENSING OF ROOT-ZONE SOIL MOISTURE**
Jeffrey R. Piepmeier, Joseph Knuble, Alicia Joseph, NASA Goddard Space Flight Center, United States; Ken Hersey, AS and D, Inc., United States; James Garrison, Yao-Cheng Lin, Georges Stienne, Stephen Katzberg, Purdue University, United States; Stephen O'Brien, George Alikakos, Elexis, Inc., United States

FR2.G2.5 11:50 **INVERSION OF DELAY-DOPPLER MAPS USING AN EXTENDED KALMAN FILTER FOR WIND SPEED RETRIEVALS OVER THE OCEAN SURFACE**
Nereida Rodriguez-Alvarez, James Garrison, Purdue University, United States

Friday, July 31 | 13:30 - 15:10 | Green 2
Session FR3.G2 | Oral-Invited

Spaceborne Missions and Scientific Applications of GNSS-Reflectometry I

Session Co-Chairs: Scott Gleason, Southwest Research Institute (SwRI), US; Maria-Paola Clarizia, University of Michigan

FR3.G2.1 13:30 **THE RISE OF GNSS REFLECTOMETRY FOR EARTH REMOTE SENSING**
Cinzia Zuffada, Zhijin Li, Son V. Nghiem, Stephen Lowe, Rashmi Shah, Jet Propulsion Laboratory, California Institute of Technology, United States; Maria-Paola Clarizia, University of Michigan, United States; Estel Cardellach, Institut De Ciencies De L'Espai's, Spain

FR3.G2.3 14:10 **STATUS AND RESULTS FROM THE GNSS REFLECTOMETRY EXPERIMENT ON TECHDEMOSAT-1**
Martin Unwin, Philip Jales, Surrey Satellite Technology Ltd, United Kingdom; Jason Tye, University of Surrey, United Kingdom; Christine Gommenginger, National Oceanography Centre, United Kingdom; Josep Rosello, European Space Agency (ESA), Netherlands

FR3.G2.4 14:30 **FORWARD MODEL AND RETRIEVAL OF TROPICAL CYCLONE WIND SPEED WITH CYGNSS**
Christopher S. Ruf, Maria-Paola Clarizia, University of Michigan, United States; Scott Gleason, Southwest Research Institute, United States; Joel T. Johnson, Andrew O'Brien, The Ohio State University, United States

FR3.G2.5 14:50 **GNSS-REFLECTOMETRY WITH GEROS-ISS: OVERVIEW AND RECENT STATUS**
Jens Wickert, GFZ Potsdam, Germany; Ole Andersen, Technical University of Denmark, Denmark; Georg Beyerle, GFZ Potsdam, Germany; Estel Cardellach, IEEC/ICE-CSIC, Institute of Space Sciences, Spain; Bertrand Chapron, IFREMER, France; Christine Gommenginger, National Oceanography Center, Southampton, United Kingdom; Per Hoeg, Technical University of Denmark, Denmark; Adrian Jaeggi, University Bern, Switzerland; Norbert Jakowski, German Aerospace Center (DLR), Germany; Michael Kern, European Space Agency (ESA), Netherlands; Tony Lee, Jet Propulsion Laboratory, California Institute of Technology, United States; Manuel Martín-Neira, European Space Agency (ESA), Netherlands; Nazzareno Pierdicca, Sapienza University of Rome, Italy; Maximilan Semmling, GFZ Potsdam, Germany; C.K. Shum, Ohio State University, United States; Cinzia Zuffada, Jet Propulsion Laboratory, California Institute of Technology, United States

Friday, July 31 | 15:40 - 17:20 | Green 2
Session FR4.G2 | Oral-Invited

Spaceborne Missions and Scientific Applications of GNSS-Reflectometry II

Session Co-Chairs: Chris Ruf, University of Michigan; Jens Wickert, GFZ Potsdam

FR4.G2.1 15:40 **PRELIMINARY ANALYSES AND VALIDATION OF NEW SPACEBORNE GNSS-REFLECTOMETRY DATA FROM THE UK TECHDEMOSAT-1 MISSION FOR OCEAN WIND RETRIEVAL**
Giuseppe Foti, Christine Gommenginger, National Oceanography Centre, United Kingdom; Martin Unwin, Philip Jales, Surrey Satellite Technology Ltd, United Kingdom; Josep Rosello, European Space Agency (ESA), Netherlands

FR4.G2.2 16:00 **3CAT-2: A 6U CUBESAT-BASED MULTI-CONSTELLATION, DUAL-POLARIZATION, AND DUAL-FREQUENCY GNSS-R AND GNSS-RO EXPERIMENTAL MISSION**
Hugo Carreno-Luengo, Universitat Politècnica de Catalunya / Institut d'Estudis Espacials de Catalunya, Spain; Adria Amezaga, Albert Bolet, David Vidal, Jaume Jane, JuanFran Munoz, Roger Olive, Universitat Politècnica de Catalunya, Spain; Adriano Camps, Universitat Politècnica de Catalunya / Institut d'Estudis Espacials de Catalunya, Spain; Jorge Carola, Nuno Catarino, DEIMOS Engenharia SA, Portugal; Miguel Hagenfeldt, Pedro Palomo, Stefania Cornara, Deimos Space, Spain

FR4.G2.3 16:20 **RESULTS ON RECENT SEA-ICE GNSS-R MEASUREMENTS FROM A UAV SYSTEM OVER THE SVALBARD AREA**
Estel Cardellach, Serni Ribo, Fran Fabra, Oleguer Nogues-Correig, Juan Carlos Arco, Antonio Rius, Institute for Space Sciences ICE-CSIC/IEEC, Spain; Rune Storvold, Northern Research Institute, Norway

FR4.G2.4 16:40 **EXPLOITING GNSS SIGNALS FOR SOIL MOISTURE AND VEGETATION BIOMASS RETRIEVAL**
Nazzareno Pierdicca, Sapienza University of Rome, Italy; Leila Guerriero, Tor Vergata University of Rome, Italy; Alejandro Egido, STARLAB (now with NOAA's Laboratory of Space Altimetry), Spain; Simonetta Paloscia, IFAC-CNR, Italy; Nicolas Floury, European Space Agency, ESTEC, Netherlands

FR4.G2.5 17:00 **ESTIMATION OF MAXIMUM HURRICANE WIND SPEED USING SIMULATED CYGNSS MEASUREMENTS**
Faozi Said, NOAA-NESDIS/GLOBAL SCIENCE & TECHNOLOGY INC, United States; Seubson Soisuvarn, NOAA-NESDIS/UCAR, United States; Steve Katzberg, NASA Langley Research Center, United States; Zorana Jelenak, NOAA-NESDIS/UCAR, United States; Paul Chang, NOAA-NESDIS, United States

Friday, July 31 | 08:20 - 10:00 | Green 3
Session FR1.G3 | Oral-Invited

Tropical Rainfall Measuring Mission I

Session Co-Chairs: Nobuhiro Takahashi, NICT; Chandrasekar V Chandra, Colorado State University

FR1.G3.1 08:20 **MULTI-SATELLITE PRECIPITATION MAP FROM TRMM AND GPM**
Tomoo Ushio, Tomoaki Mega, Osaka University, Japan; Takuji Kubota, Misako Kachi, JAXA/EORC, Japan

FR1.G3.3 09:00 **A DECADAL VARIABILITY OF SEMI-GLOBAL PRECIPITATION BY TRMM PR**
Kaya Kanemaru, Takuji Kubota, Misako Kachi, Riko Oki, EORC/JAXA, Japan; Toshio Iguchi, NICT, Japan; Yukari Takayabu, Tokyo University, Japan

FR1.G3.4 09:20 **A PARAMETRIZATION OF VERTICALLY-VARIABLE HORIZONTAL NON-UNIFORMITY OF RAIN WITHIN THE GPM-DPR BEAMS**
Ziad S. Haddad, Sahra Kacimi, David Short, Jet Propulsion Laboratory, California Institute of Technology, United States

FR1.G3.5 09:40 **EVALUATION OF KUPR ALGORITHM IN MATCHUP CASES OF GPM AND TRMM**
Tatsuya Shimozuma, Shinta Seto, Nagasaki University, Japan

Friday, July 31 | 10:30 - 12:10 | Green 3
Session FR2.G3 | Oral-Invited

Tropical Rainfall Measuring Mission II

Session Co-Chairs: Nobuhiro Takahashi, NICT; Chandrasekar V Chandra, Colorado State University

FR2.G3.1 10:30 **FINESCALE CLIMATOLOGY OF WIDESPREAD PRECIPITATION SYSTEMS OBSERVED BY TRMM PR**
Masafumi Hirose, Meijo University, Japan

FR2.G3.2 10:50 **SPECIAL PR OBSERVATION EXPERIMENTS DURING THE TRMM SATELLITE DESCENDING**
Hiroshi Hanado, Nobuhiro Takahashi, Katsuhiro Nakagawa, Toshio Iguchi, NICT, Japan; Kenji Nakamura, Dokkyo University, Japan; Kaya Kanemaru, Tomomi Nio, Susumu Saitoh, Takeshi Masaki, Japan Aerospace Exploration Agency, Japan; Tomohiko Higashiuwatoko, Naofumi Yoshida, RESTEC, Japan; Masahiro Kojima, Japan Aerospace Exploration Agency, Japan

FR2.G3.3 11:10 **A COMPARISON OF GPM MICROWAVE IMAGER (GMI) HIGH FREQUENCY CHANNEL BRIGHTNESS TEMPERATURES TO THE ADVANCED TECHNOLOGY MICROWAVE SOUNDER (ATMS)**
David Draper, Quinn Remund, David Newell, Ball Aerospace & Technologies Corp., United States; Sergey Krimchansky, NASA, United States

FR2.G3.4 11:30 **USE OF THE CONSTELLATION OF PMW RADIOMETERS IN THE GPM ERA FOR HEAVY PRECIPITATION EVENT MONITORING AND ANALYSIS DURING FALL 2014 IN ITALY**
Giulia Panegrossi, Daniele Casella, Stefano Dietrich, Anna Cinzia Marra, Marco Petracca, Paolo Sano, Luca Baldini, Nicoletta Roberto, Elisa Adirosi, Institute of Atmospheric Sciences and Climate - National Research Council (ISAC-CNR), Italy; Roberto Cremonini, Renzo Bechini, Environmental Protection Agency of Piedmont region (ARPA Piemonte), Italy; Gianfranco Vulpiani, Department of Civil Protection (DPC), Presidency of the Council of Ministers, Italy

FR2.G3.5 11:50 **ESTIMATION OF CLIMATOLOGICAL RAIN DROP SIZE DISTRIBUTION PARAMETER BY USING TRMM/PR AND CLOUDSAT/CPR**
Nobuhiro Takahashi, Toshio Iguchi, NICT, Japan

Friday, July 31 | 13:30 - 15:10 | Green 3
Session FR3.G3 | Oral-Invited

Global Precipitation Mission I

Session Co-Chairs: Chandrasekar V Chandra, Colorado State University; Gail Skofronick-Jackson, NASA Goddard Space Flight Center

FR3.G3.1 13:30 **NEW SCIENCE AND APPLICATIONS ACHIEVED WITH THE GLOBAL PRECIPITATION MEASUREMENT (GPM) MISSION LAUNCHED IN 2014**
Gail Skofronick-Jackson, George Huffman, NASA Goddard Space Flight Center, United States

FR3.G3.3 14:10 **THE ORBITAL OPERATIONS STATUS OF THE DUAL-FREQUENCY PRECIPITATION RADAR ON THE GLOBAL PRECIPITATION MEASUREMENT CORE SPACECRAFT**
Kinji Furukawa, Masahiro Kojima, Tomomi Nio, Toshiyuki Konishi, Riko Oki, Takeshi Masaki, Takuji Kubota, Yuki Kaneko, Misako Kachi, Japan Aerospace Exploration Agency, Japan; Toshio Iguchi, Hiroshi Hanado, Katsuhiro Nakagawa, National Institute of Information and Communications Technology, Japan

FR3.G3.4 14:30 **GPM MICROWAVE IMAGER (GMI) ON-ORBIT PERFORMANCE AND CALIBRATION RESULTS**
David Newell, David Draper, Quinn Remund, Don Figgins, Ball Aerospace, United States; Sergey Krimchansky, NASA Goddard Space Flight Center, United States; Frank Wentz, Thomas Meissner, Remote Sensing Systems, United States

FR3.G3.5 14:50 **INTERCALIBRATING THE GPM CONSTELLATION USING THE GPM MICROWAVE IMAGER (GMI)**
Thomas Wilheit, Texas A&M University, United States; Wesley Berg, Colorado State University, United States; Hamideh Ebrahimi, University of Central Florida, United States; Rachael Kroodsma, NASA Goddard Space Flight Center, United States; Darren McKague, University of Michigan, United States; Vivienne Payne, Jet Propulsion Laboratory, California Institute of Technology, United States; James Wang, Science Systems and Applications Inc., United States

Friday, July 31 | 15:40 - 17:20 | Green 3
Session FR4.G3 | Oral-Invited

Global Precipitation Mission II

Session Co-Chairs: Chandrasekar V Chandra, Colorado State University; Gail Skofronick-Jackson, NASA Goddard Space Flight Center

FR4.G3.1 15:40 **DEVELOPMENT OF A ROUTINE TO REDUCE SIDELOBE CLUTTER IN GPM/KUPR-L2 ALGORITHM**
Takuji Kubota, Takeshi Masaki, Japan Aerospace Exploration Agency, Japan; Toshio Iguchi, National Institute of Information and Communications Technology, Japan; Shinji Urita, Naofumi Yoshida, Remote Sensing Technology Center of Japan, Japan; Hiroshi Hanado, National Institute of Information and Communications Technology, Japan; Riko Oki, Japan Aerospace Exploration Agency, Japan

FR4.G3.2 16:00 **AN ASSESSMENT OF RADIO FREQUENCY INTERFERENCE USING THE GPM MICROWAVE IMAGER**
David Draper, David Newell, Ball Aerospace & Technologies Corp., United States

FR4.G3.3 16:20 **RAIN RETREAVAL ALGORITHM FOR THE DUAL-FREQUENCY PRECIPITATION RADAR ON THE GPM CORE SATELLITE**
Toshio Iguchi, National Institute of Information and Communications Technology, Japan; Shinta Seto, Nagasaki University, Japan; Jun Awaka, Tokai University, Japan; Robert Meneghini, NASA Goddard Space Flight Center, United States; Takuji Kubota, Japan Aerospace Exploration Agency, Japan; V. Chandrasekar, Colorado State University, United States; Naofumi Yoshida, Remote Sensing Technology Center of Japan, Japan; Hiroshi Hanado, National Institute of Information and Communications Technology, Japan

FR4.G3.4 16:40 **SINGLE- AND DUAL-FREQUENCY PATH ATTENUATION RETRIEVALS FROM THE DUAL-FREQUENCY PRECIPITATION RADAR ONBOARD THE GPM SATELLITE**
Robert Meneghini, NASA Goddard Space Flight Center, United States; Hyokyung Kim, Liang Liao, GEST/Morgan State University, United States

FR4.G3.5 17:00 **EVALUATION OF PROFILE CLASSIFICATION MODULE OF GPM-DPR ALGORITHM AFTER LAUNCH**
V. Chandrasekar, Minda Le, Colorado State University, United States

Friday, July 31 | 08:20 - 10:00 | Yellow 1
Session FR1.Y1 | Oral-Invited

Synergistic use of SMOS Observations to Improve our Understanding of the Water and Energy Cycle I

Session Co-Chairs: Yann Kerr, Centre D'Etudes Spatiales de la Biosphère (CESBIO); Jacqueline Boutin, Université Pierre et Marie Curie, Paris

FR1.Y1.1 08:20 **SYNERGISTIC USE OF SMOS, SMAP AND AQUARIUS DATA: AN OVERVIEW**
Yann Kerr, Ahmad Al Bitar, Delphine Leroux, François Cabot, Sat Kumar Tomer, Arnaud Mialon, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Thierry Pellarin, LTHE, France; Ali Mahmoodi, Jean-Pierre Wigneron, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Susanne Mecklenburg, European Space Agency, ESRIN, Italy

FR1.Y1.3 09:00 **SURFACE SALINITY SIGNATURE OF WESTERN BOUNDARY CURRENT RINGS IN L-BAND SYNERGISTIC PRODUCTS**
Marta Umbert, ICM-CSIC, Spain; Sebastien Guimbard, Laboratoire d'Oceanographie Spatial/IFREMER, France; Joaquim Ballabrera-Poy, Marcos Portabella, Antonio Turiel, ICM-CSIC, Spain

FR1.Y1.4 09:20 **PERSISTENCE OF RAINFALL IMPRINT ON SMOS SEA SURFACE SALINITY**
Jacqueline Boutin, Nicolas Martin, Gilles Reverdin, LOCEAN/CNRS, France

FR1.Y1.5 09:40 **AN OVERVIEW OF THE SMOS+STORM EVOLUTION PROJECT: MEASURING SURFACE WINDS IN TROPICAL AND EXTRA-TROPICAL STORMS WITH SMOS**
Nicolas Reul, Bertrand Chapron, IFREMER, France; Fabrice Collard, OceanDataLab, France; James Cotton, Peter Francis, Metoffice, United Kingdom; Elizaveta Zabolotskikh, Solab, Russian Federation; Craig Donlon, European Space Agency (ESA), Netherlands

Friday, July 31 | 10:30 - 12:10 | Yellow 1
Session FR2.Y1 | Oral-Invited

Synergistic use of SMOS Observations to Improve our Understanding of the Water and Energy Cycle II

Session Co-Chairs: Yann Kerr, Centre D'Etudes Spatiales de la Biosphère (CESBIO); Susanne Mecklenburg, European Space Agency

FR2.Y1.1 10:30 **INFLUENCE OF ICE THICKNESS ON SMOS AND AQUARIUS BRIGHTNESS TEMPERATURES OVER ANTARCTICA**
Miriam Pablos, María Piles, Universitat Politècnica de Catalunya - BarcelonaTech, Spain; Verónica González-Gambau, Institut de Ciències del Mar (ICM-CSIC), Spain; Adriano Camps, Mercè Vall-llossera, Universitat Politècnica de Catalunya - BarcelonaTech, Spain

FR2.Y1.2 10:50 **ELEVEN-YEARS OF AN HOMOGENEOUS SOIL MOISTURE DATASET FROM AMSR-E AND SMOS OBSERVATIONS**
Nemesio Rodriguez-Fernandez, Centre National de la Recherche Scientifique (CNRS), France; Yann Kerr, Centre National d'Etudes Spatiales, France; Jean-Pierre Wigneron, Amen Al-Yaari, Institut Nationale de Recherche Agronomique (INRA), France; Richard de Jeu, Robin van der Schalie, VU University Amsterdam, Netherlands; Philippe Richaume, Université Paul Sabatier, France; Han Dolman, VU University Amsterdam, Netherlands; Matthias Drusch, Susanne Mecklenburg, European Space Agency (ESA), Netherlands

FR2.Y1.3 11:10 **TESTING SIMPLE REGRESSION EQUATIONS TO DERIVE LONG-TERM GLOBAL SOIL MOISTURE DATASETS FROM SATELLITE-BASED BRIGHTNESS TEMPERATURE OBSERVATIONS**
Amen Al-Yaari, Jean-Pierre Wigneron, INRA, France; Agnes Ducharne, UMR 7619 METIS, Université Pierre-et-Marie Curie/CNRS, France; Yann Kerr, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Richard de Jeu, Robin van der Schalie, VU University, France; Nemesio Rodriguez-Fernandez, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Matthias Drusch, European Space Agency, ESTEC, Netherlands; Han Dolman, VU University, Netherlands; Susanne Mecklenburg, European Space Agency, ESRIN, Italy

FR2.Y1.4 11:30 **ANALYZING THE IMPACT OF USING THE SRP (SIMPLIFIED ROUGHNESS PARAMETERIZATION) METHOD ON SOIL MOISTURE RETRIEVAL OVER DIFFERENT REGIONS OF THE GLOBE**
Roberto Fernandez-Moran, University of Valencia, Spain; Jean-Pierre Wigneron, INRA, France; Ernesto Lopez-Baeza, University of Valencia, Spain; Amen Al-Yaari, INRA, France; Simone Bircher, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Amparo Coll-Pajaron, University of Valencia, Spain; Ali Mahmoodi, Marie Parrens, Philippe Richaume, Yann Kerr, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France

FR2.Y1.5 11:50 **A MICROWAVE VEGETATION OPTICAL DEPTH RETRIEVAL APPROACH FOR THE NEW ERA OF PASSIVE L-BAND RADIOMETERS**
María Piles, Universitat Politècnica de Catalunya, Spain; Alexandra G. Konings, Kaighin A. McColl, Dara Entekhabi, Massachusetts Institute of Technology, United States; Kathrina Rötzer, Forschungszentrum, Germany; Steven Chan, California Institute of Technology, United States; Adriano Camps, Mercè Vall-llossera, Universitat Politècnica de Catalunya, Spain

Friday, July 31 | 13:30 - 15:10 | Yellow 1
Session FR3.Y1 | Oral-Invited

Vegetation Biomass Maps at Global/Local Scale by Using Multifrequency Microwave Satellite Images I

Session Co-Chairs: Simonetta Paloscia, IFAC-CNR; Jiancheng Shi, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences

FR3.Y1.1 13:30 **AN APPROACH FOR VEGETATION MONITORING FROM SMOS DATA**
Qian Cui, Jiancheng Shi, State Key Laboratory of Remote Sensing Science, Institute of Remote Sensing and Digital Earth, CAS, China

FR3.Y1.3 14:10 **MULTIFREQUENCY MICROWAVE VEGETATION INDEXES FOR ESTIMATING VEGETATION BIOMASS**
Emanuele Santi, Simonetta Paloscia, Paolo Pampaloni, CNR-IFAC, Italy

FR3.Y1.4 14:30 **EVALUATING THE APPLICATION OF MICROWAVE-BASED VEGETATION OBSERVATIONS IN AN OPERATIONAL SOIL MOISTURE DATA ASSIMILATION SYSTEM**
Iliana Mladenova, University of Maryland, United States; John Bolten, National Aeronautics and Space Administration, United States; Wade Crow, United States Department of Agriculture, United States; Richard de Jeu, Transmissivity, Netherlands

FR3.Y1.5 14:50 **CONSTRAINING THE VEGETATION PARAMETERS OF A DISCRETE SCATTERING MODEL BY COMBINING ACTIVE AND PASSIVE MICROWAVE DATA**
Laura Dente, University of Twente, Netherlands; Paolo Ferrazzoli, Leila Guerriero, Tor Vergata University of Rome, Italy; Zhongbo Su, Rogier van der Velde, University of Twente, Netherlands

Friday, July 31 | 15:40 - 17:20 | Yellow 1
Session FR4.Y1 | Oral-Invited

Vegetation Biomass Maps at Global/Local Scale by Using Multifrequency Microwave Satellite Images II

Session Co-Chairs: Emanuele Santi, IFAC-CNR; Mahta Moghaddam, University of Southern California

FR4.Y1.1 15:40 **IMPACT OF SOIL MOISTURE DYNAMICS ON THE RETRIEVAL ACCURACY OF OVERLYING VEGETATION PARAMETERS FROM RADAR**
Mahta Moghaddam, University of Southern California, United States; Mariko Burgin, Jet Propulsion Laboratory, United States; Alireza Tabatabaeenejad, University of Southern California, United States

FR4.Y1.2 16:00 **GRASSLAND BACKSCATTER SIMULATION WITH DISCRETE RADIATIVE TRANSFER MODEL AND SOIL MOISTURE RETRIEVAL IN MOUNTAIN AREAS: A CASE STUDY WITH ASAR ENVISAT TIME SERIES**
Jelena Stamenkovic, École Polytechnique Fédérale de Lausanne - EPFL, Switzerland; Leila Guerriero, Paolo Ferrazzoli, Tor Vergata University of Rome, Italy; Claudia Notarnicola, EURAC RESEARCH, Italy; Devis Tuia, University of Zurich - Irchel, Switzerland; Felix Greifeneder, EURAC RESEARCH, Italy; Jean-Philippe Thiran, École Polytechnique Fédérale de Lausanne - EPFL, Switzerland

FR4.Y1.3 16:20 **RETRIEVAL OF WHEAT BIOMASS FROM MULTITEMPORAL DUAL POLARIZED SAR OBSERVATIONS**
Giuseppe Satalino, Anna Balenzano, Francesco Mattia, Consiglio Nazionale delle Ricerche (CNR), Italy; Michele Rinaldi, Carmen Maddaluno, Giovanni Annicchiarico, Consiglio per la ricerca in agricoltura e l'analisi dell'economia agraria, Italy

FR4.Y1.4 16:40 **MEASURING TROPICAL-FOREST BIOMASS CHANGE WITH 4 YEARS OF TANDEM-X DATA**
Robert Treuhaft, Maxim Neumann, Jet Propulsion Laboratory, California Institute of Technology, United States; Fabio Gonçalves, Agrosatélite Geotecnologia Aplicada, Brazil; Michael Keller, International Institute of Tropical Forestry & International Programs, Brazil; Joao Roberto dos Santos, Instituto Nacional de Pesquisas Espaciais (INPE), Brazil

FR4.Y1.5 17:00 **THE STUDY OF MULTIFREQUENCY MICROWAVE SATELLITE IMAGES FOR VEGETATION BIOMASS AND HUMIDITY OF THE AREA UNDER RAMSAR CONVENTION**
Katarzyna Dabrowska - Zielinska, Maria Budzynska, Institute of Geodesy and Cartography, Poland; Monika Tomaszewska, Maciej Bartold, University of Warsaw, Faculty of Geography and Regional Studies, Poland; Martyna Gatkowska, Institute of Geodesy and Cartography, Poland

Snow Cover II

Session Co-Chairs: Leung Tsang, University of Michigan, Ann Arbor; Helmut Rott, University of Innsbruck

FR1.Y2.1 08:20 **SWE MONITORING DURING THE WINTER AND SPRING MELT BY COMBINING MICROWAVES REMOTE SENSING DATA, MODELING AND GROUND DATA**
Francois Vachon, Danielle De Seve, Yves Choquette, Frederic Guay, Hydro-Québec, Canada

FR1.Y2.2 08:40 **RETRIEVAL OF TUNDRA SWE USING AIRBORNE DUAL-FREQUENCY SAR (17.2 / 9.6 GHZ) AND MEMLS-ACTIVE**
Joshua King, Chris Derksen, Environment Canada, Canada

FR1.Y2.3 09:00 **GNSS REFLECTOMETRY MEASUREMENT OF SNOW DEPTH AND SOIL MOISTURE IN THE FRENCH ALPS**
Karen Boniface, Andrea Walpersdorf, Institut des Sciences de la Terre (ISTerre), France; Gilbert Guyomarc'h, Yannick Deliot, Fatima Karbou, Vincent Vionnet, Centre d'Etudes de la Neige - Centre National de Recherches Météorologiques, France; Felipe Nievinski, Universidade Estadual Paulista (Unesp), Brazil

FR1.Y2.4 09:20 **SCATTERING HELICITY FOR SNOW COVER MAPPING**
Arnab Muhuri, Surendar Manickam, Avik Bhattacharya, Gulab Singh, CSRE, IIT Bombay, India

FR1.Y2.5 09:40 **AN IMPROVED ICE/SNOW SURFACE TEMPERATURE RETRIEVAL METHOD FOR ANTARCTIC MODIS DATA**
Tingting Liu, Zemin Wang, Wuhan University, China; Jian Liu, Polar Research Institute of China, China

Remote Sensing of Glaciers I

Session Co-Chairs: Helmut Rott, University of Innsbruck; Giovanni Macelloni, IFAC-CNR

FR2.Y2.1 10:30 **MAPPING GLACIER SURFACE TOPOGRAPHY WITH RADAR INTERFEROMETRY**
Delwyn Moller, Remote Sensing Solutions, Inc., United States; Scott Hensley, Jet Propulsion Laboratory, California Institute of Technology, United States; Jeremie Mouginot, University of California, Irvine, United States; Eric Rignot, Jet Propulsion Laboratory/University of California Irvine, United States; Joshua Willis, Xiaoqing Wu, Jet Propulsion Laboratory, California Institute of Technology, United States

FR2.Y2.2 10:50 **L-BAND 3D IMAGING OF AN ALPINE GLACIER: RESULTS FROM THE ALPTOMOSAR CAMPAIGN**
Stefano Tebaldini, Politecnico di Milano, Italy; Thomas Nagler, Helmut Rott, ENVEO, Austria; Achim Heilig, University of Heidelberg, Germany

FR2.Y2.3 11:10 **SYNERGY OF TANDEM-X DEM DIFFERENCING AND INPUT-OUTPUT METHOD FOR GLACIER MONITORING**
Helmut Rott, Jan Wuite, ENVEO IT, Austria; Dana Floricioiu, German Aerospace Center (DLR), Germany; Thomas Nagler, Stefan Scheiblauer, ENVEO IT, Austria

FR2.Y2.4 11:30 **THE ULTRA-WIDEBAND SOFTWARE-DEFINED RADIOMETER (UWBRAD) FOR ICE SHEET INTERNAL TEMPERATURE SENSING: INSTRUMENT STATUS AND EXPERIMENT PLANS**
Joel T. Johnson, Kenneth Jezek, Mustafa Aksoy, Alexandra Bringer, Caglar Yardim, Mark Andrews, Chi-Chih Chen, Domenic Belgiovane, The Ohio State University, United States; Vladimir Leuski, Independent Contractor, United States; Michael Durand, The Ohio State University, United States; Giovanni Macelloni, Marco Brogioni, Institute of Applied Physics, Italy; Shurun Tan, Tian Lin Wang, Leung Tsang, University of Michigan, United States

FR2.Y2.5 11:50 **3-D GLACIER SUBSURFACE CHARACTERIZATION USING SAR POLARIMETRY**
Giuseppe Parrella, German Aerospace Center (DLR) / ETH Zurich, Germany; Konstantinos Papathanassiou, German Aerospace Center (DLR), Germany; Irena Hajnsek, German Aerospace Center (DLR) / ETH Zurich, Germany

Remote Sensing of Glaciers II

Session Co-Chairs: Helmut Rott, University of Innsbruck; Giovanni Macelloni, IFAC-CNR

FR3.Y2.1 13:30 **INTEGRATION OF RADAR SOUNDER AND ALTIMETER DATA FOR THE 3D RECONSTRUCTION OF ICE SHEETS**
Ana-Maria Ilisei, Lorenzo Bruzzone, University of Trento, Italy

FR3.Y2.2 13:50 **THEORETICAL LIMITS ON THE INVERSION QUALITY OF ICE SHEET PROPERTIES USING THE ULTRA-WIDEBAND SOFTWARE-DEFINED RADIOMETER (UWBRAD)**
Caglar Yardim, Alexandra Bringer, Mustafa Aksoy, Joel T. Johnson, Kenneth Jezek, Michael Durand, The Ohio State University, United States

FR3.Y2.3 14:10 **SURFACE RETURN DIRECTION-OF-ARRIVAL ANALYSIS FOR RADAR ICE SOUNDING SURFACE CLUTTER SUPPRESSION**
Ulrik Nielsen, Jorgen Dall, Technical University of Denmark, Denmark

FR3.Y2.4 14:30 **ON THE POTENTIAL OF SMOS IN ANTARCTICA: THE STSE CRYOSMOS PROJECT**
Giovanni Macelloni, Marco Brogioni, IFAC-CNR, Italy; Niels Skou, René Forsberg, DTU, Denmark; Ghislain Picard, Marion Leduc-Leballeur, LGGE, France; Arnaud Mialon, Yann Kerr, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Ola Gråbak, European Space Agency, ESRIN, Italy

FR3.Y2.5 14:50 **USING BRIGHTNESS TEMPERATURE AT L-BAND TO INVESTIGATE ANTARCTIC ICE-SHEET TEMPERATURE**
Marion Leduc-Leballeur, Ghislain Picard, LGGE (UJF, CNRS), France; Yann Kerr, Arnaud Mialon, CESBIO (CNES, CNRS, IRD, UPS), France

Sea Ice II

Session Co-Chairs: Saibun Tjuatja, University of Texas at Arlington; Albin Gasiewski, University of Colorado

FR4.Y2.1 15:40 **IMPROVED RETRIEVAL OF SEA ICE THICKNESS FROM SMOS AND CRYOSAT-2**
Lars Kaleschke, Xiangshan Tian-Kunze, Nina Maaß, University of Hamburg, Germany; Robert Ricker, Stefan Hendricks, Alfred-Wegener-Institut Helmholtz-Zentrum für Polar- und Meeresforschung, Germany; Matthias Drusch, European Space Agency, ESTEC, Netherlands

FR4.Y2.2 16:00 **MULTI-FREQUENCY POLARIMETRIC MICROWAVE OBSERVATIONS OF SNOW COVER ON FIRST-YEAR ARCTIC SEA ICE**
Vishnu Nandan, John J. Yackel, Jagvijay P S Gill, Torsten Geldsetzer, Mark C Fuller, University of Calgary, Canada

FR4.Y2.3 16:20 **VARIATION OF LANDFAST SEA ICE IN TERRA NOVA BAY, EAST ANTARCTICA, OBSERVED BY SAR INTERFEROMETRY**
Hoonyol Lee, Yeonchun Kim, Hyangsun Han, Yeonghun Ji, Kangwon National University, Republic of Korea

FR4.Y2.4 16:40 **HIGH RESOLUTION MARGINAL ICE ZONE MONITORING OF OPEN WATER IN THE BEAUFORT SEA USING SYNTHETIC APERTURE RADAR AND ICE MASS-BALANCE BUOYS**
Macarena Ortiz, Bjoern Lund, Alexis Denton, Juan Pinales, Hans Graber, University of Miami, United States

FR4.Y2.5 17:00 **IMPROVING MULTIYEAR ICE CONCENTRATION RETRIEVAL WITH ATMOSPHERIC MODEL DATA**
Yufang Ye, Georg Heygster, University of Bremen, Germany; Mohammed Shokr, Environment Canada, Canada

Friday, July 31 | 08:20 - 10:00 | Yellow 3
Session FR1.Y3 | Oral

Sentinel-1 SAR Interferometry

Session Co-Chairs: Yves-Louis Desnos, European Space Agency; Richard Bamler, German Aerospace Center (DLR)

FR1.Y3.1 08:20 **INTERFEROMETRIC PROCESSING OF SENTINEL-1A TOPS DATA**
Nestor Yague-Martinez, Fernando Rodriguez Gonzalez, Ramon Brcic, Robert Shau, Francesco de Zan, Giorgio Gomba, German Aerospace Center (DLR), Germany

FR1.Y3.2 08:40 **AN ADVANCED CO-REGISTRATION METHOD FOR TOPSAR INTERFEROMETRY**
Nida Sakar, Technische Universität München, Germany; Ramon Brcic, Fernando Rodriguez Gonzalez, German Aerospace Center (DLR), Germany; Nestor Yague-Martinez, Technische Universität München, Germany

FR1.Y3.3 09:00 **WIDE-AREA PERSISTENT SCATTERER INTERFEROMETRY WITH SENTINEL-1 TOPS MODE DATA**
Urs Wegmüller, Charles L. Werner, Andreas Wiesmann, Tazio Strozzi, Othmar Frey, Gamma Remote Sensing AG, Switzerland

FR1.Y3.4 09:20 **TOWARDS PRODUCT-LEVEL PERFORMANCE MODELS FOR SENTINEL-1 FOLLOW-ON MISSIONS: DEFORMATION MEASUREMENTS CASE STUDY**
Maria J. Sanjuan-Ferrer, Mariantonietta Zonno, Paco López-Dekker, German Aerospace Center (DLR), Germany; Freek van Leijen, Ramon Hanssen, Delft University of Technology, Netherlands

FR1.Y3.5 09:40 **SENTINEL-1 ASSESSMENT OF THE INTERFEROMETRIC WIDE-SWATH MODE**
Pau Prats-Iraola, Matteo Nannini, Rolf Scheiber, Francesco De Zan, Steffen Wollstadt, German Aerospace Center (DLR), Germany; Federico Minati, Francesco Vecchioli, Mario Costantini, e-GEOS SpA, Italy; Sven Borgstrom, Prospero De Martino, Valeria Siniscalchi, Istituto Nazionale di Geofisica e Vulcanologia, Italy; Thomas Walter, German Research Centre for Geosciences (GFZ), Germany; Michael Foumelis, RSAC c/o ESA-ESRIN, Italy; Yves-Louis Desnos, European Space Agency, ESRIN, Italy

Friday, July 31 | 10:30 - 12:10 | Yellow 3
Session FR2.Y3 | Oral

D-InSAR Applications

Session Co-Chairs: Claudia Notarnicola, EURAC; Ramon Hanssen, Technical University of Delft

FR2.Y3.1 10:30 **TIME SERIES OF AIRBORNE DINSAR DATA OVER THE AMAZON FLOODED VEGETATION: WATER LEVEL CHANGES**
Karlus Camara de Macedo, Christian Wimmer, Bradar, Brazil

FR2.Y3.2 10:50 **AN OPTIMAL COMBINATION OF A HYDROLOGICAL MODEL AND PSI TO ESTIMATE LAND SUBSIDENCE DRIVEN BY PIEZOMETRIC LEVEL CHANGES**
Fernando Vicente-Guijalba, Juan Manuel López Sánchez, Tomas Martinez-Marin, Roberto Tomas-Jover, University of Alicante, Spain

FR2.Y3.3 11:10 **COMBINING RADARSAT-2 AND COSMO-SKYMED DATA FOR ALPINE PERMAFROST DEFORMATION MONITORING**
Mattia Callegari, University of Pavia / EURAC, Italy; Alessio Cantone, Sarmap S.A., Switzerland; Giovanni Cuozzo, EURAC, Italy; Marco Defilippi, Sarmap S.A., Switzerland; Claudia Notarnicola, EURAC, Italy; Paolo Pasquali, Paolo Riccardi, Sarmap S.A., Switzerland; Roberto Seppi, University of Pavia, Italy; Santiago Seppi, EURAC, Italy; Francesco Zucca, University of Pavia, Italy

FR2.Y3.4 11:30 **NEW ADVANCES IN INTENSIVE DINSAR PROCESSING THROUGH CLOUD COMPUTING ENVIRONMENTS**
Ivana Zinno, Stefano Elefante, Claudio De Luca, Michele Manunta, Riccardo Lanari, Francesco Casu, CNR-IREA, Italy

FR2.Y3.5 11:50 **ESTIMATING EMPLACEMENT CONDITIONS OF PYROCLASTIC FLOW DEPOSITS USING INSAR AND FINITE ELEMENT MODELING**
David McAlpin, Franz Meyer, Peter Webley, Jonathan Dehn, James Begét, University of Alaska Fairbanks, United States

Friday, July 31 | 13:30 - 15:10 | Yellow 3
Session FR3.Y3 | Oral

Tomography and 3D Mapping I

Session Co-Chairs: Fabrizio Lombardini, Universita di Pisa; Gianfranco Fornaro, IREA

FR3.Y3.1 13:30 **COMPRESSIVE SENSING FOR NEUTROSPHERIC WATER VAPOR TOMOGRAPHY USING GNSS AND INSAR OBSERVATIONS**
Marion Heublein, Karlsruhe Institute of Technology, Germany; Xiao Xiang Zhu, German Aerospace Center (DLR), Germany; Fadwa Alshawaf, Michael Mayer, Karlsruhe Institute of Technology, Germany; Richard Bamler, German Aerospace Center (DLR), Germany; Stefan Hinz, Karlsruhe Institute of Technology, Germany

FR3.Y3.2 13:50 **SAR TOMOGRAPHY FOR SPATIO-TEMPORAL INVERSION OF POINT-LIKE SCATTERERS IN URBAN AREAS**
Muhammad Adnan Siddique, Swiss Federal Institute of Technology, ETH Zurich, Switzerland; Urs Wegmüller, Gamma Remote Sensing AG, Switzerland; Irena Hajnsek, Swiss Federal Institute of Technology, ETH Zurich / German Aerospace Center - DLR, Switzerland; Othmar Frey, Swiss Federal Institute of Technology, ETH Zurich / Gamma Remote Sensing AG, Switzerland

FR3.Y3.3 14:10 **INVESTIGATION OF SEA ICE AND LAKE ICE USING GROUND-BASED SAR TOMOGRAPHY**
Temesgen Gebrie Yitayew, UiT-The Arctic University of Norway, Norway; Laurent Ferro-Famil, University of Rennes 1, France; Torbjørn Eltoft, UiT-The Arctic University of Norway, Norway

FR3.Y3.4 14:30 **POLARIMETRIC 3-D IMAGING WITH AIRBORNE HOLOGRAPHIC SAR TOMOGRAPHY OVER GLACIERS**
Octavio Ponce, Pau Prats-Iraola, Rolf Scheiber, Andreas Reigber, German Aerospace Center (DLR), Germany; Irena Hajnsek, German Aerospace Center (DLR) / ETH Zurich, Germany; Alberto Moreira, German Aerospace Center (DLR), Germany

FR3.Y3.5 14:50 **SUPPORT BASED MULTIPLE SCATTERERS DETECTION IN SAR TOMOGRAPHY**
Alessandra Budillon, Angel Caroline Johnsy, Gilda Schirinzi, University of Naples Parthenope, Italy

Friday, July 31 | 15:40 - 17:20 | Yellow 3
Session FR4.Y3 | Oral

Tomography and 3D Mapping II

Session Co-Chairs: Ferdinando Nunziata, Università degli Studi di Napoli Parthenope; Fabrizio Lombardini, Universita di Pisa

FR4.Y3.1 15:40 **STEREOSCOPIC HIGH RESOLUTION CANOPY HEIGHT: TOWARD A VALIDATION FOR GLOBAL COVERAGE**
David Lagomasino, Universities Space Research Association, United States; Temilola Fatoyinbo, Seung-Kuk Lee, Batuhan Osmanoglu, NASA Goddard Space Flight Center, United States

FR4.Y3.2 16:00 **TERRASAR-X STEREO-RADARGRAMMETRIC FOREST DEM GENERATION**
Fernando Rodriguez Gonzalez, Michael Eineder, German Aerospace Center (DLR), Germany; Richard Bamler, German Aerospace Center (DLR), Technische Universität München (TUM), Germany

FR4.Y3.3 16:20 **STRUCTURAL CLASSIFICATION OF FOREST BY MEANS OF L-BAND TOMOGRAPHIC SAR**
Marivi Tello, Victor Cazcarra, Matteo Pardini, Konstantinos Papathanassiou, Deutsches Zentrum fur Luft und Raumfahrt, Germany

FR4.Y3.4 16:40 **SPATIAL AND TEMPORAL CHARACTERIZATION OF AGRICULTURAL CROP VOLUMES BY MEANS OF POLARIMETRIC SAR TOMOGRAPHY AT C-BAND**
Hannah Joerg, German Aerospace Center (DLR) / ETH Zurich, Germany; Matteo Pardini, German Aerospace Center (DLR), Germany; Irena Hajnsek, German Aerospace Center (DLR) / ETH Zurich, Germany

FR4.Y3.5 17:00 **ASSESSMENT OF WORLDDEMTM GLOBAL ELEVATION MODEL USING DIFFERENT REFERENCES**
Wolfgang Koppe, Laura Henrichs, Airbus Defence and Space, Germany; Philipp Hummel, CompassData, United States

Friday, July 31 | 08:20 - 10:00 | Blue 1

Session FR1.B1 | Oral-Invited

NASA ESTO Flight Technologies for Instrument and Information Systems Maturation Using SmallSats I

Session Co-Chairs: Charles Norton, NASA Jet Propulsion Laboratory; Mike Little, NASA Goddard Space Flight Center

FR1.B1.1 08:20 **THE SIGNIFICANCE OF FLIGHT VALIDATION FOR EARTH SCIENCE INSTRUMENT AND INFORMATION SYSTEMS COMPONENT TECHNOLOGIES**
Charles Norton, Jet Propulsion Laboratory, California Institute of Technology, United States; Michael Pasciuto, NASA Earth Science Technology Office, United States; Keith Murray, NASA Langley Research Center, United States; Pamela Millar, NASA Earth Science Technology Office, United States; Robert Connerton, NASA Goddard Space Flight Center, United States

FR1.B1.3 09:00 **THE RAVAN CUBESAT MISSION: ADVANCING TECHNOLOGIES FOR CLIMATE OBSERVATION**
William Swartz, JHU/Applied Physics Laboratory, United States; Lars Dyrud, Draper Laboratory, United States; Steven Lorentz, L-1 Standards and Technology, Inc., United States; Dong Wu, Warren Wiscombe, NASA Goddard Space Flight Center, United States; Stergios Papadakis, Philip Huang, Edward Reynolds, JHU/Applied Physics Laboratory, United States; Allan Smith, L-1 Standards and Technology, Inc., United States; David Deglau, JHU/Applied Physics Laboratory, United States

FR1.B1.4 09:20 **THE MICROMAS CUBESAT RADIOMETER MISSION**
William Blackwell, MIT Lincoln Laboratory, United States

FR1.B1.5 09:40 **DEVELOPMENT OF THE MICROWAVE RADIOMETER TECHNOLOGY ACCELERATION (MIRATA) CUBESAT FOR ALL-WEATHER ATMOSPHERIC SOUNDING**
Kerri Cahoy, Anne Marinan, Weston Marlow, Timothy Cordeiro, Massachusetts Institute of Technology, United States; William Blackwell, MIT Lincoln Laboratory, United States; Rebecca Bishop, The Aerospace Corporation, United States; Neal Erickson, University of Massachusetts Amherst, United States

Friday, July 31 | 10:30 - 12:10 | Blue 1

Session FR2.B1 | Oral-Invited

NASA ESTO Flight Technologies for Instrument and Information Systems Maturation Using SmallSats II

Session Co-Chairs: Charles Norton, NASA Jet Propulsion Laboratory; Mike Little, NASA Goddard Space Flight Center

FR2.B1.1 10:30 **NASA JOINT STUDY ON LOW-COST SCIENCE INSTRUMENTS, PLATFORMS, AND MISSION ARCHITECTURES**
Michael Seablom, Andrew Petro, Timothy van Sant, Charles Norton, NASA, United States; Christopher S. Ruf, University of Michigan, United States

FR2.B1.2 10:50 **AUTONOMY FOR REMOTE SENSING - EXPERIENCES FROM THE IPEX CUBESAT**
Joshua Doubleday, Steve Chien, Charles Norton, Kiri Wagstaff, David Thompson, Jet Propulsion Laboratory, United States; John Bellardo, Craig Francis, Eric Baumgarten, California Polytechnic State University, San Luis Obispo, CA, United States

FR2.B1.3 11:10 **TEMPORAL EXPERIMENT FOR STORMS AND TROPICAL SYSTEMS (TEMPEST) CUBESAT CONSTELLATION MISSION**
Steven C. Reising, Colorado State University, United States; Todd C. Gaier, Sharmila Padmanabhan, Boon H. Lim, Shannon T. Brown, NASA/Caltech Jet Propulsion Laboratory, United States; Christian D. Kummerow, V. Chandrasekar, Susan C. van den Heever, Colorado State University, United States; Zhengzhao Johnny Luo, City College of New York, United States; Tristan S. L'Ecuyer, University of Wisconsin-Madison, United States; Stephen Joseph Munchak, NASA Goddard Space Flight Center, United States; Christopher S. Ruf, University of Michigan, United States; Ziad S. Haddad, NASA/Caltech Jet Propulsion Laboratory, United States; Greg Berg, Boeing Company, United States; Timothy C. Koch, NASA/Caltech Jet Propulsion Laboratory, United States; Sid-Ahmed Boukabara, NOAA NESDIS, United States

FR2.B1.4 11:30 **ICECUBE TO MEASURE CLOUD ICE WITH 874-GHZ RADIOMETRY**
Dong Wu, Jaime Esper, Negar Ehsan, Thomas Johnson, William Mast, Jeffrey R. Piepmeier, Paul Racette, NASA Goddard Space Flight Center, United States

FR2.B1.5 11:50 **A LINEAR MODE PHOTON-COUNTING (LMPC) DETECTOR ARRAY IN A CUBESAT TO ENABLE EARTH SCIENCE LIDAR MEASUREMENTS**
Renny Fields, The Aerospace Corporation, United States; Xiaoli Sun, James Abshire, NASA Goddard Space Flight Center, United States; Jeff Beck, Richard Rawlings, William Sullivan III, DRS Technologies Incorporated,C4ISR Group, United States; David Hinkley, The Aerospace Corporation, United States

Friday, July 31 | 13:30 - 15:10 | Blue 1

Session FR3.B1 | Oral-Invited

UAVSAR: Instrument Status and Science Activities I

Session Co-Chairs: Yunling Lou, NASA Jet Propulsion Laboratory; Jacob Van Zyl, NASA Jet Propulsion Laboratory

FR3.B1.1 13:30 **MULTIPLE GLACIER SURGES OBSERVED WITH AIRBORNE AND SPACEBORNE INTERFEROMETRIC SYNTHETIC APERTURE RADAR**
Brent Minchew, Mark Simons, Scott Hensley, California Institute of Technology, United States; Helgi Bjornsson, Finnur Palsson, University of Iceland, Iceland; Pietro Milillo, University of Basilicata, Italy

FR3.B1.3 14:10 **MEASURING SHORT TERM AND ANNUAL GLACIAL MOTION IN THE CHILEAN ANDES WITH UAVSAR RADAR**
Gerald Bawden, National Aeronautics and Space Administration, United States; Bruce Molnia, United States Geological Survey, United States

FR3.B1.4 14:30 **JOINT RETRIEVALS OF SOIL MOISTURE USING AIRMOSS P-BAND AND UAVSAR L-BAND DATA**
Alireza Tabatabaeenejad, Richard Chen, Mahta Moghaddam, University of Southern California, United States

FR3.B1.5 14:50 **UAVSAR OBSERVATIONS OF COSEISMIC AND TRIGGERED SLIP FOR RECENT EARTHQUAKES IN CALIFORNIA**
Andrea Donnellan, Jay Parker, Jet Propulsion Laboratory, United States; Lisa Grant Ludwig, John Rundle, University of California, United States

Friday, July 31 | 15:40 - 17:20 | Blue 1

Session FR4.B1 | Oral-Invited

UAVSAR: Instrument Status and Science Activities II

Session Co-Chairs: Yunling Lou, NASA Jet Propulsion Laboratory; Jacob Van Zyl, NASA Jet Propulsion Laboratory

FR4.B1.1 15:40 **MAPPING DEFORMATION CAUSED BY FAULTS, LANDSLIDES AND GEOTHERMAL EXPLOITATION WITH TIME-SERIES AND 3D ANALYSIS OF UAVSAR REPEAT-PASS INTERFEROMETRY STACKS**
Eric Jameson Fielding, Jet Propulsion Laboratory, California Institute of Technology, United States; Brent Delbridge, University of California, Berkeley, United States; Manoochehr Shirzaei, Arizona State University, United States; Alejandro Gonzalez-Ortega, Scripps Institute of Oceanography, University of California, San Diego, United States; Roland Bürgmann, Estelle Chaussard, University of California, Berkeley, United States; Eric Gurrola, Cathleen Jones, Scott Hensley, Jet Propulsion Laboratory, California Institute of Technology, United States

FR4.B1.2 16:00 **UAVSAR APPLIED TO VOLCANOES**
Paul Lundgren, California Institute of Technology, United States; Pietro Milillo, Università degli Studi della Basilicata, Italy; Michael Poland, Asta Miklius, U.S. Geological Survey, United States; Sergey Samsonov, Canada Centre for Remote Sensing, Canada; Fernando Gil, Maria Cordova, Servicio Nacional de Geología y Minería, Chile; Akiko Tanaka, Advanced Industrial Science and Technology, Japan; Scott Hensley, Susan Owen, California Institute of Technology, United States

FR4.B1.3 16:20 **UAVSAR CAPABILITIES FOR MONITORING LEVEES, DIKES, AND SINKHOLES/DOLINES**
Cathleen Jones, Jet Propulsion Laboratory, United States

FR4.B1.4 16:40 **ONBOARD PROCESSING FOR RAPID RESPONSE APPLICATIONS**
Yunling Lou, Duane Clark, Brian Hawkins, Phillip Marks, Ron Muellerschoen, Jet Propulsion Laboratory, California Institute of Technology, United States; Charles Wang, Qualcomm Inc., United States

Friday, July 31 | 08:20 - 10:00 | Blue 2
Session FR1.B2 | Oral-Invited

Sentinel-3 Mission Status and Preparation for Mission Exploitation I

Session Co-Chairs: Susanne Mecklenburg, European Space Agency; Craig Donlon, European Space Agency

FR1.B2.1 08:20 **THE COPERNICUS SENTINEL-3 MISSION STATUS**
Craig Donlon, Susanne Mecklenburg, Bruno Berruti, Constantin Mavrochordatos, Bernd Seitz, Helge Rebhan, European Space Agency, ESTEC, Netherlands; Jens Nieke, Johannes Frerrick, European Space Agency, ESRIN, Italy

FR1.B2.3 09:00 **THE SENTINEL-3 MISSION: GETTING READY FOR OPERATIONS**
Susanne Mecklenburg, Bruno Berruti, European Space Agency (ESA), Italy; Dany Provost, Hilary Wilson, EUMETSAT, Germany; Philippe Goryl, Pierre Féménias, European Space Agency (ESA), Italy

FR1.B2.4 09:20 **MONITORING THE WORLD'S COASTAL OCEAN WITH SENTINEL-3 ALTIMETRY**
Paolo Cipollini, National Oceanography Centre, United Kingdom; Jérôme Benveniste, European Space Agency, ESRIN, Italy; David Cotton, Satellite Oceanography Consultants, United Kingdom; Craig Donlon, European Space Agency, ESTEC, Netherlands

FR1.B2.5 09:40 **SENTINEL-3 STM SAR OCEAN RETRACKING ALGORITHM AND SAMOSA MODEL**
Salvatore Dinardo, Serco / ESA / ESRIN, Italy; Bruno Lucas, DEIMOS, ESA/ESRIN, Italy; Jérôme Benveniste, European Space Agency, ESRIN, Italy

Friday, July 31 | 10:30 - 12:10 | Blue 2
Session FR2.B2 | Oral-Invited

Sentinel-3 Mission Status and Preparation for Mission Exploitation II

Session Co-Chairs: Craig Donlon, European Space Agency; Yves-Louis Desnos, European Space Agency

FR2.B2.1 10:30 **SENTINEL-3 OCEAN COLOUR PRODUCTS FOR CLIMATE STUDIES**
Shubha Sathyendranath, Trevor Platt, Mike Grant, Plymouth Marine Laboratory, United Kingdom; Carsten Brockmann, Brockmann-Consult GmbH, Germany; Francois Steinmetz, Hygeos, France; Frédéric Mélin, Joint Research Centre, Italy; Vanda Brotas, University of Lisbon, Portugal; Dagmar Mueller, Hajo Krasemann, Helmholtz-Zentrum Geesthacht, Germany; Steve Groom, Plymouth Marine Laboratory, United Kingdom; Peter Regner, European Space Agency (ESA), Italy

FR2.B2.2 10:50 **SENTINEL-3 SEA AND LAND SURFACE TEMPERATURE RADIOMETER FOR MONITORING OF GLOBAL SURFACE TEMPERATURES**
David Smith, STFC, United Kingdom

FR2.B2.3 11:10 **THE EUMETSAT SENTINEL-3 MARINE CENTRE FOR THE SENTINEL-3 OCEANOGRAPHY PRODUCTS**
F. Montagner, C. Nogueira Loddo, Hans Bonekamp, V. Santacesaria, H. K. Wilson, Dany Provost, EUMETSAT, Germany

FR2.B2.4 11:30 **THE SENTINEL-3 MISSION PERFORMANCE CENTER**
Jerome Bruniquel, ACRI-ST, France; Pierre Féménias, Philippe Goryl, European Space Agency, ESRIN, Italy; Hans Bonekamp, EUMETSAT, Germany

FR2.B2.5 11:50 **TOOLBOX FOR THE EXPLOITATION OF SENTINEL - 3**
Thomas Storm, Norman Fomferra, Carsten Brockmann, Brockmann-Consult GmbH, Germany; Peter Regner, European Space Agency, ESRIN, Italy

Friday, July 31 | 13:30 - 15:10 | Blue 2
Session FR3.B2 | Oral-Invited

Aquarius: Salinity, Calibration and Applications I

Session Co-Chairs: Emmanuel Dinnat, Chapman University; David LeVine, NASA Goddard Space Flight Center

FR3.B2.1 13:30 **REMOTE SENSING OF SALINITY AND OVERVIEW OF RESULTS FROM AQUARIUS**
David Le Vine, NASA Goddard Space Flight Center, United States; Emmanuel Dinnat, Chapman University, United States; Thomas Meissner, Frank Wentz, Remote Sensing Systems, United States; Simon Yueh, Jet Propulsion Laboratory, United States; Gary Lagerloef, Earth and Space Research, United States

FR3.B2.3 14:10 **AQUARIUS RADIOMETERS CALIBRATION**
Emmanuel Dinnat, NASA Goddard Space Flight Center / Chapman University, United States; David Le Vine, Jeffrey R. Piepmeier, NASA Goddard Space Flight Center, United States; Shannon T. Brown, Jet Propulsion Laboratory, California Institute of Technology, United States

FR3.B2.4 14:30 **IMPACT OF SYSTEMATIC CALIBRATION ANOMALIES ON SEA-SURFACE SALINITY RETRIEVALS FROM AQUARIUS**
Sidharth Misra, Shannon T. Brown, Jet Propulsion Laboratory, California Institute of Technology, United States

FR3.B2.5 14:50 **AQUARIUS SCATTEROMETER CALIBRATION AND WIND RETRIEVAL**
Alexander Fore, Gregory Neumann, Adam Freedman, Mario Julian Chaubell, Wenqing Tang, Akiko Hayashi, Simon Yueh, Jet Propulsion Laboratory, United States

Friday, July 31 | 15:40 - 17:20 | Blue 2
Session FR4.B2 | Oral-Invited

Aquarius: Salinity, Calibration and Applications II

Session Co-Chairs: Emmanuel Dinnat, Chapman University; David LeVine, NASA Goddard Space Flight Center

FR4.B2.1 15:40 **SALINITY VALIDATION AND RESULTS: STATUS VIS-À-VIS 0.2 PSU AND SEASONAL TRENDS**
Gary Lagerloef, Hsun-Ying Kao, Earth and Space Research, United States

FR4.B2.2 16:00 **ESTIMATE OF UNCERTAINTIES IN THE AQUARIUS SALINITY RETRIEVALS**
Thomas Meissner, Frank Wentz, Remote Sensing Systems, United States; Gary Lagerloef, Earth and Space Research, United States; David Le Vine, NASA Goddard Space Flight Center, United States; Tony Lee, Jet Propulsion Laboratory, United States

FR4.B2.3 16:20 **PROCESS-ORIENTED EVALUATION OF AQUARIUS SALINITY USING SPURS AND OTHER IN-SITU DATA**
Tong Lee, Jet Propulsion Laboratory, California Institute of Technology, United States; Yi Chao, Remote Sensing Solutions, Inc, United States

FR4.B2.4 16:40 **EFFECT OF RAIN ON SALINITY RETRIEVAL**
Wenqing Tang, Simon Yueh, Alexander Fore, Akiko Hayashi, Jet Propulsion Laboratory, United States

FR4.B2.5 17:00 **ON THE USE OF AQUARIUS OBSERVATIONS TO STUDY THE CRYOSPHERE AT HIGH LATITUDES**
Ludovic Brucker, NASA GSFC / USRA GESTAR, United States; Emmanuel Dinnat, NASA Goddard Space Flight Center / Chapman University, United States; Alexandre Roy, University of Sherbrooke, Canada; Caglar Yardim, Ohio State University, United States

Scatterometer, Cloud, and Rain Radar

Session Co-Chairs: Paul Chang, NOAA/NESDIS; Paul Siqueira, University of Massachusetts

FR1.R1.1 08:20 **PROCESSING OF THE CFOSAT-SWIM DATA: ALGORITHM PROTOTYPING AND SIMULATIONS**
Céline Tison, CNES, France; Danièle Hauser, Lauriane Delaye, LATMOS CNRS-UVSQ, France; Thierry Koleck, CNES, France; Nicolas Lamquin, ACRI-ST, France; Milena Planells, Flavien Gouillon, Patrick Castillan, CNES, France

FR1.R1.2 08:40 **CROSS-POLARIZED MEASUREMENTS OF SEA-SURFACE NRCS IN HIGH WINDS OBSERVED WITH A PROTOTYPE ANTENNA**
Joseph Sapp, Stephen Frasier, Tom Hartley, University of Massachusetts, United States; Paul Chang, Zorana Jelenak, NOAA, United States; Chung-Chi Lin, European Space Agency (ESA), Netherlands; Mikael Petersson, Per Magnusson, Patrik Dimming, RUAG Space Sweden, Sweden

FR1.R1.3 09:00 **THE SCA WIND SCATTEROMETER ON METOP SECOND GENERATION**
Friedhelm Rostan, Dieter Ulrich, Sebastian Riegger, Airbus Defence and Space, Germany; Allan Ostergaard, European Space Agency, ESTEC, Netherlands

FR1.R1.4 09:20 **THE PROCESSING AND SIMULATION OF THE CFOSAT RFSCAT**
Risheng Yun, Xingou Xu, Xiaolong Dong, Di Zhu, National Space Science Center, Chinese Academy of Sciences, China

FR1.R1.5 09:40 **C-BAND RADAR SIGNATURES OF RAIN OVER THE OCEAN - REVISITED**
Werner Alpers, University of Hamburg, Germany

UAV and Airborne Platforms II

Session Co-Chairs: Franz Meyer, University of Alaska Fairbanks; Gordon Farquharson, University of Washington

FR2.R1.1 10:30 **AK-ARISE – DEVELOPING A FULLY-POLARIMETRIC INTERFEROMETRIC AIRBORNE L-BAND SAR SYSTEM FOR ALASKA**
Franz Meyer, Scott Arko, University of Alaska Fairbanks, United States; Evan Zaugg, Alexander Kozak, ARTEMIS, Inc., United States; Eyal Saiet, Michael Hatfield, Dayne Broderson, University of Alaska Fairbanks, United States

FR2.R1.2 10:50 **A CALIBRATED 35 GHZ AIRBORNE SCATTEROMETER FOR NASA'S SURFACE WATER AND OCEAN TOPOGRAPHY MISSION**
Gerard Ruiz Carregal, Tom Hartley, Paul Siqueira, University of Massachusetts, United States; Jan-Willem De Bleser, Mark S. Haynes, Daniel Esteban-Fernandez, Jet Propulsion Laboratory, United States; Thomas Millette, Mount Holyoke College, United States

FR2.R1.3 11:10 **SCANNING L-BAND ACTIVE PASSIVE (SLAP)—RECENT RESULTS FROM AN AIRBORNE SIMULATOR FOR SMAP**
Edward Kim, NASA Goddard Space Flight Center, United States

FR2.R1.4 11:30 **UAV: LOW-COST REMOTE SENSING FOR HIGH-RESOLUTION INVESTIGATION OF LANDSLIDES**
Daniele Giordan, Andrea Manconi, National Research Council - Research Institute for Geo-Hydrological Protection, Italy; Dwayne D. Tannant, University of British Columbia, Canada; Paolo Allasia, National Research Council - Research Institute for Geo-Hydrological Protection, Italy

FR2.R1.5 11:50 **MULTISPECTRAL SENSORS CARRIED ON UNMANNED AERIAL VEHICLE (UAV) FOR TROPHIC STATE MAPPIING OF THE SMALL RESERVOIR IN KINMEN, TAIWAN**
Tung-Ching Su, National Quemoy University, Taiwan

Ground Based Systems

Session Co-Chairs: Surya Durbha, IIT Bombay; Emmanuel Trouvé, Univ. Savoie

FR3.R1.1 13:30 **FOCUSING SAR IMAGES BY COMPRESSIVE SENSING: STUDY OF INTERFEROMETRIC PROPERTIES**
Rossella Giordano, Pietro Guccione, Politecnico di Bari, Italy; Giuseppe Cifarelli, Luigi Mascolo, Dian s.r.l., Italy; Giovanni Nico, Consiglio Nazionale delle Ricerche (CNR), Italy

FR3.R1.2 13:50 **FIRST RESULTS OF AFRISCAT, A TOWER-BASED RADAR EXPERIMENT IN AFRICAN FOREST**
Clément Albinet, Thierry Koleck, Thuy Le Toan, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Pierre Borderies, Office National d'Etudes et de Recherches Aerospatiales (ONERA), France; Ludovic Villard, Alia Hamadi, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Gaia Vaglio Laurin, Giacomo Nicolini, Riccardo Valentini, Centro Euro-Mediterraneo sui Cambiamenti Climatici, France

FR3.R1.3 14:10 **DESIGN OF LOW-COST, COMPACT AND WEATHER-PROOF WHOLE SKY IMAGERS FOR HIGH-DYNAMIC-RANGE CAPTURES**
Soumyabrata Dev, Nanyang Technological University, Singapore; Florian M. Savoy, Advanced Digital Sciences Center, Singapore; Yee Hui Lee, Nanyang Technological University, Singapore; Stefan Winkler, Advanced Digital Sciences Center, Singapore

FR3.R1.4 14:30 **C-BAND POLARIMETRIC WEATHER RADAR CALIBRATION USING A FUZZY LOGIC FUSION OF THREE TECHNIQUES**
Marta Tecla Falconi, Sapienza University of Rome, Italy; Gianfranco Vulpiani, Presidency of the Council of Ministers, Italy; Mario Montopoli, University of L'Aquila, Italy; Frank Silvio Marzano, Sapienza University of Rome, Italy

FR3.R1.5 14:50 **CASE STUDY OF A PEDESTRIAN BRIDGE STATIC AND DYNAMIC MONITORING USING INTERFEROMETRIC GROUND-BASED RADAR**
Arpik Hakobyan, C-CORE, MUN, Canada; Peter McGuire, Desmond Power, Thomas Puestow, C-CORE, Canada; Cecilia Moloney, MUN, Canada; Guido Luzi, CTTC, Spain

Lidar Sensors and Applications II

Session Co-Chairs: John Kerekes, Rochester Institute of Technology; Clement Mallet, IGN

FR4.R1.1 15:40 **SEPARABILITY OF TARGETS IN URBAN AREAS USING FEATURES FROM FULL-WAVEFORM LIDARA DATA**
Mohsen Azadbakht, Clive Fraser, Chunsun Zhang, The University of Melbourne, Australia

FR4.R1.2 16:00 **CHARACTERIZATION OF TREE STRUCTURES FROM MOBILE LIDAR DATA FOR THE IDENTIFICATION OF ASH TREES**
Henry Mak, Baoxin Hu, York University, Canada

FR4.R1.3 16:20 **AUTOMATED OBJECT EXTRACTION FROM MLS DATA: A SURVEY**
Kunyuan Chen, Ming Cheng, Xiamen University, China; Menglan Zhou, Xinqu Chen, Yifei Chen, Jonathan Li, University of Waterloo, Canada; Hongshan Nie, Hunan Intelligent Things Technology Co., Ltd., China

FR4.R1.4 16:40 **MOTION COMPENSATION STUDY FOR A FLOATING DOPPLER WIND LIDAR.**
Jordi Tiana-Alsina, Universitat Politècnica de Catalunya, Spain; Miguel A. Gutierrez, Institut de Recerca en Energia de Catalunya, Spain; Ines Würth, Universität Stuttgart, Germany; Joan Puigdefàbregas, Francesc Rocadenbosch, Universitat Politècnica de Catalunya, Spain

FR4.R1.5 17:00 **3D IMAGE GENERATION WITH LASER RADAR BASED ON APD ARRAYS**
Guoqing Zhou, Mingyan Li, Linjun Jiang, Chenyang Li, Na Liu, Yue Sun, Tao Yue, Guilin University of Technology, China

Friday, July 31 | 08:20 - 10:00 | Red 2
Session FR1.R2 | Oral-Invited

Citizen Science for Earth Observation I

Session Co-Chairs: Matthieu Molinier, VTT Technical Research Centre of Finland; Steffen Fritz, IIASA - International Institute for Applied Systems Analysis

FR1.R2.1 08:20 **CITIZEN SCIENCE IN SUPPORT OF REMOTE SENSING RESEARCH**
Giles Foody, University of Nottingham, United Kingdom

FR1.R2.3 09:00 **ENABLING THE TRANSITION TOWARDS EARTH OBSERVATION SCIENCE 2.0**
Pierre-Philippe Mathieu, Yves-Louis Desnos, Michael Rast, European Space Agency (ESA), Italy

FR1.R2.4 09:20 **UNDERSTANDING THE SPATIAL RESOLUTION OF RISK MANAGEMENT: SCIENTIFIC AND COMMUNITY-GENERATED HAZARD MAPS**
Kira Sullivan-Wiley, Boston University, United States

FR1.R2.5 09:40 **FROM CITIZEN SCIENCE TO CITIZEN OBSERVATORIES**
Alan Grainger, University of Leeds, United Kingdom

Friday, July 31 | 10:30 - 12:10 | Red 2
Session FR2.R2 | Oral-Invited

Citizen Science for Earth Observation II

Session Co-Chairs: Matthieu Molinier, VTT Technical Research Centre of Finland; Steffen Fritz, IIASA - International Institute for Applied Systems Analysis

FR2.R2.1 10:30 **USING CROWDSOURCING AND SERIOUS GAMING TO GATHER LAND COVER AND LAND USE DATA**
Linda See, Tobias Sturn, Steffen Fritz, Ian McCallum, Christoph Perger, Carl Salk, International Institute for Applied Systems Analysis, Austria; Christian Schill, University of Freiburg, Germany; Martina Duerauer, Dahlia Domian, International Institute for Applied Systems Analysis, Austria

FR2.R2.2 10:50 **A CITIZEN SCIENCE APPROACH FOR THE CLASSIFICATION OF VHR IMAGES IN URBAN AREAS**
Francesco Carbone, GEO-K SRL, Italy; Fabio Del Frate, Zina Mitraka, Giovanni Schiavon, University of Rome Tor Vergata, Italy

FR2.R2.3 11:10 **PARTICIPATIVE FOREST IN-SITU MEASUREMENTS FOR BIOMASS MAPPING IN SATELLITE IMAGES OVER DURANGO STATE, MEXICO**
Matthieu Molinier, Timo Toivanen, Tuomas Häme, VTT Technical Research Centre of Finland, Finland; Carlos López Sánchez, Javier Corral Rivas, Daniel Vega, Universidad Juárez del Estado de Durango, Mexico

FR2.R2.4 11:30 **DEVELOPING AN INTEGRATED FOREST MONITORING SYSTEM BY COMBINING LANDSAT TIME SERIES AND COMMUNITY-BASED OBSERVATIONS**
Arun Pratihast, Ben DeVries, Aldo Bergsma, Martin Herold, Wageningen University, Netherlands

FR2.R2.5 11:50 **ADVANCES IN COMBINING OPTICAL CITIZEN OBSERVATIONS ON WATER QUALITY WITH SATELLITE OBSERVATIONS AS PART OF AN ENVIRONMENTAL MONITORING SYSTEM**
Timo Pyhälahti, Finnish Environment Institute (SYKE), Finland; Timo Toivanen, VTT Technical Research Centre of Finland, Finland; Kari Y. Kallio, Marko Järvinen, Finnish Environment Institute (SYKE), Finland; Matthieu Molinier, VTT Technical Research Centre of Finland, Finland; Sampsa Koponen, Finnish Environment Institute (SYKE), Finland; Ville Kotovirta, Chengyuan Peng, VTT Technical Research Centre of Finland, Finland; Saku Anttila, Finnish Environment Institute (SYKE), Finland; Marnix Laanen, Water Insight, Netherlands; Matti Lindholm, Finnish Environment Institute (SYKE), Finland

Friday, July 31 | 13:30 - 15:10 | Red 2
Session FR3.R2 | Oral-Invited

High Spectral Resolution Image Processing for Mapping, Quantifying and Detecting Biodiversity I

Session Co-Chairs: Michael Förster, Technical University of Berlin; Ben Somers, Katholieke Universiteit Leuven

FR3.R2.1 13:30 **ECOSYSTEM SERVICES MAPPING USING ESSENTIAL BIODIVERSITY VARIABLES**
Michael E. Schaepman, Daniela Braun, Alexander Damm, University of Zurich, Switzerland; Angela Lausch, Helmholtz Centre for Environmental Research – UFZ, Germany; Gary Geller, NASA Jet Propulsion Laboratory, United States; Owen Petchey, University of Zurich, Switzerland

FR3.R2.3 14:10 **OPTIMAL STRUCTURAL AND SPECTRAL FEATURES FOR TREE SPECIES CLASSIFICATION USING COMBINED AIRBORNE LASER SCANNING AND HYPERSPECTRAL DATA**
Hossein Torabzadeh, Reik Leiterer, Michael E. Schaepman, Felix Morsdorf, University of Zurich, Switzerland

FR3.R2.4 14:30 **CHARACTERISING PHENOLOGICAL PROFILES OF THE BRAZILIAN CERRADO WITH TIME SERIES OF MULTISPECTRAL AND HYPERSPECTRAL SATELLITE DATA**
Pedro J. Leitão, Marcel Schwieder, Akpona Okujeni, Andreas Rabe, Sebastian van der Linden, Patrick Hostert, Humboldt-Universität zu Berlin, Germany

FR3.R2.5 14:50 **TOWARDS ROBUST FOREST LEAF AREA INDEX ASSESSMENT USING AN IMAGING SPECTROSCOPY SIMULATION APPROACH**
Wei Yao, Martin van Leeuwen, Paul Romanczyk, Dave Kelbe, Scott Brown, John Kerekes, Jan van Aardt, Rochester Institute of Technology, United States

Friday, July 31 | 15:40 - 17:20 | Red 2
Session FR4.R2 | Oral-Invited

High Spectral Resolution Image Processing for Mapping, Quantifying and Detecting Biodiversity II

Session Co-Chairs: Michael Förster, Technical University of Berlin; Ben Somers, Katholieke Universiteit Leuven

FR4.R2.1 15:40 **REMOTE SENSING OF ESSENTIAL BIODIVERSITY VARIABLES**
Andrew Skidmore, University Twente, Netherlands; Sander Mucher, Alterra, Netherlands; Martin Wegmann, German Aerospace Center (DLR), Ghana; Nathalie Pettorelli, Zoological Society London, United Kingdom; Tiejun Wang, University Twente, Netherlands

FR4.R2.2 16:00 **ASSESSING TROPICAL FOREST CANOPY DIVERSITY ACROSS A BIOCLIMATIC GRADIENT USING IMAGING SPECTROSCOPY**
Ben Somers, KU Leuven, Belgium; Gregory P Asner, Roberta Martin, Christopher Anderson, David Knapp, Carnegie Institution for Science, United States; Joseph Wright, Smithsonian Tropical Research Institute, Panama; Ruben Vandekerchove, Flemish Institute for Technological Research, Belgium

FR4.R2.3 16:20 **STONE PINE FOREST MAPPING - A COMPARISON BETWEEN HYPERSPECTRAL AND MULTISPECTRAL IMAGES**
Mohamad Awad, CNRS, Lebanon

FR4.R2.4 16:40 **IMAGING SPECTROSCOPY TIME SERIES ANALYSIS OF CROWN COMPONENTS FOR DIFFERENT DECIDUOUS TREE TYPES IN AN ALLUVIAL FOREST**
Anne Clasen, Michael Förster, Kyle Pipkins, Birgit Kleinschmit, Technische Universität Berlin, Germany

FR4.R2.5 17:00 **MAPPING INDIVIDUAL TREES FROM AIRBORNE MULTI-SENSOR IMAGERY**
Juheon Lee, Xiaohao Cai, Carola Schoenlieb, David Coomes, Cambridge University, United Kingdom

Electromagnetic Scattering

Session Chair: Mariko Burgin, NASA Jet Propulsion Laboratory

MOP.PA.1 Board PA.1 **EXTENSION AND VALIDATION OF AN ADVANCED INTEGRAL EQUATION MODEL FOR BISTATIC SCATTERING FROM ROUGH SURFACES**
Kuan-Liang Chen, National Central University, Taiwan; Kun-Shan Chen, Chinese Academy of Sciences, China; Hsuan Ren, National Central University, Taiwan

MOP.PA.2 Board PA.2 **COMPUTATIONALLY EFFICIENT FOREST SCATTERING MODEL BASED ON DOMAIN DECOMPOSITION METHOD**
Ines Fenni, Hélène Roussel, Muriel Darces, L2E, UPMC University, France; Raj Mittra, EMC Lab, PennState University, United States

MOP.PA.3 Board PA.3 **A SIMPLIFIED APPROACH TO THE SSA2 CROSS-POLARIZATION AND SOME APPLICATIONS**
Charles-Antoine Guérin, Université de Toulon, France; Joel T. Johnson, The Ohio state university, United States

MOP.PA.4 Board PA.4 **APPLICATION OF THE CBFM-ACA APPROACH TO THE SCATTERING FROM NATURAL MEDIA CONSISTING OF RANDOMLY DISTRIBUTED DISCRETE SCATTERERS**
Sami Bellez, Christophe Bourlier, IETR Laboratory, France

MOP.PA.5 Board PA.5 **POLARIMETRIC SCATTERING ANALYSIS OF RICE FIELD FROM TIME-SERIES OF RADARSAT-2 SAR IMAGES**
Yu Liu, Kun-Shan Chen, Chinese Academy of Sciences, China; Zhao-Liang Li, Chinese Academy of Agricultural Sciences, China; Tzu-Yu Cheng, Niigata University, Japan

MOP.PA.6 Board PA.6 **FULL-WAVE EM MODELING OF GEOPHYSICAL INSTRUMENTS IN TILTED PLANAR-LAYERED, GENERALLY ANISOTROPIC AND LOSSY MEDIA**
Kamalesh Sainath, Fernando Teixeira, ElectroScience Laboratory, Ohio State University, United States

MOP.PA.7 Board PA.7 **ADAPTATION OF MIMICS MODEL TO WHEAT AT MULTI-BAND (L, S, C, X)**
Lei He, Ling Tong, Yan Chen, Yuxia Li, University of Electronic Science and Technology of China, China

MOP.PA.8 Board PA.8 **A DENSE-MEDIUM INSAR CORRELATION MODEL WITH ITS APPLICATION TO THE PROBLEM OF SNOW CHARACTERISTICS RETRIEVAL**
Yang Lei, Paul Siqueira, University of Massachusetts Amherst, United States

MOP.PA.9 Board PA.9 **GENERATING A SYNTHETIC DATA BASE OF POLARIMETRIC SIGNATURES TO EXPLOIT SAOCOM OBSERVATIONS OVER PAMPAS**
Danilo Dadamia, Mario Acuna, Ezequiel De Luca, Analia Oviedo, Matias Palomeque, Marc Thibeault, Comisión Nacional de Actividades Espaciales, Argentina; Paolo Ferrazzoli, Leila Guerriero, Tor Vergata University of Rome, Italy

MOP.PA.10 Board PA.10 **IMAGING OF ROUGH FACET UNDER SMALL PERTURBATION APPROXIMATION**
Peng Wang, Feng Xu, Fudan University, China

MOP.PA.11 Board PA.11 **3-D SCATTERING FROM A PEC TARGET BURIED BENEATH A DIELECTRIC ROUGH SURFACE USING A HYBRID FORMULATION AND A FAST SOLVER**
Sami Bellez, Christophe Bourlier, IETR Laboratory, France; Gildas Kubicke, DGA Information Superiority, France

MOP.PA.12 Board PA.12 **A COMPARISON BETWEEN LEAF DIELECTRIC PROPERTIES OF STRESSED AND UNSTRESSED TOMATO PLANTS**
Tim van Emmerik, Susan Steele-Dunne, Delft University of Technology, Netherlands; Jasmeet Judge, University of Florida, United States; Nick van de Giesen, Delft University of Technology, Netherlands

InSAR Methods and Applications I

Session Co-Chairs: Masanobu Shimada, Japan Aerospace Exploration Agency; Paul Rosen, NASA Jet Propulsion Laboratory

MOP.PB.1 Board PB.1 **RECENT ADVANCEMENTS OF THE STRIPMAP-SCANSAR DIFFERENTIAL SAR INTERFEROMETRY USING X-BAND COSMO-SKYMED DATA**
Antonio Pepe, Istituto per il Rilevamento Elettromagnetico dell'Ambiente, CNR, Italy; Pietro Milillo, Carmine Serio, Università della Basilicata, Italy; Riccardo Lanari, Istituto per il Rilevamento Elettromagnetico dell'Ambiente, CNR, Italy

MOP.PB.2 Board PB.2 **MONITORING SUBSIDENCE OF WASTE PILES AND INFRASTRUCTURES OF ACTIVE OPEN PIT IRON MINE IN THE BRAZILIAN AMAZON REGION USING SBAS INTERFEROMETRIC TECHNIQUE AND TERRASAR-X DATA**
Fabio Gama, National Institute for Space Research - INPE, Brazil; Alessio Cantone, Sarmap S.A., Switzerland; Athos Santos, INPE, Brazil; Paolo Pasquali, Sarmap S.A., Switzerland; Waldir Paradella, Jose Mura, Guilherme Silva, INPE, Brazil

MOP.PB.3 Board PB.3 **ACCURATE DINSAR STACK COHERENCE ESTIMATION EXPLOITING PHASE STATISTICS**
Yang Yang, China Aerodynamics Research and Development Center, China; Antonio Pepe, Institute for Electromagnetic Sensing of the Environment (CNR IREA), Italy

MOP.PB.4 Board PB.4 **MULTI-SENSOR PSI ANALYSIS OF DEFORMATION IN LESINA MARINA (SOUTHERN ITALY)**
Antonella Belmonte, Alberto Refice, Fabio Bovenga, Guido Pasquariello, CNR - ISSIA, Italy

MOP.PB.5 Board PB.5 **INSAR SCIENTIFIC COMPUTING ENVIRONMENT (ISCE): A HIGH PERFORMANCE, SCALABLE SOLUTION FOR BIG INSAR FROM THE DESKTOP TO THE CLOUD**
Piyush Agram, Eric Gurrola, Gian Franco Sacco, Marco Lavalle, Paul Rosen, Mark Powell, Jet Propulsion Laboratory, United States

MOP.PB.6 Board PB.6 **MONITORING UNDERGROUND MINING SUBSIDENCE IN SOUTH INDIANA WITH C- AND L-BAND INSAR TECHNIQUE**
Yuxiao Qin, Daniele Perissin, Purdue University, United States

MOP.PB.7 Board PB.7 **SAR INTERFEROMETRY TIME SERIES ANALYSIS OF GROUND DISPLACEMENT FOR PITON DE LA FOURNAISE VOLCANO, REUNION ISLAND**
Yu Chen, Université Paul Sabatier, France; Dominique Remy, Institut de Recherche pour le Développement, France; Jean-Luc Froger, Université Blaise Pascal, France; José Darrozes, Université Paul Sabatier, France; Sylvain Bonvalot, Institut de Recherche pour le Développement, France

MOP.PB.8 Board PB.8 **ACCURACY IMPROVEMENT BY RESIDUE AND AMPLITUDE BASED LOCAL CO-REGISTRATION METHOD FOR ALOS-2 / PALSAR-2 DINSAR**
Ryo Natsuaki, Manabu Watanabe, Takeshi Motooka, Masato Ohki, Masanobu Shimada, Japan Aerospace Exploration Agency, Japan

MOP.PB.9 Board PB.9 **THE STUDY OF THE DEFORMATION TIME EVOLUTION IN COASTAL AREAS OF SHANGHAI: A JOINT C/X-BAND SBAS-DINSAR ANALYSIS**
Antonio Pepe, Istituto per il Rilevamento Elettromagnetico dell'Ambiente, CNR, Italy; Qing Zhao, School of Resources and Environment Science, East China Normal University, China; Manuela Bonano, Istituto per il Rilevamento Elettromagnetico dell'Ambiente, CNR, Italy; Zhong Lu, Southern Methodist University, Roy M. Huffington Department of Earth Sciences, United States; Yiwei Zhou, School of Resources and Environment Science, East China Normal University, China

MOP.PB.10 Board PB.10 **CORRECTION OF IONOSPHERIC AND TROPOSPHERIC PATH DELAY FOR L-BAND INTERFEROGRAMS**
Giorgio Gomba, Xiao Ying Cong, Michael Eineder, German Aerospace Center (DLR), Germany

MOP.PB.11 Board PB.11 **LAND SUBSIDENCE CHARACTERISTICS OF ORDOS USING DIFFERENTIAL INTERFEROMETRY AND PERSISTENT SCATTERER INTERFEROMETRY**
Zheyuan Du, Linlin Ge, Xiaojing Li, Alex Hay-Man Ng, The University of New South Wales, Australia

Analysis of Multitemporal Images I

Session Co-Chairs: Farid Melgani, University of Trento; Begum Demir, University of Trento

MOP.PC.1 Board PC.1 **EXPERIMENTAL RESULTS ON CHANGE DETECTION BASED ON BAYES PROBABILITY THEOREM**
Hans Hellsten, SAAB AB, Sweden; Renato Machado, Mats Pettersson, Viet Vu, Blekinge Institute of Technology, Sweden; Patrik Dammert, SAAB AB, Sweden

MOP.PC.2 Board PC.2 **DETECTION AND QUANTIFICATION OF SURFACE CHANGES IN HIGH MOUNTAIN REGIONS BASED ON PLÉIADES TRI-STEREO DATA**
Lorenzo Rieg, Christoph Klug, Rudolf Sailer, University of Innsbruck, Austria

MOP.PC.3 Board PC.3 **PARALLEL FAST GLOBAL K-MEANS ALGORITHM FOR SYNTHETIC APERTURE RADAR IMAGE CHANGE DETECTION USING OPENCL**
Huming Zhu, Qingyu Zhang, Xinying Ren, Licheng Jiao, Xidian University, China

MOP.PC.4 Board PC.4 **KNOWLEDGE-BASED SHIP TRACKING APPLIED TO HF SURFACE WAVE RADAR DATA**
Gemine Vivone, Paolo Braca, NATO STO CMRE, Italy; Jochen Horstmann, Helmholtz-Zentrum Geesthacht, Germany

MOP.PC.5 Board PC.5 **DROUGHT MONITORING AND WARNING IN THE MIDDLE REACH OF YANGTZE RIVER WITH MODIS**
Lanying Yuan, University of Electronic Science and Technology of China, China; Mingcang Zhu, Land and Resources Department of Sichuan Province, China; Zezhong Zheng, University of Electronic Science and Technology of China, China; Jun Xia, Xiang Zhang, Wuhan University, China; Yong He, Sichuan Institute of Geo-Environment Monitoring, China; Guoqing Zhou, Guangxi Key Laboratory for Spatial Information and Geomatics, China; Xiaowen Li, State Key Laboratory of Remote Sensing Science, Jointly Sponsored by Beijing Normal University and the Institute of Remote Sensing and Digital Earth of Chinese Academy of Sciences, China; Guiyun Zhou, Yufeng Lu, Shi Qiu, University of Electronic Science and Technology of China, China; Hongsheng Zhang, Institute of Space and Earth Information Science, The Chinese University of Hong Kong, Hong Kong SAR of China; Jiang Li, Old Dominion University, United States

MOP.PC.6 Board PC.6 **OPERATIONAL CLOUD SCREENING SERVICE FOR SENTINEL-2 IMAGE TIME SERIES**
Luis Gómez-Chova, Julia Amorós-López, Antonio Ruiz-Verdú, Jordi Muñoz-Marí, Gustau Camps-Valls, University of Valencia, Spain

MOP.PC.7 Board PC.7 **RARE EVENTS DETECTION IN NDVI TIME-SERIES USING JARQUE-BERA TEST**
Ali Ben Abbes, Houcine Essid, Imed Riadh Farah, Laboratoire RIADI, Tunisia; Vincent Barra, Laboratoire LIMOS, France

MOP.PC.8 Board PC.8 **RECENT CHANGE OF VEGETATION GROWTH TREND AND ITS RELATIONS WITH CLIMATE FACTORS IN SICHUAN, CHINA**
Xing Li, Binbin He, Xingwen Quan, Changming Yin, Zhanmang Liao, Shi Qiu, Xiaojing Bai, University of Electronic Science and Technology of China, China

MOP.PC.9 Board PC.9 **JOINT-CLASSIFICATION CHANGE DETECTION BASED ON IMPROVED FUZZY ARTMAP**
Min Han, Yang Zhou, Dalian University of Technology, China

MOP.PC.10 Board PC.10 **UNSUPERVISED CHANGE DETECTION FOR URBAN EXPANSION MONITORING: AN OBJECT-BASED APPROACH**
Daniele De Vecchi, University of Pavia / EUCENTRE Foundation, Italy; Daniel Aurelio Galeazzo, EUCENTRE Foundation, Italy; Mostapha Harb, Fabio Dell'Acqua, University of Pavia / EUCENTRE Foundation, Italy

Technique for Classification of SAR Images

Session Co-Chairs: Hubert Cantalloube, ONERA; Riadh Abdelfattah, Ecole Superieure des Communications

MOP.PD.1 Board PD.1 **URBAN CLASSIFICATION USING POLSAR DATA AND DEEP LEARNING**
Shaunak De, Avik Bhattacharya, Indian Institute of Technology, India

MOP.PD.2 Board PD.2 **BILGE DUMP DETECTION FROM SAR IMAGERY USING LOCAL BINARY PATTERNS**
Lizwe Mdakane, Waldo Kleynhans, Colin Schwegmann, The Council for Scientific and Industrial Research (CSIR) in South Africa, South Africa

MOP.PD.3 Board PD.3 **HISTOGRAM CORRELATION IN THE CONTEXT OF LAND COVER CLASSIFCATION FROM MULTI-POLARIZED SAR DATA**
Andreas Schmitt, German Aerospace Center (DLR), Germany

MOP.PD.4 Board PD.4 **THE EFFECT OF POLARIMETRIC SPECKLE FILTERING ON INTEGRATED SAR/OPTICAL CLASSIFICATION ACCURACY**
Jaco Kemp, Leigh de Beyer, Stellenbosch University, South Africa

MOP.PD.5 Board PD.5 **EVALUATION OF TREE CREATION METHODS WITHIN RANDOM FORESTS FOR CLASSIFICATION OF POLSAR IMAGES**
Ronny Hänsch, Olaf Hellwich, Technische Universität Berlin, Germany

MOP.PD.6 Board PD.6 **EMPIRICAL-STATISTICAL ANALYSIS OF AMPLITUDE SAR IMAGES FOR CHANGE DETECTION ALGORITHMS**
Renato Machado, Mats Pettersson, Viet Vu, Blekinge Institute of Technology, Sweden; Patrik Dammert, Hans Hellsten, SAAB AB, Sweden

MOP.PD.7 Board PD.7 **AN ASSESSMENT OF FEATURE EXTRACTION METHODS FOR SENTINEL-1 IMAGES ON URBAN AREAS**
Mihaela Stan, Anca Popescu, University Politehnica of Bucharest, Romania; Mihai Datcu, German Aerospace Center (DLR), Germany; Dan Alexandru Stoichescu, University Politehnica of Bucharest, Romania

MOP.PD.8 Board PD.8 **EXPERIMENTS OF SEA SURFACE CURRENTS ESTIMATION WITH SPACE AND AIRBORNE SAR SYSTEMS**
Giuseppe Jackson, Gianfranco Fornaro, Paolo Berardino, Carmen Esposito, Riccardo Lanari, Antonio Pauciullo, Diego Reale, Virginia Zamparelli, Institute for Electromagnetic Sensing of the Environment (CNR IREA), Italy; Stefano Perna, University of Naples, Italy

MOP.PD.9 Board PD.9 **CLASS SEPARABILITY AND FEATURES SELECTION: GB-MIMO SAR MELISSA CASE OF STUDY**
Giovanni Marino, Dario Tarchi, Vladimir Kyovtorov, Joint Research Centre, Italy; Jorge Figueiredo-Morgado, Pier Francesco Sammartino, JRC, Italy

MOP.PD.10 Board PD.10 **AN INNOVATIVE APPROACH TO DETECT ANOMALIES ON EARTHEN LEVEES USING UNSUPERVISED CLASSIFICATION OF POLARIMETRIC SAR IMAGERY**
Ramakalavathi Marapareddy, James V. Aanstoos, Nicolas H. Younan, Mississippi State University, United States

MOP.PD.11 Board PD.11 **MULTI-TEMPORAL SAR DATA PROCESSING FOR FAST UNSUPERVISED LAND USE CLASSIFICATION**
Danilo Molinaro, Claudio Prati, Politecnico di Milano, Italy; Fabrizio Novali, Alfio Fumagalli, Alessandro Ferretti, TRE - Tele-Rilevamento Europa, Italy

MOP.PD.12 Board PD.12 **ELLIPSE BASED IMAGE EXTRAPOLATION METHOD WITH RPM IMAGING FOR THROUGH-THE-WALL UWB RADAR**
Shouhei Kidera, University of Electro-Communications, Japan; Cheng Gao, Harbin Engineering University, China; Takaya Taniguchi, Tetsuo Kirimoto, University of Electro-Communications, Japan

Techniques for classification of Multi- and Hyperspectral Images

Session Chair: Mauro Dalla Mura, Gipsa-lab Grenoble-INP

MOP.PE.1 Board PE.1 **DESIGN OF AUGMENTED DICTIONARY FOR SPARSE REPRESENTATION BASED ON NEURAL NETWORK**
Hui Qv, Jihao Yin, Beihang University, China; Charles DiMarzio, Northeastern University, United States

MOP.PE.2 Board PE.2 **SUB-PIXEL MAPPING BASED ON MEMETIC ALGORITHM FOR HYPERSPECTRAL IMAGERY**
Yipeng Zhang, Syracuse University, United States; Yanfei Zhong, Wuhan University, China

MOP.PE.3 Board PE.3 **LOCAL DECISION MAXIMUM MARGIN METRIC LEARNING FOR HYPERSPECTRAL TARGET DETECTION**
Yanni Dong, Bo Du, Lefei Zhang, Liangpei Zhang, Wuhan University, China

MOP.PE.4 Board PE.4 **SEMI-SUPERVISED CO-TRAINING AND ACTIVE LEARNING FRAMEWORK FOR HYPERSPECTRAL IMAGE CLASSIFICATION**
Sathishkumar Samiappan, Robert Moorhead, Mississippi State University, United States

MOP.PE.5 Board PE.5 **NONLINEAR SEPARATION SOURCE AND PARAMETERIZED FEATURE FUSION FOR SATELITE IMAGE PATCH EXEMPLARS**
Hela Elmannai, Mohamed Anis Loghmari, Carthage University, Tunisia; Mohamed Saber Naceur, El Manar University, Tunisia

MOP.PE.6 Board PE.6 **LANDSLIDE DETECTION WITH TWO SATELLITE IMAGES OF DIFFERENT SPATIAL RESOLUTIONS IN A PROBABILISTIC TOPIC MODEL**
Shi He, Hong Tang, Jing Li, Zhipeng Tang, Shaodan Li, Beijing Normal University, China

MOP.PE.7 Board PE.7 **MULTISPECTRAL AIRBORNE LIDAR DATA FOR LAND COVER CLASSIFICATION**
Salem Morsy, Ahmed Shaker, Ryerson University, Canada

MOP.PE.8 Board PE.8 **EFFECT OF TRAINING STRATEGY ON PUL-SVM CLASSIFICATION FOR CROPLAND MAPPING BY LANDSAT IMAGERY**
Xuehong Chen, Xin Cao, Jin Chen, Xihong Cui, State Key Laboratory of Earth Surface Processes and Resource Ecology, Beijing Normal University, China

MOP.PE.9 Board PE.9 **TRAINING LABEL CLEANING WITH ANT COLONY OPTIMIZATION FOR CLASSIFICATION OF REMOTE SENSING IMAGERY**
Victor-Emil Neagoe, Politehnica University of Bucharest, Romania; Catalina-Elena Neghina, "Lucian Blaga" University of Sibiu, Romania

MOP.PE.10 Board PE.10 **GENETIC PROGRAMMING AND ONE-CLASS CLASSIFICATION FOR DISCOVERING USEFUL SPECTRAL TRANSFORMATIONS**
Khelifa Djerriri, Division Observation de la Terre, Algeria; Mimoun Malki, Laboratoire Evolutionary Engineering and Distributed Systems, Algeria

Analysis of Hyperspectral Data

Session Chair: Marco Chini, Lippmann

MOP.PF.1 Board PF.1 **MIXED GAUSSIAN AND IMPULSE DENOISING OF HYPERSPECTRAL IMAGES**
Hemant Kumar Aggarwal, Angshul Majumdar, Indraprastha Institute of Information Technology-Delhi, India

MOP.PF.2 Board PF.2 **GABOR FEATURE BASED DICTIONARY FUSION FOR HYPERSPECTRAL IMAGERY CLASSIFICATION**
Sen Jia, Jie Hu, Guihua Tang, Linlin Shen, Lin Deng, Shenzhen University, China

MOP.PF.3 Board PF.3 **TOTAL VARIATION AND LQ BASED HYPERSPECTRAL UNMIXING FOR FEATURE EXTRACTION AND CLASSIFICATION**
Jakob Sigurdsson, Magnus O. Ulfarsson, Johannes R. Sveinsson, University of Iceland, Iceland

MOP.PF.4 Board PF.4 **PARTICLE SWARM OPTIMIZATION/IMPURITY FUNCTION CLASS OVERLAPPING SCHEME BASED ON MULTIPLE ATTRIBUTE DECISION MAKING MODEL FOR HYPERSPECTRAL BAND SELECTION**
Yang-Lang Chang, National Taipei University of Technology, Taiwan; Lena Chang, National Taiwan Ocean University, Taiwan; Jyh-Perng Fang, Min-Yu Huang, Kuo-Kai Lin, Jen-Shian Wu, National Taipei University of Technology, Taiwan; Bormin Huang, University of Wisconsin-Madison, United States

MOP.PF.5 Board PF.5 **A NEW SPARSITY-AWARE FEATURE SELECTION METHOD FOR HYPERSPECTRAL IMAGE CLUSTERING**
Spyridoula Xenaki, Konstantinos Koutroumbas, Athanasios Rontogiannis, Olga Sykioti, National Observatory of Athens, Greece

MOP.PF.6 Board PF.6 **AN APPLICATION OF PERSISTENT HOMOLOGY ON GRASSMANN MANIFOLDS FOR THE DETECTION OF SIGNALS IN HYPERSPECTRAL IMAGERY**
Sofya Chepushtanova, Michael Kirby, Chris Peterson, Colorado State University, United States; Lori Ziegelmeier, Macalester College, United States

MOP.PF.7 Board PF.7 **MULTISPECTRAL SENSOR DESIGN USING PERFORMANCE MEASURE-BASED HYPERSPECTRAL BAND GROUPING**
Matthew Lee, Derek Anderson, John Ball, Nicholas Younan, Mississippi State University, United States

MOP.PF.8 Board PF.8 **BAND WEIGHTING SPECTRAL MEASUREMENT FOR DETECTION OF PESTICIDE RESIDUES USING HYPERSPECTRAL REMOTE SENSING**
Chao-Cheng Wu, Taipei Tech, Taiwan; Yuan-Hsun Liao, Providence University, Taiwan; Wei-Sheng Lo, Horng-Yuh Guo, Taiwan Agriculture Research Institute, Taiwan; Chinsu Lin, National Chiayi University, Taiwan; Chia-Hisen Wen, Providence University, Taiwan; Hsian-Min Chen, Veterans General Hospital, Taiwan; Yen-Chieh Ouyang, National Ching Hsing University, Taiwan; Chein-I Chang, University of Maryland, Baltimore County, United States

MOP.PF.9 Board PF.9 **A NONLINEAR FEATURE SELECTION METHOD BASED ON KERNEL SEPARABILITY MEASURE FOR HYPERSPECTRAL IMAGE CLASSIFICATION**
Pei-Jyun Hsieh, Cheng-Hsuan Li, Bor-Chen Kuo, National Taichung University of Education, Taiwan

MOP.PF.10 Board PF.10 **INTRODUCING CO-CLUSTERING FOR HYPERSPECTRAL IMAGE ANALYSIS**
Emma Izquierdo-Verdiguier, Raúl Zurita-Milla, University of Twente, Netherlands

MOP.PF.11 Board PF.11 **SEMI-SUPERVISED GAS DETECTION IN HYPERSPECTRAL IMAGING**
Safak Ozturk, Yusuf Artan, Yunus Emre Esin, Mustafa Yaman, Ahmet Erdem, Havelsan Incorporatoin, Turkey

Feature Selection Techniques

Session Chair: Rene Colditz, National Commission for the Knowledge and Use of Biodiversity

MOP.PG.1 Board PG.1 **DISCRIMINATING BETWEEN THE SAR SIGNATURES OF DEBRIS AND HIGH VEGETATION**
Silvia Kuny, Horst Hammer, Karsten Schulz, Fraunhofer IOSB, Institute of Optronics, System Technologies and Image Exploitation, Germany

MOP.PG.2 Board PG.2 **FINDING EDGES OF BUILDINGS VIA A JUNCTION PROCESS IN HIGH-RESOLUTION REMOTELY SENSED IMAGES**
Bowen Xu, Nan Xue, Gui-Song Xia, Liangpei Zhang, Wuhan University, China

MOP.PG.3 Board PG.3 **MULTIPLE FEATURE FUSION USING A MULTISET AGGREGATED CANONICAL CORRELATION ANALYSIS FOR HIGH SPATIAL RESOLUTION SATELLITE IMAGE SCENE CLASSIFICATION**
Da Lin, Xin Xu, Fangling Pu, Wuhan University, China

MOP.PG.4 Board PG.4 **FEATURE EXTRACTION USING PCA FOR VHR SATELLITE IMAGE TIME SERIES SPATIO-TEMPORAL CLASSIFICATION**
Safa Réjichi, Ferdaous Chaabane, Sup'Com, Tunisia

MOP.PG.5 Board PG.5 **FINDING STRUCTURES IN RATIO IMAGES**
Alejandro C. Frery, Universidade Federal de Alagoas, Brazil; Raydonal Ospina, Universidade Federal de Pernambuco, Brazil; Luis Gómez Déniz, Universidad de Las Palmas de Gran Canaria, Spain

MOP.PG.6 Board PG.6 **L2,0-NORM REGULARIZATION BASED FEATURE SELECTION FOR VERY HIGH RESOLUTION REMOTE SENSING IMAGES**
Xi Chen, Yanfeng Gu, Ye Zhang, Yiming Yan, Harbin Institute of Technology, China

MOP.PG.7 Board PG.7 **A ROUGH SET BASED BAND SELECTION TECHNIQUE FOR THE ANALYSIS OF HYPERSPECTRAL IMAGES**
Swarnajyoti Patra, Tezpur University, India; Lorenzo Bruzzone, University of Trento, Italy

MOP.PG.8 Board PG.8 **IMAGE REGISTRATION ALGORITHM BASED ON POINT FEATURES OF SUB-PIXEL**
Zhiguo Zhang, Ye Zhang, Xuan Liu, Harbin Institute of Technology, China

MOP.PG.9 Board PG.9 **NOISE FILTERING OF REMOTELY SENSED IMAGES USING HYBRID WAVELET AND CURVELET TRANSFORM APPROACH**
Rizwan Ahmed Ansari, Krishna Mohan Buddhiraju, Indian Institute of Technology Bombay, India

MOP.PG.10 Board PG.10 **SEMANTIC RETRIEVAL FOR REMOTE SENSING IMAGES USING ASSOCIATION RULES MINING**
Jun Liu, Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, China; Shuguang Liu, Chongqing Institute of Green and Intelligent Technology, Chinese Academy of Sciences, China

High Performance Computing, Image Quality

Session Co-Chairs: Sebastian Lopez, University of Las Palmas, Gran Canaria; Antonio Plaza, University of Extremadura

MOP.PH.1 Board PH.1 **FAST PRINCIPAL COMPONENT ANALYSIS FOR HYPERSPECTRAL IMAGING BASED ON CLOUD COMPUTING**
Yonglong Li, Zebin Wu, Jie Wei, Nanjing University of Science and Technology, China; Antonio Plaza, University of Extremadura, Spain; Jun Li, Sun Yat-sen University, China; Zhihui Wei, Nanjing University of Science and Technology, China

MOP.PH.2 Board PH.2 **FAST BINARY CODING FOR SATELLITE IMAGE SCENE CLASSIFICATION**
Fan Hu, Zifeng Wang, Gui-Song Xia, Bin Luo, Liangpei Zhang, Wuhan University, China

MOP.PH.3 Board PH.3 **GPU IMPLEMENTATION OF A HYPERSPECTRAL CODED APERTURE ALGORITHM FOR COMPRESSIVE SENSING**
Sergio Bernabe, Gabriel Martin, Jose M.P. Nascimento, José M. Bioucas-Dias, Instituto de Telecomunicações, Portugal; Antonio Plaza, Hyperspectral Computing Laboratory, Spain; Vitor Silva, Instituto de Telecomunicações, Portugal

MOP.PH.4 Board PH.4 **FPGA-BASED REMOTELY SENSED IMAGERY DENOISING**
Guoqing Zhou, Na Liu, Chenyang Li, Linjun Jiang, Yue Sun, Mingyan Li, Rongting Zhang, Tao Yue, Guilin University of Technology, China

MOP.PH.5 Board PH.5 **OPTIMIZATION OF SELECTED REMOTE SENSING ALGORITHMS FOR EMBEDDED NVIDIA KEPLER GPU ARCHITECTURE**
Lubomir Riha, VŠB-Technical University of Ostrava, Czech Republic; Jacqueline Le Moigne, NASA Goddard Space Flight Center, United States; Tarek El-Ghazawi, The George Washington University, United States

MOP.PH.6 Board PH.6 **DIGITAL IMAGE BLURRING-DEBLURRING PROCESS FOR IMPROVED STORAGE AND TRANSMISSION**
Gabriel Scarmana, University of Southern Queensland, Australia

MOP.PH.7 Board PH.7 **ACCELERATING SAR IMAGING USING VECTOR EXTENSION ON MULTICORE SIMD CPU**
Guojun Li, Fan Zhang, College of Information Science & Technology, Beijing University of Chemical Technology, China; Lixiang Ma, China Academy of Space Technology, China; Wei Hu, Wei Li, College of Information Science & Technology, Beijing University of Chemical Technology, China

MOP.PH.8 Board PH.8 **INTERACTIVE FEATURE LEARNING FROM SAR IMAGE PATCHES**
Mohammadreza Babaee, Xuejie Yu, Daniel Merget, Technische Universität München, Germany; Amir Babaeian, University of California, San Diego, United States; Gerhard Rigoll, Technische Universität München, Germany; Mihai Datcu, German Aerospace Center (DLR), Germany

MOP.PH.9 Board PH.9 **RESEARCH ON RELATIONSHIP BETWEEN REMOTE SENSING IMAGE QUALITY AND PERFORMANCE OF INTEREST POINT DETECTION**
Jicheng Wang, Yuanxin Ye, Li Shen, Zhipeng Li, Songbo Wu, Southwest Jiaotong University, China

MOP.PH.10 Board PH.10 **THE LOW BACKSCATTERING OBJECTS DISCRIMINATION BASED ON POLARIMETRIC AND SPATIAL FEATURES OF UAVSAR**
Lei Shi, Jie Yang, Pingxiang Li, Wuhan University, China

MOP.PH.11 Board PH.11 **CONTRIBUTION OF TEXTURAL INFORMATION FROM TERRASAR-X IMAGE FOR FOREST MAPPING**
Cécile Cazals, Hajar Benelcadi, Pierre-Louis Frison, University Paris Est Marne La Vallée, France; Grégoire Mercier, Telecom Bretagne, France; Cédric Lardeux, ONF International, France; Nesrine Chehata, Bordeaux INP, France; Isabelle Champion, INRA, France; Jean-Paul Rudant, University Paris Est Marne La Vallée, France

Analysis of LIDAR data

Session Co-Chairs: Jin-King Liu, LIDAR Technology Co., Ltd.; Jonathan Li, University of Waterloo

MOP.PI.1 Board PI.1
PLANAR EXTRACTION FROM POINT CLOUDS BASED ON RANGE IMAGES FROM TERRESTRIAL LASER SCANNING
Guiyun Zhou, Zhongxuan Sun, University of Electronic Science and Technology of China, China

MOP.PI.2 Board PI.2
FAST BUILDING EXTRACTION BY MULTISCALE ANALYSIS OF DIGITAL SURFACE MODELS
Francois Merciol, Sebastien Lefevre, Univ. Bretagne-Sud / IRISA, France

MOP.PI.3 Board PI.3
EXTRACTION OF STREET TREES FROM MOBILE LASER SCANNING POINT CLOUDS BASED ON SUBDIVIDED DIMENSIONAL FEATURES
Pengdi Huang, Yiping Chen, Xiamen University, China; Jonathan Li, Xiamen University / University of Waterloo, China; Yongtao Yu, Cheng Wang, Xiamen University, China; Hongshan Nie, Hunan Intelligent Things Technology Co., Ltd., China

MOP.PI.4 Board PI.4
AUTOMATIC REGISTRATION OF TREE POINT CLOUDS FROM TERRESTRIAL LASER SCANNING
Guiyun Zhou, Shuai Cao, Zhongxuan Sun, University of Electronic Science and Technology of China, China

MOP.PI.5 Board PI.5
USING MOBILE LIDAR POINT CLOUDS FOR TRAFFIC SIGN DETECTION AND SIGN VISIBILITY ESTIMATION
Shuang Wu, Chenglu Wen, Huan Luo, Yiping Chen, Cheng Wang, Xiamen University, China; Jonathan Li, University of Waterloo, Canada

MOP.PI.6 Board PI.6
LAND COVER CLASSIFICATION OF LIDAR DATA BASED ON STATISTICAL ANALYSIS OF ELEVATION AND INTENSITY VALUES
Nagwa El-Ashmawy, Ahmed Shaker, Ryerson University, Canada

MOP.PI.7 Board PI.7
INVENTORY OF 3D STREET LIGHTING POLES USING MOBILE LASER SCANNING POINT CLOUDS
Dawei Zai, Yiping Chen, Jonathan Li, Yongtao Yu, Cheng Wang, Xiamen University, China; Hongshan Nie, Hunan Intelligent Things Technology Co., Ltd., China

MOP.PI.8 Board PI.8
GROUND VEHICLE RECOGNITION IN LIDAR POINT CLOUDS USING EXTREME LEARNING MACHINES
Yulan Guo, Min Lu, National University of Defense Technology, China; Yinjie Lei, Sichuan University, China; Jun Zhang, Jianwei Wan, National University of Defense Technology, China

MOP.PI.9 Board PI.9
SKELETONIZATION AND SEGMENTATION FOR SINGLE CORN USING TERRESTRIAL LIDAR DATA
Luxia Liu, Yong Pang, Bowei Chen, Chinese Academy of Forestry, China

MOP.PI.10 Board PI.10
BUILDING LIDAR POINT CLOUD DENOISING PROCESSING THROUGH SPARSE REPRESENTATION
Bingqian Xie, Yanfeng Gu, Zhimin Cao, Harbin Institute of Technology, China

MOP.PI.11 Board PI.11
FEATURE SPACE OPTIMIZATION OF MULTISPECTRAL IMAGERY AND LIDAR WAVEFORM DATA
Yu-Ching Lin, Po-An Tsai, Chung Cheng Institute of Technology, National Defense University, Taiwan; Chun-Lin Lin, National Chung-Shan Institute of Science & Technology, Taiwan; Kuan-Tsung Chang, Ming Hsin University of Science and Technology, Taiwan; Ming-Da Tsai, Chung Cheng Institute of Technology, National Defense University, Taiwan

MOP.PI.12 Board PI.12
AUTOMATIC EXTRACTION OF BUILDINGS AND TREES USING FUZZY K-MEANS CLASSIFICATION ON HIGH-RESOLUTION SATELLITE IMAGERY AND LIDAR DATA
Agustín Tamés, Borja Rodríguez-Cuenca, María Concepción Alonso, University of Alcalá, Spain

Image and Data Fusion I

Session Co-Chairs: Mauro Dalla Mura, Gipsa-lab Grenoble-INP; Yuliya Tarabalka, INRIA

MOP.PJ.1 Board PJ.1
A NEW VARIATIONAL METHOD FOR PAN-SHARPENING
Pengfei Liu, Liang Xiao, Songze Tang, Nanjing University of Science and Technology, China

MOP.PJ.2 Board PJ.2
JOINT QUALITY MEASURE FOR ACCURACY ASSESSMENT OF PANSHARPENING METHODS
Gintautas Palubinskas, German Aerospace Center (DLR), Germany

MOP.PJ.3 Board PJ.3
DATA FUSION OF SPOT 6 AND LANDSAT 8 SATELLITE IMAGES USING CALSSICAL METHODS AND FILTER-BASED INTENSITY MODULATION
Seungho Lee, University of New South Wales, Australia

MOP.PJ.4 Board PJ.4
INTEGRATION OF REMOTE SENSING TECHNIQUES AND INFORMATION ON ECOSYSTEM SERVICES TO MEASURE TROPICAL FOREST DEGRADATION - A CASE STUDY FROM THE TROPICAL RAIN FOREST OF ECUADOR
Jeaneth Delgado, Christine Schmitt, University of Freiburg, Germany

MOP.PJ.5 Board PJ.5
CLOUD EFFECTS REMOVAL VIA SPARSE REPRESENTATION
Meng Xu, Xiuping Jia, Mark Pickering, UNSW Canberra, Australia

MOP.PJ.6 Board PJ.6
A NOVEL FUSION METHOD OF SAR AND OPTICAL SENSORS TO RECONSTRUCT 3-D BUILDINGS
Huan Zhang, Hua-Ping Xu, Zhe-Feng Wu, Beihang University, China

MOP.PJ.7 Board PJ.7
INTERCOMPARISON OF LANDSAT ALBEDO RETRIEVAL TECHNIQUES AND EVALUATION AGAINST IN SITU MEASUREMENTS ACROSS THE US SURFRAD NETWORK
Belen Franch, University of Maryland/NASA Goddard Space Flight Center, United States; Eric Vermote, Martin Claverie, NASA Goddard Space Flight Center, United States

MOP.PJ.8 Board PJ.8
JOINT DICTIONARY LEARNING WITH RIDGE REGRESSION FOR PANSHARPENING
Songze Tang, Liang Xiao, Bushra Naz, Pengfei Liu, Yufeng Chen, Nanjing University of Science and Technology, China

MOP.PJ.9 Board PJ.9
FUSION OF MULTI-FREQUENCY SAR DATA WITH THAICHOTE OPTICAL IMAGERY FOR MAIZE CLASSIFICATION IN THAILAND
Chanika Sukawattanavijit, Chen Jie, Beihang University, China

MOP.PJ.10 Board PJ.10
FRAMEWORK FOR MULTI-SENSOR DATA FUSION USING TEMPLATE BASED MATCHING
Gintautas Palubinskas, German Aerospace Center (DLR), Germany

MOP.PJ.11 Board PJ.11
EVALUATION OF BIAS REDUCTION IN CROSS-CALIBRATION OF NDVI BASED ON SOIL ISOLINE EQUATIONS: COMPARISON WITH ERROR ESTIMATED FROM SIGNAL-TO-NOISE RATIO
Kenta Taniguchi, Aichi Prefectural University, Japan; Kenta Obata, National Institute of Advanced Industrial Science and Technology, Japan; Hiroki Yoshioka, Aichi Prefectural University, Japan

Forest Vegetation I

Session Chair: Gilson A O P Costa, PUC-Rio

MOP.PK.1 Board PK.1 **ESTIMATION AND MAPPING OF NDVI UNCERTAINTY FROM LANDSAT 8 OLI DATASETS: AN OPERATIONAL APPROACH**
Enrico Borgogno Mondino, Andrea Lessio, Università di Torino, Italy

MOP.PK.2 Board PK.2 **REPLACING RADIATIVE TRANSFER MODELS BY SURROGATE APPROXIMATIONS THROUGH MACHINE LEARNING**
Jochem Verrelst, Juan Pablo Rivera, University of Valencia, Spain; Jose Gómez-Dans, University College London, United Kingdom; Gustau Camps-Valls, Jose Moreno, University of Valencia, Spain

MOP.PK.3 Board PK.3 **INDIVIDUAL TREE SEGMENTATION IN DECIDUOUS FORESTS USING GEODESIC VOTING**
Matthew Parkan, Ecole Polytechnique Fédérale de Lausanne, Switzerland; Devis Tuia, University of Zurich, Switzerland

MOP.PK.4 Board PK.4 **TIME SERIES OF MICROWAVE DERIVED PRODUCTS: LOOKING FOR DISTURBANCES IN ARGENTINE CHACO FOREST REGION**
Veronica Barraza, Francisco Grings, Quantitative Remote Sensing Group, Argentina; Paolo Ferrazzoli, Tor Vergata University of Rome, Italy; Mercedes Salvia, Federico Carballo, Cintia Bruscantini, Haydee Karszenbaum, Quantitative Remote Sensing Group, Argentina

MOP.PK.5 Board PK.5 **WHERE IS THE HIGHEST WATER-USE EFFICIENCY OF TERRESTRIAL ECOSYSTEMS DISTRIBUTED ON EARTH?**
Xuguang Tang, Hengpeng Li, Nanjing Institute of Geography and Limnology, Chinese Academy of Sciences, China

MOP.PK.6 Board PK.6 **A PARAMETERIZED MULTIPLE-SCATTERING MODEL FOR MICROWAVE EMISSION FROM VEGETATION**
Qian Zhang, Linna Chai, Beijing Normal University, China

MOP.PK.7 Board PK.7 **USING RED EDGE POSITION SHIFT TO MONITOR GRAZING INTENSITY IN INNER MONGOLIA GRASSLAND**
Fei Li, Juhua Luo, Xuguang Tang, Key Laboratory of Watershed Geographic Sciences, Nanjing Institute of Geography and Limnology, Chinese Academy of Sciences, Nanjing, China, China

MOP.PK.8 Board PK.8 **MONIMET:CLIMATE CHANGE INDICATORS AND VULNERABILITY OF BOREAL ZONE APPLYING INNOVATIVE OBSERVATION AND MODELLING TECHNIQUES**
Ali Nadir Arslan, Cemal Melih Tanis, Finnis Meteorological Institute, Finland; Mikko Peltoniemi, Finnish Forest Research Institute, Finland; Maria Holmberg, Kristin Böttcher, Finnish Environment Institute, Finland; Tiina Markkanen, Mika Aurela, Tuula Aalto, Finnish Meteorological Institute, Finland; Annikki Mäkelä, University of Helsinki, Finland; Jouni Pulliainen, Finnish Meteorological Institute, Finland

MOP.PK.9 Board PK.9 **ESTIMATING GRAVIMETRIC CORN WATER CONTENT USING L-BAND PASSIVE MICROWAVE AIRBORNE DATA DURING HIWATER**
Qi Wang, Linna Chai, Beijing Normal University, China

MOP.PK.10 Board PK.10 **CROP SPECIFIED ALBEDO MODEL BASED ON THE LAW OF ENERGY CONSERVATION AND SPECTRAL INVARIANTS**
Jingjing Peng, Wenjie Fan, Xiru Xu, Yuan Liu, Peking University, China; Lizhao Wang, Beijing Research Institute of Automation for Machinery Industry, China

MOP.PK.11 Board PK.11 **ON THE ESTIMATE OF THE MICROWAVE SHADOWING EFFECT ON SPARSE BOREAL FORESTS**
Francesco Montomoli, Giovanni Macelloni, Marco Brogioni, IFAC-CNR, Italy; Juha Lemmetyinen, Juval Cohen, Finnish Meteorological Institute, Finland

MOP.PK.12 Board PK.12 **PROGRESS ON BIOMASS MODELLING OF SMALL-SCALE VEGETATION FEATURES FOR ENERGY GENERATION**
Torge Steensen, Institut für Photogrammetrie und GeoInformation, Leibniz Universität Hannover, Germany; Sönke Müller, EFTAS Fernerkundung Technologietransfer GmbH, Germany; Boris Dresen, Fraunhofer-Institut für Umwelt-, Sicherheits- und Energietechnik UMSICHT, Germany; Olaf Büscher, EFTAS Fernerkundung Technologietransfer GmbH, Germany

Validation of Soil Moisture Products

Session Co-Chairs: Jasmeet Judge, University of Florida; Rajat Bindlish, United States Department of Agriculture

MOP.PL.1 Board PL.1 **A NEW APPROACH FOR THE VALIDATION OF COARSE-RESOLUTION SATELLITE SOIL MOISTURE PRODUCTS**
Shuang Yan, Lingmei Jiang, Xiaokang Kou, Beijing Normal University, China

MOP.PL.2 Board PL.2 **ASSESSMENT OF THE NEWEST ECV SOIL MOISTURE PRODUCT OVER THE TIBETAN PLATEAU USING GROUND-BASED OBSERVATIONS**
Jiangyuan Zeng, Zhen Li, Quan Chen, Haiyun Bi, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China

MOP.PL.3 Board PL.3 **EVALUATION OF THE ASCAT SURFACE SOIL MOISTURE PRODUCT FOR AGRICULTURAL DROUGHT MONITORING IN USA**
Jie Zhang, Inbal Becker-Reshef, Chris Justice, University of Maryland, United States

MOP.PL.4 Board PL.4 **COMPARISON OF AMSR-E SOIL MOISTURE PRODUCT AND GROUND-BASED MEASUREMENT OVER AGRICULTURAL AREAS IN CHINA**
Xiao-Jing Han, Si-Bo Duan, Chinese Academy of Agricultural Sciences, China; Ronglin Tang, Chinese Academy of Sciences, China; Hai-Qi Liu, Chinese Academy of Agricultural Engineering, China; Zhao-Liang Li, Chinese Academy of Agricultural Sciences & UdS, China

MOP.PL.5 Board PL.5 **COMPARISON AND ANALYSIS OF SOIL MOISTURE RETRIEVAL MODEL FROM CBERS-02B SATELLITE IMAGERY**
Guoqing Zhou, Yue Sun, Linjun Jiang, Na Liu, Chenyang Li, Mingyan Li, Tao Yue, Guilin University of Technology, China

MOP.PL.6 Board PL.6 **EVALUATION OF NORMALIZED POLARIZATION DIFFERENCE (NPD) ALGORITHM FOR AMSR-E/AMSR2**
Mariko Burgin, Eni Njoku, Steven Chan, Jet Propulsion Laboratory, United States

MOP.PL.7 Board PL.7 **AN OBSERVING SYSTEM SIMULATION EXPERIMENT FOR SOIL MOISTURE RETRIEVALS USING WATER CYCLE OBSERVATION MISSION (WCOM) RADIOMETERS**
Tianjie Zhao, Jiancheng Shi, State Key Laboratory of Remote Sensing Science, Institute of Remote Sensing and Digital Earth, CAS, China; Hao Liu, Key Laboratory of Microwave Remote Sensing, National Space Science Center, Chinese Academy of Sciences, China; Dabin Ji, Chuan Xiong, State Key Laboratory of Remote Sensing Science, Institute of Remote Sensing and Digital Earth, CAS, China

MOP.PL.8 Board PL.8 **AN INTERCOMPARISON OF THE SPATIAL-TEMPORAL CHARACTERISTICS OF SMOS AND AMSR-E SOIL MOISTURE PRODUCTS OVER MONGOLIA PLATEAU**
Xin Wen, Hui Lu, Chengwei Li, Tsinghua University, China

MOP.PL.9 Board PL.9 **EVALUATION OF AMSR2 AND SMOS SOIL MOISTURE PRODUCTS OVER HEIHE RIVER BASIN IN CHINA**
Hui Lu, Tsinghua University, China; Toshio Koike, The University of Tokyo, Japan

Vegetation and Roughness Effects on Soil Moisture

Session Co-Chairs: Ruzbeh Akbar, University of Southern California; Tianjie Zhao, Chinese Academy of Sciences and Beijing Normal University

MOP.PM.1 Board PM.1 **SMOS RETRIEVAL OVER FORESTS: SUMMARY OF RECENT RESULTS**
Cristina Vittucci, Paolo Ferrazzoli, Tor Vergata University of Rome, Italy; Yann Kerr, Philippe Richaume, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Rachid Rahmoune, Leila Guerriero, Tor Vergata University of Rome, Italy; Gaia Vaglio Laurin, Centro Euro-Mediterraneo sui Cambiamenti Climatici, Italy

MOP.PM.2 Board PM.2 **INVESTIGATING THE RELATIONSHIPS BETWEEN MICROWAVE (AMSRE, SMOS) AND OPTICAL (MODIS) VEGETATION INDICES**
Shu Wang, Beijing Normal University, China; Jean-Pierre Wigneron, Institut national de la recherche agronomique, France; Lin-Mei Jiang, Beijing Normal University, China; Wei Ji, Chinese Academy of Sciences, China; Marie Parrens, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Amen Alyaari, Institut national de la recherche agronomique, France; Roberto Fernandez, University of Valencia, Spain; Yann Kerr, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France

MOP.PM.3 Board PM.3 **DISCRIMINATION OF VEGETATION SIGNATURE FROM MICROWAVE ACTIVE AND PASSIVE MEASUREMENTS**
Leila Guerriero, Paolo Ferrazzoli, Cristina Vittucci, Rachid Rahmoune, Matteo Aurizzi, Alessio Mattioni, Tor Vergata University of Rome, Italy

MOP.PM.4 Board PM.4 **EVALUATION OF POLARIMETRIC DECOMPOSITION FOR SOIL MOISTURE RETRIEVAL OVER VEGETATED AGRICULTURAL FIELDS**
Hongquan Wang, Ramata Magagi, Kalifa Goita, University of Sherbrooke, Canada; Thomas Jagdhuber, German Aerospace Center (DLR), Germany; Najib Djamai, University of Sherbrooke, Canada

MOP.PM.5 Board PM.5 **ESTIMATION OF WATER CLOUD PARAMETERS USING TIME SERIES AQUARIUS MIDDLE BEAM DATA**
Chenzhou Liu, Henan University of Science and Technology, China; Jiancheng Shi, State Key Laboratory of Remote Sensing Science, Institute of Remote Sensing and Digital Earth, CAS, China

MOP.PM.6 Board PM.6 **USE OF POLARIMETRIC INDICES FOR ESTIMATING SOIL MOISTURE**
Ankita Jain, Dharmendra Singh, Indian Institute of Technology Roorkee, India; N.S. Rajput, Indian Institute of Technology, BHU, India

MOP.PM.7 Board PM.7 **SENSITIVITY OF C-BAND BACKSCATTER TO SURFACE ROUGHNESS PARAMETERS MEASURED AT DIFFERENT SCALES**
Alex Martínez-Agirre, Jesús Álvarez-Mozos, Public University of Navarre, Spain; Hans Lievens, Niko Verhoest, Ghent University, Belgium; Rafael Gímenez, Public University of Navarre, Spain

MOP.PM.8 Board PM.8 **CHARACTERIZATION OF SOIL MOISTURE AND SURFACE ROUGHNESS WITH BISTATIC DATA UTILIZING MULTI-INCIDENCE AND MULTI-POLARIZATION APPROACH**
Rishi Prakash, Graphic Era University, Dehradun, India; Dharmendra Singh, Indian Institute of Technology Roorkee, India

MOP.PM.9 Board PM.9 **SIMULATIONS OF SCATTERING MATRIX AND COHERENCY MATRIX FOR POL-SAR APPLICATIONS OF SOIL AND VEGETATED SURFACES USING 3-D NUMERICAL SOLUTIONS OF MAXWELL EQUATION (NMM3D)**
Tien-Hao Liao, University of Washington, United States; Leung Tsang, University of Michigan, United States

MOP.PM.10 Board PM.10 **EFFECT OF THE SURFACE CORRELATION LENGTH ON MICROWAVE FORWARD REFLECTION FROM A RANDOMLY ROUGH LOSSY DIELECTRIC SURFACE**
Sinmyong Park, Yisok Oh, Hongik University, Republic of Korea

Inland Water and Wetland Monitoring

Session Co-Chairs: Ferdinando Nunziata, Università degli Studi di Napoli Parthenope; Gilson A O P Costa, PUC-Rio

MOP.PN.1 Board PN.1 **DEVELOPING QAA-BASED RETRIEVAL MODEL OF TOTAL SUSPENDED MATTER CONCENTRATION IN ITUMBIARA RESERVOIR, BRAZIL**
Enner Alcantara, São Paulo State University, Brazil; Marcelo Curtarelli, National Institute for Space Research - INPE, Brazil; Igor Ogashawara, Indiana University – Purdue University Indianapolis, United States; Thais Rosan, São Paulo State University, Brazil; Milton Kampel, Jose Stech, National Institute for Space Research - INPE, Brazil

MOP.PN.2 Board PN.2 **CHLOROPHYLL-A ESTIMATION IN LAKE SHINJI FROM LANDSAT-8 OLI DATA USING LINEAR COMBINATION INDEX (LCI) ALGORITHM**
Yuji Sakuno, Hiroshima University, Japan; Hidenobu Kunii, Shimane University, Japan

MOP.PN.3 Board PN.3 **EMPIRICAL MODEL COMPARISON AND MODEL TUNING FOR ESTIMATING ACDOM IN A TROPICAL RESEVOIR IN BRAZIL**
Fernanda Watanabe, Enner Alcantara, São Paulo State University, Brazil; Marcelo Curtarelli, Renata Nascimento, Jose Stech, Milton Kampel, National Institute for Space Research - INPE, Brazil

MOP.PN.4 Board PN.4 **RETRIEVAL OF WATER QUALITY PARAMETERS BY NEURAL NETWORK AND ANALYTICAL ALGORITHM IN GUANTING RESERVOIR IN HEBEI PROVINCE IN CHINA**
Xinyu Lan, Ziqi Guo, Ye Tian, Xia Lei, Jie Wang, State Key Laboratory of Remote Sensing Science, Institute of Remote Sensing and Digital Earth, CAS, China

MOP.PN.5 Board PN.5 **USING LIDAR DTM-W AND AERIAL IMAGERY TO CHARACTERISE RIVER MORPHOLOGY**
Lionel Pénard, Armand Poli, Kerstin Ebert, IRSTEA, France

MOP.PN.6 Board PN.6 **RIVER DISCHARGE ESTIMATION USING CHANNEL WIDTH FROM SATELLITE IMAGERY**
Omid Elmi, Mohammad J. Tourian, Nico Sneeuw, University of Stuttgart, Germany

MOP.PN.7 Board PN.7 **RECOGNITION OF GROUNDWATER POTENTIAL ZONES USING GEO-SPATIAL TECHNIQUE: A CASE STUDY IN THATTA TEHSIL, SINDH, PAKISTAN**
Rao Muhammad Zahid Khalil, Muhammad Arslan, Ahsanullah Khan, Institute of Space Technology, Pakistan

MOP.PN.8 Board PN.8 **TOWARDS RAINFALL INTERCEPTION CAPACITY ESTIMATION USING ALS LIDAR DATA**
Tomasz Berezowski, Jaroslaw Chormanski, Malgorzata Kleniewska, Sylwia Szporak-Wasilewska, Warsaw University of Life Sciences, Poland

MOP.PN.9 Board PN.9 **MULTISENSOR DATA FUSION TO CHARACTERIZE WETLAND ENVIRONMENTS**
Olaf Niemann, Roger Stephen, Fabio Visintini, Ben Mountjoy, Daniel Peters, University of Victoria, Canada

Snow Cover I

Session Chair: Giovanni Macelloni, IFAC-CNR

MOP.PO.1 Board PO.1 **CHANGING ARCTIC SNOW COVER: RAIN-ON-SNOW DETECTION AND CARIBOU GRAZING CONDITIONS IN CANADA**
Alexandre Langlois, Caroline Dolant, Felix Ouellet, Ludovic Brucker, Agnes Richards, Cheryl-Ann Johnson, Alain Royer, Université de Sherbrooke, Canada

MOP.PO.2 Board PO.2 **ADAPTIVE REGULARIZATION METHOD FOR FORWARD LOOKING AZIMUTH SUPER-RESOLUTION OF A DUAL-FREQUENCY POLARIZED SCATTEROMETER**
Liling Liu, National Space Science Center & University of Chinese Academy of Sciences, China; Xiaolong Dong, National Space Science Center, Chinese Academy of Sciences, China; Jintai Zhu, DFH Satellite Co, Ltd, China; Di Zhu, National Space Science Center, Chinese Academy of Sciences, China

MOP.PO.3 Board PO.3 **EVALUATION OF REGIONAL-SCALE SNOW ALBEDO CHARACTERISTICS DURING WINTER SEASON FROM 2003 TO 2014**
Lanying Wang, Jonathan Li, Claude R. Duguay, University of Waterloo, Canada; Dilong Li, China Transport Telecommunications and Information Center, China

MOP.PO.4 Board PO.4 **INVESTIGATION OF SNOW COVER CHANGE USING MULTI-TEMPORAL PALSAR INSAR DATA AT DAGU GLACIER, CHINA**
Yong Wang, Lei Wang, Yin Zhang, Taoli Yang, University of Electronic Science and Technology of China, China

MOP.PO.5 Board PO.5 **RETRIEVING SNOW COVER IN FORESTS OF QILIAN MOUNTAINS FROM LANDSAT OPTIONAL LAND IMAGER(OLI)**
Xiaoyan Wang, Jian Wang, Cold and Arid Regions Environmental and Engineering Research Institute, Chinese Academy of Sciences, China

MOP.PO.6 Board PO.6 **MICROWAVE SNOW EMISSION MODELING OF BOREAL FOREST ENVIRONMENTS**
Alexandre Roy, Alain Royer, Benoit Montpetit, Alexandre Langlois, Université de Sherbrooke, Canada

MOP.PO.7 Board PO.7 **FIRST-YEAR SNOW-COVERED SEA ICE POLARIMETRIC NRCS INVERSION IN CAMBRIDGE BAY, NUNAVUT**
Nariman Firoozy, Alexander S. Komarov, Puyan Mojabi, Jack C. Landy, David G. Barber, University of Manitoba, Canada

MOP.PO.8 Board PO.8 **SNOW DEPTH RETRIEVAL BASED ON A NOVEL SEA ICE CONCENTRATION ALGORITHM FROM AMSR-E DATASETS**
Tingting Zhu, Fei Li, Yu Zhang, Shengkai Zhang, Weifeng Hao, Liangpei Zhang, Wuhan University, China

MOP.PO.9 Board PO.9 **ANALYSIS OF SNOW COVER IN LANDSLIDE PRONE AREAS: THE EXAMPLE OF TENA VALLEY, CENTRAL PYRENEES, SPAIN**
Anna Facello, Daniele Giordan, Andrea Manconi, Italian National Council of Research - Research institute for geo-hydrological protection, Italy

MOP.PO.10 Board PO.10 **A MULTI-SOURCE INTERACTIVE ANALYSIS APPROACH FOR NORTHERN HEMISPHERIC SNOW DEPTH ESTIMATION**
Cezar Kongoli, University of Maryland, College Park, United States; Sean Helfrich, National Oceanic and Atmosheric Administration, United States

MOP.PO.11 Board PO.11 **INTAGRATED SNOW MONITORING FOR REGIONAL HYDROLOGY PROGNOSIS**
Lukas Brodsky, Vaclav Vobora, Gisat, Czech Republic; Radim Vasat, University of Life Sciences in Prague, Czech Republic; Simon Pinnock, European Space Agency (ESA), Italy

Calibration and Validation

Session Co-Chairs: Murty Divakarla, NOAA; Shen-En Qian, Canadian Space Agency

MOP.PP.1 Board PP.1 **ON-ORBIT CALIBRATION METHODOLOGIES FOR MODIS REFLECTIVE SOLAR BANDS**
Xiaoxiong Xiong, NASA Goddard Space Flight Center, United States; Amit Angal, Hongda Chen, Xu Geng, Daniel Link, Science Systems and Applications Inc., United States; Vincent Salomonson, University of Utah, United States; Aisheng Wu, Science Systems and Applications Inc., United States

MOP.PP.2 Board PP.2 **POINT-TARGET CALIBRATION OF POLARIMETRIC IMAGING SAR WITH CLUTTER MITIGATION**
Mani Kashanianfard, Kamal Sarabandi, University of Michigan, United States

MOP.PP.3 Board PP.3 **IMPLEMENTATION OF SPACE EXPERIMENT WITH THE HIGH-STABLE SPACE-BORNE FIXED-POINT BLACKBODY PROTOTYPE ON BOARD THE "FOTON-M" #4 SPACECRAFT**
Andrey Burdakin, Boris Khlevnoy, Vladimir Krutikov, Boris Lisyansky, Svetlana Morozova, Alexander Panfilov, Andrey Puzanov, Valeriy Rakov, Mikhail Samoylov, Victor Sapritsky, Ekaterina Us, All-Russian Research Institute for Optical and Physical Measurements, Russian Federation; Alexander Ivanov, Alexey Lysak, Central Research Institute of Machine Building, Russian Federation

MOP.PP.4 Board PP.4 **AEROSPACE GROUND-TRUTH DATA FOR VALIDATION OF THE CRIMSS SENSOR SUITE ABOARD SUOMI-NPP**
Andrew Mollner, John Wessel, Stephen LaLumondiere, Petras Karuza, William Lotshaw, The Aerospace Corporation, United States; Nicholas Nalli, IMSG Inc, NOAA NESDIS STAR, United States; Quanhua Liu, NOAA/NESDIS/STAR, United States; Antonia Gambacorta, Christopher Barnet, STC, United States; Anthony Reale, NOAA/NESDIS/STAR, United States; Changyi Tan, Flavio Iturbide-Sanchez, IMSG Inc, NOAA NESDIS STAR, United States

MOP.PP.5 Board PP.5 **MODIFICATION OF VIIRS SENSOR DATA RECORD OPERATIONAL CODE FOR CONSISTENCY OF DATA PRODUCT LIMITS**
Gabriel Moy, Frank De Luccia, The Aerospace Corporation, United States; Chris Moeller, CIMSS, United States

MOP.PP.6 Board PP.6 **JPSS DATA PRODUCT IMPROVEMENT: A SYSTEM ENGINEERING APPROACH**
Frank De Luccia, Neal Baker, David Kunkee, David Moyer, Yelena Savranskaya, Josef Wicker, Christopher Woods, Lance Williams, The Aerospace Corporation, United States

MOP.PP.7 Board PP.7 **TRIPLE COLLOCATION FOR CATEGORICAL TARGET VARIABLES: APPLICATION TO VALIDATING LANDSCAPE FREEZE/THAW CLASSIFICATION**
Kaighin A. McColl, Massachusetts Institute of Technology, United States; Alexandre Roy, Université de Sherbrooke, Canada; Chris Derksen, Environment Canada, Canada; Alexandra G. Konings, Seyed Hamed Alemohammad, Dara Entekhabi, Massachusetts Institute of Technology, United States

MOP.PP.8 Board PP.8 **PERFORMANCE ASSESSMENT OF THE INSAES4 INTERFEROMETRIC PRODUCTS**
Stefano Perna, Università Parthenope, Italy; Carmen Esposito, Paolo Berardino, CNR, Italy; Giseppe Jackson, Università Parthenope, Italy; Antonio Pauciullo, CNR, Italy; Christian Wimmer, Bradar, Brazil; Riccardo Lanari, CNR, Italy

MOP.PP.9 Board PP.9 **PHASE ERROR COMPENSATION METHOD USING POLYNOMIAL MODEL FOR A DIRECT DIGITAL SYNTHESIZER BASED CHIRP SIGNAL GENERATOR**
Heein Yang, Josaphat Tetuko Sri Sumantyo, Chiba university, Republic of Korea; Jin-Hong An, Hae-Won Jung, Jae-Hyun Kim, Ajou university, Republic of Korea

MOP.PP.10 Board PP.10 **HIGH PRECISION AIRBORNE SAR GEOMETRIC CALIBRATION AND GEOLOCATION BASED ON AN IMPROVED NEAR RANGE MODEL**
Junsong Huang, Qiming Zeng, Jian Jiao, Ruiyan Fan, Lin Shen, Jiwei Chen, Peking University, China

MOP.PP.11 Board PP.11 **ANALYSIS OF SENTINEL-1A FDBAQ AFTER COMMISSIONING PHASE**
Pietro Guccione, Politecnico di Bari, Italy; Michele Belotti, Davide Giudici, Aresys srl, Italy; Andrea Monti Guarnieri, Politecnico di Milano, Italy; Roberta Bertoni, David Bibby, Ignacio Navas-Traver, European Space Agency, ESTEC, Netherlands

MOP.PP.12 Board PP.12 **NEW SMALL AIRBORNE SAR BASED ON PI-SAR2**
Takashi Fujimura, Kiyonobu Ono, Hidefumi Nagata, Norihiko Omuro, Tsunekazu Kimura, Minoru Murata, NEC Corporation, Japan

UAV and Airborne Platforms I

Session Co-Chairs: Melba Crawford, Purdue University; Marwan Younis, German Aerospace Center (DLR)

MOP.PQ.1 Board PQ.1 **COMPACT, LOW COST, AIRBORNE SAR INTERFEROMETRY FOR ENVIRONMENTAL MONITORING**
Fiona Muirhead, University of Edinburgh, United Kingdom; Gavin Halcrow, Selex ES Ltd, United Kingdom; Iain H. Woodhouse, Bernard Mulgrew, University of Edinburgh, United Kingdom; David Greig, Selex ES Ltd, United Kingdom

MOP.PQ.2 Board PQ.2 **INTERCOMPARISON OF ALTERNATE SOIL MOISTURE DOWNSCALING ALGORITHMS USING ACTIVE-PASSIVE MICROWAVE OBSERVATIONS**
Xiaoling Wu, Jeffrey Walker, Christoph Rüdiger, Monash University, Australia; Rocco Panciera, University of Melbourne, Australia

MOP.PQ.3 Board PQ.3 **PERFORMANCE ANALYSIS OF MILLIMETER WAVE FMCW INSAR FOR UAS INDOOR OPERATIONS**
Antonio Fulvio Scannapieco, Alfredo Renga, Antonio Moccia, University of Naples, Italy

MOP.PQ.4 Board PQ.4 **RAPID CHARACTERIZATION OF DENSE MATCHING SUITABLE FOR UAV VIDEO IMAGES**
Yunpeng Wei, Hongying Zhao, Hongyun Zheng, Tiantian Xin, Peking University, China

MOP.PQ.5 Board PQ.5 **ENVIRONMENTAL MONITORING OF MINE ACTIVITIES USING IMAGES DERIVED FROM UAV**
Fatwa Ramdani, Brawijaya University, Indonesia; Andy Gusty Rangga, Britmindo, Indonesia; Brenden Duffy, ConservationDrones, United States; Putri Setiani, AerialGeo, Indonesia

MOP.PQ.6 Board PQ.6 **UAV AERIAL IMAGE CLASSIFICATION BASED ON HAAR-LIKE FEATURES AND NEURAL NETWORKS**
Daniel Rodrigues Roos, Institute for Advanced Studies, Brazil; Ana Carolina Lorena, Federal University of São Paulo, Brazil; Elcio Hideiti Shiguemori, Rafael Lemos Paes, Institute for Advanced Studies, Brazil

MOP.PQ.7 Board PQ.7 **AIRBORNE LIDAR POINT CLOUD FITTING WITH GEOMETRIC CONSTRAINTS**
Heng-Chuan Tsao, Jyun-Yuan Chen, Chao-Hung Lin, National Cheng Kung University, Taiwan

Monitoring Natural Disaster: Floods and Landslides

Session Chair: Marco Chini, Lippmann

MOP.PR.1 Board PR.1 **SPECKLE REDUCTION APPROACH FOR DETECTING FLOOD INUNDATION AREA BY USING ALOS PALSAR**
A. Besse Rimba, Fusanori Miura, Martiwi Setiawati, Yamaguchi University, Japan; Abd. Rahman As-Syakur, Udayana University, Indonesia; Abu Bakar Sambah, Yamaguchi University, Japan

MOP.PR.2 Board PR.2 **DEVELOPMENT OF LARGE SCALE FLOODING DETECTION METHOD BY INTEGRATING HISTORICAL GLOBAL RECORD USING AMSR-E/AMSR2 WITH PALSAR**
Xi Li, Wataru Takeuchi, The University of Tokyo, Japan

MOP.PR.3 Board PR.3 **KFDA-BASED CROPLAND INUNDATION CHANGE DETECTION WITH AN AUTOMATIC METHOD FOR TRAINING SAMPLE EXTRACTION**
Shuchen Chen, Xiufang Zhu, Yaozhong Pan, Yizhan Li, Guanyuan Shuai, Xianfeng Liu, Muyi Li, Beijing Normal University, China

MOP.PR.4 Board PR.4 **JOINT USE OF X- AND C-BAND SAR IMAGES FOR FLOOD MONITORING: THE 2014 PO RIVER BASIN CASE STUDY**
Giorgio Boni, CIMA Research Foundation, Italy; Nazzareno Pierdicca, Sapienza University of Rome, Italy; Luca Pulvirenti, Giuseppe Squicciarino, CIMA Research Foundation, Italy; Laura Candela, Agenzia Spaziale Italiana (ASI), Italy

MOP.PR.5 Board PR.5 **USER ORIENTED MULTIDISCIPLINARY APPROACH TO FLOOD MAPPING: THE EXPERIENCE OF THE ITALIAN CIVIL PROTECTION SYSTEM**
Giorgio Boni, Luca Pulvirenti, Francesco Silvestro, Giuseppe Squicciarino, CIMA Research Foundation, Italy; Paola Pagliara, Roberta Onori, Chiara Proietti, Italian Civil Protection Department, Italy; Laura Candela, Anna Rita Pisani, Simona Zoffoli, Agenzia Spaziale Italiana (ASI), Italy

MOP.PR.6 Board PR.6 **USING BIG GEOSPATIAL DATA FOR FAST FLOOD DETECTION: DEVELOPMENTS FROM THE IQMULUS PROJECT**
Daniel Kristof, FÖMI - Institute of Geodesy, Cartography and Remote Sensing, Hungary; Roberto Giachetta, Eötvös Loránd University (ELTE), Hungary; Angela Olasz, Marta Belenyesi, Binh Nguyen Thai, Melinda Harsanyi, FÖMI - Institute of Geodesy, Cartography and Remote Sensing, Hungary

MOP.PR.7 Board PR.7 **MICRO-UAV BASED REMOTE SENSING METHOD FOR MONITORING LANDSLIDES IN THREE GORGES RESERVOIR, CHINA**
Haifeng Huang, Yiming Lv, Xiaofei Du, Haiyu Lin, Shang Jiang, Jinjin Long, China Three Gorges University, China

MOP.PR.8 Board PR.8 **SPATIAL AND CORRELATION ANALYSIS OF LANDSLIDES TRIGGERED BY THE LUDDIAN EARTHQUAKE**
Xiaoxuan Li, Weiping Lian, Haijian Ma, National Earthquake Infrastructure Service, China; Deyong Hu, Capital Normal University, China

MOP.PR.9 Board PR.9 **ASSESSMENT OF SUPERVISED METHODS FOR MAPPING RAINFALL INDUCED LANDSLIDES IN VHR IMAGES**
Sandra Heleno, Margarida Silveira, Magda Matias, Pedro Pina, Instituto Superior Técnico, University of Lisbon, Portugal

Global Crop Mapping and Food Security

Session Co-Chairs: Inbal Becker-Reshef, University of Maryland; Mirco Boschetti, CNR-IREA

MOP.PS.1 Board PS.1 **ASSESSING THE APPLICABILITY OF NDVI DATA FOR THE DESIGN OF INDEX-BASED AGRICULTURAL INSURANCE IN BIHAR, INDIA**
Irene Winkler, Technische Universität Berlin, Germany; Mamta Mehra, Sarah Favrichon, Vaibhav Sharma, Nihar Jangle, Micro Insurance Academy, India

MOP.PS.2 Board PS.2 **EXPLOITING SYNERGIES OF GLOBAL AND REGIONAL LAND COVER MAPS FOR CROPLAND ASSESSMENT IN AFRICA**
Ana Pérez-Hoyos, Francois Kayitakire, Christelle Vancutsem, Felix Rembold, Joint Research Centre of the European Commission, Italy; Francisco Javier García-Haro, Universitat de València, Spain

MOP.PS.3 Board PS.3 **EXPLORING DIFFERENT ALTERNATIVES FOR GLOBAL CROPLAND CLASSIFICATION USING SENTINEL 2 DATA**
Guadalupe Sepulcre, Nicolas Matton, Francois Waldner, UCLouvain-Geomatics, Belgium; Silvia Valero, Marcela Arias, David Morin, Jordi Inglada, Olivier Hagolle, Gérard Dedieu, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Sophie Bontemps, Pierre Defourny, UCLouvain-Geomatics, France; Benjamin Koetz, European Space Agency (ESA), Italy

MOP.PS.4 Board PS.4 **ESTIMATING CROP YIELDS WITH DEEP LEARNING AND REMOTELY SENSED DATA**
Kentaro Kuwata, Ryosuke Shibasaki, The University of Tokyo, Japan

MOP.PS.5 Board PS.5 **TOWARDS A SATELLITE BASED SYSTEM FOR MONITORING AGRICULTURAL WATER USE: A CASE STUDY FOR SAUDI ARABIA**
Matthew F. McCabe, Rasmus Houborg, Jorge Rosas, Ali Ershadi, King Abdullah University of Science and Technology, Saudi Arabia; Martha Anderson, United States Department of Agriculture, United States; Christopher Hain, University of Maryland, United States

Monitoring Natural Disaster II

Session Co-Chairs: Patrick Matgen, Luxembourg Institute of Science and Technology (LIST); Marco Chini, Lippmann

MOP.PS.7 Board PS.7 **DETECTING SEISMIC IR ANOMALIES IN BI-ANGULAR ADVANCED ALONG-TRACK SCANNING RADIOMETER DATA**
Pan Xiong, Xuhui Shen, Yanfang Dong, Yanmei Zhang, Institute of Earthquake Science, China Earthquake Administration, China

MOP.PS.8 Board PS.8 **ESTIMATES OF CRITICAL GROUND SURFACE CONDITION FOR ASIAN DUST STORM OUTBREAK IN GOBI DESERT REGION BASED ON REMOTELY SENSED DATA**
Yuta Demura, Buho Hoshino, Yuki Sofue, Rakuno Gakuen University, Japan; Kenji Kai, Nagoya University, Japan; Purevsuren Tsedendamba, Kenji Baba, Rakuno Gakuen University, Japan; Jan-Chang Chen, National PingTung University of Science and Technology, Taiwan; Kaori Mori, Rakuno Gakuen University, Japan

MOP.PS.9 Board PS.9 **LANDSAT 8 OPERATIONAL LAND IMAGER-DERIVED VARIABLES FOR ENVIRONMENTAL RISK ASSESSMENT IN TAOYUAN**
Yuei-An Liou, Kim-Anh Nguyen, Ming-Hsu Li, National Central University, Taiwan; Chuan-Yao Lin, Academia Sinica, Taiwan

MOP.PS.10 Board PS.10 **DERIVATION OF NEW SPLIT WINDOW ALGORITHM FOR RETRIEVING LAND SURFACE TEMPERATURE FROM FY-3/VIRR DATA**
Yuanyuan Chen, Si-Bo Duan, Chinese Academy of Agricultural Sciences, China; Wei Zhao, Chinese Academy of Sciences, China; Zhao-Liang Li, Chinese Academy of Agricultural Sciences, China

MOP.PS.11 Board PS.11 **COMBINATION OF LANDSAT AND EROS-B SATELLITE IMAGES WITH GPS AND LIDAR DATA FOR LAND MONITORING. A CASE STUDY: THE SANT'ARCANGELO TRIMONTE DUMP**
Pia Addabbo, Maurizio Di Bisceglie, Università degli Studi del Sannio, Italy; Mariano Focareta, Mediterranean Agency for Remote Sensing and Environmental Control (MARSEC), Italy; Carmela Galdi, Università degli Studi del Sannio, Italy; Carmine Maffei, Mediterranean Agency for Remote Sensing and Environmental Control (MARSEC), Italy; Silvia Liberata Ullo, Università degli Studi del Sannio, Italy

Clouds and Precipitation I

Session Chair: Rachael Kroodsma, NASA

MOP.PT.1 Board PT.1 **PERFORMANCE OF THE FALLING SNOW RETRIEVAL ALGORITHMS FOR THE GLOBAL PRECIPITATION MEASUREMENT (GPM) MISSION**
Gail Skofronick-Jackson, Stephen Joseph Munchak, Benjamin T Johnson, NASA Goddard Space Flight Center, United States

MOP.PT.2 Board PT.2 **AN INTERCOMPARISON OF TWO PASSIVE MICROWAVE ALGORITHMS FOR SNOWFALL DETECTION OVER EUROPE**
Sante Laviola, Institute of Atmospheric Sciences and Climate - National Research Council (ISAC-CNR), Italy; Jun Dong, Earth System Science Interdisciplinary Center (ESSIC), United States; Cezar Kongoli, National Oceanic Atmospheric Administration, National Environmental Satellite, Data and Information Service (NOAA/NESDIS) and Earth System Science Interdisciplinary Center (ESSIC), United States; Huan Meng, Ralph R. Ferraro, National Oceanic Atmospheric Administration, National Environmental Satellite, Data and Information Service (NOAA/NESDIS), United States; Vincenzo Levizzani, Institute of Atmospheric Sciences and Climate - National Research Council (ISAC-CNR), Italy

MOP.PT.3 Board PT.3 **RAINFALL ESTIMATION WITH A COMMERCIAL TOOL FOR SATELLITE INTERNET IN KA BAND: MODEL EVOLUTION AND RESULTS**
Clio Mugnai, University of Pisa, Italy; Francesco Sermi, Fabrizio Cuccoli, National Laboratory of Radar and Surveillance Systems, Italy; Luca Facheris, University of Florence, Italy

MOP.PT.4 Board PT.4 **NASA D3R LINEAR DEPOLARIZATION RATIO OBSERVATIONS AND A NEW ESTIMATION TECHNIQUE**
Robert M. Beauchamp, V. Chandrasekar, Colorado State University, United States; Manuel A. Vega, NASA Goddard Space Flight Center, United States

MOP.PT.5 Board PT.5 **SCATTERING PROPERTIES OF PARTIALLY MELTED ICE PARTICLES USING THE INVARIANT IMBEDDING T-MATRIX METHOD**
Craig Pelissier, NASA Goddard Space Flight Center/SSAI, United States; Kwo-Sen Kuo, NASA Goddard Space Flight Center/ESSIC, UMD, United States; Thomas Clune, NASA Goddard Space Flight Center, United States

MOP.PT.6 Board PT.6 **DO AEROSOLS INFLUENCE SURFACE AND SATELLITE OBSERVATIONS OF TOTAL CLOUD COVER OVER CHINA**
Yawen Zhang, Hui Lu, Tsinghua University, China

MOP.PT.7 Board PT.7 **VALIDATION OF RAIN RATE RETRIEVALS FOR THE AIRBORNE HURRICANE IMAGING RADIOMETER (HIRAD)**
Maria Marta Jacob, Comisión Nacional de Actividades Espaciales, Argentina; Matin Salemirad, W. Linwood Jones, Central Florida Remote Sensing Lab, United States; Sayak Biswas, Daniel Cecil, NASA Marshall Space Flight Center, United States

MOP.PT.8 Board PT.8 **DETECTION OF CLOUD VERTICAL STRUCTURE USING WATER VAPOR PRESSURE IN TROPICAL REGION**
*Feng Yuan, Yee Hui Lee, Nanyang Technological University, Singapore; Yu Song Meng, Agency for Science, Technology and Research (A*STAR), Singapore; Jin Teong Ong, C2N Pte. Ltd., Singapore*

MOP.PT.9 Board PT.9 **PROBABILISTIC APPROACH FOR PRECIPITATION ATTENUATION CORRECTION IN MULTIPLE RADAR NETWORK**
Shigeharu Shimamura, Osaka University, Colorado State University, Japan; V. Chandrasekar, Colorado State University, United States; Tomoo Ushio, Osaka University, Japan; Eiichi Yoshikawa, Japan Aerospace Exploration Agency, Japan

MOP.PT.10 Board PT.10 **VALIDATION AND INTERCOMPARISON OF SATELLITE RAINFALL PRODUCTS OVER GUIANA SHIELD**
Justine Ringard, University of French Guiana, French Guiana; Mélanie Becker, IRD, France; Frédérique Seyler, IRD/UAG/UM2/UR, France; Laurent Linguet, University of French Guiana, French Guiana

Clouds and Precipitation II

Session Chair: Sanghun Lim, Korea Institute of Civil Engineering and Building Technology

MOP.PU.1 Board PU.1 **PERFORMANCE EVALUATION OF RAIN PRODUCTS FROM A POLARIMETRIC X-BAND RADAR BY USING A NEW RAW DATA PROCESSING CHAIN**
Stefano Barbieri, Errico Picciotti, University of L'Aquila, Italy; Mario Montopoli, Sapienza University of Rome, Italy; Saverio Di Fabio, Raffaele Lidori, University of L'Aquila, Italy; Frank Marzano, Sapienza University of Rome, Italy; John Kalogiros, Marios Anagnostou, National Observatory of Athens, Greece; Luca Baldini, National Research Council, Italy

MOP.PU.2 Board PU.2 **REGIONAL POLARIMETRIC QUANTITATIVE PRECIPITATION ESTIMATION OVER THE PIGEON RIVER BASIN**
Delbert Willie, V. Chandrasekar, Colorado State University, United States

MOP.PU.3 Board PU.3 **A NOVEL ALGORITHM FOR DETECTING CENTER OF TROPICAL CYCLONE IN SATELLITE INFRARED IMAGES**
Jia Liu, Chuancai Liu, Boyang Wang, Nanjing University of Science and Technology, China; Danyu Qin, China Meteorological Administration, China

MOP.PU.4 Board PU.4 **THIN CLOUD REMOVAL FOR LANDSAT 8 OLI DATA USING INDEPENDENT COMPONENT ANALYSIS**
Yang Shen, Yong Wang, Haitao Lv, University of Electronic Science and Technology of China, China

MOP.PU.5 Board PU.5 **EXAMINATION OF A COUPLED-PIXEL MODEL (CPM) ATMOSPHERIC RETRIEVAL ALGORITHM**
Mary Morris, Christopher S. Ruf, University of Michigan, United States

MOP.PU.6 Board PU.6 **EVALUATION OF AN ATTENUATION CORRECTION METHOD FOR DUAL POLARIZATION RADAR**
Sanghun Lim, Korea Institute of Civil Engineering and Building Technology, Republic of Korea; V. Chandrasekar, Honan Chen, Colorado State University, United States; Bong-Joo Jang, Keon-Haeng Lee, Korea Institute of Civil Engineering and Building Technology, Republic of Korea; Ki-Ryong Kwon, Pukyong National University, Republic of Korea

MOP.PU.7 Board PU.7 **INTER-COMPARISON OF RADAR RAINFALL RATE FROM CAPPI AND HYBRID SURFACE RAINFALL MAP**
Soohyun Kwon, Sung-Hwa Jung, GyuWon Lee, Kyungpook National University, Republic of Korea

MOP.PU.8 Board PU.8 **REMOVAL OF THIN CLOUDS IN VISIBLE BANDS USING SPECTRUM CHARACTERISTICS OF THE VISIBLE BANDS**
Haitao Lv, Yong Wang, Yang Shen, University of Electronic Science and Technology of China, China

MOP.PU.9 Board PU.9 **ASSIMILATION OF RADAR REFLECTIVITY FOR RAINFALL NOWCASTING**
Yann Lepoittevin, Isabelle Herlin, Inria, France

MOP.PU.10 Board PU.10 **VARIATION TRENDS OF CLOUD AND AEROSOL OPTICAL THICKNESSES OVER FOUR SITES IN CHINA DURING 1960-2009**
Jinhuan Qiu, Xuemei Zong, Institute of Atmospheric Physics,Chinese Academy of Sciences, China

MOP.PU.11 Board PU.11 **CONSISTENCY ANALYSIS AMONG MICROWAVE LAND SURFACE EMISSIVITY PRODUCTS TO IMPROVE GPROF PRECIPITATION ESTIMATIONS**
Hamidreza Norouzi, NY City College of Technology, CUNY, United States; Marouane Temimi, Reza Khanbilvardi, The City College of New York, CUNY, United States; Reginald Blake, NY City College of Technology, CUNY, United States

High Resolution, Active and Passive Measurements

Session Chair: Zorana Jelenak, NOAA/NESDIS

MOP.PV.1 Board PV.1 **ASSESSMENT OF THE ASCAT SUB-CELL WIND VARIABILITY**
Wenming Lin, Marcos Portabella, Institut de Ciències del Mar (ICM-CSIC), Spain; Ad Stoffelen, Jur Vogelzang, Anton Verhoef, Royal Netherlands Meteorological Institute (KNMI), Netherlands; Gregory King, Institut de Ciències del Mar (ICM-CSIC), Spain

MOP.PV.2 Board PV.2 **FETCH IMAGED BY SAR AND SIMULATED BY WRF MODEL**
Xiaofeng Li, GST at NOAA/NESDIS, United States; Weizhong Zheng, IMSG at NOAA/NESDIS, United States; Xiaofeng Yang, Chinese Academy of Sciences, China; William Pichel, NOAA/NESDIS/STAR, United States

MOP.PV.3 Board PV.3 **SAR OBSERVATIONS OF INTERNAL WAVES IN THE RUSSIAN ARCTIC SEAS**
Igor Kozlov, Vladimir Kudryavtsev, Evgenia Zubkova, Oksana Atadzhanova, Russian State Hydrometeorological University, Russian Federation; Alexei Zimin, Dmitry Romanenkov, P.P. Shirshov Institute of Oceanology RAS (Saint-Petersburg Branch), Russian Federation; Alexander Myasoedov, Russian State Hydrometeorological University, Russian Federation; Bertrand Chapron, Institute Francais de Recherche pour l'Exploitation de la Mer, France

MOP.PV.4 Board PV.4 **IMPROVED MODELING OF WAVE-INDUCED CONTRIBUTIONS TO ALONG-TRACK INSAR-DERIVED SURFACE VELOCITY FIELDS**
Conor Smith, Roland Romeiser, University of Miami, United States; Ad Reniers, Delft University of Technology, Netherlands

MOP.PV.5 Board PV.5 **WIND SPEED ESTIMATION USING SPATIAL RESOLUTION ENHANCED AMSR-E MICROWAVE RADIOMETER DATA**
Flavia Lenti, University of Insubria, Italy; Ferdinando Nunziata, Maurizio Migliaccio, university of naples parthenope, Italy; Leif Toudal Pedersen, Danmarks Meteorologiske Institut, Denmark

Ocean Temperature and Salinity II

Session Chair: Wenqing Tang, NASA Jet Propulsion Laboratory

MOP.PV.7 Board PV.7 **ASSESSMENT OF SMOS AND AQUARIUS/SAC-D SALINITY DATA ACCURACY IN THE SOUTH CHINA SEA:THREE STATISTICAL METHODS**
Changjun Li, Hong Zhao, Hongping Li, Kebo Lv, Ocean University of China, China

MOP.PV.8 Board PV.8 **HORIZONTAL AND VERTICAL SEA SURFACE SALINITY VARIABILITY IN SOUTH CHINA SEA AREA**
Kebo Lv, Hongping Li, Changjun Li, Hong Zhao, Haihua Chen, The Ocean university of China, China

MOP.PV.9 Board PV.9 **EVALUATION OF SEA SURFACE TEMPERATURE FROM HY-2 SCANNING MICROWAVE RADIOMETER**
Lei Guan, Mingkun Liu, Ocean University of China, China

MOP.PV.10 Board PV.10 **SATELLITE DERIVED SEA SURFACE SALINITY VALIDATION IN SOUTH CHINA SEA AREA**
Hongping Li, Wenwen Fu, Haihua Chen, Changjun Li, Hong Zhao, The Ocean University of China, China

MOP.PV.11 Board PV.11 **COMPARISON OF SATELLITE-DERIVED SST RESPONSE IN THE COLD DOME OFF NORTHEASTERN TO DIFFERENT TYPHOONS**
Yi-Chun Kuo, Ming-An Lee, National Taiwan Ocean University, Taiwan

MOP.PV.12 Board PV.12 **GLOBAL MEAN DYNAMIC TOPOGRAPHY AND GEOSTROPHIC OCEAN CIRCULATION USING GOCE GRAVITY MISSION DATA AND WIENER FILTERS**
Maddalena Gilardoni, Mirko Reguzzoni, Alberta Albertella, Politecnico di Milano, Italy

Soil Moisture Validation and Algorithms

Session Co-Chairs: Tianjie Zhao, Chinese Academy of Sciences and Beijing Normal University; Ruzbeh Akbar, University of Southern California

MOP.PW.1 Board PW.1 **SPATIAL AND TEMPORAL ANALYSIS OF THE MONTE BUEY SAOCOM AND SMAP CORE SITE**
Marc Thibeault, Juan Manuel Caceres, Danilo Dadamia, Alvaro Soldano, Marcelo Uriburu Quirno, Juan Martin Guerrieri, Rodrigo Edrosa, Matias Palomeque, Luciano Romaldi, Julian Pucheta, Jonatan Mogadouro, Ezequiel De Luca, Santiago Bustos Revol, Sebastián Aguero, Ignacio Pascual, Mauro Mariotti d'Alessandro, Comisión Nacional de Actividades Espaciales, Argentina

MOP.PW.2 Board PW.2 **PRELIMINARY FIELD RESULTS OF SOIL MOISTURE FROM KUWAIT DESERT AS A CORE VALIDATION SITE OF SMAP SATELLITE**
Hala Khalid Al Jassar, Kuwait University, Kuwait; Peter Petrov, Regional Organization for the Protection of Marine Environment, Kuwait; Dara Entekhabi, Massachusetts Institute of Technology, United States; Marouane Temimi, The City University of New York ; Masdar Institute, United States; Nevil Kodiyan, Mohamed Shuaib Ansari, Kuwait University, Kuwait

MOP.PW.3 Board PW.3 **FEASIBILITY OF THE SMOS SOIL MOISTURE FOR AGRICULTURAL DROUGHT MONITORING: ASSESSMENT WITH THE SOIL WATER DEFICIT INDEX**
José Martínez-Fernández, Nilda Sánchez, Ángel González-Zamora, Ángela Gumuzzio, Carlos Miguel Herrero-Jiménez, Universidad de Salamanca, Spain

MOP.PW.4 Board PW.4 **RECONSTRUCTION OF TIME-SERIES SOIL MOISTURE FROM AMSR2 AND SMOS DATA BY USING RECURRENT NONLINEAR AUTOREGRESSIVE NEURAL NETWORKS**
Zheng Lu, Linna Chai, Qinyu Ye, State Key Laboratory of Remote Sensing Science, Research Center of Remote Sensing & GIS, School of Geography, Beijing Normal University, China; Tao Zhang, Satellite Surveying and Mapping Application Center, National Administration of Surveying, Mapping and Geoinformation of China, China

MOP.PW.5 Board PW.5 **OBSERVATION SYSTEM SIMULATION EXPERIMENT FOR A L-BAND MICROWAVE RADIOMETER OVER ROUGH BARE SOIL SITE: A FIRST STEP TOWARDS BRIGHTNESS TEMPERATURE ASSIMILATION**
Bin Peng, Tianjie Zhao, Jiancheng Shi, Chuan Xiong, Yonghui Lei, Dabin Ji, Dongyang Li, Yurong Cui, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China

Propagation, Scattering and Radiative Transfer

Session Co-Chairs: Feng Xu, Fudan University; Hui Lu, Tsinghua University

TUP.PA.1 Board PA.1 **SHORTWAVE RADIATIVE TRANSFER MODELING AT LARGE SCALE FOR PARTIAL CLOUDY CONDITIONS**
Ling Chen, Beijing Forestry University, China; Guangjian Yan, Beijing Normal University, China; Tianxing Wang, Chinese Academy of Sciences, China

TUP.PA.2 Board PA.2 **ATMOSPHERIC PRECIPITATION IMPACT ON SYNTHETIC APERTURE RADAR IMAGERY: NUMERICAL MODEL AT X AND KA BANDS**
Saverio Mori, Federica Polverari, Luigi Mereu, University La Sapienza, Italy; Luca Pulvirenti, CIMA Research Foundation, Italy; Mario Montopoli, Nazzareno Pierdicca, Frank Silvio Marzano, University La Sapienza, Italy

TUP.PA.3 Board PA.3 **SEPARATION OF SCATTERING PHENOMENA IN SUPER-RESOLUTION ISAR IMAGING USING CONSTRAINED MUSIC**
Jon Mitchell, Saibun Tjuatja, The University of Texas at Arlington, United States

TUP.PA.4 Board PA.4 **A DECONVOLUTION METHOD FOR SHIP DETECTION IN SEA CLUTTER ENVIRONMENT**
Yue Wang, Yuebo Zha, Yulin Huang, Yin Zhang, Jianyu Yang, School of Electronic Engineering, University of Electronic Science and Technology of China, China

TUP.PA.5 Board PA.5 **PROPAGATION IN URBAN AREAS. ORIENTATION, PERMITTIVITY AND ENTROPY.**
Régis Guinvarc'h, Laetitia Thirion-Lefevre, CENTRALESUPELEC, France

TUP.PA.6 Board PA.6 **MODELING OF GNSS MULTIPATH SIGNALS FOR ALTIMETRY APPLICATIONS USING SIGNAL TO NOISE RATIO DATA**
Frédéric Frappart, Nicolas Roussel, Adrien Gay, Guillaume Ramillien, José Darrozes, Laurent Lestarquit, Felix Perosanz, Observatoire Midi-Pyrénées, France

TUP.PA.7 Board PA.7 **ESTIMATION OF VEGETATION AND SOIL BACKSCATTERING FOR THE RETRIEVAL OF SWE IN SPARSE FORESTS**
Francesco Montomoli, Giovanni Macelloni, Marco Brogioni, IFAC-CNR, Italy; Juha Lemmetyinen, Finnish Meteorological Institute, Finland; Helmut Rott, ENVEO, Austria

TUP.PA.8 Board PA.8 **NONSMOOTH NONCONVEX OPTIMIZATION FOR GEOSOUNDING INVERSION**
Hugo Hidalgo-Silva, Enrique Gomez-Trevino, CICESE, Mexico

TUP.PA.9 Board PA.9 **INVESTIGATION OF JOINT PROBABILITY DENSITY FUNCTION OF HIGH-RESOLUTION VV- AND HH-POLARIZED X-BAND SEA BACKSCATTER OBTAINED THROUGH DIRECT NUMERICAL SIMULATIONS**
Jakov Toporkov, Mark Sletten, U.S. Naval Research Laboratory, United States

Image Processing

Session Co-Chairs: Yuliya Tarabalka, INRIA; Roberta Anniballe, Univ. Roma "La Sapienza"

TUP.PB.1 Board PB.1 **UNSUPERVISED CLASSIFICATION BASED ON H/ALPHA DECOMPOSITION AND WISHART CLASSIFIER FOR COMPACT POLARIMETRIC SAR**
Shenglong Guo, Yurun Tian, Yang Li, Shiqiang Chen, Wen Hong, Institute of Electronics, Chinese Academy of Sciences, China

TUP.PB.2 Board PB.2 **ONBOARD IMAGE SELECTION FOR SMALL-SATELLITE BASED REMOTE SENSING MISSION**
Yihang Wang, Shaohui Mei, Shuai Wan, Yi Wang, Yi Li, Northwestern Polytechnical University, China

TUP.PB.3 Board PB.3 **CLOUD BASE HEIGHT ESTIMATION USING HIGH-RESOLUTION WHOLE SKY IMAGERS**
Florian Savoy, Joseph Lemaitre, University of Illinois at Urbana-Champaign, Singapore; Soumyabrata Dev, Yee Hui Lee, Nanyang Technological University, Singapore; Stefan Winkler, University of Illinois at Urbana-Champaign, Singapore

TUP.PB.4 Board PB.4 **FEATURE EXTRACTION OF WOBBLING ROTATIONAL SYMMETRY TARGETS**
Xiaofeng Ai, Yongzhen Li, Dejun Feng, Feng Zhao, Shunping Xiao, National University of Defense Technology, China

TUP.PB.5 Board PB.5 **MULTISOURCE CLASSIFICATION BASED ON UNCERTAINTY MAPS**
Bruna C. Braga, Corina da C. Freitas, Sidnei João Siqueira Sant'Anna, Instituto Nacional de Pesquisas Espaciais (INPE), Brazil

TUP.PB.6 Board PB.6 **UNSUPERVISED CLASSIFICATION BASED ON THE EM ALGORITHM FOR POLSAR DATA**
Mounira Ouarzeddine, Boularbah Souissi, USTHB University, Algeria

InSAR Methods and Applications II

Session Co-Chairs: Alberto Moreira, German Aerospace Center (DLR); Temilola Fatoyinbo, NASA Goddard Space Flight Center

TUP.PB.7 Board PB.7 **NEW MODE TERRASAR-X INTERFEROMETRY FOR RAILWAY MONITORING IN THE PERMAFROST REGION OF THE TIBET PLATEAU**
Chao Wang, Hong Zhang, Bo Zhang, Yixian Tang, Zhengjia Zhang, Meng Liu, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China; Lin Zhao, Cold and Arid Regions Environmental and Engineering Research Institute, Chinese Academy of Sciences, China

TUP.PB.8 Board PB.8 **A DEFINITION OF NEXT-GENERATION SAR PRODUCTS FOR GEODETIC APPLICATIONS**
Michael Eineder, Ulrich Balss, Steffen Suchandt, German Aerospace Center (DLR), Germany; Christoph Gisinger, Xiaoying Cong, Technische Universität München, Germany; Hartmut Runge, German Aerospace Center (DLR), Germany

TUP.PB.9 Board PB.9 **SIMULATING 3D URBAN SURFACE TEMPERATURE DISTRIBUTION USING ENVI-MET MODEL: CASE STUDY ON A FOREST PARK**
Huaguo Huang, Weijia Xie, Hao Sun, Beijing Forestry University, China

TUP.PB.10 Board PB.10 **ANALYSIS OF THE NATURAL MODES OF THE 3-D EDDY CURRENT PROBLEM BASED ON THE FINITE INTEGRATION TECHNIQUE**
Jonathan Gabbay, Waymond Scott, Georgia Institute of Technology, United States

Change Detection Techniques for Multispectral and Hyperspectral Images

Session Chair: Yuliya Tarabalka, INRIA

TUP.PC.1 Board PC.1 **COMPARISON OF CHANGE DETECTION TECHNIQUES FOR THE YUCATAN PENINSULA USING LANDSAT IMAGE TIME SERIES**
Rene R. Colditz, Ricardo M. Llamas, Steffen Gebhardt, Thilo Wehrmann, Julian Equihua, National Commission for the Knowledge and Use of Biodiversity (CONABIO), Mexico

TUP.PC.2 Board PC.2 **A NOVEL METHOD TO RECONSTRUCT NORMALIZED DIFFERENCE VEGETATION INDEX TIME SERIES BASED ON TEMPORAL-SPATIAL ITERATION ESTIMATION**
Lili Xu, University of Chinese Academy of Sciences, China; Baolin Li, Yecheng Yuan, State Key Laboratory of Resources and Environmental Information Systems, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, China; Tao Zhang, University of Chinese Academy of Sciences, China

TUP.PC.3 Board PC.3 **HYPERSPECTRAL CHANGE DETECTION BY USING IR-MAD AND SYNTHETIC IMAGE FUSION**
Jaewan Choi, Biao Wang, Guhyeok Kim, Chungbuk National University, Republic of Korea; Youkyung Han, Fondazione Bruno Kessler (FBK) / University of Trento, Republic of Korea

TUP.PC.4 Board PC.4 **CHANGE DETECTION FOR HYPERSPECTRAL IMAGES BASED ON TENSOR ANALYSIS**
Zhao Chen, Bin Wang, Yubin Niu, Fudan University, China; Wei Xia, China Transport Telecommunications & Information Center, China; Jian Qiu Zhang, Bo Hu, Fudan University, China

TUP.PC.5 Board PC.5 **APPLICATION OF A SEMI-AUTOMATIC UNSUPERVISED CHANGE DETECTION TO (SEMI-) NATURAL GRASSLAND LOSS AT VERY HIGH RESOLUTION**
Cristina Tarantino, Palma Blonda, Maria Adamo, National Research Council, Italy

TUP.PC.6 Board PC.6 **MULTI-TEMPORAL APPROACH TO ATMOSPHERIC EFFECTS COMPENSATION IN HYPERSPECTRAL IMAGE CLASSIFICATION**
Nicola Acito, Accademia Navale di Livorno - Italian Navy, Italy; Marco Diani, Stefania Matteoli, Giovanni Corsini, University of Pisa, Italy

TUP.PC.7 Board PC.7 **OBJECT-BASED FEATURE EXTRACTION AND SEMI-SUPERVISED CLASSIFICATION FOR URBAN CHANGE DETECTION USING HIGH-RESOLUTION REMOTE SENSING IMAGES**
Bin Hou, Qingjie Liu, Yunhong Wang, Beihang University, China

TUP.PC.8 Board PC.8 **AUTOMATED CHANGE DETECTION IN SATELLITE IMAGES USING MACHINE LEARNING ALGORITHMS FOR DELHI, INDIA**
Abhishek Bhatt, Sanjay Kumar Ghosh, Indian Institute of Technology Roorkee, India; Anil Kumar, Indian institute of remote sensing, dehradun, India

TUP.PC.9 Board PC.9 **DETECTING CHANGES IN HIGH RESOLUTION REMOTE SENSING IMAGES USING SUPERPIXELS**
Hui Ru, Wuhan University, China; Pingping Huang, Inner Mongolia University of Technology, China; Xun Sun, Yan Liu, Wuhan University, China

TUP.PC.10 Board PC.10 **AUTOMATIC CHANGE DETECTION OF URBAN LAND-COVER BASED ON SVM CLASSIFICATION**
Wei Li, Peking University, China; Miao Lu, Wuhan University, China; Xiuwan Chen, Peking University, China

Techniques for Classification of Hyperspectral Images I

Session Chair: Mathieu Fauvel, University of Toulouse

TUP.PD.1 Board PD.1 **HYPERSPECTRAL IMAGE CLASSIFICATION USING MULTILAYER SUPERPIXEL GRAPH AND LOOPY BELIEF PROPAGATION**
Tianming Zhan, Jiangsu University; Jiangsu Key Laboratory of Meteorological Observation and Information Processing, China; Yang Xu, Le Sun, Zebin Wu, Yongzhao Zhan, Nanjing University of Science and Technology, China

TUP.PD.2 Board PD.2 **TYPICAL SEQUENCE CLASSIFICATION METHOD IN HYPERSPECTRAL IMAGES WITH REDUCED BANDS**
Samir Arabi, Instituto Federal de Educação, Ciência e Tecnologia de Goiás and Instituto Tecnológico de Aeronáutica, Brazil; David Fernandes, Instituto Tecnológico de Aeronáutica - DEE, Brazil; Marco Pizarro, Instituto Nacional de Pesquisas Espaciais (INPE), Brazil; Marcelo Pinho, Instituto Tecnológico de Aeronáutica - DEE, Brazil

TUP.PD.3 Board PD.3 **SUPERPIXEL-BASED COMPOSITE KERNEL FOR HYPERSPECTRAL IMAGE CLASSIFICATION**
Wuhui Duan, Shutao Li, Leyuan Fang, Hunan University, China

TUP.PD.4 Board PD.4 **SUBMODULAR ACTIVE SELECTION FOR HYPERSPECTRAL DATA CLASSIFICATION**
Jiming Li, Zhejiang Police College, China

TUP.PD.5 Board PD.5 **BAND WEIGHTING AND SELECTION BASED ON HYPERPLANE MARGIN MAXIMIZATION FOR HYPERSPECTRAL IMAGE CLASSIFICATION**
Cheng Yan, Xiao Bai, Beihang University, China; Jun Zhou, Griffith University, Australia

TUP.PD.6 Board PD.6 **AN AUTOMATIC KERNEL PARAMETER SELECTION METHOD FOR KERNEL NONPARAMETRIC WEIGHTED FEATURE EXTRACTION WITH THE RBF KERNEL FOR HYPERSPECTRAL IMAGE CLASSIFICATION**
Pei-Jyun Hsieh, Cheng-Hsuan Li, Bor-Chen Kuo, Pei-Ling Tsai, National Taichung University of Education, Taiwan

TUP.PD.7 Board PD.7 **SPECTRAL-SPATIAL DNA ENCODING DISCRIMINATIVE CLASSIFIER FOR HYPERSPECTRAL REMOTE SENSING IMAGERY**
Ailong Ma, Yanfei Zhong, Bei Zhao, Hongzan Jiao, Liangpei Zhang, Wuhan University, China

TUP.PD.8 Board PD.8 **A NOVEL MULTIPLE KERNEL BOOSTING METHOD FOR HYPERSPECTRAL IMAGE CLASSIFICATION**
Huan Liu, Tianzhu Liu, Yanfeng Gu, Harbin Institute of Technology, China

TUP.PD.9 Board PD.9 **HYPERSPECTRAL IMAGE CLASSIFICATION USING GAUSSIAN PROCESS MODELS**
Michael Ying Yang, TU Dresden, Germany; Wentong Liao, Bodo Rosenhahn, Leibniz University Hannover, Germany; Zheng Zhang, Academy of Opto-Electronics, Chinese Academy of Sciences, China

TUP.PD.10 Board PD.10 **HYPERSPECTRAL IMAGE CLASSIFICATION BY SPARSE REPRESENTATION WITH NONLOCAL ADAPTIVE DICTIONARY**
Yi Long, Heng-Chao Li, Southwest Jiaotong University, China

Estimation and Regression II

Session Chair: Begum Demir, University of Trento

TUP.PE.1 Board PE.1 **EVALUATING VIIRS LAND SURFACE ALBEDO: VALIDATION AND INTERCOMPARISON**
Dongdong Wang, Shunlin Liang, Yuan Zhou, University of Maryland, United States; Yunyue Yu, NOAA, United States

TUP.PE.2 Board PE.2 **DERIVING SOIL AND VEGETATION TEMPERATURES OF A DYNAMICALLY DEVELOPING MAIZE FIELD FROM GROUND THERMAL IMAGES RECORDED DURING THE HIWATER-MUSOEXE**
Ji Zhou, Mingsong Li, University of Electronic Science and Technology of China, China; Shaomin Liu, Lisheng Song, Beijing Normal University, China

TUP.PE.3 Board PE.3 **LOCALIZED ENSEMBLE NEURAL NETWORKS FOR BATHYMETRY MAPPING FROM SATELLITE IMAGES**
Lei Wang, Louisiana State University, United States; Shan Liu, University of Electronic Science and Technology of China, China; Hongxing Liu, University of Cincinnati, United States

TUP.PE.4 Board PE.4 **COMPARISON OF MACHINE LEARNING ALGOTITHMS FOR LEAF AREA INDEX RETRIEVAL FROM TIME SERIES MODIS DATA**
Tongtong Wang, Zhiqiang Xiao, Zhigang Liu, Beijing Normal University, China

TUP.PE.5 Board PE.5 **MAPPING OF BIOPHYSICAL PARAMETERS BASED ON HIGH RESOLUTION EO IMAGERY FOR JECAM TEST SITE IN UKRAINE**
Andrii Shelestov, Andrii Kolotii, National University of Life and Environmental Sciences of Ukraine, Space Research Institute NASU-SSAU, National Technical University of Ukraine "Kyiv Polytechnic Institute", Ukraine; Fernando Camacho, Earth Observation Laboratory (EOLAB), Spain; Sergii Skakun, National University of Life and Environmental Sciences of Ukraine, Space Research Institute NASU-SSAU,, Ukraine; Olga Kussul, National Technical University of Ukraine "Kyiv Polytechnic Institute", Ukraine; Mykola Lavreniuk, Oleksandr Kostetsky, Space Research Institute NASU-SSAU, Ukraine

TUP.PE.6 Board PE.6 **ESTIMATING WINTWER WHEAT LAI WITH DIFFERENT VEGETATION INDICES IN XIAOTANGSHAN, CHINA**
Qiaoyun Xie, Wenjiang Huang, Shaoyuan Yang, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China

TUP.PE.7 Board PE.7 **ESTIMATION OF HYDROCARBON CONTENT IN AIRBORNE HYPERSPECTRAL IMAGES BY A PLS REGRESSION MODEL CALIBRATED ON SYNTHETIC AIRBORNE SPECTRAL DATABASE**
Vincent Lever, Pierre-Yves Foucher, Xavier Briottet, Laurent Poutier, P. Déliot, F. Viallefont, ONERA, France; Dominique Dubucq, Total, France

TUP.PE.8 Board PE.8 **ESTIMATION OF PRECIPITATION IN REMOTE AREAS USING B-SHADE MODEL**
Tao Zhang, State Key Laboratory of Resources and Environmental Information Systems, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences / University of Chinese Academy of Sciences, China; Baolin Li, Jinfeng Wang, Maogui Hu, State Key Laboratory of Resources and Environmental Information Systems, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, China

TUP.PE.9 Board PE.9 **SAR CLUTTER SUPPRESSION USING RECURSIVE WAVEFORMS**
Bingqi Zhu, Hui Sheng, Yesheng Gao, Kaizhi Wang, Xingzhao Liu, Shanghai Jiao Tong University, China

Spectral Unmixing Techniques I

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

TUP.PF.1 Board PF.1 **HYPERMIX: AN OPEN SOURCE TOOL FOR HYPERSPECTRAL IMAGING**
Luis Ignacio Jimenez Gil, Antonio Plaza, Hyperspectral Computing Laboratory, Spain

TUP.PF.2 Board PF.2 **ADAPTIVE ENDMEMBER EXTRACTION BASED SPARSE NONNEGATIVE MATRIX FACTORIZATION WITH SPATIAL LOCAL INFORMATION**
Huali Li, Shutao Li, Hunan University, China; Liangpei Zhang, Wuhan University, China

TUP.PF.3 Board PF.3 **A QUANTITATIVE ASSESSMENT OF MULTIPLE SCATTERING IN PLANT-SOIL MIXTURES AND THE IMPLICATIONS ON NONLINEAR SPECTRAL UNMIXING MODELS**
Jianmin Wang, Xin Cao, Jin Chen, Beijing Normal University, United States; Desheng Liu, The Ohio State University, United States; Yuhan Rao, The University of Maryland, China

TUP.PF.4 Board PF.4 **FPGA-BASED ARCHITECTURE FOR HYPERSPECTRAL UNMIXING**
Jose M.P. Nascimento, Instituto de Telecomunicações, Portugal; Mario Vestias, INESC ID, Portugal; Gabriel Martin, Instituto de Telecomunicações, Portugal

TUP.PF.5 Board PF.5 **NON-LINEAR SPECTRAL MIXTURE ANALYSIS OF LANDSAT IMAGERY BY MEANS OF NEURAL NETWORKS**
Zina Mitraka, Fabio Del Frate, Tor Vergata University of Rome, Italy

TUP.PF.6 Board PF.6 **NONNEGATIVE MATRIX FACTORIZATION FOR HYPERSPECTRAL UNMIXING BASED ON MULTIPLE SIGNAL CLASSIFICATION**
Rui Wang, Heng-Chao Li, Southwest Jiaotong University, China

TUP.PF.7 Board PF.7 **A STEERABLE FILTER BANK APPROACH TO ENDMEMBERS ESTIMATION IN IMAGING SPECTROSCOPY**
Ivica Kopriva, Ruder Boškovic Institute, Croatia; Danielle Nuzillard, Université de Reims Champagne-Ardenne, France

TUP.PF.8 Board PF.8 **PANCHROMATIC IMAGE PROCESSING USING HYPERSPECTRAL UNMIXING METHOD**
Zhenyu An, Zhenwei Shi, Beihang University, China; Jun Wu, Hongqiang Wang, Space Star Technology Company Limited, China

TUP.PF.9 Board PF.9 **A FAST ALTERNATIVE FOR THE PIXEL PURITY INDEX ALGORITHM**
Rob Heylen, Muhammad Awais Akhter, Paul Scheunders, University of Antwerp, Belgium

TUP.PF.10 Board PF.10 **SOFT CLASSIFICATION OF HYPERSPECTRAL IMAGES VIA MULTI-LABEL LEARNING**
Selim Hemissi, Telecom Bretagne, France; Imed Riadh Farah, ENSI, Tunisia

SAR Processing I

Session Co-Chairs: Hubert Cantalloube, ONERA; Alessandra Budillon, Univ. of Naples "Parthenope"

TUP.PG.1 Board PG.1 **A FAST UAV IMAGE STITCHING METHOD ON GEOSOT**
Zhe Yang, Weixin Zhai, Dong Chen, Wei Zhang, Chengqi Cheng, Peking University, China

TUP.PG.2 Board PG.2 **A COMPENSATION APPROACH OF THE POSITIONING SHIFT CAUESD BY INACCURATE GEODETIC TERRAIN HEIGHTS FOR RADARSAT-2 DATA**
Chunhua Xie, Mingsen Lin, Wentao An, National Satellite Ocean Application Service, China

TUP.PG.3 Board PG.3 **STRIPMAP MODE TEST OF X-BAND AUTOSAR PROTOTYPE USING MEASUREMENT INSTRUMENTS**
Hyeon-Cheol Lee, Eun Su Kang, Sang-Burm Ryu, Sang-Gyu Lee, Sang-Soon Yong, Korea Aerospace Research Institute, Republic of Korea; Chul Ho Jung, Solid Technology, Inc., Republic of Korea

TUP.PG.4 Board PG.4 **A MODIFIED COHERENT COMPENSATION METHOD FOR SUBBAND FUSION**
Yongqiang Zou, Xunzhang Gao, Xiang Li, Yongxiang Liu, National University of Defense Technology, China

TUP.PG.5 Board PG.5 **STOP-AND-GO APPROXIMATION EFFECTS ON COSMO-SKYMED SPOTLIGHT SAR DATA**
Rino Lorusso, Giovanni Milillo, Agenzia Spaziale Italiana (ASI), Italy

TUP.PG.6 Board PG.6 **MIMO-SAR IMAGING TECHNOLOGY FOR HELICOPTER BASED ON ARC ANTENNA ARRAY**
Pingping Huang, Weixian Tan, Ying Su, Inner Mongolia University of Technology, China

TUP.PG.7 Board PG.7 **STATISTICS OF TANDEM-X DSM, COHERENCE AND BACKSCATTER FOR THE CHARACTERIZATION OF TROPICAL FOREST STRUCTURAL CONFIGURATION**
Elsa Carla De Grandi, Edward Ta Mitchard, Iain H. Woodhouse, University of Edinburgh, United Kingdom; Astrid Verhegghen, European Commission, Italy; Fiona Muirhead, University of Edinburgh, United Kingdom

TUP.PG.8 Board PG.8 **HIGH-RESOLUTION WIDE-SWATH MOSAIC MODE SPACE-BORNE SAR**
Xiaolei Han, Qingjun Zhang, Jie Liu, Beijing Institute of Spacecraft System Engineering, China; Running Zhang, Dong Fang Hong Satellite Co.Ltd, China; Yu Zhu, Jingjing Ren, Beijing Institute of Spacecraft System Engineering, China

TUP.PG.9 Board PG.9 **A NEW SIMULATION METHOD BASED ON CONTINUOUS TANGENT MOTION MODEL FOR SPACEBORNE HIGH-RESOLUTION SAR**
Shusen Wang, Ze Yu, Lvqian Zhang, Na Pu, Beihang University, China

TUP.PG.10 Board PG.10 **3D-MAPPING FROM TERRASAR-X STARING SPOTLIGHT DATA**
Karlheinz Gutjahr, Roland Perko, Hannes Raggam, Mathias Schardt, Joanneum Research, Austria

TUP.PG.11 Board PG.11 **APPLICATION OF MOTION RECONSTRUCTION TO ISAR DATA**
Lee Burchett, Eric Moore, Joseph Sugrue, IEEE, United States; Andrew Terzuoli, iEEE, United States

POLSAR Analysis Methods

Session Co-Chairs: Kostas Papathanassiou, German Aerospace Center (DLR); Eric Pottier, University of Rennes 1

TUP.PH.1 Board PH.1 **AN INTERPRETATION OF A COHERENCY MATRIX WITH THREE SCATTERING MICHANISMS**
Wentao An, Mingsen Lin, Chunhua Xie, National Satellite Ocean Application Service, China

TUP.PH.2 Board PH.2 **CLUTTER STATISTICS IN HIGH-RESOLUTION SYNTHETIC APERTURE RADAR IMAGERY**
Ken Yoong Lee, Timo Bretschneider, Airbus Group Innovations, Singapore

TUP.PH.3 Board PH.3 **THE ESTIMATION OF THE ABSOLUTE PHASE OF POLARIMETRIC WAVE CHANGED BY THE TARGET**
Jiehong Chen, Hong Zhang, Chao Wang, Bo Zhang, Fan Wu, Yixian Tang, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China

TUP.PH.4 Board PH.4 **REFINED POLSAR ANISOTROPIC DIFFUSION FILTER COUPLING WITH ADAPTIVE DATA-FITTING TERM**
Xiaoshuang Ma, Huanfeng Shen, Wuhan University, China

TUP.PH.5 Board PH.5 **POLARIMETRIC SAR IMAGE CLASSIFICATION BASED ON CONTEXTUAL SPARSE REPRESENTATION**
Lamei Zhang, Liangjie Sun, Harbin Institute of Technology, China; Wooil Moon, University of Manitoba, Canada

TUP.PH.6 Board PH.6 **WISHART RBM BASED DBN FOR POLARIMETRIC SYNTHETIC RADAR DATA CLASSIFICATION**
Yanhe Guo, Shuang Wang, Chenqiong Gao, Danrong Shi, Donghui Zhang, Biao Hou, Xidian University, China

TUP.PH.7 Board PH.7 **SEMI-SUPERVISED CLASSIFICATION BASED ON ANCHOR-SPATIAL GRAPH FOR LARGE POLARIMETRIC SAR DATA**
Hongying Liu, Yikai Wang, Dexiang Zhu, Shuyuan Yang, Shuang Wang, Biao Hou, Licheng Jiao, Xidian University, China

TUP.PH.8 Board PH.8 **HIGH-RESOLUTION POLSAR IMAGE INTERPRETATION BASED ON HUMAN IMAGES COGNITION MECHANISM**
Lihong Kang, Yuying Zhang, Bin Zou, Harbin Institute of Technology, China; Chengyi Wang, Forestry Research Institute of Heilongjang Province, China

TUP.PH.9 Board PH.9 **GENERALIZED MINIMUM-ERROR THRESHOLDING FOR UNSUPERVISED CHANGE DETECTION FROM MULTILOOK POLARIMETRIC SAR DATA**
Mohsen Ghanbari, Khaje Nasir Toosi University of Technology, Iran; Vahid Akbari, UiT-The Arctic University of Norway, Norway

Object Recognition in Very High Resolution Optical Images

Session Co-Chairs: Mathieu Fauvel, University of Toulouse; Raul Queiroz Feitosa, PUC-Rio

TUP.PI.1 Board PI.1 **ROAD EXTRACTION BASED ON HIERARCHICAL LINE SEGMENT FEATURES FROM VERY HIGH RESOLUTION REMOTE SENSING IMAGES**
Bangyu Li, Institute of Automation, Chinese Academy of Sciences, China; Jinfang Zhang, Institute of Software,Chinese Academic Science, China

TUP.PI.2 Board PI.2 **AN IMPROVED ALGORITHM FOR AUTOMATIC ROAD DETECTION IN HIGH-RESOLUTION REMOTE SENSING IMAGES BY MEANS OF GEOMETRIC FEATURES AND PATH OPENING**
Guo Cao, Shuang Wang, Yazhou Liu, Nanjing University of Science and Technology, China

TUP.PI.3 Board PI.3 **KERNEL SUBSPACE-BASED REAL-TIME ANOMALY DETECTION FOR HYPERSPECTRAL IMAGERY**
Chunhui Zhao, Wei You, Jia Wang, Yulei Wang, Harbin Engineering University, China

TUP.PI.4 Board PI.4 **HYPERSPECTRAL IMAGE TARGET DETECTION BASED ON EXPONENTIAL SMOOTHING METHOD**
Jihao Yin, Bingnan Han, Wanke Yu, Beihang University, China

TUP.PI.5 Board PI.5 **BUILDING DETECTION IN VERY HIGH RESOLUTION MULTISPECTRAL DATA WITH DEEP LEARNING FEATURES**
Maria Vakalopoulou, Konstantinos Karantzalos, NTUA, Greece; Nikos Komodakis, ENPC, France; Nikos Paragios, ECP, France

TUP.PI.6 Board PI.6 **SALIENT REGION DETECTION IN REMOTE SENSING IMAGES BASED ON COLOR INFORMATION CONTENT**
Libao Zhang, Shuang Wang, Xuewei Li, Beijing Normal University, China

TUP.PI.7 Board PI.7 **VEHICLE DETECTION AND TRAFFIC DENSITY MONITORING FROM VERY HIGH RESOLUTION SATELLITE VIDEO DATA**
George Kopsiaftis, Konstantinos Karantzalos, National Technical University of Athens, Greece

TUP.PI.8 Board PI.8 **SEMI-AUTOMATIC EXTRACTION OF LARGE AND MODERATE BUILDINGS FROM VERY HIGH-RESOLUTION SATELLITE IMAGERY USING ACTIVE CONTOUR MODEL**
Sandeep Kumar Bypina, K. S. Rajan, Indian Institute of Technology Hyderabad, India

TUP.PI.9 Board PI.9 **FAST ICA BASED ALGORITHM FOR BUILDING DETECTION FROM VHR IMAGERY**
Lipika Agarwal, K. S. Rajan, International Institute of Information Technology Hyderabad, India

TUP.PI.10 Board PI.10 **DETECTION OF SEALS IN REMOTE SENSING IMAGES USING FEATURES EXTRACTED FROM DEEP CONVOLUTIONAL NEURAL NETWORKS**
Arnt B. Salberg, Norwegian Computing Center, Norway

TUP.PI.11 Board PI.11 **MOTION ESTIMATION IN FLOTATION FROTH USING THE KALMAN FILTER**
Anthony Amankwah, University of Ghana, Ghana; Chris Aldrich, Curtin University of Technology, Australia

Image and Data Fusion II

Session Co-Chairs: Fabio Dell'Acqua, University of Pavia; Qian Du, Mississippi State University

TUP.PJ.1 Board PJ.1 **CLASSIFICATION OF ACTIVE MICROWAVE AND PASSIVE OPTICAL DATA BASED ON BAYESIAN THEORY AND MRF**
Fan Yu, Haitao Li, Chinese Academy of Surveying and Mapping, China; Ling Sun, Graduate School of the Chinese Academy of Sciences, China

TUP.PJ.2 Board PJ.2 **FUSION OF SYNTHETIC APERTURE RADAR AND HYPERSPECTRAL IMAGERY TO DETECT IMPACTS OF OIL SPILL IN GULF OF MEXICO**
Lalitha Dabbiru, Sathishkumar Samiappan, Mississippi State University, United States; Rodrigo Nobrega, Federal University of Minas Gerais, Brazil; James V. Aanstoos, Nicolas Younan, Robert Moorhead, Mississippi State University, United States

TUP.PJ.3 Board PJ.3 **SAR IMAGING OF ARCHEOLOGICAL SITES ON DRY-FALLEN INTERTIDAL FLATS IN THE GERMAN WADDEN SEA**
Martin Gade, Universität Hamburg, Germany; Jörn Kohlus, Landesbetrieb für Küstenschutz, Nationalpark und Meeresschutz Schleswig-Holstein (LKN), Germany

TUP.PJ.4 Board PJ.4 **MULTI-SENSOR DATA FUSION FOR LONG RANGE DEMINING AREA REDUCTION**
Salvatore Savastano, Raffaella Guida, University of Surrey, United Kingdom

TUP.PJ.5 Board PJ.5 **A GENERIC APPROACH FOR INVERSION OF SURFACE REFLECTANCE OVER LAND: OVERVIEW, APPLICATION AND VALIDATION USING MODIS, VIIRS, AND LANDSAT'S DATA**
Eric Vermote, NASA Goddard Space Flight Center, United States; Chris Justice, Martin Claverie, Belen Franch, University of Maryland, College Park, United States

TUP.PJ.6 Board PJ.6 **MULTI-TEMPORAL OPTICAL VHR IMAGE FUSION FOR LAND-COVER MAPPING**
Mathias Paget, Adrien Gressin, Clément Mallet, IGN, France

TUP.PJ.7 Board PJ.7 **IMPROVING URBAN IMPERVIOUS SURFACE CLASSIFICATION BY COMBINING LANDSAT AND POLSAR IMAGES: A CASE STUDY IN KITCHENER-WATERLOO, ONTARIO, CANADA**
Weikai Tan, Renfang Liao, Yikang Du, University of Waterloo, Canada; Jun Lu, National University of Defense Technology, China; Jonathan Li, University of Waterloo, Canada

TUP.PJ.8 Board PJ.8 **NON-LOCAL SUPER-RESOLUTION OF MISSING DATA IN MULTI-SENSOR OBSERVATIONS OF SEA SURFACE GEOPHYSICAL FIELDS**
Ronan Fablet, Institut Mines-Télécom/Télécom Bretagne, France; Francois Rousseau, ICube, France

TUP.PJ.9 Board PJ.9 **TRANSLATIONAL VELOCITY ESTIMATION BY MEANS OF BISTATIC ISAR TECHNIQUES**
Marta Bucciarelli, Debora Pastina, University of Rome, Italy; Borja Errasti-Alcala, Paolo Braca, NATO STO CMRE, Italy

TUP.PJ.10 Board PJ.10 **ADVANTAGES AND CHALLENGES OF POWER SPECTRAL DENSITY ESTIMATION METHODS FOR SCANNING RADAR ANGULAR SUPERRESOLUTION**
Yue Wang, Yongchao Zhang, Yulin Huang, Wenchao Li, Jianyu Yang, Haiguang Yang, University of Electronic Science and Technology of China, China

TUP.PJ.11 Board PJ.11 **HYPERSPECTRAL AND MULTISPECTRAL IMAGE FUSION USING CNMF WITH MINIMUM ENDMEMBER SIMPLEX VOLUME AND ABUNDANCE SPARSITY CONSTRAINTS**
Yifan Zhang, Yakun Wang, Yang Liu, Chuwen Zhang, Mingyi He, Shaohui Mei, Northwestern Polytechnical University, China

Forest Vegetation II

Session Chair: Enrico Borgogno Mondino, Univ. of Torino

TUP.PK.1 Board PK.1 **IMPROVING SPACE-TIME FOREST CANOPY LAI SIMULATION BY FUSING FOREST GROWTH MODEL (3-PG) WITH REMOTE SENSING DATA**
Qiaoli Wu, Jinling Song, Jindi Wang, Beijing Normal University, China

TUP.PK.2 Board PK.2 **MAPPING AERODYNAMIC ROUGHNESS LENGTH WITH MULTI-SOURCE REMOTE SENSING DATA**
Deyong Hu, Capital Normal University, China; Xiaoxuan Li, National Earthquake Infrastructure Service, China; Kun Qiao, Guohua Ji, Capital Normal University, China

TUP.PK.3 Board PK.3 **A MULTIDISCIPLINARY APPROACH FOR ASSESSING FOREST DEGRADATION IN THE BRAZILIAN AMAZON**
Rosana Cristina Grecchi, René Beuchle, Joint Research Centre of the European Commission, Italy; Yosio Edemir Shimabukuro, Brazilian National Institute for Space Research - INPE, Brazil; Frédéric Achard, Joint Research Centre of the European Commission, Italy

TUP.PK.4 Board PK.4 **PRELIMINARY VALIDATION AND APPLICATION OF THE ANGLE PRODUCTS OF MODIS AFX BASED ON KERNEL-DRIVEN MODEL**
Xiaoning Zhang, School of Geography, Beijing Normal University, China; Ziti Jiao, School of Geography, Beijing Normal University;State Key Laboratory of Remote Sensing Science, Beijing Normal University, China; Yang Li, Yadong Dong, Dongni Bai, School of Geography, Beijing Normal University, China

TUP.PK.5 Board PK.5 **RESEARCH ABOUT THE BIDIRECTIONAL NDVI BASED ON KERNEL-DRIVEN MODELS**
Yang Li, Ziti Jiao, Xiaoning Zhang, Hu Zhang, Yadong Dong, State Key Laboratory of Remote Sensing Science, Research Center of Remote Sensing & GIS, School of Geography, Beijing Normal University, China

TUP.PK.6 Board PK.6 **EXTRACTION AND APPLICATION OF LEAF AREA INDEX'S PRIORI KNOWLEDGE IN TIME SERIES FOR TYPICAL CROPS**
Shaoyuan Chen, Hua Yang, Jingjing Pan, Beijing Normal University, China; Ying Zeng, Xiaolong Wang, Capital Normal University, China; Fei Chen, Beijing Normal University, China

TUP.PK.7 Board PK.7 **INDIRECT MEASUREMENT OF FOREST LEAF AREA INDEX USING PATH LENGTH MODEL AND MULTISPECTRAL CANOPY IMAGER**
Ronghai Hu, Jinghui Luo, Guangjian Yan, Beijing Normal University, China; Jie Zou, Fuzhou University, China

TUP.PK.8 Board PK.8 **ASSESSING THE ACCURUCIES OF FOUR PAI INVERSION MODELS BASED ON 3D FOREST SCENES**
Zou Jie, Mai Chunna, Lin Weimu, Zhuang Yinguo, Fuzhou University, China

TUP.PK.9 Board PK.9 **COMBINING AVAILABLE LAND COVER AND TREE COVER MAPS FOR PRODUCING A HYBRID FOREST MAP OF AFRICA AT 30M**
Christelle Vancutsem, Frédéric Achard, Joint Research Centre, Italy

TUP.PK.10 Board PK.10 **SOLAR RADIATION CONTRIBUTED TO THE 2005 AND 2010 AMAZON DROUGHTS**
Wenqian Zhao, Xiang Zhao, Bijian Tang, Donghai Wu, Hong Wei, Beijing Normal University, China

TUP.PK.11 Board PK.11 **RETRIEVING THE STAND AGE FROM A RETROSPECTIVE DETECTION OF MULTINANNUAL FOREST CHANGES USING LANDSAT DATA. APPLICATION ON THE HEAVILY MANAGED MARITIME PINE FOREST IN SOUTHWESTERN FRANCE FROM A 30-YEAR LANDSAT TIME-SERIES (1984-2014)**
Dominique Guyon, Sylvio Laventure, INRA, France; Thierry Bélouard, Département de la santé des forêts (MAAF/DGAL), France; Jean-Charles Samalens, Telespazio France, France; Jean-Pierre Wigneron, INRA, France

Downscaling Soil Moisture

Session Co-Chairs: Venkat Lakshmi, University of South Carolina; Jeff Walker, Monash University

TUP.PL.1 Board PL.1 **A NOVEL DOWNSCALING METHODOLOGY FOR INTERMEDIATE RESOLUTION RADIOMETER DATA FOR SMAP**
Cintia Bruscantini, Francisco Grings, Matias Barber, Mariano Franco, Instituto de Astronomia y Fisica del Espacio, Argentina; Dara Entekhabi, Massachusetts Institute of Technology, United States; Haydee Karszenbaum, Instituto de Astronomia y Fisica del Espacio, Argentina

TUP.PL.2 Board PL.2 **UNMIXING LOW-RESOLUTION SOIL MOISTURE USING SPECTRUM DOWNSCALING AND EVAPOTRANSPIRATION**
Anqi Wang, National Geomatics Center of China, China; Chao Xie, China Transport Telecommunications & Information Center, China; Peng Liu, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China; Lianlian Xu, College of Atmospheric Sciences, Lanzhou University, China

TUP.PL.3 Board PL.3 **COMPARISON OF DIFFERENT DOWNSCALING METHODS OF SOIL MOISTURE IN LUAN HE WATERSHED**
Zhuang Zhou, Shaojie Zhao, Zhizhong Chen, Lingmei Jiang, Beijing Normal University, China

TUP.PL.4 Board PL.4 **DISAGGREGATION OF SMOS AND AMSR-E SOIL MOISTURE AT 1 KM RESOLUTION: UNCERTAINTY ASSESSMENT AND CONTRIBUTION TO THE VALIDATION OF COARSE-SCALE DATA USING IN SITU MEASUREMENTS IN SOUTHEASTERN AUSTRALIA**
Yoann Malbéteau, Olivier Merlin, Béatriz Molero, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Christoph Rüdiger, Monash University, Australia

TUP.PL.5 Board PL.5 **A NEW APPROCH TO DOWNSCALE SMOS SOIL MOISTURE ESTIMATES DURING CLOUDY DAYS**
Najib Djamai, Ramata Magagi, Kalifa Goita, Université de Sherbrooke, Canada; Olivier Merlin, Yann Kerr, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France

TUP.PL.6 Board PL.6 **MACHINE LEARNING APPROACHES FOR DOWNSCALING AMSR-E SOIL MOISTURE OVER SOUTH KOREA**
Jungho Im, Seonyoung Park, Ulsan National Institute of Science and Technology, Republic of Korea; Jinyoung Rhee, APEC Climate Center, Republic of Korea; Jongjin Baek, Minha Choi, Sungkyunkwan University, Republic of Korea

TUP.PL.7 Board PL.7 **AMSR2 SOIL MOISTURE DOWNSCALING USING MULTISENSOR PRODUCTS THROUGH MACHINE LEARNING APPROACH**
Seonyoung Park, Jungho Im, Sumin Park, Ulsan National Institute of Science and Technology, Republic of Korea; Jinyoung Rhee, APEC Climate Center, Republic of Korea

TUP.PL.8 Board PL.8 **A NOVEL APPROACH TO IMPROVE SPATIAL DETAIL IN MODELED SOIL MOISTURE THROUGH THE INTEGRATION OF REMOTE SENSING DATA**
Felix Greifeneder, Claudia Notarnicola, Giacomo Bertoldi, Johannes Brenner, EURAC Bolzano (Italy), Italy; Wolfgang Wagner, TU Wien (Austria), Austria

TUP.PL.9 Board PL.9 **CALIBRATION AND EVALUATION OF AN OPTICAL-PASSIVE MICROWAVE APPROACH TO ESTIMATE SOIL MOISTURE OVER SEVERAL LAND COVER TYPES**
Andrés Santamariá-Artigas, Cristian Mattar, Laboratory for Analysis of the Biosphere / University of Chile, Chile; Jean-Pierre Wigneron, INRA EPHYSE, France; Luis Olivera-Guerra, Claudio Durán-Alarcón, Laboratory for Analysis of the Biosphere / University of Chile, Chile

TUP.PL.10 Board PL.10 **AN EXPERIMENTAL RESEARCH ON HOW TO MEASURE THE SURFACE SOIL MOISTURE ON PIXIAL SCALE**
Shaojie Zhao, Zhuang Zhou, Beijing Normal University, China; Tao Zhang, National Administration of Surveying, Mapping and Geo-information of China, China; Zhizhong Chen, Beijing Normal University, China

TUP.PL.11 Board PL.11 **SEMI-EMPIRICAL CALIBRATION OF THE INTEGRAL EQUATION MODEL FOR CO-POLARIZED L-BAND BACKSCATTERING**
Nicolas Baghdadi, IRSTEA, France; Mehrez Zribi, CNRS, France; Simonetta Paloscia, Niko Verhoest, Hans Lievens, CNR, Italy; Frédéric Baup, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Francesco Mattia, CNR, Italy

New Approaches and Applications for Soil Moisture and Temperature

Session Chair: Andreas Colliander, NASA Jet Propulsion Laboratory

TUP.PM.1 Board PM.1 **ESTIMATING SOIL MOISTURE CONTENT USING GNSS-R TECHNIQUE BASED ON STATISTICS**
Xuefeng Peng, Xiuwan Chen, Han Xiao, Peking University, China; Wei Wan, Tsinghua University, China; Ting Yang, Zhenyu Yang, Peking University, China

TUP.PM.2 Board PM.2 **DETECTION OF SOIL MOISTURE CONTENT CHANGES BY USING A SINGLE GEODETIC ANTENNA: THE CASE OF AN AGRICULTURAL PLOT**
Nicolas Roussel, Université Paul Sabatier, France; Frédéric Frappart, Geosciences Environnement Toulouse, France; Guillaume Ramillien, Centre National de la Recherche Scientifique, France; José Darrozes, Frédéric Baup, Cuong Ha, Université Paul Sabatier, France

TUP.PM.3 Board PM.3 **MICROSTRIP COLINEAR ANTENNA ARRAY FOR A LOBE DIFFERENCING CORRELATION RADIOMETER (LDCR)**
Eryan Dai, Albin J. Gasiewski, Colorado University at Boulder, United States; Maciej Stachura, Black Swift Technologies LLC, Boulder, CO, United States, United States

TUP.PM.4 Board PM.4 **COMPARISON OF PERFORMANCES AMONG RADARSAT-2 DUAL AND QUAD-POL IMAGES AND MODELLED COMPACT POLARIMETRY PARAMETERS FOR SURFACE SOIL MOISTURE RETRIEVAL**
Felix Greifeneder, Claudia Notarnicola, EURAC, Italy; Jelena Stamenkovic, EPFL, Switzerland; Simonetta Paloscia, Emanuele Santi, IFAC, Italy; Mohammed Dabboor, Science and Technology Branch, Environment Canada, Canada; Francois Charbonneau, Canadian Centre for Mapping and Earth Observation (CCMEO), Ottawa, Canada

TUP.PM.5 Board PM.5 **L- AND C-BAND BACKSCATTER: A CORRECTION METHOD FOR SOIL MOISTURE RETRIEVAL**
Alicia Joseph, NASA Goddard Space Flight Center, United States; Rogier van der Velde, University of Twente, Netherlands; Peggy O'Neill, NASA Goddard Space Flight Center, United States; Roger Lang, George Washington University, United States

TUP.PM.6 Board PM.6 **TEMPERATURE DEPENDENT DIELECTRIC MODEL AT 1.4 GHZ FOR A TUNDRA ORGANIC-RICH SOIL THAWED AND FROZEN**
Valery Mironov, Liudmila Kosolapova, Igor Savin, Konstantin Muzalevskiy, Kirensky Institute of Physics, Russian Federation

TUP.PM.7 Board PM.7 **THE EFFECTS OF HAZE ON THE MEASURED SOIL REFLECTANCE AND DROUGHT MONITORING MODELS BASED ON SPECTRAL FEATURE SPACE**
Haixia Feng, Shandong Jiaotong University, China; Liming Wang, Chinese Academy of Sciences, China; Lin Zhu, National Satellite Meteorological Centre, China; Shanshan Shao, Xiangjun Meng, Shandong Jiaotong University, China

TUP.PM.8 Board PM.8 **RESPONSE OF L-BAND BRIGHTNESS TEMPERATURES TO PRAIRIE SOIL AND SNOW PROPERTIES FROM SURFACE-BASED RADIOMETER MEASUREMENTS**
Alexandre Roy, Université de Sherbrooke, Canada; Peter Toose, Chris Derksen, Environment Canada, Canada; Alain Royer, Université de Sherbrooke, Canada; Aaron Berg, University of Guelph, Canada; Lauren Arnold, Environment Canada, Canada; Matthew Willamson, Tracy Rowlandson, University of Guelph, Canada; Alexandre Langlois, Université de Sherbrooke, Canada; Erica Tetlock, Environment Canada, Canada

TUP.PM.9 Board PM.9 **DEVELOPING AN OPERATIONAL ALGORITHM BASED ON ANN FOR THE RETRIEVAL OF SMC FROM THE INCOMING METOP SCA MISSION**
Emanuele Santi, Simonetta Paloscia, Simone Pettinato, National Research Council, Italy; Claudia Notarnicola, Felix Greifeneder, European Research Academy, Italy; Sebastian Hahn, Wolfgang Wagner, Mariette Vreugdenhil, Christoph Reimer, Vienna University of Technology, Austria

TUP.PM.10 Board PM.10 **SEASONAL VARIATIONS OF MICROWAVE RADIATION OF SALINE SOILS IN THE KULUNDA STEPPE ON EVIDENCE DERIVED FROM SMOS**
Andrey Romanov, Ilya Khvostov, Anna Sukovatova, IWEP SB RAS, Russian Federation

TUP.PM.11 Board PM.11 **INTERPRETATION OF SURFACE TEMPERATURE/VEGETATION INDEX SPACE FOR EVAPOTRANSPIRATION ESTIMATION FROM SVAT MODELING**
Ronglin Tang, Zhao-Liang Li, Bohui Tang, Hua Wu, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, China

TUP.PM.12 Board PM.12 **A TEMPERATURE-DEPENDENT MULTI-RELAXATION SPECTROSCOPIC DIELECTRIC MODEL FOR THAWED AND FROZEN ORGANIC SOIL AT 0.05-15 GHZ**
Valery Mironov, Igor Savin, Konstantin Muzalevskiy, Kirensky Institute of Physics, Russian Federation

Forest Monitoring I

Session Chair: Robert Green, NASA

TUP.PN.1 Board PN.1 **FOREST ABOVEGROUND CARBON MAPPING USING MULTIPLE SOURCE REMOTE SENSING DATA IN THE GREATER MEKONG SUBREGION**
Yong Pang, Zengyuan Li, Chinese Academy of Forestry, China

TUP.PN.2 Board PN.2 **ABOVEGROUND BIOMASS FROM MISR USING A BOOSTED REGRESSION TREE MODEL**
Mark Chopping, Montclair State University, United States; Zhuosen Wang, NASA Goddard Space Flight Center, United States; Crystal Schaaf, University of Massachusetts Boston, United States; Michael Bull, Michael Bull NASA Jet Propulsion Laboratory, United States

TUP.PN.3 Board PN.3 **DOWNSCALING OF GLOBAL SUN-INDUCED CHLOROPHYLL FLUORESCENCE AND INTERCOMPARISON WITH OTHER GPP PRODUCTS**
Gregory Duveiller, Alessandro Cescatti, European Commission, Joint Research Centre, Italy

TUP.PN.4 Board PN.4 **ATMOSPHERIC CORRECTION OF VIIRS AND MODIS FIRE RADIATIVE POWER RETRIEVALS FOR MULTI-SENSOR COMPARISON**
Patricia Oliva, Wilfrid Schroeder, University of Maryland, United States

TUP.PN.5 Board PN.5 **TEMPERATE DRY FORESTS BIOMASS ESTIMATION INTEGRATING OPTICAL AND SAR BACKSCATTER AND COHERENCE INFORMATION**
Diego de Abelleyra, Santiago R. Verón, Instituto Nacional de Tecnología Agropecuaria (INTA), Argentina., Argentina; Nestor Ignacio Gasparri, Dante Loto, Universidad Nacional de Tucumán, Argentina., Argentina

TUP.PN.6 Board PN.6 **ASSESSING FOREST DEGRADATION FROM SELECTIVE LOGGING USING TIME SERIES OF FINE SPATIAL RESOLUTION IMAGERY IN REPUBLIC OF CONGO**
Astrid Verhegghen, Hugh Eva, Frédéric Achard, Joint Research Center, Italy

TUP.PN.7 Board PN.7 **ENABLING INTELLIGENT COPERNICUS SERVICES FOR CARBON AND WATER BALANCE MODELING OF BOREAL FOREST ECOSYSTEMS – NORTH STATE**
Tuomas Häme, Teemu Mutanen, Yrjö Rauste, Oleg Antropov, Matthieu Molinier, VTT Technical Research Centre of Finland, Finland; Shaun Quegan, Euripidis Kantzas, University of Sheffield, United Kingdom; Annikki Mäkelä, Francesco Minunno, University of Helsinki, Finland; Jón Atli Benediktsson, Nicola Falco, Kolbeinn Arnason, University of Iceland, Iceland; Rune Storvold, Jörg Haarpaintner, Norut Northern Research Institute, Norway; Vladimir Elsakov, Institute of Biology, Russian Academy of Sciences, Russian Federation; Jussi Rasinmäki, Simosol Ltd, Finland

TUP.PN.8 Board PN.8 **ESTIMATING NET PHOTOSYNTHESIS OF VEGETATION FROM SOLAR-INDUCED CHLOROPHYLL FLUORESCENCE – A MODELLING STUDY**
Jochem Verrelst, University of Valencia, Spain; Christiaan Van Der Tol, University of Twente, Netherlands; Federico Magnani, University of Bologna, Italy; Juan Pablo Rivera, University of Valencia, Spain; Gina Mohammed, P&M Technologies, Canada; Jose Moreno, University of Valencia, Spain

TUP.PN.9 Board PN.9 **HARMONIZATION OF PAN-TROPICAL BIOMASS MAPS USING AN R2-WEIGHTED DATA FUSION APPROACH - A CASE STUDY FOR THE AMAZON BIOME**
Andreas Langner, Frédéric Achard, Christelle Vancutsem, Jean-Francois Pekel, Dario Simonetti, European Commission, Joint Research Centre, Italy

Cryosphere: Glacier, Snow and Lake

Session Chair: Xiaolan Xu, NASA Jet Propulsion Laboratory

TUP.PO.1 Board PO.1 **GREENLAND ICE SHEET SNOW FACIES IDENTIFICATION APPROACH USING TANDEM-X INTERFEROMETRIC DATA**
Paola Rizzoli, Michele Martone, Benjamin Bräutigam, German Aerospace Center (DLR), Germany

TUP.PO.2 Board PO.2 **THE USE OF SNOW RADAR IN WEST ANTARCTIC ICE SHEET ANNUAL SNOW ACCUMULATION STUDY**
Boyu Feng, University of Western Ontario, Canada; David Braaten, John Paden, University of Kansas, United States

TUP.PO.3 Board PO.3 **SECONDARY-SCALE SURFACE ROUGHNESS PARAMETERIZATION USING TERRESTRIAL LIDAR**
Jack C. Landy, Alexander S. Komarov, David G. Barber, University of Manitoba, Canada

TUP.PO.4 Board PO.4 **COMPARISON AND EVALUATION OF SATELLITE-DERIVED GLACIER OUTLINES**
Hiroto Nagai, Takeo Tadono, Japan Aerospace Exploration Agency, Japan; Koji Fujita, Akiko Sakai, Nagoya University, Japan; Takayuki Nuimura, Chiba Institute of Science, Japan

TUP.PO.5 Board PO.5 **A KNOWLEDGE BASED APPROACH FOR ASSESSING DEBRIS COVER DYNAMICS AND ITS LINKAGES TO GLACIER RECESSION**
Iram Ali, University of Kashmir, India; Aparna Shukla, Wadia Institute of Himalayan Geology, India

TUP.PO.6 Board PO.6 **MONITORING OF TUNDRA LAKES WITH C-BAND AND L-BAND SAR DATA**
Hiroyuki Wakabayashi, Yoshihiro Nishito, Nihon University, Japan

TUP.PO.7 Board PO.7 **GLACIER ZONE CLASSIFICATION USING RADARSAT-2 C-BAND SAR POLARIMETRY AND SUPPORT VECTOR MACHINE**
Mattia Callegari, University of Pavia / EURAC, Italy; Luca Carturan, University of Padova, Italy; Claudia Notarnicola, Philipp Rastner, EURAC, Italy; Roberto Seppi, Francesco Zucca, University of Pavia, Italy

TUP.PO.8 Board PO.8 **VELOCITY VARIATIONS IN PINE ISLAND GLACIER DERIVED FROM IMAGE MATCHING OF TIME SERIES LANDSAT MULTI-SPECTRAL DATA**
Hyangsun Han, Miae Kim, Minso Shin, Jungho Im, Ulsan National Institute of Science and Technology, Republic of Korea; Ho-Kyung Ha, Inha University, Republic of Korea

TUP.PO.9 Board PO.9 **ASSESSMENT OF TANDEM-X INTERFEROMETRY OVER THE MARGINAL REGION OF ANTARCTIC ICE SHEET**
Seung Hee Kim, Duk-Jin Kim, Seoul National University, Republic of Korea

TUP.PO.10 Board PO.10 **INFLUENCE OF VARYING SENSOR CHARACTERISTICS ON LST ESTIMATIONS IN A GLACIAL TERRAIN**
Aparna Shukla, Wadia Institute of Himalayan Geology, India; Ilyas Dar, University of Kashmir, India

TUP.PO.11 Board PO.11 **KA-BAND INTERFEROMETRIC PENETRATION INTO THE GREENLAND ICE SHEETS MEASURED BY THE GLISTIN RADAR**
Scott Hensley, Jet Propulsion Laboratory, United States; Delwyn Moller, Remote Sensing Solutions, Inc, United States; Xiaoqing Wu, Shadi Oveisgharan, Thierry Michel, Jet Propulsion Laboratory, United States

Simulation, Performance, and Processing

Session Co-Chairs: Tiziana Scopa, Agenzia Spaziale Italiana; Maurizio Migliaccio, Università di Napoli Parthenope

TUP.PP.1 Board PP.1
DYNAMIC AND ADAPTIVE ALGORITHMS OF COSMO-SKYMED SECONDA GENERAZIONE PLANNER
Tiziana Scopa, Giovanni Valentini, Agenzia Spaziale Italiana (ASI), Italy; Stefano Serva, Ministero della Difesa Italiana, Italy; Silvia Mari, Agenzia Spaziale Italiana (ASI), Italy

TUP.PP.2 Board PP.2
ON-BOARD LOSSLESS COMPRESSION OF SOLAR CORONA IMAGES
Marco Ricci, Enrico Magli, Politecnico di Torino, Italy

TUP.PP.3 Board PP.3
COSMO-SKYMED SECONDA GENERAZIONE MISSION SIMULATOR
Silvia Mari, Agenzia Spaziale Italiana (ASI), Italy; Alessandro Cricenti, TAS-I, Italy; Fabio Covello, Formerly ASI, currently ESA, Netherlands; Ignazio Rana, Flavia Carnevale, Davide Rizzato, TAS-I, Italy; Tiziana Scopa, Claudia Anita Maria Fiorentino, Agenzia Spaziale Italiana (ASI), Italy

TUP.PP.4 Board PP.4
A FLEXIBLE FREQUENCY DOMAIN BACKGRUOND CLUTTER SAR SIMULATOR FOR GMTI APPLICATIONS
Davide Giudici, Aresys srl, Italy; Andrea Recchia, Politecnico di Milano, Italy; Davide D'aria, Antonio Valentino, Aresys srl, Italy; Andrea Monti Guarnieri, Politecnico di Milano, Italy

TUP.PP.5 Board PP.5
PERFORMANCE EVALUATION OF SENTINEL-1 DATA IN SAR SHIP DETECTION
Ramona Pelich, Télécom Bretagne, Image et traitement de l'information; CLS, DAR, France; Nicolas Longepe, CLS, DAR, France; Grégoire Mercier, Télécom Bretagne, Image et traitement de l'information, France; Guillaume Hajduch, CLS, DAR, France; Rene Garello, Télécom Bretagne, Image et traitement de l'information, France

TUP.PP.6 Board PP.6
SAOCOM-CS SAR IMAGING PERFORMANCE EVALUATION IN LARGE BASELINE BISTATIC CONFIGURATION
Federica Bordoni, Marwan Younis, Marc Rodriguez-Cassola, Pau Prats-Iraola, Paco López-Dekker, Gerhard Krieger, German Aerospace Center (DLR), Germany

TUP.PP.7 Board PP.7
TOOL FOR COVERAGE: SMART SOFTWARE FOR SAR SATELLITES AREA COVERAGE OPTIMIZATION AND PLANNING
Alessandro Cricenti, Davide Rizzato, Flavia Carnevale, Fabio Di Giorgio, Silvia Occhigrossi, Diego Calabrese, Thales Alenia Space Italia S.p.A., Italy

TUP.PP.8 Board PP.8
EMBEDDING THE GEOSTATIONARY SATELLITE IMAGERY TO NUMERICAL OCEAN MODELING
Chang S. Kim, Korea Institute of Ocean Science and Techonology, Republic of Korea; Hak-Soo Lim, Kwang-Soon Park, KIOST, Republic of Korea

TUP.PP.9 Board PP.9
SUPER-RESOLUTION PASSIVE ISAR IMAGING VIA THE RELAX ALGORITHM
Yongqiang Zhang, University of Electronic Science and Technology of China, China; Xiaonu Zhang, Southwest Petroleum University, China; Shunsheng Zhang, University of Electronic Science and Technology of China, China

Optical Sensors Calibration and Validation I

Session Co-Chairs: Cindy Ong, Commonwealth Scientific and Industrial Research Organisation (CSIRO); Hirokazu Yamamoto, National Institute of Advanced Industrial Science and Technology

TUP.PQ.1 Board PQ.1
SPECTRAL BAND ADJUSTMENT FACTORS FOR CROSS CALIBRATION OF GF-1 WFV AND TERRA MODIS
Li Liu, China Center for Resources Satellite Data and Application, China; Tingting Shi, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, China; Qiaoyan Fu, Qijin Han, China Center for Resources Satellite Data and Application, China

TUP.PQ.2 Board PQ.2
ADVANCES AND PERSPECTIVES OF ON-ORBIT GEOMETRIC CALIBRATION FOR HIGH-RESOLUTION OPTICAL SATELLITES
Guoqing Zhou, Linjun Jiang, Na Liu, Chenyang Li, Mingyan Li, Yue Sun, Tao Yue, Guilin University of Technology, China

TUP.PQ.3 Board PQ.3
EVALUATION OF DIFFERENT CALIBRATION APPROACHES FOR S-NPP CRIS FULL SPECTRAL RESOLUTION SDR PROCESSING
Yong Chen, Earth System Science Interdisciplinary Center, United States; Yong Han, NOAA Center for Satellite Applications and Research, United States

TUP.PQ.4 Board PQ.4
CROSS-CALIBRATION OF LANDSAT 5 FOR LONG-TERM HISTORICAL MONITORING OF COASTAL WATERS
Nima Pahlevan, SSAI / NASA GSFC, United States; Qingsong Sun, Robert Chen, Crystal Schaaf, University of Massachusetts Boston, United States; John Schott, Rochester Institute of Technology, United States

TUP.PQ.5 Board PQ.5
SURFACE REFLECTANCE ESTIMATION FROM SATELLITE IMAGERY WITH INHOMOGENEOUS ATMOSPHERIC CONDITIONS
Yoshikazu Iikura, Masashi Takeo, Hirosaki University, Japan; Naohiro Manago, Hiroaki Kuze, Chiba University, Japan

TUP.PQ.6 Board PQ.6
TRUTHS CROSS-CALIBRATION UNCERTAINTY TOOL
Javier Gorroño, Nigel Fox, Agnieszka Bialek, Paul Green, Tracy Scanlon, National Physical Laboratory, United Kingdom

TUP.PQ.7 Board PQ.7
MONITORING THE VIIRS REFLECTIVE SOLAR BANDS CALIBRATION STABILITY USING DEEP CONVECTIVE CLOUDS
Wenhui Wang, Earth Resource Technology, Inc@NOAA/NESDIS/STAR, United States; Changyong Cao, NOAA/NESDIS/STAR, United States

TUP.PQ.8 Board PQ.8
VIIRS REFLECTIVE SOLAR BANDS ON-ORBIT CALIBRATION USING THE MOON
Junqiang Sun, Menghua Wang, NOAA, United States

TUP.PQ.9 Board PQ.9
VIIRS REFLECTIVE SOLAR BANDS ON-ORBIT CALIBRATION USING SOLAR DIFFUSER AND SOLAR DIFFUSER STABILITY MONITOR
Junqiang Sun, Menghua Wang, NOAA, United States

TUP.PQ.10 Board PQ.10
EVALUATING LIBYA-4 PSEUDO-INVARIANT CALIBRATION SITE HETEROGENEITY WITH WORLDVIEW-1, 2 AND EO-1 HYPERION
Christopher Neigh, Joel McCorkel, Elizabeth Middleton, NASA Goddard Space Flight Center, United States

TUP.PQ.11 Board PQ.11
PERFORMANCE EVALUATION OF A FLOATING DOPPLER WIND LIDAR BUOY IN MEDITERRANEAN NEAR-SHORE CONDITIONS
Miguel Angel Gutierrez, Institut de Recerca en Energia de Catalunya, Spain; Jordi Tiana-Alsina, Universitat Politècnica de Catalunya, Spain; Oliver Bischoff, Universität Stuttgart, Germany; Jordi Cateura, Francesc Rocadenbosch, Universitat Politècnica de Catalunya, Spain

TUP.PQ.12 Board PQ.12
ANALYSIS ON THE CHARACTERISTICS OF MUTUAL INTERFERENCE BETWEEN PULSED TERRESTRIAL LIDAR SCANNERS
Gunzung Kim, Jeongsook Eom, Soojung Hur, Yongwan Park, Yeungnam University, Republic of Korea

Monitoring Natural Disaster: Fires and Drought

Session Chair: Maria Lucia Tampellini, CGS Copagnia genereale per lo Spazio SpA

TUP.PR.1 Board PR.1 **DESIGN AND IMPLEMENTATION OF AN OPERATIONAL METEO FIRE RISK FORECAST BASED ON OPEN SOURCE GEOSPATIAL TECHNOLOGY**
Laura Bellis, Consejo Nacional de Investigaciones Cientificas y Tecnicas and Universidad Nacional de Cordoba, Argentina; Veronica Andreo, Comision Nacional de Actividades Espaciales and Universidad Nacional de Cordoba, Argentina; Andres Lighezzolo, Comisión Nacional de Actividades Espaciales, Argentina; Juan P. Argañaraz, Consejo Nacional de Investigaciones Cientificas y Tecnicas and Universidad Nacional de Cordoba, Argentina; Sofia Lanfri, Comision Nacional de Actividades Espaciales and Universidad Nacional de Cordoba, Argentina; Kevin Clemoveki, Universidad Nacional de Cordoba, Argentina; C. Marcelo Scavuzzo, Comision Nacional de Actividades Espaciales and Universidad Nacional de Cordoba, Argentina

TUP.PR.2 Board PR.2 **MONITORING NATURAL EVENTS GLOBALLY IN NEAR REAL-TIME USING NASA'S OPEN WEB SERVICES AND TOOLS**
Ryan Boller, National Aeronautics and Space Administration, United States; Kevin Ward, Science Systems and Applications Inc., United States; Kevin Murphy, National Aeronautics and Space Administration, United States

TUP.PR.3 Board PR.3 **REMOTELY DETECTED FIRE EVENTS: POTENTIAL AND CHALLENGES OF VALIDATING AGAINST NATIONAL GROUND DATA**
Agata Hoscilo, Aneta Lewandowska, Institute of Geodesy and Cartography, Poland

TUP.PR.4 Board PR.4 **ESTIMATING THE CHARACTERISTICS OF SUB-PIXEL FIRES USING SUOMI-NPP VIIRS DATA**
Soo Chin Liew, Aik Song Chia, Leong Keong Kwoh, National University of Singapore, Singapore

TUP.PR.5 Board PR.5 **MONITORING FOREST REGROWTH WITH DIFFERENT BURN SEVERITY USING AERIAL AND LANDSAT DATA**
Nataliya Stankova, Roumen Nedkov, Space Research and Technology Institute, Bulgarian Academy of Sciences, Bulgaria

TUP.PR.6 Board PR.6 **MODIS-LANDSAT DATA FUSION FOR 30M BURNED AREA MAPPING: DEMONSTRATION AND VALIDATION FOR THE UNITED STATES**
Luigi Boschetti, University of Idaho, United States; David Roy, South Dakota State University, United States

TUP.PR.7 Board PR.7 **ANALYSIS OF VEGETATION DYNAMICS AND PRECIPITATION IN AFRICA FOR DROUGHT MONITORING PURPOSES**
Francesca Perez, Walther Cámaro, Politecnico di Torino / ITHACA (Information Technology for Humanitarian Assistance, Cooperation and Action), Italy; Irene Angeluccetti, ITHACA (Information Technology for Humanitarian Assistance, Cooperation and Action), Italy; Alessandro Demarchi, Piero Boccardo, Politecnico di Torino / ITHACA (Information Technology for Humanitarian Assistance, Cooperation and Action), Italy

TUP.PR.8 Board PR.8 **CONSTRUCTING A GLOBAL GRASSLAND DROUGHT INDEX (GDI) PRODUCT BASED ON MODIS AND ANCILLARY DATA**
Zhanmang Liao, Binbin He, Xingwen Quan, Xiaojing Bai, Changming Yin, Xing Li, Shi Qiu, University of Electronic Science and Technology of China, China

TUP.PR.9 Board PR.9 **METHOD OF DROUGHT MONITORING BY REMOTE SENSING BASED ON WATER AREA CHANGING**
Rong Li, Xiaotao Li, Dongsheng Su, Tao Sun, China Institute of Water Resources and Hydropower Research, China

TUP.PR.10 Board PR.10 **SNPP VIIRS THERMAL EMISSIVE BAND THERMAL CALIBRATION ERRORS AND THEIR IMPACT ON RADIANCE AND BRIGHTNESS TEMPERATURE RETRIEVAL**
David Moyer, Frank De Luccia, Gabriel Moy, Evan Haas, The Aerospace Corporation, United States

Exposure and Hazard Monitoring I

Session Co-Chairs: Francesco Zucca, University of Pavia; Sergio Freire, JRC

TUP.PS.1 Board PS.1 **MAPPING POPULATION DISTRIBUTION BY INTEGRATING NIGHT-TIME LIGHT SATELLITE IMAGERY AND LAND-COVER DATA**
Xianfeng Liu, Xiufang Zhu, Yaozhong Pan, Yuqi Ma, Tianqi Li, Shuchen Chen, Beijing Normal University, China

TUP.PS.2 Board PS.2 **MULTI-SENSOR BASED APPROACH FOR DETECTION OF OIL POLLUTION IN THE ARABIAN GULF AND THE SEA OF OMAN**
Jun Zhao, Marouane Temimi, Muchamad Al Azhar, Hosni Ghedira, Prashanth Marpu, Masdar Institute of Science and Technology, United Arab Emirates

TUP.PS.3 Board PS.3 **INTEGRATED FLOOD HAZARD DELINEATION IN PAKISTAN USING SATELLITE DERIVED AND DISCHARGE GAUGES DATA**
Franca Disabato, ITHACA, Italy; Muhammad Adnan Shahid, DIST/ITHACA/WMRC, Italy; Elena Isotta Cristofori, Walther Cámaro, DIST/ITHACA, Italy; Adriana Albanese, ITHACA, Italy; Piero Boccardo, DIST/ITHACA, Italy

TUP.PS.4 Board PS.4 **ENVIRONMENTAL DRIVERS OF HUMAN MIGRATION IN DRYLANDS - A SPATIAL PICTURE**
Kathleen Neumann, Diana Sietz, Wageningen University, Netherlands; Henk Hilderink, Peter Janssen, Marcel Kok, PBL Netherlands Environmental Assessment Agency, Netherlands; Han van Dijk, Wageningen University, Netherlands

TUP.PS.5 Board PS.5 **REFLECTANCE SPECTROSCOPY TO MONITOR PETROLEUM HYDROCARBON LEAKS IN RED LATOSOLS**
Rosa Elvira Correa Pabon, Carlos Roberto de Souza Filho, University of Campinas, Brazil

TUP.PS.6 Board PS.6 **BUILDING CLIMATE CHANGE VULNERABILITY ASSESSMENT PLAPFORM: PARTS OF DEVELOPMENT OF INTEGRATED ASSESSMENT MODELS**
Jeong-Ho Lee, KEI, Republic of Korea; Kwan-Young Oh, KEI/UOS, Republic of Korea; Moung-Jin Lee, Jeong-Ho Yoon, Wha-Jin Han, KEI, Republic of Korea

TUP.PS.7 Board PS.7 **IMPROVED FLOOD FORECASTING THROUGH THE ASSIMILATION OF SAR-DERIVED FLOOD PROBABILITY MAPS INTO 2D HYDRODYNAMIC MODELS**
Patrick Matgen, Giovanni Corato, Marco Chini, Renaud Hostache, Laura Giustarini, Luxembourg Institute of Science and Technology, Luxembourg

TUP.PS.8 Board PS.8 **REMOTELY SENSED RETRIEVAL OF CHLOROPHYLL A CONCENTRATION NEAR XIANGSHAN SEA AREA IN ZHEJIANG PROVINCE WITH SATELLITE HJ-1**
Limei Qu, Pifu Cong, National Marine Environmental Monitoring Center, China; Shuxiu Liang, Dalian University of Technology, China; Anning Suo, National Marine Environmental Monitoring Center, China

Aerosols and Atmospheric Chemistry I

Session Co-Chairs: Maurizio di Bisceglie, Università degli studi del Sannio; Steven Reising, Colorado State University

TUP.PT.1 Board PT.1 **EVALUATION AND COMPARISON OF ATMOSPHERIC CO2 CONCENTRATIONS FROM MODELS AND SATELLITE RETRIEVALS**
Yingying Jing, Jiancheng Shi, Tianxing Wang, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China

TUP.PT.2 Board PT.2 **RETRIEVAL FOR PM2.5 DISTRIBUTION FROM SPACE**
Itaru Sano, Kinki University, Japan; Sonoyo Mukai, The Kyoto College of Graduate Studies for Informatics, Japan; Makiko Nakata, Kinki University, Japan

TUP.PT.3 Board PT.3 **DETECTION AND/OR DISTINCTION BETWEEN HAZE AND/OR CLOUD**
Sonoyo Mukai, The Kyoto College of Graduate Studies for Informatics, Japan; Itaru Sano, Makiko Nakata, Kinki University, Japan

TUP.PT.4 Board PT.4 **THE SPATIOTEMPORAL VARIATIONS OF CO2 IN THE TROPOSPHERE USING MULTI-SENSOR SATELLITE DATA AND AIRCRAFT OBSERVATION**
Sanggyun Lee, Jungho Im, Myong-In Lee, Ulsan National Institute of Science and Technology, Republic of Korea

TUP.PT.5 Board PT.5 **THE UNCERTAINTY OF MISR AOD PRODUCT AND ITS SPREAD EFFECT ON THE ESTIMATION OF ULTRAVIOLET INDEX**
Junfeng Rao, Xianfeng Zhang, Yunpeng Wei, Yifan Pan, Shaohong Tian, Xu Jin, Peking University, China

TUP.PT.6 Board PT.6 **CHINA COLLECTION 2.1: AEROSOL OPTICAL DEPTH DATASET FOR MAINLAND CHINA AT 1KM RESOLUTION**
Yong Xue, Chinese Academy of Sciences, China; Xingwei He, Hui Xul, Jie Guang, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China; Jianping Guo, Chinese Academy of Meteorological Sciences, China; Linlu Mei, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China

TUP.PT.7 Board PT.7 **OBSERVATION OF ATMOSPHERIC AEROSOL SCATTERING COEFFICIENT, ABSORPTION COEFFICIENT, AND SSA BASED ON NEPHELOMETER AND AETHALOMETER MEASUREMENTS IN WUHAN CITY, CENTRAL CHINA**
Miao Zhang, Wei Gong, Xin Ma, Ge Han, State Key Laboratory of Information Engineering in Surveying, Mapping and Remote Sensing, Wuhan University, China

TUP.PT.8 Board PT.8 **THE INTER-COMPARISON OF AATSR AEROSOL OPTICAL DEPTH RETRIEVALS FROM VARIOUS ALGORITHMS**
Yahui Che, University of Chinese Academy of Sciences, China; Yong Xue, London Metropolitan University, United Kingdom; Hui Xu, University of Chinese Academy of Sciences, China; Romas Mikusauskas, London Metropolitan University, United Kingdom; Lu She, University of Chinese Academy of Sciences, China

TUP.PT.9 Board PT.9 **VERTICAL SENSITIVITY OF SATELLITE REMOTE SENSING OF ATMOSPHERIC CARBON MONOXIDE**
Jane Liu, Nanjing University and University of Toronto, Canada; Ke Ding, Aijun Ding, Nanjing University, China

TUP.PT.10 Board PT.10 **INVERSION OF AEROSOL SIZE DISTRIBUTION BY USING GENETIC ALGORITHMS AND MULTI-SENSOR DATA**
Yingying Ma, Wei Gong, Lunche Wang, Fa Yan, Wuhan University, China

TUP.PT.11 Board PT.11 **USE OF THE REMOTE SENSING TO OBTAINED THE DISPERSING OF THE TRACES POLLUTANTS CONCENTRATION: PRELIMINARY RESULTS TO THE CITY OF RIO GRANDE, SOUTHERN BRAZIL**
Miguel da Guia Albuquerque, Jean Espinoza, Federal Institute of Science and Technology of Rio Grande do Sul, Brazil; Silvia Beatriz Alves Rolim, Federal University of Rio Grande do Sul, Brazil; Jefferson Santos, Mauricio Ortiz, Federal Institute of Science and Technology of Rio Grande do Sul, Brazil; André Westphalen, Federal University of Rio Grande do Sul, Brazil; Tiago Gandra, João Augusto Ferreira, Federal Institute of Science and Technology of Rio Grande do Sul, Brazil; Yasmim Cavalheiro, Igor Biscaglia, Caroline Machado, Federal University of Rio Grande, Brazil

TUP.PT.12 Board PT.12 **OLI IMAGE ATMOSPHERIC CORRECTION SENSITIVITY TO ALTITUDE, VISIBILITY AND ACQUISITION GEOMETRY**
Mauro Homem Antunes, Paula Debiasi, Federal Rural University of Rio de Janeiro, Brazil

Ocean Biology II

Session Co-Chairs: Clive Banks, European Commission, DG Joint Research Center; Bo-Cai Gao, Naval Research Laboratory

TUP.PU.1 Board PU.1 **SPATIO-TEMPORAL VARIATIONS IN CHLOROPHYLL-A CONCENTRATION IN THE PATAGONIC CONTINENTAL SHELF: AN EXAMPLE OF SATELLITE TIME SERIES PROCESSING WITH GRASS GIS TEMPORAL MODULES**
Veronica Andreo, Comision Nacional de Actividades Espaciales and Universidad Nacional de Cordoba, Argentina; Ana I. Dogliotti, Consejo Nacional de Investigaciones Cientificas y Tecnicas and Universidad de Buenos Aires, Argentina; Carolina Tauro, Comision Nacional de Actividades Espaciales and Universidad Nacional de Cordoba, Argentina; Markus Neteler, Fondazione Edmund Mach, Italy

TUP.PU.2 Board PU.2 **INFLUENCE OF SUSPENDED PARTICLE SIZE DISTRIBUTION ON THE VARIABILITY OF WATER OPTICAL PROPERTIES OF THE POYANG LAKE, CHINA**
Jue Huang, Liqiong Chen, Xiaoling Chen, Wuhan University, China

TUP.PU.3 Board PU.3 **FISHING FORECASTING SYSTEM IN ADRIATIC SEA – A MODEL APPROCH BASED ON A NORMALIZED SCALAR PRODUCT OF THE SST GRADIENT AND CHL GRADIENT VECTORS**
Khalid Tijani, Maria Teresa Chiaradia, Alberto Morea, Politecnico di Bari, Italy; Raffaele Nutricato, Luciano Guerriero, Geophysical Applications Processing s.r.l., Italy; Guido Pasquariello, Consiglio Nazionale delle Ricerche (CNR), Italy

TUP.PU.4 Board PU.4 **HYPERSPECTRAL SENSING AND MODELLING OF UNDERWATER LIGHT FIELDS FLUCTUATION IN COASTAL WATERS**
Sundarabalan Balasubramanian, Shanmugam Palanisamy, Indian Institute of Technology Madras, India

TUP.PU.5 Board PU.5 **TEN-YEARS SEDIMENT DYNAMICS IN NORTHERN ADRIATIC SEA INVESTIGATED THROUGH OPTICAL REMOTE SENSING OBSERVATIONS**
Federico Filipponi, Institute for Environmental Protection and Research, Italy; Andrea Taramelli, IUSS Institute for Advanced Study, Italy; Francesco Zucca, University of Pavia, Italy; Emiliana Valentini, Institute for Environmental Protection and Research, Italy; Ghada El Serafy, Deltares, Netherlands

TUP.PU.6 Board PU.6 **THE 2014 THERMAL STRESS EVENT ON OFFSHORE ARCHIPELAGOES IN THE SOUTH CHINA SEA**
Xiuling Zuo, University of Chinese Academy of Sciences, China; Fenzhen Su, Wei Shi, Institute of Geographic Sciences and Nature Resources Research, Chinese Academy of Sciences, China; Yu Zhang, Junjue Zhang, Xinyu Qiu, University of Chinese Academy of Sciences, China

TUP.PU.7 Board PU.7 **A SATELLITE OCEAN COLOUR SPECTRAL LIBRARY FOR THE ANALYSIS AND CLASSIFICATION OF EXTREME OPTICAL CONDITIONS IN EUROPEAN SEAS**
Andrew Clive Banks, European Commission - DG Joint Research Centre and National Physical Laboratory, UK, Italy; Frédéric Mélin, European Commission - DG Joint Research Centre, Italy

TUP.PU.8 Board PU.8 **BIO-PHYSICAL RESPONSES TO THE TYPHOON NARI (2013) OBSERVED BY MULTI-SATELLITES**
Dawei Li, Hui Shen, Institute of Oceanology, Chinese Academy of Sciences, China

TUP.PU.9 Board PU.9 **MULTI-SPECTRAL AND HYPERSPECTRAL ATMOSPHERIC CORRECTION ALGORITHMS FOR REMOTE SENSING OF COASTAL WATER**
Bo-Cai Gao, Rongrong Li, Naval Research Laboratory, United States

TUP.PU.10 Board PU.10 **ESTIMATES OF DIFFUSION COEFFICIENTS DERIVED FROM HIGH-RESOLUTION SATELLITE IMAGERY**
Eun Ae Lee, Sung Yong Kim, Korea Advanced Institute of Science and Technology, Republic of Korea

TUP.PU.11 Board PU.11 **ANNUALLY VARIATION OF AIR-SEA CARBON FLUX IN THE SOUTHERN OCEAN FROM THREE CHINARE CRUISES BY MEANS OF REMOTE SENSING TECHNOLOGY**
Suqing Xu, Third Institute of Oceanography, China; Tingting Liu, Wuhan University, China; Liqi Chen, Third Institute of Oceanography, China

TUP.PU.12 Board PU.12 **ESTIMATION OF UNDERWATER VISIBILITY FROM SATELLITE OCEAN COLOR DATA**
Anuj Kulshreshtha, Shanmugam Palanisamy, Indian Institute of Technology Madras, India

Coastal Zone Remote Sensing I

Session Chair: Martin Gade, University of Hamburg

TUP.PV.1 Board PV.1 **REVISITING SHORT-WAVE-INFRARED (SWIR)-BASED ATMOSPHERIC CORRECTION OF COASTAL SCENES**
Nima Pahlevan, SSAI / NASA GSFC, United States; Jean-Claude Roger, University of Maryland / NASA GSFC, United States; Eric Vermote, NASA Goddard Space Flight Center, United States

TUP.PV.2 Board PV.2 **SAR IMAGING OF MODE-2 INTERNAL WAVES IN THE SOUTH CHINA SEA**
Xiaofeng Yang, Di Dong, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China; Xiaofeng Li, National Oceanic and Atmospheric Administration, United States; Ziwei Li, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China

TUP.PV.3 Board PV.3 **SATELLITE MONITORING OF THE BLACK SEA SURFACE POLLUTION**
Marina Mityagina, Olga Lavrova, Space Research Institute of Russian Academy of Sciences, Russian Federation

TUP.PV.4 Board PV.4 **STORM-GENERATED SHALLOW SEA TURBIDITY AND ITS INFLUENCE ON SPAWNING AND NURSERY GROUNDS OF LITTORAL FISH**
Ülo Suursaar, Tiit Raid, Markus Vetemaa, Toomas Saat, University of Tartu, Estonia

TUP.PV.5 Board PV.5 **PROPAGATION OF THE VISTULA LAGOON OUTFLOW PLUME INTO THE BALTIC SEA: SATELLITE OBSERVATIONS, IN-SITU MEASUREMENTS AND NUMERICAL MODELING**
Olga Lavrova, Space Research Institute of Russian Academy of Sciences, Russian Federation; Evgeny Krayushkin, Lomonosov Moscow State University, Russian Federation; Maria Golenko, Nikolay Golenko, The Atlantic branch of P.P. Shirshov Institute of Oceanology, Russian Federation

TUP.PV.6 Board PV.6 **SEGMENTATION OF MULTISPECTRAL IMAGES AND PREDICTION OF CHI-A CONCENTRATION FOR EFFECTIVE OCEAN COLOUR REMOTE SENSING**
Jinchang Ren, University of Strathclyde, United Kingdom; Xuexing Zeng, China University of Geoscience, China; David McKee, University of Strathclyde, United Kingdom

TUP.PV.7 Board PV.7 **PRECISE CLASSIFICATION OF COASTAL BENTHIC HABITATS USING HIGH RESOLUTION WORLDVIEW-2 IMAGERY**
Javier Marcello, Francisco Eugenio González, Universidad de Las Palmas de Gran Canaria, Spain; Ferran Marques, Universitat Politècnica de Catalunya - BarcelonaTech, Spain; Javier Martin, Universidad de Las Palmas de Gran Canaria, Spain

TUP.PV.8 Board PV.8 **STRONGLY INHOMOGENEOUS METEO-MARINE PARAMETERS IN COASTAL WATERS: A HIGH RESOLUTION SPACEBORNE SAR STUDY TO ASSESS THE LOCAL OCEAN RENEWABLE ENERGY POTENTIAL**
Sven Jacobsen, Susanne Lehner, Andrey Pleskachevsky, Miguel Bruck, Claus Gebhardt, German Aerospace Center (DLR), Germany; Wolfgang Rosenthal, OceanWaveS GmbH, Germany; Xiangyang Zheng, Roberto Mayerle, Research and Technology Centre Westcoast (FTZ),, Germany

TUP.PV.9 Board PV.9 **ESTIMATION OF THE SEA BOTTOM SPECTRAL REFLECTANCE IN SHALLOW WATER WITH HYPERSPECTRAL DATA**
Guillaume Sicot, Marc Lennon, Actimar, France; David Corman, François Gauthiez, Agences des Aires Marines Protégées, France

Clouds, Aerosols and Precipitation

Session Chair: Steven Reising, Colorado State University

TUP.PW.1 Board PW.1 **THE COMBINATION OF BAND RATIOING TECHNIQUES AND NEURAL NETWORKS ALGORITHMS FOR MSG SEVIRI AND LANDSAT ETM+ CLOUD MASKING**
Alireza Taravat, Christian Albrechts University, Germany; Simone Peronaci, Massimiliano Sist, Tor Vergata University of Rome, Italy; Fabio Del Frate, University of Rome Tor Vergata, Italy; Natascha Oppelt, Christian Albrechts University, Germany

TUP.PW.2 Board PW.2 **HYDROMETEOR CLASSIFICATION FOR X-BAND DUAL POLARIZATION RADAR ON-BOARD CIVIL AIRCRAFTS**
Nicoletta Roberto, Elisa Adirosi, Luca Baldini, Institute of Atmospheric Sciences and Climate - National Research Council (ISAC-CNR), Italy; Luca Facheris, University of Florence, Italy; Fabrizio Cuccoli, RASS-CNIT, Italy; Alberto Lupidi, University of Pisa, Italy; Andrea Garzelli, University of Siena, Italy

TUP.PW.3 Board PW.3 **GLOBAL PRECIPITATION MEASUREMENT MICROWAVE IMAGER CALIBRATION: IMPACT ON PRECIPITATION MEASUREMENTS**
Rachael Kroodsma, University of Maryland ESSIC / NASA Goddard Space Flight Center, United States; Wesley Berg, Colorado State University, United States

TUP.PW.4 Board PW.4 **RAIN DETECTION FROM GROUND-BASED RADIOMETRIC MEASUREMENTS: VALIDATION AGAINST RAIN SENSOR OBSERVATIONS**
Ada Vittoria Bosisio, CNR, Italy; Maria Cadeddu, Argonne National Laboratory, United States

TUP.PW.5 Board PW.5 **POLARIMETRIC RADAR FOR CIVIL AIRCRAFTS TO SUPPORT PILOTS' DECISION IN BAD WEATHER CONDITIONS**
Fabrizio Cuccoli, Alberto Lupidi, CNIT RaSS, Italy; Luca Facheris, DINFO, Italy; Luca Baldini, CNR, Italy

TUP.PW.6 Board PW.6 **DOPPLERISING THE STFC / RAL RADAR CLOUD PROFILER**
Dirk Klugmann, Brian Moyna, Matthew Oldfield, Peter Huggard, Brian Ellison, Science and Technology Facilities Council, United Kingdom

TUP.PW.7 Board PW.7 **ATMOSPHERIC INFLUENCES ANALYSIS IN PASSIVE MICROWAVE REMOTE SENSING**
Lijuan Shi, Yubao Qiu, Jiancheng Shi, Institute of Remote Sensing Applications, Chinese Academy of Sciences, China; Shaojie Zhao, Beijing Normal University, China

TUP.PW.8 Board PW.8 **PHOTOMETER-BASED AEROSOL PHASE FUNCTIONS FOR SIMULATING THE INTERNAL RADIATION FIELD IN SMOKY ATMOSPHERES**
Santo Valentin Salinas Cortijo, Lan Mo, Soo Chin Liew, National University of Singapore, Singapore

TUP.PW.9 Board PW.9 **RELATION BETWEEN AEROSOL CHARACTERISTICS AND IMPACT FACTOR ON CLIMATE AND ENVIRONMENT**
Makiko Nakata, Itaru Sano, Kinki University, Japan; Sonoyo Mukai, Kyoto College of Graduate Studies for Informatics, Japan

DEM Generation and Analysis

Session Co-Chairs: Gianfranco Fornaro, IREA; Mahdi Motagh, GFZ Potsdam

WEP.PA.1 Board PA.1
SURFACE HEIGHT CHANGE ESTIMATION METHOD USING BAND-DIVIDED COHERENCE FUNCTION WITH FULL POLARIMETRIC SAR IMAGES
Ryo Oyama, Mitsubishi Electric Corp., Japan; Shouhei Kidera, Tetsuo Kirimoto, The University of Electro-Communications, Japan

WEP.PA.2 Board PA.2
ACCURACY OF HIGH RESOLUTION CSK INTERFEROMETRIC DIGITAL ELEVATION MODELS
Nunzia Lombardi, Rino Lorusso, Agenzia Spaziale Italiana, Università degli Studi della Basilicata, Italy; Giovanni Milillo, Agenzia Spaziale Italiana (ASI), Italy

WEP.PA.3 Board PA.3
A HYBRID ADAPTIVE METHOD FOR INTERFEROMETRIC PHASE FILTERING BASED ON THE MODE AND MEDIAN FILTER
Qi Zhang, Tiandong Liu, Zegang Ding, Tao Zeng, Teng Long, Beijing Institute of Technology, China

WEP.PA.4 Board PA.4
DYNAMIC BASELINE MILLIMETER-WAVE INSAR IMAGING AND HIGH INVERSION BASED ON BACK-PROJECTION ALGORITHM
Shunjun Wei, Xiao-Ling Zhang, Jun Shi, University of Electronic Science and Technology of China, China

WEP.PA.5 Board PA.5
INSAR COHERENCE DUE TO REMOTE SENSING OF LOW-LOSS, GUIDING PLANAR-LAYERED GEOPHYSICAL MEDIA USING H-POLARIZED MICROWAVES
Kamalesh Sainath, ElectroScience Laboratory, Ohio State University, United States; Alexandra Bringer, Ohio State University, United States; Fernando Teixeira, ElectroScience Laboratory, Ohio State University, United States; Scott Hensley, NASA Jet Propulsion Laboratory, United States

WEP.PA.6 Board PA.6
PERFORMANCE ANALYSIS AND COMPARISON FOR SINGLE-BASELINE SAR-ATI/DPCA
Li Chen, Beijing Institute of Tracking and Telecommunication technology, China; Bin Cai, School of Information and Navigation, Air Force Engineering University, China; Zhiqiang Wang, Beijing Institute of Tracking and Telecommunication technology, China; Junli Chen, Guozhong Chen, Shanghai Academy of Spaceflight Technology, China; Xiaoli Wu, School of Information and Navigation, Air Force Engineering University, China

WEP.PA.7 Board PA.7
AN EMPIRICAL MODEL FOR MEASUREMENT ACCURACY OF ALONG-TRACK DEFORMATION BY ADVANCED MULTIPLE-APERTURE SAR INTERFEROMETRY FROM COSMO-SKYMED DATASET
Min-Jeong Jo, Yonsei University, Republic of Korea; Hyung-Sup Jung, University of Seoul, Republic of Korea; Joong-Sun Won, Yonsei University, Republic of Korea; Paul Lundgren, Jet Propulsion Laboratory, United States

WEP.PA.8 Board PA.8
ABSOLUTE 4-D POSITIONING OF PERSISTENT SCATTERERS WITH TERRASAR-X BY APPLYING GEODETIC STEREO SAR
Christoph Gisinger, Stefan Gernhardt, Technische Universität München, Germany; Stefan Auer, Ulrich Balss, Stefan Hackel, German Aerospace Center (DLR), Germany; Roland Pail, Technische Universität München, Germany; Michael Eineder, German Aerospace Center (DLR), Germany

Tomography and 3D Mapping Poster I

Session Co-Chairs: Giampaolo Ferraioli, Universita di Napoli Parthenope; Alessandra Budillon, Univ. of Naples "Parthenope"

WEP.PB.1 Board PB.1
3D RECONSTRUCTION OF BUILDING IN URBAN AREAS BY TERRASAR-X DATA
Weibao Zou, Chang'an University, China

WEP.PB.2 Board PB.2
A ROOF-CONTOUR GUIDED MULTI-SIDE INTERPOLATION METHOD FOR BUILDING TEXTURE-MAPPING USING REMOTE SENSING RESOURCE
Yiming Yan, Xi Chen, Harbin Institute of Technology, China; Fengjiao Gao, Institute of Automation of Heilongjiang Academy of Sciences, China; Ye Zhang, Yi Shen, Nan Su, Shu Tian, Harbin Institute of Technology, China

WEP.PB.3 Board PB.3
THE TEXTURE EXTRACTION AND MAPPING OF BUILDINGS WITH OCCLUSION DETECTION
Qingli Luo, Tianjin University, China; Guoqing Zhou, Guilin University of Technology, China; Guangyun Zhang, Jingjin Huang, Tianjin University, China

WEP.PB.4 Board PB.4
3D BUILDING EXTRACTION WITH SEMI-GLOBAL MATCHING FROM STEREO PAIR WORLDVIEW-2 SATELLITE IMAGERIES
Min Li, Leong Keong Kwoh, Chin-Jung Yang, Soo Chin Liew, National University of Singapore, Singapore

WEP.PB.5 Board PB.5
COMPRESSIVE SENSING BASED 3D IMAGING WITH A MOVING MIMO ARRAY
Dehong Liu, Mitsubishi Electric Research Laboratories, United States

WEP.PB.6 Board PB.6
A NOVEL ALGORITHM FOR TRIDIMENSIONAL RECONSTRUCTION USING DATA FROM LOW-COST SENSORS
Ivan Villalon-Turrubiates, Alicia Barrera-Pelayo, ITESO, Universidad Jesuita de Guadalajara, Mexico

WEP.PB.7 Board PB.7
DEM AND DHM RECONSTRUCTION IN TROPICAL FORESTS: TOMOGRAPHIC RESULTS AT P-BAND WITH THREE FLIGHT TRACKS
Lan Li, Erxue Chen, Zengyuan Li, Qi Feng, Lei Zhao, Chinese Academy of Forestry, China; Wen Yang, Wuhan University, China

WEP.PB.8 Board PB.8
ACCURACY VERIFICATION OF DSM OBTAINED FROM UAV USING COMMERCIAL SOFTWARE
Mitsuharu Tokunaga, Kanazawa Institute of Technology, Japan

WEP.PB.9 Board PB.9
ACCURACY EVALUATION OF ALOS DEM WITH AIRBORNE LIDAR DATA IN SOUTHERN TAIWAN
Jin-King Liu, CEO/LIDAR Technology Co., Ltd., Taiwan; Kuan-Tsung Chang, Minghsin University of Science and Technology, Taiwan; Chinsu Lin, Liang-Cheng Chang, Professor, Taiwan

Analysis of Multitemporal Images III

Session Co-Chairs: Mihai Datcu, German Aerospace Center (DLR); Gianni Lisini, University of Pavia

WEP.PC.1 Board PC.1 **AN ESTIMATE OF POPULATION EXPOSURE TO AUTOMOBILE SOURCE PM2.5 IN BEIJING USING SPATIOTEMPORAL ANALYSIS**
Xiao Feng, Qi Li, Yajie Zhu, Junxiong Hou, Jianhua Wang, Peking University, China

WEP.PC.2 Board PC.2 **ASSESSING LAND USE INDUCED DISTURBANCE TO VEGETATION COVER IN THE UPPER MOLOPO CATCHMENT, SOUTH AFRICA, USING LANDSAT IMAGES**
Agnes Turyahikayo, North-West University, South Africa

WEP.PC.3 Board PC.3 **AUTOMATIC MARS ROVER DETECTION FROM MULTI-TEMPORAL HIRISE IMAGERY**
Xue Wan, Jianguo Liu, Gareth L.K. Morgan, Hongshi Yan, Imperial College London, United Kingdom

WEP.PC.4 Board PC.4 **REMOTE SENSING MONITORING OF CHANGES POTENTIALLY ASSOCIATED TO OBSTACLES TO AIR NAVIGATION**
Gianpaolo Pinelli, Tiziana Veracini, IDS Ingegneria Dei Sistemi S.p.A., Italy

WEP.PC.5 Board PC.5 **AN UNSUPERVISED AUTOMATIC CHANGE DETECTION APPROACH BASED ON VISUAL ATTENTION MECHANISM**
Donghua Liu, Junping Zhang, Xiaochen Lu, Harbin Institute of Technology, China

WEP.PC.6 Board PC.6 **COMPARISON OF METHODS FOR DETECTING SPECTRALLY VARIABLE RARE TARGETS IN HYPERSPECTRAL IMAGERY**
Robert Sundberg, Steven Adler-Golden, Patrick Conforti, Spectral Sciences, Inc., United States

WEP.PC.7 Board PC.7 **ANALYSIS OF LAND USE LAND COVER CHANGES FOR AN ABANDONED MINE SITE**
Hilal Soydan, Sebnem Düzgün, Okan Bilge Özdemir, Middle East Technical University, Turkey

WEP.PC.8 Board PC.8 **BENEFITS OF ALOS-2 PALSAR DATA FOR MANGROVE MONITORING**
Richard M. Lucas, University of New South Wales, Australia; Nathan Thomas, Aberystwyth University, United Kingdom; Emma Asbridge, University of New South Wales, Australia

Techniques for LiDAR, Very High Resolution and SAR Imagery

Session Chair: Ihsen Hedhli, University of Genoa

WEP.PD.1 Board PD.1 **AN INTELLIGENT VECTOR AGENT PROCESSING UNIT FOR GEOGRAPHIC OBJECT-BASED IMAGE ANALYSIS**
Kambiz Borna, Pascal Sirguey, Antoni Moore, Otago University, New Zealand

WEP.PD.2 Board PD.2 **PROPER COMPARISON AMONG METHODS USING A CONFUSION MATRIX**
Brian Salmon, University of Tasmania, Australia; Waldo Kleynhans, Colin Schwegmann, University of Pretoria, South Africa; Jc Olivier, University of Tasmania, Australia

WEP.PD.3 Board PD.3 **A TEXTURE-BASED CLASSIFICATION ALGORITHM WITH HISTOGRAMS OF ORIENTED GRADIENTS FOR ALOS/PRISM PANCHROMATIC IMAGERY**
Takuma Anahara, Japan Aerospace Exploration Agency, Japan

WEP.PD.4 Board PD.4 **COMBINED USE OF EXPERT KNOWLEDGE AND EARTH OBSERVATION DATA FOR THE LAND COVER MAPPING OF AN ITALIAN GRASSLAND AREA: AN EODHAM SYSTEM APPLICATION**
Maria Adamo, Cristina Tarantino, National Research Council, Italy; Richard M. Lucas, University of New South Wales, Australia; Valeria Tomaselli, National Research Council, Italy; Antonio Sigismondi, Regione Puglia, Italy; Paola Mairota, University of Bari, Italy; Palma Blonda, National Research Council, Italy

WEP.PD.5 Board PD.5 **AN ENSEMBLE CONSTRUCTED USING SPECTRAL DISTRIBUTION AND ITS EFFICIENCY IN CATEGORIZING HARD-TO-DISCRIMINATE FEATURES**
Laxmi Narayana Eeti, Krishna Mohan Buddhiraju, Indian Institute of Technology Bombay, India

WEP.PD.6 Board PD.6 **TEXTURE-BASED FOREST COVER CLASSIFICATION USING RANDOM FORESTS AND ENSEMBLE MARGIN**
Samia Boukir, Bordeaux INP, France; Olivier Regniers, Université de Bordeaux, France; Li Guo, Bordeaux INP, France; Lionel Bombrun, Christian Germain, Université de Bordeaux, France

WEP.PD.7 Board PD.7 **URBAN ECOLOGICAL LAND EXTRACTION FROM CHINESE GAOFEN-1 DATA USING OBJECT-ORIENTED CLASSIFICATION TECHNIQUES**
Jinjie Meng, Huazhong Ren, Qiming Qin, Chen Du, Jianhua Wang, Lian He, Peking University, China; Jing Li, Huawei Wan, Ministry of environmental protection, China

WEP.PD.8 Board PD.8 **A LANDSCAPE ARCHAEOLOGY APPLICATION OF "BIG HERITAGE DATA": DETECTING TRACES OF ROMAN CENTURIATIONS IN LARGE-SCALE, OLD AERIAL PHOTOS**
Fabio Dell'Acqua, University of Pavia, Italy; Gianni Cristian Iannelli, Ticinum Aerospace, Italy; Gianni Lisini, Istituto Universitario di Studi Superiori, Italy; Niccolò Ricardi, Ticinum Aerospace, Italy; Maria Elena Gorrini, Chiara Mussi, Mirella T.A. Robino, University of Pavia, Italy

WEP.PD.9 Board PD.9 **ROBUST CATEGORIZATION OF POINT CLOUD DATA**
Enrico Mattei, Exelis, Inc., United States; Alexey Castrodad, NGA, United States

Estimation and Regression III

Session Chair: Prashanth Marpu, Masdar Institute of Science and Technology

WEP.PE.1 Board PE.1 **DIMENSIONALITY REDUCTION ON OCEAN MODEL'S OUTPUTS: APPLICATION TO MOTION ESTIMATION ON SATELLITE IMAGES**
Isabelle Herlin, Etienne Huot, INRIA, France

WEP.PE.2 Board PE.2 **COMPARISON OF NONLOCAL MEANS DESPECKLING BASED ON STOCHASTIC MEASURES**
Rafael Grimson, Natalia Morandeira, Universidad Nacional de San Martín, Argentina; Alejandro C. Frery, Universidade Federal de Alagoas, Brazil

WEP.PE.3 Board PE.3 **COMPARISON OF PURSUIT ALGORITHMS FOR SEISMIC DATA INTERPOLATION IMPOSING SPARSENESS**
Laura Fioretti, Paolo Mazzucchelli, Aresys srl, Italy; Nicola Bienati, ENI upstream, Italy

WEP.PE.4 Board PE.4 **CORRELATED ERROR ANALYSIS FOR THE NON-LINEAR OPTIMIZATION AOA GEOLOCATION ALGORITHM**
Joshua Sprang, Derek Hesser, Jason Roos, Jonathan Mautz, Matthew Sambora, Clark Taylor, Joseph Sugrue, Andrew Terzuoli, IEEE, United States

WEP.PE.5 Board PE.5 **ESTIMATION OF DAYTIME LAND SURFACE TEMPERATURE FROM SPACE RADIOMETER UNDER THIN CIRRUS CLOUDY SKIES**
Xiwei Fan, Bo-Hui Tang, Hua Wu, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, China; Guangjian Yan, Beijing Normal University, China; Zhao-Liang Li, Guilin University of Technology, China

WEP.PE.6 Board PE.6 **ENHANCED RECOVERY OF SUBSURFACE GEOLOGICAL STRUCTURES USING COMPRESSED SENSING AND THE ENSEMBLE KALMAN FILTER**
Furrukh Sana, Klemens Katterbauer, Tariq Al-Naffouri, Ibrahim Hoteit, King Abdullah University of Science and Technology, Saudi Arabia

WEP.PE.7 Board PE.7 **SCANNING RADAR ANGULAR SUPERRESOLUTION WITH FAST STANDARD CAPON BEAMFORMER**
Yongchao Zhang, Yue Wang, Wenchao Li, Yulin Huang, Jianyu Yang, University of Electronic Science and Technology of China, China

WEP.PE.8 Board PE.8 **3D SPARSE CODING BASED DENOISING OF HYPERSPECTRAL IMAGES**
Di Wu, Ye Zhang, Yu Shi Chen, Harbin Institute of Technology, China

WEP.PE.9 Board PE.9 **THE SCHMITTLETS FOR AUTOMATED SAR IMAGE ENHANCEMENT**
Andreas Schmitt, German Aerospace Center (DLR), Germany

WEP.PE.10 Board PE.10 **ANALYZING OF THE INFLUENCE OF ATMOSPHERIC WATER VAPOR CONTENT ON COEFFICIENTS DETERMINATION IN THE GENERALIZED SPLIT-WINDOW ALGORITHM**
Chunlei Wang, Bo-Hui Tang, Hua Wu, Ronglin Tang, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, China; Wei Zhao, Institute of Mountain Hazards and Environment, Chinese Academy of Sciences, China; Zhao-Liang Li, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, China

Target Detection and Tracking

Session Co-Chairs: Jian Yang, Tsinghua University; Gemine Vivone, North Atlantic Treaty Organization, Centre for Maritime Research and Experimentation

WEP.PF.1 Board PF.1 **MARITIME SCENE DESIGN TOOLS FOR REALISTIC RADAR PERFORMANCE PREDICTIONS**
Jean-Christophe Louvigne, Christian Cochin, French Ministry of Defense (MoD), France

WEP.PF.2 Board PF.2 **MOVING TARGETS DETECTION AND LOCATION ESTIMATION ON AIRBORNE SAR IMAGES**
Abigael Taylor, Helene Oriot, Laurent Savy, ONERA, France; Franck Daout, Philippe Forster, SATIE, France

WEP.PF.3 Board PF.3 **A NEW GLRT-BASED SHIP DETECTION TECHNIQUE IN SAR IMAGES**
Pasquale Iervolino, Raffaella Guida, University of Surrey, United Kingdom; Philip Whittaker, SSTL Ltd, United Kingdom

WEP.PF.4 Board PF.4 **REALISTIC SHIP MODEL FOR EXTENDED TARGET TRACKING ALGORITHMS**
Borja Errasti-Alcala, North Atlantic Treaty Organization, Science and Technology Organization, Centre for Maritime Research and Experimentation, Italy; Walter Fuscaldo, University of Rome La Sapienza, Italy; Paolo Braca, Gemine Vivone, North Atlantic Treaty Organization, Science and Technology Organization, Centre for Maritime Research and Experimentation, Italy

WEP.PF.5 Board PF.5 **EXTENDED FRACTAL ANALYSIS FOR FLOATING TARGET DETECTION IN SEA CLUTTER**
Dongchen Li, Penglang Shui, Xidian University, China

WEP.PF.6 Board PF.6 **AZIMUTH ANGULAR SUPERRESOLUTION OF REAL-BEAM SCANNING RADAR FOR SEA-SURFACE TARGET**
Yin Zhang, Yulin Huang, Yue Wang, Jianyu Yang, Junjie Wu, University of Electronic Science and Technology of China, China

WEP.PF.7 Board PF.7 **A TWO-STEP SCHEME OF ANGULAR SUPERRESOLUTION FOR REAL BEAM SCANNING RADAR**
Wenchao Li, Wen Jiang, Yulin Huang, Jianyu Yang, School of Electronic Engineering, University of Electronic Science and Technology of China, China

WEP.PF.8 Board PF.8 **TARGET LOCATION BASED ON TIME FOCUSING OF TIME-REVERAL RETRANSMITTING SIGNALS**
Yuan-Qi Li, U of Electronic Sci and Tech of China, China; Ming-Yao Xia, Peking University, China

WEP.PF.9 Board PF.9 **SHIP DETECTION IN POLARIMETRIC SAR IMAGES VIA TENSOR ROBUST PRINCIPLE COMPONENT ANALYSIS**
Shengli Song, Jian Yang, Tsinghua University, China

WEP.PF.10 Board PF.10 **EFFICIENT DETECTION OF GROUND MOVING TARGETS IN FMCW SAR BY FOCUSING**
Pu Cheng, Qin Xin, Jianwei Wan, Zhan Wang, National University of Defense Technology, China

SAR Image Analysis Techniques

Session Co-Chairs: Francisco Loppez-Dekker, German Aerospace Center (DLR); Franz Meyer, University of Alaska Fairbanks

WEP.PG.1 Board PG.1 **A TENSOR VOTING APPROACH TO DARK SPOT DETECTION IN RADARSAT-1 INTENSITY IMAGERY**
Haiyan Guan, Nanjing University of Information Science and Technology, China; Yongtao Yu, Jonathan Li, Xiamen University, China

WEP.PG.2 Board PG.2 **A HYBRID SCHEME FOR COMPENSATING IONOSPHERIC SCINTILLATION EFFECT ON SPACEBORNE P-BAND SAR**
Wei Guo, Jie Chen, Zhuo Li, Beihang University, China

WEP.PG.3 Board PG.3 **AN AUTOMATIC AND PROGRAMMABLE OPTICAL SAR DATA PROCESSOR**
Chaobo Lin, Huanglong Wang, Yesheng Gao, Kaizhi Wang, Xingzhao Liu, Shanghai Jiao Tong University, China

WEP.PG.4 Board PG.4 **NON-LOCAL MEANS SAR DESPECKLING BASED ON SCATTERING**
Gerardo Di Martino, Alessio Di Simone, Antonio Iodice, Daniele Riccio, Giuseppe Ruello, Università di Napoli Federico II, Italy

WEP.PG.5 Board PG.5 **JEM-LINE TRACKING IN ISAR AIRBORNE RADAR DATA OF FLYING AIRCRAFTS FOR ENGINE DETECION**
Niccolò Ricardi, Fabio Dell'Acqua, University of Pavia, Italy; Angelo Aprile, Selex ES, Italy

WEP.PG.6 Board PG.6 **THREE-ANTENNA MIMO GMTI SAR USING DISTINCT CARRIER FREQUENCIES**
Wen-Qin Wang, Imperial College London, United Kingdom

WEP.PG.7 Board PG.7 **ANALYTIC ESTIMATION PERFORMANCE BOUNDS OF DOWNWARD-LOOKING LINEAR ARRAY 3-D SAR IMAGING BASED ON COMPRESSIVE SENSING**
Siqian Zhang, Yutao Zhu, Gangyao Kuang, Lingjun Zhao, National University of Defense Technology, China

WEP.PG.8 Board PG.8 **SAR IMAGE COMPRESSION BASED ON SPARSITY**
Alessandra Budillon, Gilda Schirinzi, University of Naples Parthenope, Italy

WEP.PG.9 Board PG.9 **AN ENCOUNTER WITH PURSUIT MONOSTATIC APPLICATIONS OF TANDEM-X MISSION**
Parivash Lumsdon, Michael Schlund, Felicitas von Poncet, Jürgen Janoth, Diana Weihing, Lutz Petrat, Airbus Defence and Space, Germany

WEP.PG.10 Board PG.10 **THE ASCENSION ISLAND EXPERIMENT: MEASUREMENT OF IONOSPHERIC SCINTILLATION EFFECTS ON PALSAR-2**
David P. Belcher, Paul S. Cannon, Birmingham University, United Kingdom; Anders Gustavsson, Swedish Defence Research Agency (FOI), Sweden

WEP.PG.11 Board PG.11 **WIDE ANGLE RADAR IMAGING UNDER LOW SNR VIA SPARSITY ENHANCED NON-NEGATIVE MATRIX FACTORIZATION**
Ran Xu, Yachao Li, Mengdao Xing, Xidian University, China

POLSAR Applications I

Session Co-Chairs: Tom Ainsworth, Naval Research Laboratory; Hiroyoshi Yamada, Niigata University

WEP.PH.1 Board PH.1 **IDENTIFICATION OF RICE PADDY FIELDS FROM MULTITEMPORAL POLARIMETRIC SAR IMAGES BY SCATTERING MATRIX DECOMPOSITION**
K. T. Fan, Y. S. Chen, C. W. Lin, Y. C. Tzeng, National United University, Taiwan

WEP.PH.2 Board PH.2 **SURFACE PARAMETER INVERSION SCHEME OVER AGRICULTURAL FIELDS WITH CROP RESIDUES AND UNDER LOW VEGETATION COVER FROM RADARSAT-2 IMAGERY**
Xiaodong Huang, Jinfei Wang, Western University, Canada; Jiali Shang, Agriculture and Agri-Food Canada, Canada

WEP.PH.3 Board PH.3 **ON THE ESTIMATION OF AGRICULTURAL CROP HEIGHT FROM POL-INSAR DATA**
Manuele Pichierri, ETH Zurich, Switzerland; Irena Hajnsek, German Aerospace Center (DLR) / ETH Zurich, Germany

WEP.PH.4 Board PH.4 **TEMPORAL ANALYSIS OF DIFFERENT CROPS USING QUAD-POL RADARSAT-2 DATA**
Vineet Kumar, Y. S. Rao, Indian Institute of Technology Bombay, India

WEP.PH.5 Board PH.5 **STATISTICAL HYPOTHESIS TEST FOR MARITIME PINE FOREST SAR IMAGES CLASSIFICATION BASED ON THE GEODESIC DISTANCE**
Ioana Ilea, Université de Bordeaux, Technical Univeristy of Cluj-Napoca, France; Lionel Bombrun, Christian Germain, Université de Bordeaux, France; Isabelle Champion, INRA, UMR 1391 ISPA, France; Romulus Terebes, Monica Borda, Technical University of Cluj-Napoca, Romania

WEP.PH.6 Board PH.6 **EFFECT OF THE INCIDENCE ANGLE IN THE LAND COVER CLASSIFICATION USING POLARIMETRIC RADARSAT-2 IMAGES**
Alejandro Monsivais-Huertero, Instituto Politécnico Nacional, Mexico; Ramata Magagi, Kalifa Goita, Université de Sherbrooke, Canada; Jose Carlos Jimenez-Escalona, Instituto Politécnico Nacional, Mexico; Jose Mauricio Galeana-Pizana, Centro de Investigación en Geografía y Geomática "Ing. Jorge L. Tamayo", Mexico

WEP.PH.7 Board PH.7 **PATTERN ANALYSIS OF MINISAR DATA FOR DIFFERENTIATION OF ICY CRATERS IN LUNAR SURFACE**
Pooja Mishra, Indian Institute of Information Technology Allahabad, India; Shailesh Kumar, Indian Institute of Technology Roorkee, India; Keshava P Singh, Indian Institute of Technology, BHU, India; Dharmendra Singh, Indian Institute of Technology Roorkee, India; Navin Singh Rajput, Indian Institute of Technology, BHU, India

WEP.PH.8 Board PH.8 **BUILDING COGNITION METHOD BASED ON HUMAN IMAGES COGNITION MECHANISM IN HIGH RESOLUTION POLSAR IMAGES**
Bin Zou, Yuying Zhang, Harbin Institute of Technology, China; Chengyi Wang, Forestry Research Institute of Heilongjang Province, China; Yan Cheng, Product Quality Supervision and Inspection Institute of Harbin,, China

WEP.PH.9 Board PH.9 **URBAN AREAS DETECTION USING POLARIMETRIC SAR IMAGES**
Boussad Azmedroub, Mounira Ouarzeddine, University of Science and Technology Houari Boumediene, Algeria

WEP.PH.10 Board PH.10 **ANALYSIS OF THE HYBRID-POLARITY SAR ARCHITECTURE FOR OIL SPILL OBSERVATION**
Andrea Buono, Ferdinando Nunziata, Maurizio Migliaccio, Università Parthenope, Italy

WEP.PH.11 Board PH.11 **DUAL-POLARIMETRIC FEATURE EXTRACTION AND EVALUATION FOR OIL SPILL DETECTION: A NEAR REAL TIME PERSPECTIVE**
Suman Singha, Domenico Velotto, Susanne Lehner, German Aerospace Center (DLR), Germany

WEP.PH.12 Board PH.12 **OIL SLICKS DETECTION USING A POLARIMETRIC REGION CLASSIFIER**
Patrícia Genovez, Corina da C. Freitas, Sidnei Sant'anna, Brazilian National Institute for Space Research - INPE, Brazil; Cristina Bentz, Petrobras Research Center - CENPES, Brazil; João Lorenzzetti, Brazilian National Institute for Space Research - INPE, Brazil

Applications in SAR and Radar Remote Sensing

Session Co-Chairs: Simonetta Paloscia, IFAC-CNR; Fabio Fascetti, Sapienza Univ. of Rome

WEP.PI.1 Board PI.1
AUTOMATIC TARGET RECOGNITION METHOD BASED ON POLSAR IMAGES WITH CIRCULAR POLARIMETRIC BASIS CONVERSION
Shouhei Ohno, NEC Corp., Japan; Shouhei Kidera, Tetsuo Kirimoto, The University of Electro-Communications, Japan

WEP.PI.2 Board PI.2
MOVING TARGETS DETECTION AND PARAMETERS ESTIMATION FOR DUAL-CHANNEL WAS RADAR
Mingjie Zheng, Lili Hou, Li-Juan Qi, Robert Wang, Institute of Electronics, Chinese Academy of Sciences, China

WEP.PI.3 Board PI.3
CONCEPT AND PERFORMANCE ANALYSIS OF MELISSA MIMO GMTI
Giovanni Marino, Dario Tarchi, Vladimir Kyovtorov, Joint Research Centre, Italy; Jorge Figueiredo-Morgado, Pier Francesco Sammartino, JRC, Italy

WEP.PI.4 Board PI.4
SAR-BASED SHIP ROUTE ESTIMATION BY WAKE COMPONENTS DETECTION AND CLASSIFICATION
Maria Daniela Graziano, University of Naples, Italy

WEP.PI.5 Board PI.5
SPARSE MAXIMUM A POSTERIOR ALGORITHM FOR HIGH ANGULAR RESOLUTION OF SCANNING RADAR
Yin Zhang, Yulin Huang, Yuebo Zha, Jianyu Yang, University of Electronic Science and Technology of China, China

WEP.PI.6 Board PI.6
AN APPROACH FOR SHADOW ENHANCEMENT ABOUT TALL AND NARROW TARGETS IN SAR IMAGES
Yueting Zhang, Fangfang Li, Qi Liu, Chi-Biao Ding, Xiaolan Qiu, Institute of Electronics, Chinese Academy of Sciences, China

WEP.PI.7 Board PI.7
OIL SLICK DETECTABILITY ALONG THE RANGE OF LARGE SWATH SAR IMAGES
Marco Cavagnero, Walter Biamino, Maria Borasi, Lorenza Di Matteo, Paolo Trivero, Università del Piemonte Orientale, Italy

WEP.PI.8 Board PI.8
A NOVEL APPROACH TO BUILDING COLLAPSE DETECTION FROM POST-SEISMIC POLARIMETRIC SAR IMAGERY BY USING OPTIMIZATION OF POLARIMETRIC CONTRAST ENHANCEMENT
Haizhen Zhang, Qing Wang, Qiming Zeng, Jian Jiao, Peking University, China

WEP.PI.9 Board PI.9
AUTOMATIC TARGET RECOGNITION IN SAR IMAGERY USING PULSE-COUPLED NEURAL NETWORK SEGMENTATION CASCADED WITH VIRTUAL TRAINING DATA GENERATION CSOM-BASED CLASSIFIER
Victor-Emil Neagoe, Serban-Vasile Carata, Adrian-Dumitru Ciotec, Politehnica University of Bucharest, Romania

WEP.PI.10 Board PI.10
TRANSFORMATION AND TEXTURE BASED FEATURES IN TERRASAR-X DATA CLASSIFICATION FOR ENVIRONMENTAL MONITORING
Teemu Kumpumäki, Tarmo Lipping, Tampere University of Technology, Finland

WEP.PI.11 Board PI.11
COMPARISON OF SENTINEL-1 AND TERRASAR-X FOR SHIP DETECTION
Domenico Velotto, Carlos Bentes, Björn Tings, Susanne Lehner, German Aerospace Center (DLR), Germany

WEP.PI.12 Board PI.12
AN EFFICIENT USE OF RANDOM FOREST TECHNIQUE FOR SAR DATA CLASSIFICATION
Shruti Gupta, Dharmendra Singh, Indian Institute of Technology Roorkee, India; Keshava P Singh, Indian Institute of Technology, BHU, India; Sandeep Kumar, Indian Institute of Technology Roorkee, India

Image and Data Fusion III

Session Co-Chairs: Christian Bignami, INGV; Pierfrancesco Lombardo, Univ. Roma "La Sapienza"

WEP.PJ.1 Board PJ.1
HYPERSPECTRAL DATA MULTI-SHARPENING BASED ON LINEAR-QUADRATIC NONNEGATIVE MATRIX FACTORIZATION
Fatima Zohra Benhalouche, Université des Sciences et de la Technologie, Algeria; Moussa Sofiane Karoui, Centre des Techniques Spatiales, Algeria; Yannick Deville, Institut de Recherche en Astrophysique et Planétologie, Université de Toulouse, UPS-OMP, CNRS, France; Abdelaziz Ouamri, Université des Sciences et de la Technologie, Algeria

WEP.PJ.2 Board PJ.2
IDENTIFICATION AND DELINEATION OF INDIVIDUAL TREE CROWNS USING LIDAR AND MULTISPECTRAL DATA FUSION
Linda Gulbe, Ventspils University College, Latvia

WEP.PJ.3 Board PJ.3
VHR TIME-SERIES GENERATION BY PREDICTION AND FUSION OF MULTI-SENSOR IMAGES
Yady Tatiana Solano Correa, Fondazione Bruno Kessler - University of Trento, Italy; Francesca Bovolo, Fondazione Bruno Kessler, Italy; Lorenzo Bruzzone, University of Trento, Italy

WEP.PJ.4 Board PJ.4
ASSESSMENT OF PAN-SHARPENING METHODS APPLIED TO WORLDVIEW-2 IMAGE FUSION
Hui Li, Linghai Jing, Yunwei Tang, Qingjie Liu, Haifeng Ding, Zhongchang Sun, Yu Chen, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China

WEP.PJ.5 Board PJ.5
SAR, OPTICAL AND LIDAR DATA FUSION FOR THE HIGH RESOLUTION MAPPING OF NATURAL PROTECTED AREAS
Raffaella Guida, University of Surrey, United Kingdom; Francisco Javier Marcello Ruiz, Francisco Eugenio González, Universidad de Las Palmas de Gran Canaria, Spain

WEP.PJ.6 Board PJ.6
SUB-BLOCK PCA-WAVELET IMAGE SHARPENING APPROACH FOR HYPERSPECTRAL IMAGES
Jianying Sun, Qunbo Lv, Zheng Tan, Academy of Opto-Electronics, Chinese Academy of Sciences, China; Jihao Yin, School of Astronautics, Beihang University, China

WEP.PJ.7 Board PJ.7
HYPERSPECTRAL IMAGE INPAINTING WITH TENSOR COMPLETION MODEL
Qiangqiang Yuan, Jing Sun, Wuhan University, China

WEP.PJ.8 Board PJ.8
MISSING AREA RECONSTRUCTION OF REMOTE SENSING IMAGE WITH GUIDED FILTER
Qiangqiang Yuan, Mingyue Zhang, Shengyu Zhang, Wuhan University, China

WEP.PJ.9 Board PJ.9
FUSION OF MULTISPECTRAL SATELLITE IMAGE BY QUASI MONTE CARLO SAMPLING METHODS
Mohamed Khider, Soumya Ourabia, Youcef Smara, USTHB, Algeria

WEP.PJ.10 Board PJ.10
USING MULTI-MODAL SENSOR FUSION AND EXTRAPOLATION TECHNIQUES TO ESTIMATE THE FOREST HEIGHT AND BIOMASS IN THE CANADIAN BOREAL FOREST
Michael Benson, Leland Pierce, Kamal Sarabandi, University of Michigan, United States

WEP.PJ.11 Board PJ.11
COKRIGING METHOD FOR SPATIO-TEMPORAL ASSIMILATION OF MULTI-SCALE SATELLITE DATA
Hongxing Liu, Bo Yang, Emily Kang, University of Cincinnati, United States

Forest Vegetation III

Session Chair: Jose Moreno, Univ. Valencia

WEP.PK.1 Board PK.1 **DOWNSCALING OF COARSE RESOLUTION LAI PRODUCTS TO ACHIEVE BOTH HIGH SPATIAL AND TEMPORAL RESOLUTION FOR REGIONS OF INTEREST**
Rasmus Houborg, Matthew F. McCabe, King Abdullah University of Science and Technology, Saudi Arabia; Feng Gao, United States Department of Agriculture, United States

WEP.PK.2 Board PK.2 **ESTIMATING FOREST AGE AND SITE PRODUCTIVITY USING TIME SERIES OF 3D REMOTE SENSING DATA**
Jörgen Wallerman, Kenneth Nyström, Jonas Bohlin, Henrik J. Persson, Swedish University of Agricultural Sciences, Sweden; Maciej J. Soja, Chalmers University of Technology, Sweden; Johan E.S. Fransson, Swedish University of Agricultural Sciences, Sweden

WEP.PK.3 Board PK.3 **LOW SOIL MOISTURE AND HIGH TEMPERATURES AS INDICATORS FOR FOREST FIRE OCCURRENCE AND EXTENT ACROSS THE IBERIAN PENINSULA**
David Chaparro, Mercè Vall-llossera, María Piles, Adriano Camps, Universitat Politècnica de Catalunya, Spain; Christoph Rüdiger, Monash University, Australia

WEP.PK.4 Board PK.4 **USING VERY HIGH RESOLUTION SATELLITE IMAGERY FOR LAND COVER MAPPING IN PICO DA VARA NATURE RESERVE (S. MIGUEL ISLAND, ARCHIPELAGO OF THE AZORES, PORTUGAL)**
Artur Gil, CE3C & Azorean Biodiversity Group - University of the Azores, Portugal; Mohamed Abadi, Véodis-3D, France

WEP.PK.5 Board PK.5 **RETRIEVAL OF CANOPY WATER CONTENT USING A NEW SPECTRAL AREA INDEX METHOD**
Xiaopo Zheng, Huazhong Ren, Qiming Qin, Ling Wu, Zhongling Gao, Yuejun Sun, Jianhua Wang, Xin Ye, Peking University, China

WEP.PK.6 Board PK.6 **ASSESSING WOODY PLANT INVASIONS IN PORTUGUESE MOUNTAIN FORESTS THROUGH KNOWLEDGE-BASED OBJECT ORIENTED REMOTE SENSING**
Susana Alves, Bruno Marcos, João Honrado, Joana Vicente, University of Porto, Portugal; Richard M. Lucas, The University New South Wales, Australia; Ana Teodoro, António Monteiro, University of Porto, Portugal

WEP.PK.7 Board PK.7 **FOREST ATTRIBUTION USING K-NN METHODS WITH LANDSAT 8 IMAGERY AND FOREST FIELD PLOTS**
Andrew Haywood, Andrew Mellor, Victorian Department of Environment and Primary Industries, Australia

WEP.PK.8 Board PK.8 **GLOBAL LEAF AREA INDEX PRODUCT DERIVED FROM FY-3C/MERSI REFLECTIVE CHANNELS**
Lin Zhu, Shihao Tang, Guicai Li, National Satellite Meteorological Center, China; Yingying Zhao, Wenjie Li, College of Geoscience and Surveying Engineering, China

WEP.PK.9 Board PK.9 **FOREST CONDITION ASSESSMENT THROUGH ANALYZING RELATIONS BETWEEN METEOROLOGICAL PARAMETERS DESCRIBING CLIMATE CHANGES AND VEGETATION INDICES DERIVED FROM LOW-RESOLUTION SATELLITE DATA**
Zbigniew Bochenek, Dariusz Ziolkowski, Institute of Geodesy and Cartography, Poland; Maciej Bartold, University of Warsaw, Faculty of Geography and Regional Studies, Poland

Land Use III

Session Chair: Homa Ansari, German Aerospace Center (DLR)

WEP.PL.1 Board PL.1 **INEXPENSIVE METHOD TO ASSESS MANGROVES FOREST THROUGH THE USE OF OPEN SOURCE SOFTWARE AND DATA AVAILABLE FREELY IN PUBLIC DOMAIN**
Fatwa Ramdani, Brawijaya University, Indonesia; Sabaruddin Rahman, Hasanuddin University, Indonesia; Putri Setiani, AerialGeo, Indonesia

WEP.PL.2 Board PL.2 **BUILDING CHANGE DETECTION FOR HIGH-RESOLUTION REMOTELY SENSED IMAGES BASED ON A SEMANTIC DEPENDENCY**
Chen Zhong, Qizhi Xu, Feng Yang, Beihang University, China; Lei Hu, Jiangxi Normal University, China

WEP.PL.3 Board PL.3 **OPEN BOUNDARY DYNAMIC TIME WARPING FOR SATELLITE IMAGE TIME SERIES CLASSIFICATION**
Victor Maus, National Institute for Space Research - INPE, Brazil; Gilberto Câmara, University of Münster, Germany; Ricardo Cartaxo, Fernando M. Ramos, Alber Sanchez, Gilberto Q. Ribeiro, National Institute for Space Research - INPE, Brazil

WEP.PL.4 Board PL.4 **SMALL BASELINE SUBSET (SBAS) PIXEL DENSITY VS. GEOLOGY AND LAND USE IN SEMI-ARID REGIONS IN SYRIA**
Deodato Tapete, University of Durham/Natural Environment Research Council, United Kingdom; Francesca Cigna, Natural Environment Research Council, United Kingdom; Andrew Sowter, Stuart Marsh, University of Nottingham, United Kingdom

WEP.PL.5 Board PL.5 **HOW LAND USE FROM REMOTE SENSING IS VERY HELPFUL FOR TERRESTRIAL RADIECOLOGICAL EXPERTISE? APPLICATION TO FUKUSHIMA (JAPAN).**
Jean-Michel Métivier, Marc-André Gonze, Christophe Mourlon, Valérie Nicoulaud, Marie Simon-Cornu, IRSN, France

WEP.PL.6 Board PL.6 **IMPROVING NATIONAL GREENHOUSE GAS INVENTORIES FOR FORESTRY AND LAND USE CHANGE USING OPEN-SOURCE SOFTWARE**
Andrew Haywood, Alessio Alfonsetti, Antonia Ortmann, Darlynne Takawo, United Nations - Food and Agricultural Organisation, Fiji

WEP.PL.7 Board PL.7 **A STUDY ON THE QUALITY OF THE VEGETATION INDEX OBTAINDED FROM MODIS DATA**
Ana Teodoro, Lia Duarte, Faculty of Science, University of Porto, Portugal; Hernâni Gonçalves, CINTESIS, University of Porto, Portugal

WEP.PL.8 Board PL.8 **A REMOTE SENSING AND FUZZY MULTI-OBJECTIVE LINEAR PROGRAMMING APPROACH TO MODEL IMPACT OF LAND MANAGEMENT DECISIONS ON ECOSYSTEM SERVICES OF RANGELANDS**
Paula Blanco, Consejo Nacional de Investigaciones Cientificas y Técnicas (CONICET), Argentina; Graciela Metternicht, University of New South Wales, Australia; Hector Del Valle, Consejo Nacional de Investigaciones Cientificas y Técnicas (CONICET), Argentina; Pedro Laterra, Instituto Nacional de Tecnologia Agropecuaria - INTA, Argentina; Leonardo Hardtke, Pablo Bouza, Consejo Nacional de Investigaciones Cientificas y Técnicas (CONICET), Argentina

Crop Parameters

Session Co-Chairs: Alexandre Bouvet, Centre D'Etudes Spatiales de la Biosphère (CESBIO); Juan M. Lopez-Sanchez, University of Alicante

WEP.PM.1 Board PM.1 **MONITORING SUMMER CROPS USING TERRASAR-X AND IN SITU MULTITEMPORAL DATA IN NORTHERN ITALY**
Paolo Villa, Giacomo Fontanelli, Pasquale Imperatore, Antonio Pepe, Riccardo Lanari, Daniela Stroppiana, CNR-IREA, Italy

WEP.PM.2 Board PM.2 **USEFULNESS ASSESSMENT OF POLARIMETRIC PARAMETERS FOR LINE EXTRACTION FROM AGRICULTURAL AREAS**
Minyoung Jung, Junho Yeom, Yongil Kim, Seoul National University, Republic of Korea

WEP.PM.3 Board PM.3 **C–BAND POLARIMETRIC SAR MEASUREMENTS FOR THE MONITORING OF GROWTH STAGES OF CORN FIELDS IN THE PIANA DEL SELE ZONE**
Ferdinando Nunziata, Maurizio Migliaccio, Università di Napoli Parthenope, Italy; Juan Manuel López Sánchez, University of Alicante, Spain; Lucio Mascolo, Università di Napoli Pathenope, Italy; Giuseppe Mazzarella, Università di Cagliari, Italy; Guido D'Urso, Università degli Studi di Napoli Federico II, Italy

WEP.PM.4 Board PM.4 **SINERGISTIC USE OF RADAR AND OPTICAL DATA FOR AGRICULTURAL DATA PRODUCTS ASSIMILATION: A CASE STUDY IN CENTRAL ITALY**
Roberta Anniballe, Università di Roma "La Sapienza", Italy; Raffaele Casa, Fabio Castaldi, Università degli Studi della Tuscia, Italy; Fabio Fascetti, Lorenzo Fusilli, Università di Roma "La Sapienza", Italy; Wenjiang Huang, Key Laboratory of Digital Earth Science, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China; Giovanni Laneve, Pablo Marzialetti, Università di Roma "La Sapienza", Italy; Angelo Palombo, Simone Pascucci, CNR IMAA, Italy; Nazzareno Pierdicca, Università di Roma "La Sapienza", Italy; Stefano Pignatti, CNR IMAA, Italy; Xie Qiaoyun, Key Laboratory of Digital Earth Science, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China; Federico Santini, CNR IMAA, Italy; Paolo Cosmo Silvestro, Università degli Studi della Tuscia, Italy; Hao Yang, Guijng Yang, National Engineering Research Center for Information Technology in Agriculture Beijing Academy of Agriculture and Forestry Sciences, China

WEP.PM.5 Board PM.5 **LEAF AREA INDEX (LAI) ESTIMATION USING MULTI-POLARIZATION RADAR DATA**
Mehdi Hosseini, Heather Mcnairn, Amine Merzouki, Anna Pacheco, Agriculture and Agri-Food Canada, Canada

WEP.PM.6 Board PM.6 **PARTICLE FILTER APPROACH FOR CROP PHENOLOGICAL STAGE ESTIMATION USING TIME SERIES OF NDVI IMAGES**
Caleb Gustavo De Bernardis, Fernando Vicente-Guijalba, Tomas Martinez-Marin, Juan Manuel López Sánchez, University of Alicante, Spain

WEP.PM.7 Board PM.7 **VALIDATION OF MODIS AND GEOV1 TIME SERIES LAI PRODUCTS OVER PADDY RICE FIELDS IN NORTHEASTERN CHINA**
Hongliang Fang, Shanshan Wei, Wenjuan Li, Tao Sun, Chinese Academy of Sciences, China

WEP.PM.8 Board PM.8 **INTERCOMPARISON OF INSTRUMENTS FOR MEASURING LEAF AREA INDEX OVER RICE**
Manuel Campos-Taberner, Francisco Javier García-Haro, Universitat de València, Spain; Roberto Confalonieri, Università degli Studi di Milano, Italy; Beatriz Martínez, Álvaro Moreno, Sergio Sánchez-Ruiz, María Amparo Gilabert, Universitat de València, Spain; Fernando Camacho, EOLAB, Spain; Mirco Boschetti, Lorenzo Busetto, Istituto di Rilevamento Elettromagnetico dell'Ambiente, Italy

WEP.PM.9 Board PM.9 **MULTI-SCALE, MULTI-STAGE INVERSION METHOD FOR RETRIEVAL OF LAI**
Xiaohua Zhu, Chuanrong Li, Zhiwei Zhang, Yongsheng Zhou, Academy of Opto-Electronics, Chinese Academy of Sciences, China

WEP.PM.10 Board PM.10 **LINE-BASED PADDY BOUNDARY EXTRACTION USING THE RAPIDEYE SATELLITE IMAGE**
Junho Yeom, Minyoung Jung, Yongil Kim, Seoul National University, Republic of Korea

WEP.PM.11 Board PM.11 **DETECTING AND CLASSIFYING VINE VARIETIES FROM VERY HIGH RESOLUTION MULTISPECTRAL DATA**
Christina Karakizi, Konstantinos Karantzalos, National Technical University of Athens, Greece

WEP.PM.12 Board PM.12 **AGRICULTURAL MONITORING ASSESSMENT BASED ON LOW SPATIAL AND HIGH TEMPORAL RESOLUTION SATELLITE: A COMPARISON OF AVHRR AND MODIS**
Rachel Scrivani, Renata Gonçalves, Jurandir Zullo Jr., University of Campinas, Brazil; Luciana Romani, Embrapa Agriculture Informatics, Brazil

Forest Monitoring II

Session Co-Chairs: Wooil Moon, University of Manitoba; Francesco Nutini, National Research Council

WEP.PN.1 Board PN.1 **INTRASPECIFIC ROOT COMPETITION OF CARAGANA MICROPHYLLA DOMINATES ITS ABOVE-GROUND POPULATION SELF-THINNING: EVIDENCES FROM GPR**
Cui Xihong, Xuehong Chen, Jin Chen, Xin Cao, Beijing Normal University, China

WEP.PN.2 Board PN.2 **DIRECTIONAL EFFECT OF CANOPY SCALE SUN-INDUCED CHLOROPHYLL FLUORESCENCE: THEORETICAL CONSIDERATION IN A 3-D RADIATIVE TRANSFER MODEL**
Hideki Kobayashi, Japan Agency for Marine-Earth Science and Technology, Japan

WEP.PN.3 Board PN.3 **ASSIMILATION OF SATELLITE OBSERVATIONS FOR THE ESTIMATION OF SAVANNA GROSS PRIMARY PRODUCTION**
Michele Meroni, Felix Rembold, Joint Research Centre, European Commission, Italy; Mirco Migliavacca, Max Planck Institute for Biogeochemistry, Germany; Jonas Ardö, Lund University, Sweden

WEP.PN.4 Board PN.4 **REVERSAL IN GLOBAL TERRESTRIAL BIOMASS LOSS SINCE 2003**
Yi Liu, University of New South Wales, Australia; Albert van Dijk, Australian National University, Australia; Richard de Jeu, VU University Amsterdam, Netherlands; Josep Canadell, Global Carbon Project and CSIRO, Australia; Matthew F. McCabe, King Abdullah University of Science and Technology, Saudi Arabia; Jason Evans, University of New South Wales, Australia; Guojie Wang, Nanjing University of Information Science and Technology, China

Geology and Geomorphology

Session Chair: Jin-King Liu, LIDAR Technology Co., Ltd.

WEP.PN.7 Board PN.7 **MINERALOGICAL MAPPING OF THE UPPER BENUE TROUGH NORTHEASTERN NIGERIA FROM MULTISPECTRAL REMOTELY SENSED DATA USING LINEAR SPECTRAL UNMIXING**
Bello Idi, DEPARTMENT OF PURE AND APPLIED PHYSICS, Nigeria; Mustapha Aliyu, UNIVERSITI TEKNOLOGI MALAYSIA, Malaysia

WEP.PN.8 Board PN.8 **EXPLORING THE COMPLEMENTARITY OF SWIR AND TIR FOR AIRBORNE HYPERSPECTRAL MINERAL MAPPING**
Babatunde Fagbohun, Christoph Hecker, Frank van Ruitenbeek, University of Twente, Netherlands; Dean Riley, Booz Allen Hamilton, United States; John Dilles, Oregon State University, United States

WEP.PN.9 Board PN.9 **MAPPING SURFICIAL MINERALS AT HIGH LATITUDES: THE USGS 2014 IMAGING SPECTROMETER DATA COLLECTION IN ALASKA**
Raymond Kokaly, Todd M. Hoefen, Garth Graham, Karen Kelley, Michaela Johnson, Bernard Hubbard, Richard Goldfarb, U.S. Geological Survey, United States

WEP.PN.10 Board PN.10 **ULTRAVIOLET TO NEAR-INFRARED SPECTROSCOPY OF REE-BEARING MATERIALS**
Todd M. Hoefen, Keith E. Livo, Stuart A. Giles, Gregg A. Swayze, U.S. Geological Survey, United States

WEP.PN.11 Board PN.11 **MULTI TEMPORAL AND MULTI SPECTRAL IMAGES BASED CHANGE DETECTION OF MINE WASTES IN NORTHERN TUNISIA**
Nouha Mezned, Belgacem Dkhala, Saadi Abdeljaouad, Sciences Faculty of Tunis, Tunisia

Sea Ice I

Session Co-Chairs: Saibun Tjuatja, University of Texas at Arlington; Charles Luther, Geoscience and Remote Sensing Society

WEP.PO.1 Board PO.1
INTERFEROMETRIC ANALYSIS OF QUAD-POL SAR DATA FOR OBSERVATION OF SEA ICE DYNAMICS
Jae Hun Kim, Yonsei University, Republic of Korea; Jeong-Won Park, Sang-Hoon Hong, Korea Polar Research Institute, Republic of Korea; Joong-Sun Won, Yonsei University, Republic of Korea

WEP.PO.2 Board PO.2
INTERPRETATION OF THEORETICAL SCATTERING MECHANISMS EXTRACTED FROM POLARIMETRIC TARGET DECOMPOSITION ALGORITHMS FOR SEA ICE APPLICATIONS
Eric Hudier, Simon Tolszczuk-Leclerc, UQAR, Canada

WEP.PO.3 Board PO.3
ON THE RELATION BETWEEN POLARIMETRIC SYNTHETIC APERTURE RADAR (SAR) FEATURES AND SEA ICE MELT POND FRACTION
Ane S. Fors, Anthony Paul Doulgeris, UiT-The Arctic University of Norway, Norway; Angelika H. H. Renner, Institute of Marine Research, Norway; Camilla Brekke, UiT-The Arctic University of Norway, Norway; Sebastian Gerland, Norwegian Polar Institute, Norway

WEP.PO.4 Board PO.4
COMPARING AUTOMATED SEA ICE CLASSIFICATION ON SINGLE-POL AND DUAL-POL TERRASAR-X DATA
Rudolf Ressel, Anja Frost, Susanne Lehner, German Aerospace Center (DLR), Germany

WEP.PO.5 Board PO.5
A NEW ALGORITHM FOR ICEBERG DETECTION WITH DUAL-POLARIMETRIC SAR DATA
Armando Marino, Open University/ETH Zurich, United Kingdom; Romina Rulli, ETH Zurich, Switzerland; Christine Wesche, AWI, Germany; Irena Hajnsek, ETH Zurich/DLR, Germany

WEP.PO.6 Board PO.6
SPECTRAL CHARACTERISTICS ANALYSIS OF OIL FILM AMONG SEA ICE
Bingxin Liu, Weihua Zhu, Ying Li, Dalian Maritime University, China

WEP.PO.7 Board PO.7
MITIGATION OF ATMOSPHERIC PHASE DELAY IN INSAR TIME SERIES USING ERA-INTERIM MODEL, GPS AND MODIS DATA: APPLICATION TO THE PERMAFROST DEFORMATION IN HURD PENINSULA, ANTARCTICA
Ana Rita Reis, Joao Catalao, IDL, Instituto D. Luiz, Portugal; Goncalo Vieira, CEG/IGOT-University of Lisbon, Portugal; Giovanni Nico, CNR-IAC, Portugal

WEP.PO.8 Board PO.8
DISTRIBUTION OF GLACIAL AND PERIGLACIAL FEATURES WITHIN ICE-FREE AREAS SURROUNDING MAXWELL BAY (SOUTH SHETLAND ISLANDS) USING POLARIMETRIC RADARSAT-2 DATA
Thomas Schmid, CIEMAT, Spain; Jerónimo López-Martínez, Universidad Autónoma de Madrid, Spain; Stéphane Guillaso, Olivier D'Hondt, Technische Universität Berlin, Germany; Magaly Koch, Boston University, United States; Sandra Mink, Ana Nieto, Universidad Autónoma de Madrid, Spain; Enrique Serrano, Universidad de Valladolid, Spain

WEP.PO.9 Board PO.9
CURVELET BASED FEATURE EXTRACTION OF DYNAMIC ICE FROM SAR IMAGERY
Jiange Liu, Northwestern Polytechnical University, China; K.Andrea Scott, Paul Fieguth, University of Waterloo, Canada

WEP.PO.10 Board PO.10
RELATIVE UNCERTAINTY AND DAILY VARIABILITY OF SEA ICE CONCENTRATION RETRIEVED WITH THE NASA TEAM 2 ALGORITHM
Ludovic Brucker, NASA GSFC / USRA GESTAR, United States; Donald J. Cavalieri, Alvaro Ivanoff, Walter Meier, Thorsten Markus, NASA Goddard Space Flight Center, United States

WEP.PO.11 Board PO.11
OPTIMAL ESTIMATION OF ICE, OCEAN AND ATMOSPHERE PARAMETERS FROM AMSR MICROWAVE RADIOMETER DATA
Leif Toudal Pedersen, Rasmus Tage Tonboe, Danish Meteorological Instutute, Denmark

Microwave Radiometer Instruments and Calibration II

Session Co-Chairs: Rachael Kroodsma, NASA Goddard Space Flight Center; Edward Kim, NASA

WEP.PP.1 Board PP.1
IMAGING SIMULATION OF THE MICROWAVE RADIOMETER ABOARD THE MICAP FOR SEA SURFACE SALINITY MEASUREMENT
Cheng Zhang, Hao Liu, Lin Wu, Ji Wu, National Space Science Center, Chinese Academy of Sciences, China

WEP.PP.2 Board PP.2
TEST METHODOLOGY FOR THE GEOSTAR CORRELATOR
David Austerberry, University of Michigan, United States; Todd C. Gaier, Pekka Kangaslahti, Bjorn Lambrigtsen, NASA Jet Propulsion Laboratory, United States; Darren McKague, University of Michigan, United States; Isaac Ramos, NASA Jet Propulsion Laboratory, United States; Christopher S. Ruf, University of Michigan, United States; Alan B. Tanner, NASA Jet Propulsion Laboratory, United States

WEP.PP.3 Board PP.3
TARGET BRIGHTNESS TEMPERATURE SIMULATION AND ANALYSIS FOR THE GEOSTATIONARY INTERFEROMETRIC MICROWAVE SOUNDER (GIMS)
Ying Zhang, University of Chinese Academy of Sciences, China; Hao Liu, Ji Wu, Jieying He, Cheng Zhang, Center for Space Science and Applied Research, Chinese Academy of Sciences, China

WEP.PP.4 Board PP.4
SOIL MOISTURE ACTIVE/PASSIVE (SMAP) RADIOMETER LEVEL 1B DATA PRODUCT VALIDATION
Jinzheng Peng, Universities Space Research Association, United States; Giovanni De Amici, NASA Goddard Space Flight Center, United States; Priscilla N. Mohammed, Morgan State University, United States; Edward Kim, Jeffrey R. Piepmeier, NASA Goddard Space Flight Center, United States

WEP.PP.5 Board PP.5
ROTATING MIRRORED APERTURE SYNTHESIS (RMAS) FOR PASSIVE MICROWAVE REMOTE SENSING
Qingxia Li, Ke Chen, Wei Guo, Yufang Li, Haofeng Dou, Huazhong University of Science and Technology, China

WEP.PP.6 Board PP.6
AN ADDITIVE MASK CORRECTION TO REDUCE SYSTEMATIC FLOOR ERROR IN IMAGING RADIOMETRY BY APERTURE SYNTHESIS
Eric Anterrieu, IRAP, Université de Toulouse & CNRS, France; Ali Khazâal, François Cabot, CESBIO, Université de Toulouse, CNRS, CNES & IRD, France; Martin Suess, European Space Agency, ESTEC, Netherlands

WEP.PP.7 Board PP.7
SMAP L-BAND MICROWAVE RADIOMETER BUILT TO MITIGATE TERRESTRIAL RADIO FREQUENCY INTERFERENCE
Robert Estep, James Medeiros, Derek Hudson, Kevin Horgan, Clifford Brambora, Jeffrey R. Piepmeier, NASA Goddard Space Flight Center, United States

WEP.PP.8 Board PP.8
SIMULATIONS TO CHARACTERIZE A PASSIVE MICROWAVE BLACKBODY DESIGN
Derek Houtz, University of Colorado, United States; David Walker, Dazhen Gu, National Institute of Standards and Technology, United States

WEP.PP.9 Board PP.9
WIDEBAND DIGITAL SIGNAL PROCESSING TEST-BED FOR RADIOMETRIC RFI MITIGATION
Damon Bradley, Adam Schoenwald, Mark Wong, Priscilla N. Mohammed, Jeffrey R. Piepmeier, NASA Goddard Space Flight Center, United States

Optical Sensor Calibration, Data Processing and Applications

Session Co-Chairs: Martin Bachmann, German Remote Sensing Data Center (DLR-DFD); Josée Lévesque, Defense R&D Canada

WEP.PQ.1 Board PQ.1 **BLIND COMPRESSIVE HYPER-SPECTRAL IMAGING**
Hemant Kumar Aggarwal, Angshul Majumdar, Indraprastha Institute of Information Technology-Delhi, India

WEP.PQ.2 Board PQ.2 **COMPRESSION RATIO PREDICTION IN LOSSY COMPRESSION OF NOISY IMAGES**
Alexander N. Zemliachenko, Sergey K. Abramov, Vladimir V. Lukin, KhAI - National Aerospace University, Ukraine; Benoît Vozel, Kacem Chehdi, University of Rennes 1 - Enssat, France

WEP.PQ.3 Board PQ.3 **ON NOISE PROPERTIES IN HYPERSPECTRAL IMAGES**
Sergey K. Abramov, Mykhail L. Uss, Victoriya V. Abramova, Vladimir V. Lukin, KhAI - National Aerospace University, Ukraine; Benoît Vozel, Kacem Chehdi, University of Rennes 1 - Enssat, France

WEP.PQ.4 Board PQ.4 **ELIMINATION OF UNWANTED ANOMALIES IN A HYPERSPECTRAL IMAGE USING MODIFIED SUBSPACE RX ALGORITHM**
Poyraz Umut Hatipoglu, Levent Ozparlak, Havelsan Incorporatoin, Turkey

WEP.PQ.5 Board PQ.5 **DESTRIPING OF HYPERION IMAGES USING LOW-PASS-FILTER AND LOCAL-BRIGHTNESS-NORMALIZATION**
Mahendra Kumar Pal, Alok Porwal, Indian Institute of Technology Bombay, India

WEP.PQ.6 Board PQ.6 **DETECTOR ANOMALY DETECTION AND STRIPE CORRECTION OF HYPERSPECTRAL DATA**
Daisuke Niina, Naoto Yokoya, Akira Iwasaki, University of Tokyo, Japan

WEP.PQ.7 Board PQ.7 **AIRBORNE THERMAL INFRAED HYPERSPECTRAL IMAGING FOR MINERAL MAPPING**
Marc-André Gagnon, Pierre Tremblay, Simon Savary, Marc Duval, Vincent Farley, Philippe Lagueux, Éric Guyot, Martin Chamberland, Telops, Canada

WEP.PQ.8 Board PQ.8 **COMPARISON OF TWO REPRESENTATIVE LAND SURFACE TEMPERATURE AND EMISSIVITY SEPARATION METHODS FOR HYPERSPECTRAL INFRARED SPECTRORADIOMETER DATA**
Hua Wu, Institute of Geographical Sciences and Natural Resources Research, China; Zhao-Liang Li, Guilin University of Technology, China; Bo-Hui Tang, Ronglin Tang, Institute of Geographical Sciences and Natural Resources Research, China

WEP.PQ.9 Board PQ.9 **THE HEALTH STUDY OF SEAGRASS AND CORAL REFF BY UNDERWATER HYPERSPECTRAL IMAGER**
Long-Jeng Lee, Instrument Technology Research Center, Taiwan; Charnsmorn Hwang, Chih-Hua Chang, National Cheng Kung University, Taiwan; Michael Burch, Milena Fernandes, South Australian Water Corporation, Australia

WEP.PQ.10 Board PQ.10 **TURNING MOBILE LASER SCANNING POINTS INTO 2D/3D ON-ROAD OBJECT MODELS: CURRENT STATUS**
Zongliang Zhang, Ming Cheng, Xiamen University, China; Xinqu Chen, Menglan Zhou, Yifei Chen, Jonathan Li, The University of Waterloo, Canada; Hongshan Nie, Hunan Intelligent Things Technology Co., Ltd., China

Monitoring Natural Disaster: Subsidence, Deformation and Displacement II

Session Chair: Daniele Perissin, Purdue University

WEP.PR.1 Board PR.1 **MEASURING DEFORMATIONS DUE TO LIQUEFACTION IN URAYASU CITY, JAPAN USING PERMENANT SCATTERERS**
Tamer ElGharbawi, Masayuki Tamura, Kyoto University, Japan

WEP.PR.2 Board PR.2 **MAPPING GROUND DEFORMATION AND FAULT ACTIVITY OVER HOUSTON-GALVESTON, TEXAS USING MULTI-TEMPORAL INSAR**
Feifei Qu, Chang'an University, China; Zhong Lu, Southern Methodist University, United States; Qin Zhang, Chang'an University, China; Gerald Bawden, U.S. Geological Survey, United States; Jin-Woo Kim, Southern Methodist University, United States; Chaoying Zhao, Chang'an University, China

WEP.PR.3 Board PR.3 **SURFACE DISPLACEMENT DUE TO THE 2014 NORTH NAGANO, JAPAN EARTHQUAKE ESTIMATED FROM DIFFERENTIAL INTERFEROMETRY TECHNIQUE WITH ALOS-2 PALSAR-2 DATA**
Fumitaka Ogushi, Takayuki Shinohara, Masashi Matsuoka, Tokyo Institute of Technology, Japan

WEP.PR.4 Board PR.4 **MONITORING AN URBAN AREA THROUGH TERRESTRIAL INSAR WITH A DISCONTINOUS APPROACH**
Guido Luzi, Michele Crosetto, Oriol Monserrat, Maria Cuevas-González, Nuria Devanthéry, Centre Tecnològic de Telecomunicacions de Catalunya CTTC, Spain

WEP.PR.5 Board PR.5 **INTERMITTENT SMALL BASELINE SUBSET (ISBAS) INSAR ANALYSIS TO MONITOR LANDSLIDES IN COSTA DELLA GAVETA, SOUTHERN ITALY**
Alessandro Novellino, University of Naples, Italy; Francesca Cigna, British Geological Survey, United Kingdom; Andrew Sowter, Moh Fifik Syafiudin, University of Nottingham, United Kingdom; Diego Di Martire, Massimo Ramondini, Domenico Calcaterra, University of Naples, Italy

WEP.PR.6 Board PR.6 **GROUND SUBSIDENCE MONITORING IN VIETNAM BY MULTI-TEMPORAL INSAR TECHNIQUE**
Quoc Cuong Tran, Institute of Geological Sciences-VAST, Viet Nam; Dinh Ho Tong Minh, IRSTEA, France; Van Trung Le, HCMUT, Viet Nam; Thuy Le Toan, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France

WEP.PR.7 Board PR.7 **A COMPARISON BETWEEN STAMPS TECHNIQUE WITH TERRASAR-X DATA AND THEODOLITE SURVEYING ON LAND DEFORMATION MONITORING (CASE STUDY: GUNUNG PASS)**
Seng Nee Toh, Lea Tien Tay, Habibah Lateh, Universiti Sains Malaysia, Malaysia

WEP.PR.8 Board PR.8 **SOIL FRACTURING IDENTIFICATION IN SOUTHERN ZONA METROPOLITANA DEL VALLE DE MEXICO BY MEANS OF MULTI-PASS INSAR AND GPR**
Gabriela Siles, Technische Universität Braunschweig, Germany; Penelope López-Quiroz, Mariano Cerca, Universidad Nacional Autonoma de Mexico, Mexico; Wolfgang Niemeier, Technische Universität Braunschweig, Germany

WEP.PR.9 Board PR.9 **DETECTION AND IMAGING OF CRACKS IN REINFORCED CONCRETE STRUCTURES USING RF TOMOGRAPHY: QUADRATIC FORWARD MODEL APPROACH**
Tadahiro Negishi, Farhad Farzami, Vittorio Picco, Danilo Erricolo, University of Illinois at Chicago, United States; Gianluca Gennarelli, Francesco Soldovieri, National Research Council, Italy; Lorenzo Lo Monte, Michael Wicks, University of Dayton, United States; Farhad Ansari, University of Illinois at Chicago, United States

Damage Mapping II

Session Co-Chairs: Salvatore Stramondo, INGV; Richard Lepage, Ecole de technologie superieure

WEP.PS.1 Board PS.1 **DAMAGE ASSESSMENT EXPLOITING REMOTE SENSING IMAGERY: REVIEW OF THE TYPHOON HAIYAN CASE STUDY**
Federico Antonietta, ITHACA, Italy; Piero Boccardo, Politecnico di Torino, Italy; Fabio Giulio Tonolo, ITHACA, Italy; Magdalena Vassileva, Politecnico di Torino, Italy

WEP.PS.2 Board PS.2 **A TRUNCATED SINGULAR VALUE DECOMPOSITION METHOD FOR ANGULAR SUPER-RESOLUTION IN SCANNING RADAR**
Yulin Huang, Yuebo Zha, Jianyu Yang, School of Electronic Engineering, University of Electronic Science and Technology of China, China

WEP.PS.3 Board PS.3 **A KNOWLEDGE-BASED METHOD FOR ROAD DAMAGE DETECTION USING HIGH-RESOLUTION REMOTE SENSING IMAGE**
Jianhua Wang, Qiming Qin, Peking University, China; Jianghua Zhao, Chinese Academy of Sciences, China; Xin Ye, Xuebin Qin, Xiucheng Yang, Jun Wang, Xiaopo Zheng, Yuejun Sun, Peking University, China

WEP.PS.4 Board PS.4 **DETECTING DAMAGED BUILDINGS CAUSED BY EARTHQUAKE USING LOCAL GRADIENT ORIENTATION ENTROPY STATISTICS METHOD**
Xin Ye, Qiming Qin, Jun Wang, Jianhua Wang, Xiucheng Yang, Xuebin Qin, Peking University, China

WEP.PS.5 Board PS.5 **FAST HAZARD MAPPING SYSTEM FOR GEOLOGICAL DISASTER EMERGENCY RESCUE SERVICES IN ZHOUQU COUNTY**
Yuan Qi, Cold and Arid Regions Environmental and Engineering Research Institute, Chinese Academy of Sciences, China; Hongtao Zhao, Gansu Academy of Science, China, China; Jinlong Zhang, Miao Fang, Cold and Arid Regions Environmental and Engineering Research Institute, Chinese Academy of Sciences, China

WEP.PS.6 Board PS.6 **MAPPING URBAN DAMAGE OF THE 2011 EAST-JAPAN EARTHQUAKE USING MULTI-TEMPORAL PALSAR IMAGES**
Masayuki Tamura, Kyoto University, Japan

WEP.PS.7 Board PS.7 **DEVELOPING A METHOD FOR URBAN DAMAGE MAPPING USING RADAR SIGNATURES OF BUILDING FOOTPRINT IN SAR IMAGERY: A CASE STUDY AFTER THE 2013 SUPER TYPHOON HAIYAN**
Bruno Adriano, Erick Mas, Shunichi Koshimura, Tohoku University, Japan; Hideomi Gokon, The University of Tokyo, Japan; Wen Liu, Chiba University, Japan; Masashi Matsuoka, Tokyo Institute of Technology, Japan

WEP.PS.8 Board PS.8 **A NEW METHOD FOR BUILDING COLLAPSE DETECTION JOINTLY USING INTERFEROMETRIC AND POLARIMETRIC INFORMATION**
Haizhen Zhang, Qing Wang, Qiming Zeng, Jian Jiao, Peking University, China

WEP.PS.9 Board PS.9 **THERMAL ANOMALY DETECTION FOR 2014 JINGGU EARTHQUAKE USING REMOTE SENSING DATA**
Yanmei Zhang, Zaisen Jiang, Ying Fang, Institute of Earthquake Science, China Earthquake Administration, China; Haiying Huang, Hubei Station for Surveying and Mapping Product Quality Supervision and Inspection, China; Xiao Cheng, Beijing Normal University, China

Atmospheric Sounding II

Session Chair: Steven Reising, Colorado State University

WEP.PT.1 Board PT.1 **OVERVIEW OF RECENT AIRBORNE FIELD CAMPAIGNS INVOLVING THE NAST-I AIRBORNE SENSOR**
Allen Larar, NASA Langley Research Center, United States; William Smith, NASA Langley Research Center / SSAI, United States; Daniel Zhou, Xu Liu, Jialin Tian, NASA Langley Research Center, United States

WEP.PT.2 Board PT.2 **CALIBRATION STRATEGIES FOR THE HIGH-FREQUENCY AIRBORNE MICROWAVE AND MILLIMETER-WAVE RADIOMETER (HAMMR) DURING THE WEST COAST FLIGHT CAMPAIGN**
Xavier Bosch-Lluis, Steven C. Reising, Colorado State University, United States; Pekka Kangaslahti, Alan B. Tanner, Shannon T. Brown, Sharmila Padmanabhan, Oliver Montes, Jet Propulsion Laboratory, United States; Thaddeus P. Johnson, Victoria D. Hadel, Karen Ng, Colorado State University, United States

WEP.PT.3 Board PT.3 **PRINCIPAL COMPONENT ANALYSIS-BASED ALGORITHM FOR RETRIEVAL OF ATMOSPHERIC WATER VAPOR AND LIQUID WATER FROM GROUND-BASED MICROWAVE RADIOMETER MEASUREMENTS DURING THE DYNAMO FIELD CAMPAIGN**
Xavier Bosch-Lluis, Colorado State University, United States; Swaroop Sahoo, Kalinga Institute of Industrial Technology, India; Steven C. Reising, Colorado State University, United States; Jothiram Vivekanandan, NCAR, United States; Paquita Zuidema, University of Miami, United States

WEP.PT.4 Board PT.4 **ADAPTIVE ESTIMATION OF THE STABLE BOUNDARY-LAYER HEIGHT USING BACKSCATTER LIDAR DATA AND A KALMAN FILTER**
Umar Saeed, Universitat Politècnica de Catalunya, Spain; Francesc Rocadenbosch, Universitat Politècnica de Catalunya / Institut d'Estudis Espacials de Catalunya, Spain; Susanne Crewell, Univeristy of Cologne, Germany

WEP.PT.5 Board PT.5 **SNPP CAL/VAL CAMPAIGN: INTER-COMPARISON OF SATELLITE AND AIRCRAFT SOUNDING RETRIEVALS**
Daniel Zhou, Allen Larar, X. Liu, Jialin Tian, NASA Langley Research Center, United States; William Smith, W. Wu, S. Kizer, Science Systems and Applications Inc., United States; Mitch Goldberg, Q. Liu, NOAA/NESDIS, United States; Changyi Tan, I.M. Systems Group, United States

WEP.PT.6 Board PT.6 **VARIATIONAL RETRIEVAL OF ATMOSPHERIC HUMIDITY PROFILES FROM MICROWAVE SOUNDER SAPHIR OF MEGHA-TROPIQUES**
Krishnamoorthy C, Balaji C, Indian Institute of Technology Madras, India

WEP.PT.7 Board PT.7 **THE RETRIEVAL OF STRATOSPHERIC AEROSOL EXTINCTION PROFILES FROM LIMB SCATTER MEASUREMENTS**
Jingmei Yang, Xuemei Zong, Institute of Atmospheric Physics, Chinese Academy of Sciences, China

WEP.PT.8 Board PT.8 **CAN GALILEO INCREASE THE ACCURACY AND SPATIAL RESOLUTION OF THE 3D TROPOSPHERIC WATER VAPOUR RECONSTRUCTION BY GPS TOMOGRAPHY?**
Pedro Benevides, Instituto Dom Luiz, Portugal; Giovanni Nico, Consiglio Nazionale delle Ricerche (CNR), Italy; Joao Catalao, Pedro Miranda, Instituto Dom Luiz, Portugal

WEP.PT.9 Board PT.9 **MERGING SAR INTERFEROMETRY AND GPS TOMOGRAPHY FOR HIGH-RESOLUTION MAPPING OF 3D TROPOSPHERIC WATER VAPOUR**
Pedro Benevides, Instituto Dom Luiz, Portugal; Giovanni Nico, Consiglio Nazionale delle Ricerche (CNR), Italy; Joao Catalao, Pedro Miranda, Instituto Dom Luiz, Portugal

WEP.PT.10 Board PT.10 **NEQUICK GALILEO VERSION MODEL: ASSESSMENT OF A PROPOSED VERSION IN OPERATIONAL SCENARIO**
Salvatore Gaglione, Antonio Angrisano, Ciro Gioia, Anna Innac, Salvatore Troisi, Parthenope University of Naples, Italy

Ocean Winds, Waves and Currents

Session Chair: Mark Bourassa, COAPS/Florida State University

WEP.PU.1 Board PU.1 **SURFACE WAVES IN ARCTIC SEAS, OBSERVED FROM TERRASAR-X**
Johannes Gemmrich, University of Victoria, Canada; Andrey Pleskachevsky, Susanne Lehner, German Aerospace Center (DLR), Germany; Erick Rogers, Naval Research Laboratory, United States

WEP.PU.2 Board PU.2 **GEOPHYSICAL MODEL FUNCTION FOR THE WIND EXCESS EMISSIVITY AT AMSR2 C- BAND AT HIGH WINDS**
Elizaveta Zabolotskikh, Russian State Hydrometeorological University, Russian Federation; Nicolas Reul, Bertrand Chapron, Alexis Mouche, IFREMER, France

WEP.PU.3 Board PU.3 **OVERVIEW OF THE WINDS AND CURRENTS MISSION**
Mark Bourassa, Ernesto Rodriguez, Florida State University, United States

WEP.PU.4 Board PU.4 **REAL-TIME ESTIMATION OF OCEAN WAVE FIELDS FROM MARINE RADAR DATA**
David R. Lyzenga, Okey Nwogu, Robert Beck, University of Michigan, United States; Andrew O'Brien, Joel T. Johnson, The Ohio State University, United States; Anthony de Paolo, Eric Terrill, Scripps Institution of Oceanography, United States

WEP.PU.5 Board PU.5 **WAVE PERIOD AND DIRECTION ESTIMATION IN SHALLOW WATER USING AIRBORNE ALONG-TRACK INTERFEROMETRIC SYNTHETIC APERTURE RADAR**
Shadi Aslebagh, Gordon Farquharson, University of Washington, United States

Ocean Altimetry II

Session Chair: Adriano Camps, Universitat Politècnica de Catalunya

WEP.PV.1 Board PV.1 **IMPACT OF THE ELEVATION ANGLE IN THE COHERENCE TIME AS A FUNCTION OF THE SEA WAVE HEIGHT**
Francisco Martín, Adriano Camps, Universitat Politècnica de Catalunya, Spain; Manuel Martín-Neira, Salvatore D'Addio, European Space Agency (ESA), Netherlands; Fran Fabra, Antonio Rius, IEEC, Spain; Hyuk Park, Universitat Politècnica de Catalunya, Spain

WEP.PV.2 Board PV.2 **SIGNIFICANT WAVE HEIGHT RETRIEVAL BASED ON THE EFFECTIVE NUMBER OF INCOHERENT AVERAGES**
Francisco Martín, Adriano Camps, Universitat Politècnica de Catalunya, Spain; Manuel Martín-Neira, Salvatore D'Addio, European Space Agency (ESA), Netherlands; Fran Fabra, Antonio Rius, IEEC, Spain; Hyuk Park, Universitat Politècnica de Catalunya, Spain

WEP.PV.3 Board PV.3 **THE ALTIMETER PRECISION COMPARISION BETWEEN SAR MODE AND CONVENTIONAL MODE THROUGH AIRBORNE EXPERIMENT**
Ke Xu, Peng Liu, Lingwei Shi, Lei Wang, Xiufen Yu, National Space Science Center, Chinese Academy of Sciences, China

WEP.PV.4 Board PV.4 **GENESIS, VARIABILITY AND IMPACT OF MESOSCALE EDDIES ALONG THE BOUNDARY CURRENTS IN THE WESTERN BAY OF BENGAL**
Sumit Dandapat, Arun Chakraborty, Indian Institute of Technology Kharagpur, India

WEP.PV.5 Board PV.5 **A DEMONSTRATION EXPERIMENT OF AN NEW-GENERATION AIRBORNE ALTIMETER IN-SITU ABSOLUTE CALIBRATION SUITE**
Xi-Yu Xu, Ke Xu, Hua Shen, Zhen-Zhan Wang, Yalong Liu, The Key Laboratory of Microwave Remote Sensing, Center for Space Science and Applied Research, Chinese Academy of Sciences, China

WEP.PV.6 Board PV.6 **DEVELOPMENT OF THE RECONSTRUCTIVE TRANSPONDER FOR IN-ORBIT CALIBRATION OF HY-2 ALTIMETER**
Caiyun Wang, Wei Guo, Fei Zhao, Junzhi Wan, Ke Xu, Center for Space Science and Applied Research, Chinese Academy of Sciences, China

WEP.PV.7 Board PV.7 **CALIBRATION COMPAIGNS OF THE HY-2A SATELLITE ALTIMETER SIGNIFICANT WAVE HEIGHT BY A GNSS BUOY**
Xi-Yu Xu, Hua Shen, Ke Xu, The Key Laboratory of Microwave Remote Sensing, Center for Space Science and Applied Research, Chinese Academy of Sciences, China

WEP.PV.8 Board PV.8 **ECHO SIGNAL QUALITY ANALYSIS DURING HY-2A RADAR ALTIMETER CALIBRATION CAMPAIGN USING RECONSTRUCTIVE TRANSPONDER**
Junzhi Wan, The Key Laboratory of Microwave and Remote Sensing Technology, National Space Science Center/Center for Space Science and Applied Research, Chinese Academy of Sciences, and the University of Chinese Academy of Sciences., China; Wei Guo, Fei Zhao, Caiyun Wang, The Key Laboratory of Microwave and Remote Sensing Technology, National Space Science Center/Center for Space Science and Applied Research, Chinese Academy of Sciences, China

WEP.PV.9 Board PV.9 **CALIBRATION OF HY-2A SIGNIFICANT WAVE HEIGHT AGAINST BUOY DATA USING TOTAL LEAST SQUARES METHOD**
Hailong Peng, Mingsen Lin, Bo Mu, Wu Zhou, Nation Satellite Ocean Application Service, China

Satellite Missions

Session Chair: Adriano Camps, Universitat Politècnica de Catalunya

WEP.PW.1 Board PW.1 **POLARIMETRIC CALIBRATION OF PI-SAR2: EXPERIMENTAL RESULTS OF 2013 TO 2015 OBSERVATIONS**
Makoto Satake, Jyunpei Uemoto, Takeshi Matsuoka, Tatsuharu Kobayashi, Shoichiro Kojima, Toshihiko Umehara, National Institute of Information and Communications Technology, Japan; Toshifumi Moriyama, Nagasaki University, Japan

WEP.PW.2 Board PW.2 **FRAMEWORK FOR ESTIMATING POLARIZATION IMPACTS ON NON-OCEAN SCENES FOR VIIRS**
Timothy Wilkinson, The Aerospace Corporation, United States

WEP.PW.3 Board PW.3 **ABSOLUTE CALIBRATION OF HY-2, JASON-2 AND SARAL/ALTIKA FROM CHINA IN-SITU CALIBRATION SITE: QIAN LI YAN**
Xinghua Zhou, Lei Yang, First Institute of Oceanography, State Oceanic Administration, China; Mingsen Lin, National Satellite Ocean Application Service, China; Ning Lei, College of Geodesy and Geomatics, Shandong University of Science and Technology, China; Qiuhua Tang, First Institute of Oceanography, State Oceanic Administration, China; Bo Mu, National Satellite Ocean Application Service, China

WEP.PW.4 Board PW.4 **OCEAN COLOR ATMOSPHERIC CORRECTIONS IN COASTAL COMPLEX WATERS USING A BAYESIAN LATENT CLASS MODEL AND POTENTIAL FOR THE INCOMING SENTINEL 3 - OLCI MISSION**
Bertrand Saulquin, ACRI-ST, France; Ronan Fablet, Telecom bretagne, France; Ludovic Bourg, ACRI-ST, France; Grégoire Mercier, Telecom bretagne, France; Odile Fanton d'Andon, ACRI-ST, France

WEP.PW.5 Board PW.5 **DEVELOPMENT OF CHIRP SIGNAL GENERATOR FOR MICRO SATELLITE ON-BOARD SYNTHETIC APERTURE RADAR**
Jin-Hong An, Hae-Won Jung, Heein Yang, Ajou university, Republic of Korea; Sang-Burm Ryu, Hyeon-Cheol Lee, Sang-Gyu Lee, Sang-Soon Yong, Korea Aerospace Research Institute, Republic of Korea; Jae-Hyun Kim, Ajou university, Republic of Korea

WEP.PW.6 Board PW.6 **ASSESSMENT OF RAPIDSCAT WIND QUALITY**
Marcos Portabella, Wenming Lin, Institut de Ciències del Mar (ICM-CSIC), Spain; Ad Stoffelen, Anton Verhoef, Royal Netherlands Meteorological Institute (KNMI), Netherlands

WEP.PW.7 Board PW.7 **THE FIRST GALILEO FOC SATELLITES: FROM USELESS TO ESSENTIAL**
Salvatore Gaglione, Antonio Angrisano, Gaetano Castaldo, Pierluigi Freda, Ciro Gioia, Anna Innac, Salvatore Troisi, Giuseppe Del Core, Parthenope University of Naples, Italy

WEP.PW.8 Board PW.8 **SNPP VIIRS SPECTRAL RESPONSE LESSONS LEARNED AND THEIR IMPACTS ON JPSS VIIRS PERFORMANCE**
Janna Feeley, David Moyer, Frank De Luccia, The Aerospace Corporation, United States

WEP.PW.9 Board PW.9 **SNPP VIIRS THERMAL EMISSIVE BAND PERFORMANCE AFTER THREE YEARS ON-ORBIT**
Evan Haas, David Moyer, Gabriel Moy, Frank De Luccia, David Kunkee, The Aerospace Corporation, United States

Data Analysis and Estimation Methods

Session Co-Chairs: Mario Constantini, E-Geos; Pierfrancesco Lombardo, Univ. Roma "La Sapienza"

THP.PA.1 Board PA.1 **DETECTION OF SINGLE SCATTERERS IN CORRELATED CLUTTER USING MULTI-CHANNEL SAR INTERFEROMETRIC DATA**
Alessandra Budillon, Gilda Schirinzi, University of Naples Parthenope, Italy

THP.PA.2 Board PA.2 **STUDY ON EFFECT FACTORS OF MULTISQUINT ESTIMATION OF TIME-VARYING BASELINE ERRORS IN REPEAT-PASS AIRBORNE SAR**
Xue Lin, University of Chinese Academy of Sciences, China; Fang-Fang Li, Yueting Zhang, Da-Di Meng, Dong-Hui Hu, Chi-Biao Ding, Chinese Academy of Sciences, China

THP.PA.3 Board PA.3 **EXPERIMENTAL ANALYSIS OF SINGULAR POINT GENERATION MECHANISMS IN INTERFEROMETRIC SAR USING OPTICS: THE POSSIBILITY OF SINGULAR POINT GENERATION BY INTERFERENCE IN A SINGLE PIXEL**
Shunichiro Fujinami, Ryo Natsuaki, Akira Hirose, The University of Tokyo, Japan

THP.PA.4 Board PA.4 **PROBABILISTIC DATA ASSOCIATION KALMAN FILTER FOR MULTI-CHANNEL PHASE UNWRAPPING**
Fabio Baselice, Università degli Studi di Napoli Parthenope, Italy; Davide Chirico, MBDA-IT, Italy; Giampaolo Ferraioli, Gilda Schirinzi, Università degli Studi di Napoli Parthenope, Italy

THP.PA.5 Board PA.5 **EFFICIENT IMPLEMENTATION OF INSAR TIME-CONSUMING ALGORITHM KERNELS ON GPU ENVIRONMENT**
Andrea Guerriero, Vito Walter Anelli, Alessandro Pagliara, Politecnico di Bari, Italy; Raffaele Nutricato, Davide Oscar Nitti, Geophysical Applications Processing s.r.l., Italy

THP.PA.6 Board PA.6 **CHANNEL CORRELATION OF SEA DATA FOR MICROWAVE RADAR SYSTEMS**
Valeria Gracheva, Joachim Ender, Fraunhofer Institute for High Frequency Physics and Radar Techniques FHR, Germany

THP.PA.7 Board PA.7 **A NOVEL DERAMP SPACE-TIME ADAPTIVE PROCESSING METHOD FOR MULTICHANNEL SAR-GMTI**
Xueshi Li, Mengdao Xing, Guang-Cai Sun, Zheng Bao, Xidian University, China

THP.PA.8 Board PA.8 **AZIMUTH WAVEFRONT MODULATION USING PLASMA LENS ARRAY FOR MICROWAVE STARING IMAGING**
Haotian Yang, Linjian Zhang, Yesheng Gao, Kaizhi Wang, Xingzhao Liu, Shanghai Jiao Tong University, China

THP.PA.9 Board PA.9 **STATISTICAL CHARACTERIZATION OF CLUTTER DECORRELATION FOR MEDIUM AND LONG INTEGRATION TIME IMAGING**
Antonio Leanza, Andrea Monti Guarnieri, Andrea Recchia, Politecnico di Milano, Italy; Antoni Broquetas Ibars, Universitat Politècnica de Catalunya, Spain

THP.PA.10 Board PA.10 **PERMANENT TARGET FOR SYNTHETIC APERTURE RADAR IMAGE RESOLUTION ASSESSMENT**
Yong-Sheng Zhou, Chuan-Rong Li, Ling-Li Tang, Cai-Xia Gao, Lu Ren, Ling-Ling Ma, Academy of Opto-Electronics, Chinese Academy of Sciences, China

Subsurface Sensing and Ground Penetrating Radar II

Session Chair: Loreto Di Donato, Univ. of Catania

THP.PB.1 Board PB.1
GROUND PENETRATING RADAR SURVEY OF EDENTON GREEN FOR EARLY STRUCTURAL REMAINS
Ryan Lawrence, University of New Hampshire, United States; Dominique Marshall, Jackson State University, United States; Shanecia Beckworth, Mississippi Valley State University, United States; Malcolm Lecompte, Linda Hayden, Elizbeth City State University, United States

THP.PB.2 Board PB.2
IRREGULAR INTERPOLATION OF SEISMIC DATA THROUGH LOW-RANK TENSOR APPROXIMATION
Alessandro Adamo, Paolo Mazzucchelli, Aresys srl, Italy; Nicola Bienati, Eni Upstream and Technical Services, Italy

THP.PB.3 Board PB.3
MARKOV RANDOM FIELD MODELS FOR QUANTIFYING UNCERTAINTY IN SUBSURFACE REMEDIATION
M. Clara De Paolis Kaluza, Eric L. Miller, Linda M. Abriola, Tufts University, United States

THP.PB.4 Board PB.4
MULTILAYER SIMULATIONS FOR MARTIAN SUBSURFACE RADAR SOUNDINGS
Chao Wu, Liting Rao, University of Chinese Academy of Sciences, China; Xiaojuan Zhang, Institute of Electronics, Chinese Academy of Sciences, China; Jiancheng Shi, State Key Laboratory of Remote Sensing Science, Institute of Remote Sensing and Digital Earth, CAS, China; Shiyin Liu, Cold and Arid Regions Environmental and Engineering Research Institute, Chinese Academy of Sciences, China

THP.PB.5 Board PB.5
FORMULATION OF A METHOD FOR THE OPTIMIZATION OF COILS FOR ELECTROMAGNETIC INDUCTION SYSTEMS IN THE PRESENCE OF MAGNETIC SOIL
Mark Reed, Waymond Scott, Georgia Institute of Technology, United States

THP.PB.6 Board PB.6
PARAMETER INVERSIONS OF MARS MULTI-LAYERING REGOLITH WITH VALIDATION OF THE MARSIS DATA
Ya-Qiu Jin, Chuan Liu, Fudan University, China

THP.PB.7 Board PB.7
SUBSURFACE SAR FOCUSING FOR MULTIPLE POINT TARGETS
Majid Albahkali, Mahta Moghaddam, University of Southern California, United States

THP.PB.8 Board PB.8
SUBSURFACE SENSING THROUGH COMPRESSIVE SENSING AND VIRTUAL EXPERIMENTS
Martina Bevacqua, University 'Mediterranea', Italy; Lorenzo Crocco, CNR-IREA, Italy; Loreto Di Donato, University of Catania, Italy; Tommaso Isernia, University 'Mediterranea', Italy

THP.PB.9 Board PB.9
APPLICATION OF THE CURVELET TRANSFORM FOR PIPE DETECTION IN GPR IMAGES
Guillaume Terrasse, Jean-Marie Nicolas, Télécom ParisTech, France; Emmanuel Trouvé, Polytech Savoie, France; Emeline Drouet, GDF SUEZ, France

THP.PB.10 Board PB.10
A NOVEL APPROACH FOR GPR IMAGING OF NON-WEAK TARGETS
Loreto Di Donato, University of Catania, Italy; Martina Bevacqua, University, Italy; Gino Sorbello, University of Catania, Italy; Lorenzo Crocco, CNR, Italy; Tommaso Isernia, University, Italy

THP.PB.11 Board PB.11
A MULTIPLE INSTANCE NEURO-FUZZY INFERENCE SYSTEM FOR FUSION OF MULTIPLE LANDMINE DETECTION ALGORITHMS
Amine Ben Khalifa, Hichem Frigui, Multimedia Research Lab, United States

Image Segmentation III

Session Chair: Yuliya Tarabalka, INRIA

THP.PC.1 Board PC.1
APPLICATION OF GRADIENT BASED IMAGE SEGMENTATION TO SAR IMAGERY
Sankaranarayanan Piramanayagam, Rochester Institute of Technology, United States; Patrick Cutler, Wade Schwartzkopf, Frederick Koehler, National Geospatial-Intelligence Agency, United States; Eli Saber, Rochester Institute of Technology, United States

THP.PC.2 Board PC.2
AUTOMATIC BINARIZATION METHOD IN ISAR IMAGE
Xiaohui Zhao, Yicheng Jiang, Yun Zhang, Harbin Institute of Technology, China

THP.PC.3 Board PC.3
DEEP HIERARCHICAL REPRESENTATION AND SEGMENTATION OF HIGH RESOLUTION REMOTE SENSING IMAGES
Jun Wang, Qiming Qin, Peking University, China; Zhoujing Li, China Agricultural University, China; Xin Ye, Jianhua Wang, Xiucheng Yang, Xuebin Qin, Peking University, China

THP.PC.4 Board PC.4
A "DYNAMIC" LAND MASKING ALGORITHM FOR SYNTHETIC APERTURE RADAR IMAGES
Walter Biamino, Maria Borasi, Marco Cavagnero, Alessandro Croce, Lorenza Di Matteo, Fabio Fontebasso, Università del Piemonte Orientale, Italy; Francesco Tataranni, Innova Consorzio per l'Informatica e la Telematica S.R.L., Italy; Paolo Trivero, Università del Piemonte Orientale, Italy

THP.PC.5 Board PC.5
A NEW REGION GROWING-BASED SEGMENTATION METHOD FOR HIGH RESOLUTION REMOTE SENSING IMAGERY
Xiuxia Li, Linhai Jing, Qizhong Lin, Hui Li, Ru Xu, Yunwei Tang, Haifeng Ding, Qingjie Liu, Chinese Academy of Sciences, China

THP.PC.6 Board PC.6
SPT 3.1: A FREE SOFTWARE FOR AUTOMATIC TUNING OF SEGMENTATION PARAMETERS IN OPTICAL, HYPERSPECTRAL AND SAR IMAGES
Pedro M. Achanccaray, Victor Andres Ayma Quirita, Pontifical Catholic University of Rio de Janeiro, Brazil; Luis Ignacio Jimenez, Sergio Bernabe, University of Extremadura, Spain; Patrick Happ, Gilson A.O.P. Costa, Raul Queiroz Feitosa, Pontifical Catholic University of Rio de Janeiro, Brazil; Antonio Plaza, University of Extremadura, Spain

THP.PC.7 Board PC.7
A FULLY ADAPTIVE OBJECT EXTRACTION TECHNIQUE USED FOR SPECTRAL-SPATIAL CLASSIFICATION OF REMOTELY SENSED DATA
Amin Zehtabian, Hassan Ghassemian, Tarbiat Modares University, Iran

THP.PC.8 Board PC.8
IMAGE SEGMENTATION ALGORITHMS COMPARISON
Mariane Souza Reis, Maria Antônia Falcão De Oliveira, Thales Sehn Korting, Brazilian National Institute for Space Research - INPE, Brazil; Eliana Pantaleão, Universidade Federal de Uberlândia, Brazil; Sidnei João Siqueira Sant'Anna, Luciano Vieira Dutra, Brazilian National Institute for Space Research - INPE, Brazil; Dengsheng Lu, Michigan State University, United States

THP.PC.9 Board PC.9
REGION-BASED L0 GRADIENT MINIMIZATION FOR POLSAR IMAGE SEGMENTATION
Bin Liu, Zenghui Zhang, Xingzhao Liu, Wenxian Yu, Shanghai Jiao Tong University, China

THP.PC.10 Board PC.10
BUILDING SURFACE TEXTURE SEGMENTATION IN URBAN REMOTE SENSING IMAGE USING IMPROVED ORTSEG ALGORITHM
Shupei Deng, Ye Zhang, Shu Tian, Harbin Institute of Technology, China

THP.PC.11 Board PC.11
TOWARDS DISTRIBUTED REGION GROWING IMAGE SEGMENTATION BASED ON MAPREDUCE
Patrick Nigri Happ, Rodrigo da Silva Ferreira, Gilson Alexandre Ostwald Pedro da Costa, Raul Queiroz Feitosa, Pontifical Catholic University of Rio de Janeiro, Brazil; Cristiana Bentes, Rio de Janeiro State University, Brazil; Paolo Gamba, University of Pavia, Italy

Computer Vision for Classification

Session Chair: Devis Tuia, University of Zurich

THP.PD.1 Board PD.1
AN ACTIVE LEARNING HEURISTIC USING SPECTRAL AND SPATIAL INFORMATION FOR MRF-BASED CLASSIFICATION
Bo Hu, Institute of Remote Sensing and Geographical Information System, Peking University, China; Gabriele Moser, Sebastiano Bruno Serpico, Department of Electrical, Electronic, Telecommunications Engineering and Naval Architecture (DITEN), University of Genoa, Italy, Italy; Peijun Li, Institute of Remote Sensing and Geographical Information System, Peking University, China

THP.PD.2 Board PD.2
CAN WE AUTOMATICALLY CHOOSE BEST UNCERTAINTY HEURISTICS FOR LARGE MARGIN ACTIVE LEARNING ?
Ines Ben Slimene Ben Amor, Ecole National des Sciences de l'Informatique, France; Nesrine Chehata, Bordeaux INP,G& E EA 4592, France; Philippe Lagacherie, INRA UMR LISAH, France; Jean-Stéphane Bailly, AgroParisTech UMR LISAH, France; Imed Riadh Farah, Ecole National des Sciences de l'Informatique, Tunisia

THP.PD.3 Board PD.3
A NOVEL DICTIONARY LEARNING METHOD FOR REMOTE SENSING IMAGE CLASSIFICATION
Michael Ying Yang, TU Dresden, Germany; Tao Jiang, Saif Al-Shaikhli, Bodo Rosenhahn, Leibniz University Hannover, Germany

THP.PD.4 Board PD.4
A NOVEL CONTEXTUAL CLASSIFIER BASED ON SVM AND MRF FOR REMOTE SENSING IMAGES
Ali Masjedi, Yasser Maghsoudi, Mohammad Javad Valadan Zoej, Khaje Nasir Toosi University of Technology, Iran

THP.PD.5 Board PD.5
A MULTI-TIER HIGHER ORDER CONDITIONAL RANDOM FIELD FOR LAND COVER CLASSIFICATION OF MULTI-TEMPORAL MULTI-SPECTRAL LANDSAT IMAGERY
Brian Salmon, University of Tasmania, Australia; Waldo Kleynhans, University of Pretoria, South Africa; Jc Olivier, University of Tasmania, Australia; Colin Schwegmann, University of Pretoria, South Africa; Willem Olding, University of Tasmania, Australia

THP.PD.6 Board PD.6
HIDDEN CONDITIONAL RANDOM FIELDS FOR LAND-USE CLASSIFICATION
Alexei Skurikhin, Los Alamos National Laboratory, United States

THP.PD.7 Board PD.7
SPECTRAL-SPATIAL CONDITIONAL RANDOM FIELD CLASSIFIER WITH LOCATION CUES FOR HIGH SPATIAL RESOLUTION IMAGERY
Ji Zhao, Yanfei Zhong, Hong Shu, Liangpei Zhang, Wuhan University, China

THP.PD.8 Board PD.8
TRANSFER LEARNING BASED ON EXTREME LEARNING MACHINE FOR REMOTE SENSING IMAGE CLASSIFICATION
Min Han, Xue Yang, Dalian University of Technology, China

THP.PD.9 Board PD.9
A HIERARCHICAL LEARNING PARADIGM FOR SEMI-SUPERVISED CLASSIFICATION OF REMOTE SENSING IMAGES
Haikel Alhichri, Yacoub Bazi, Naif Alajlan, Nassim Ammour, King Saud University, Saudi Arabia

THP.PD.10 Board PD.10
A COMPARISON OF BAG-OF-WORDS METHOD AND NORMALIZED COMPRESSION DISTANCE FOR SATELLITE IMAGE RETRIEVAL
Shiyong Cui, Mihai Datcu, German Aerospace Center (DLR), Germany

THP.PD.11 Board PD.11
A FEATURE COMBINING SPATIAL AND STRUCTURAL INFORMATION FOR SAR IMAGE CLASSIFICATION
Dong Dong Guan, Tao Tang, Lingjun Zhao, Jun Lu, National University of Defense Technology, China

Estimation and Regression IV

Session Co-Chairs: Gustau Camps-Valls, University of Valencia; John Kerekes, Rochester Institute of Technology

THP.PE.1 Board PE.1
DATA-AIDED SIGNAL-TO-NOISE-RATIO ESTIMATION FOR SCANNING RADAR ANGULAR SUPERRESOLUTION BASED ON ITERATIVE ADAPTIVE APPROACH
Yongchao Zhang, Yue Wang, Wenchao Li, Yulin Huang, Jianyu Yang, University of Electronic Science and Technology of China, China

THP.PE.2 Board PE.2
RETRIEVAL OF LAND SURFACE TEMPERATURE FROM MODIS MID-INFRARED DATA
Jie Wang, Bo-Hui Tang, Zhao-Liang Li, Ronglin Tang, Hua Wu, Institute of Geographic Sciences and Natural Resources Research,Chinese Academy of Sciences, China

THP.PE.3 Board PE.3
COUPLING RADIATIVE TRANSFER MODELING AND ORTHOGONAL PROJECTION FOR THE RETRIEVAL OF VEGETATION PROPERTIES FROM CLOSE-RANGE REMOTE-SENSING HYPERSPECTRAL IMAGES: POTENTIAL AND APPLICATIONS
Sylvain Jay, Xavier Hadoux, Ryad Bendoula, Nathalie Gorretta, IRSTEA, France

THP.PE.4 Board PE.4
DETECTION OF LEAF BIOMASS IN WHEAT USING CONTINUOUS WAVELET METHOD WITH HYPERSPECTRUM
Xia Yao, Haiyang Si, Tao Cheng, Yongchao Tian, Yan Zhu, Weixing Cao, National Engineering and Technology Center for Information Agriculture, China

THP.PE.5 Board PE.5
PREDICTION OF ONCOMELANIA HUPENSIS (VECTOR OF SCHISTOSOMIASIS) DISTRIBUTION BASED ON REMOTE SENSING DATA AND FUZZY INFORMATION THEORY
Zhaoyan Liu, Chuanrong Li, Lingli Tang, Key Laboratory of Quantitative Remote Sensing Information Technology, Academy of Opto-Electronics, Chinese Academy of Sciences, China; Xiaonong Zhou, National Institute of Parasitic Diseases, Chinese Center for Diseases Control and Prevention, China; Lingling Ma, Key Laboratory of Quantitative Remote Sensing Information Technology, Academy of Opto-Electronics, Chinese Academy of Sciences, China; Chenzhou Liu, School of Agriculture, Henan University of Science and Technology, China

THP.PE.6 Board PE.6
SHADOW REMOVAL IN REMOTE SENSING IMAGES USING FEATURES SAMPLE MATTING
Lei Ma, Institute of Automation, Chinese Academy of Sciences, China; Bitao Jiang, Beijing Institute of Remote Sensing Information, China; Xinwei Jiang, Ye Tian, Institute of Automation, Chinese Academy of Sciences, China

THP.PE.7 Board PE.7
WATER DEPTH ESTIMATION WITH BACK PROPAGATION NEURAL NETWORK ON OPTICAL SATELLITE IMAGE
Shin-Ya Huang, Hsuan Ren, National Central University, Taiwan

THP.PE.8 Board PE.8
RANKING DRIVERS OF GLOBAL CARBON AND ENERGY FLUXES OVER LAND
Gustau Camps-Valls, Universitat de València, Spain; Martin Jung, Max Planck Institute for Biogeochemistry, Jena, Germany, Germany; Kazuhito Ichii, Japan Agency for Marine-Earth Science and Technology, Japan; Dario Papale, Gianluca Tramontana, University of Tuscia, Italy; Paul Bodesheim, Friedrich Schiller University of Jena, Germany, Germany; Christopher Schwalm, University of Minnesota, United States; Jakob Zscheischler, Miguel Mahecha, Markus Reichstein, Max Planck Institute for Biogeochemistry, Jena, Germany, Germany

THP.PE.9 Board PE.9
TEMPORAL SMOOTHING AND GAP-FILLING OF LANDSAT DATA: A COMPARISON BETWEEN HARMONIC SINE-COSINE MODELS AND SUPPORT VECTOR REGRESSION
Andreas Rabe, Dirk Pflugmacher, Cornelius Senf, Sebastian van der Linden, Marcel Schwieder, Patrick Hostert, Humboldt-Universität zu Berlin, Germany

THP.PE.10 Board PE.10
THE CONCEPT OF RELIABILITY APPLIED TO CO-REGISTRATION OF MULTIPLE SATELLITE TIME-SERIES OF IMAGES
Marco Scaioni, Luigi Barazzetti, Marco Gianinetto, Politecnico di Milano, Italy

THP.PE.11 Board PE.11
RFI MITIGATION USING LOCAL OUTLIER FACTOR
Huimin Lan, College of Information Science and Technology, Beijing Normal University, China; Tianjie Zhao, State Key Laboratory of Remote Sensing Science,Institute of Remote Sensing and Digital Earth, China; Zhongjun Zhang, College of Information Science and Technology, Beijing Normal University, China; Jiancheng Shi, State Key Laboratory of Remote Sensing Science,Institute of Remote Sensing and Digital Earth, China

Target Detection and Unmixing

Session Co-Chairs: John Kerekes, Rochester Institute of Technology; Josée Lévesque, Defense R&D Canada

THP.PF.1 Board PF.1
SISTOR: A STATISTICS-INSPIRED SPARSITY TARGET DETECTOR FOR HYPERSPECTRAL IMAGES
Yuxiang Zhang, Bo Du, Liangpei Zhang, Wuhan University, China

THP.PF.2 Board PF.2
IMPROVEMENT OF LINEAR SPECTRAL UNMIXING RESULTS USING OVER-SHOOT PIXELS (CASE STUDY: URMIA LAKE BASIN)
Milad Niroumand Jadidi, Alfonso Vitti, University of Trento, Italy; Mojtaba Jannati, K.N. Toosi University of Technology, Iran; Sara Salehi, Geological Survey of Denmark and Greenland - GEUS, Denmark

THP.PF.3 Board PF.3
SUB-PIXEL TARGET DETECTION IN LWIR HYPERSPECTRAL IMAGERY USING GROUND LEAVING RADIANCE
Pierre Lahaie, Josée Lévesque, DRDC Valcartier, Canada

THP.PF.4 Board PF.4
SPATIALLY ADAPTIVE HYPERSPECTRAL UNMIXING BASED ON SUMS OF 2D GAUSSIANS FOR MODELLING ENDMEMBER FRACTION SURFACES
Fadi Kizel, Maxim Shoshany, Nathan Netanyahu, Technion Israel Institute of Technology, Israel

THP.PF.5 Board PF.5
A NOVEL HYPERSPECTRAL IMAGE ANOMALY DETECTION METHOD BASED ON LOW RANK REPRESENTATION
Yang Xu, Zebin Wu, Zhihui Wei, Hongyi Liu, Nanjing University of Science and Technology, China; Xiong Xu, Tongji University, China

THP.PF.6 Board PF.6
PERFORMANCE EVALUATION OF A REMOTE-SENSING CHEMICAL IDENTIFICATION ALGORITHM
Eric Truslow, Michael Pieper, Vinay Ingle, Northeastern University, United States; Steven Golowich, Dimitris Manolakis, MIT Lincoln Laboratory, United States

THP.PF.7 Board PF.7
AUTOMATIC SPECTRAL SIGNATURE EXTRACTION FOR HYPERSPECTRAL TARGET DETECTION
Mehmet Saygin Seyfioglu, Seyma Bayindir, Sevgi Zubeyde Gurbuz, TOBB University of Economics and Technology, Turkey

THP.PF.8 Board PF.8
HYPERSPECTRAL TARGET DETECTION: A NEW METHOD BASED ON LEARNED DICTIONARY
Yubin Niu, Zhao Chen, Bin Wang, Fudan University, China; Wei Xia, China Transport Telecommunications & Information Center, China; Jian Qiu Zhang, Bo Hu, Fudan University, China

THP.PF.9 Board PF.9
ASSESSING THE DAEDALUS SENSOR'S PERFORMANCE BY MEANS OF SPECTRAL MIXTURE ANALYSIS IN THE MIGLIARINO, SAN ROSSORE, MASSACIUCCOLI REGIONAL PARK (ITALY)
Maria Giuseppina Persichillo, University of Pavia, Italy; Luca Cenci, Institute for Advanced Study of Pavia, Italy; Leonardo Disperati, Marzia Ballerano, University of Siena, Italy; Alessandro Barducci, Donatella Guzzi, Vanni Nardino, Ivan Pippi, National Research Council, Italy; Andrea Rindinella, University of Siena, Italy; Claudia Meisina, University of Pavia, Italy

SAR Processing IV

Session Co-Chairs: Marc Rodriguez-Cassola, German Aerospace Center (DLR); Alessandra Budillon, Univ. of Naples "Parthenope"

THP.PG.1 Board PG.1
ACCURATE SLANT RANGE MODEL AND FOCUSING METHOD IN GEOSYNCHRONOUS SAR
Bin Hu, Yicheng Jiang, Yun Zhang, Harbin Institute of Technology, China; Tat Soon Yeo, National University of Technology, Singapore

THP.PG.2 Board PG.2
A DOPPLER PARAMETER ESTIMATION METHOD BASED ON MISMATCHED COMPRESSION
Zhongyu Li, Junjie Wu, Yulin Huang, Zhichao Sun, Jianyu Yang, Xiaobo Yang, University of Electronic Science and Technology of China, China

THP.PG.3 Board PG.3
A NOVEL SAR IMAGING PROCESSING METHOD BASED ON FRACTIONAL FOURIER TRANSFORM
Qianrong Lu, Kaizhi Wang, Xingzhao Liu, Shanghai Jiao Tong University, China

THP.PG.4 Board PG.4
A REFINED TWO-STEP ALGORITHM FOR HIGH RESOLUTION SPACEBORNE SAR WITH SQUINTED SLIDING SPOTLIGHT MODE
Hui Kuang, Jie Chen, Wei Yang, Beihang University, China

THP.PG.5 Board PG.5
A STUDY OF BP-CAMP ALGORITHM FOR SAR IMAGING
Xiangyin Quan, Zhe Zhang, Bingchen Zhang, Wen Hong, Yirong Wu, Institute of Electronics, Chinese Academy of Sciences, China

THP.PG.6 Board PG.6
AN IMPROVED TWO-STEP MOTION COMPENSATION METHOD BASED ON RAW DATA
Jincheng Li, Pengbo Wang, Jie Chen, Jiakun Wang, Wei Yang, Beihang University, China

THP.PG.7 Board PG.7
MULTIFRAME RESOLUTION RECOVERY OF RADAR IMAGERY: TOWARDS SUPER-RESOLUTION SENSING
Yuriy Shkvarko, Research Professor/CINVESTAV del IPN, Unidad Guadalajara, Mexico; Juan I. Yañez, CINVESTAV del IPN, Unidad Guadalajara, Mexico; Gustavo Martin del Campo, CINVESTAV del IPN, Mexico

THP.PG.8 Board PG.8
PROGRESSIVE FOCUSING ALGORITHM FOR OPTRONIC HIGH-RESOLUTION SAR PROCESSING
Yesheng Gao, Kaizhi Wang, Xingzhao Liu, Shanghai Jiao Tong University, China

THP.PG.9 Board PG.9
A MODIFIED BACK-PROJECTION ALGORITHM FOR IMAGING GEO-REFERENCED SAR DATA
Songtao Zhao, Jie Chen, Bing Sun, Wei Yang, Pengbo Wang, Beihang University, China

THP.PG.10 Board PG.10
A CZT-BASED CONTINUOUS VARYING PRF POLAR FORMAT ALGORITHM FOR HIGHLY SQUINTED SPOTLIGHT SAR
Xue Qiu, National University of Defense Technology, China; Chunsheng Li, Jingwen Li, Xinxin Zhao, Yan Wang, Beihang University, China

THP.PG.11 Board PG.11
AN INTERPOLATION-FREE FFBP ALGORITHM FOR SPOTLIGHT SAR PROCESSING
Qi Dong, Peng Shao, Zemin Yang, Yachao Li, Mengdao Xing, Xidian University, China

THP.PG.12 Board PG.12
SAR IMAGE RECONSTRUCTION WITH JOINT OFF-GRID TARGET AND PHASE ERROR CORRECTIONS
Sedat Camlica, ASELSAN, Turkey; Ali Cafer Gurbuz, TOBB University of Economics and Technology, Turkey; Orhan Arikan, Bilkent University, Turkey

GIS Applications and Techniques I

Session Co-Chairs: Fabio Dell'Acqua, University of Pavia; Liping Di, George Mason University

THP.PH.1 Board PH.1 **THE NON-SQL SPATIAL DATA MANAGEMENT MODEL IN BIG DATA TIME**
Weixin Zhai, Zhe Yang, Lin Wang, Feilong Wu, Chengqi Cheng, Peking University, China

THP.PH.2 Board PH.2 **FEATURE GUIDED MULTI-WINDOW AREA-BASED MATCHING METHOD FOR URBAN REMOTE SENSING STEREO PAIRS**
Mingjie Qiu, Ye Zhang, Harbin Institute of Technology, China

THP.PH.3 Board PH.3 **EXPLORING THE APPLICATION OF SOME COMMON RASTER SCANNING PATHS ON LOSSLESS COMPRESSION OF ELEVATION IMAGES**
Gabriel Scarmana, Kevin McDougall, University of Southern Queensland, Australia

THP.PH.4 Board PH.4 **COMPUTATIONS OF BI-VARIABLE SPATIAL RELATIONSHIPS BETWEEN THE POLITICAL DIVISIONS OF KARNATAKA, INDIA VIA MAHALANOBIS DISTANCE**
Rajashekara H M, Indian Statistical Institute, India; Ashok Vardhan Sanda, Novo Nordisk India A/S, India; Daya Sagar B S, Indian Statistical Institute, India

THP.PH.5 Board PH.5 **A NOVEL METHODOLOGY FOR PARALLEL SPATIAL OVERLAY OVER VECTOR DATA– A CASE STUDY WITH SHAPE FILE**
Xiaomin Zhu, Jidong Huo, Shandong Computer Science Center (National SuperComputer Center in Jinan), China; Qiang Qiu, Institute of Computing Technology, Chinese Academy of Sciences, China

THP.PH.6 Board PH.6 **USING GIS FOR SPATIO-TEMPORAL ASSESSMENT OF SOME PHYSICOCHEMICAL PARAMETERS IN THE BAY OF ALGIERS**
Siham Benzouai, Fouzia Houma, Rabah Belkessa, Karim Zerouali, Larbi Redouane Boufeniza, Ecole Nationale Supérieure des Sciences de la Mer et de l'Aménagement du Littoral, Algeria

THP.PH.7 Board PH.7 **ANALYZING REGIONAL ECONOMIC DISPARITIES BASED ON ESDA IN YANGTZE RIVER DELTA, CHINA**
Shuang Li, Chengqi Cheng, Peking University, China; Xiangai Wang, Weinan Normal University, China; Zhiqiang Li, Peking University, China

THP.PH.8 Board PH.8 **GEOGRAPHIC SPATIAL SEMANTIC TRANSLATION METHOD USING SUBDIVISION GRID CODING**
Yan Jing, Chengqi Cheng, Beitong Zhang, Weixin Zhai, Peking University, China

THP.PH.9 Board PH.9 **ON THE USE OF GIS DATA FOR REALISTIC SAR SIMULATION OF LARGE URBAN SCENES**
Horst Hammer, Silvia Kuny, Karsten Schulz, Fraunhofer IOSB, Germany

THP.PH.10 Board PH.10 **A SPATIAL INFORMATION MEASURE METHOD FOR HYPERSPECTRAL IMAGE VISUALIZATION**
Anthony Amankwah, University of Ghana, Ghana; Chris Aldrich, Curtin University, Australia

THP.PH.11 Board PH.11 **THE APPLICATION OF ANT COLONY ALGORITHM IN EMERGENCY RESCUE WITH GIS**
Yufeng Lu, University of Electronic Science and Technology of China, China; Yong He, Sichuan Institute of Geo-Environment Monitoring, China; Jun Xia, Key Laboratory of Geoscience Spatial Information Technology, Ministry of Land and Resources of the P.R. China, Chengdu University of Technology, China; Zezhong Zheng, Huan Wei, School of Resources and Environment,University of Electronic Science and Technology of China, China; Yalan Liu, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China; Xiang Zhang, Key Laboratory of Geoscience Spatial Information Technology, Ministry of Land and Resources of the P.R. China, Chengdu University of Technology, China; Guoqing Zhou, Guangxi Key Laboratory for Spatial Information and Geomatics, China; Zhanmang Liao, Guiyun Zhou, University of Electronic Science and Technology of China, China; Hongsheng Zhang, Institute of Space and Earth Information Science, The Chinese University of Hong Kong, China; Jiang Li, Old Dominion University, Department of Electrical and Computer Engineering, China

GIS Applications and Techniques II

Session Co-Chairs: Peijun Li, Peking University; Liangpei Zhang, Wuhan University

THP.PI.1 Board PI.1 **A MULTI-OBJECTIVE OPTIMIZATION APPROACH FOR SUSTAINABLE ECOLOGICAL PROTECTED AREAS PLANNING**
Jing Shao, Lina Yang, Ling Peng, Tianhe Chi, Xiaojun She, Renhui Zhao, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China

THP.PI.2 Board PI.2 **A MINERAL RESOURCES QUANTITATIVE ASSESSMENT AND 3D VISUALIZATION SYSTEM**
Shi Qiu, Binbin He, Xiaojing Bai, Xing Li, Zhanmang Liao, Changming Yin, University of Electronic Science and Technology of China, China

THP.PI.3 Board PI.3 **MASSIVE REMOTE SENSING IMAGE DATA MANAGEMENT BASED ON HBASE AND GEOSOT**
Lin Wang, Chengqi Cheng, Shangzhu Wu, Feilong Wu, Peking University, China; Wan Teng, Zhengzhou Oil & Gas Transportation Sub-Company, China

THP.PI.4 Board PI.4 **TIME-SERIES AUGMENTATION OF SEMANTIC KRIGING FOR THE PREDICTION OF METEOROLOGICAL PARAMETERS**
Shrutilipi Bhattacharjee, Soumya Ghosh, Indian Institute of Technology Kharagpur, India

THP.PI.5 Board PI.5 **EVALUATING THE SIGNIFICANCE OF TRANSPORTATION NETWORK LINK FOR EMERGENCY SUPPLIES**
Jincheng Jiang, Beijing Normal University, China; Lixin Wu, China University of Mining and Technology, China

THP.PI.6 Board PI.6 **TOWARDS A UNIFIED INFRASTRUCTURE FOR AUTOMATED MANAGEMENT AND INTEGRATION OF HETEROGENEOUS GEO-DATASETS IN DISASTER RESPONSE**
Amin Mobasheri, Delft University of Technology, Netherlands; Mohamed Bakillah, Heidelberg University, Germany

DBF and Bistatic SAR

Session Chair: Robert Wang, Institute of Electronics, Chinese Academy of Sciences (IECAS)

THP.PJ.1 Board PJ.1
NONUNIFORM RESAMPLING FOR STAGGERED SAR
Mingzhu Sun, Qiang Wei, 91635 Force of People's Liberation Army, China; Yongjiang Yu, Zhe Liu, Wenchao Li, University of Electronic Science and Technology of China, China

THP.PJ.2 Board PJ.2
GEOSYNCHRONOUS SPACEBORNE-AIRBORNE BISTATIC SAR FOR EARTH OBSERVATION WITH ENHANCED IMAGING PERFORMANCE
Junjie Wu, Zhichao Sun, Yulin Huang, Zhongyu Li, Haiguang Yang, Jianyu Yang, University of Electronic Science and Technology of China, China

THP.PJ.3 Board PJ.3
NON-UNIFORMLY SAMPLED SIGNAL RECONSTRUCTION OF DPC-MAB FMCW SAR BASED ON FRACTIONAL FOURIER TRANSFORM
Qiao Zou, Qin Xin, Pu Cheng, National University of Defense Technology, China

THP.PJ.4 Board PJ.4
A CONTINUOUS PRI VARIATION METHOD FOR GEOSYNCHRONOUS SAR WITH ELLIPTICAL ORBIT
Wei Yin, Zegang Ding, Beijing Institute of Technology, China; Shuangjing Yang, Yan Li, China Academy of Space Technology, China; Tao Zeng, Teng Long, Beijing Institute of Technology, China

THP.PJ.5 Board PJ.5
OFDM RADAR WAVEFORM DESIGN WITH SPARSE MODELING AND CORRELATION OPTIMIZATION
Sheng-Juan Cheng, Wen-Qin Wang, Huaizong Shao, University of Electronic Science and Technology of China, China

THP.PJ.6 Board PJ.6
QUASI GEOSTATIONARY, COMSAT-COMPATIBLE SAR: SOLUTIONS FOR PAYLOAD DESIGN
Andrea Monti Guarnieri, Politecnico di Milano, Italy; Ornella Bombaci, Chiara Germani, Giuseppe Orlando, Thales Alenia Space Italia S.p.A., Italy; Davide Giudici, Aresys srl, Italy; Detlef Schulz, Vu Tien Khang, SES, Luxembourg

Urban Remote Sensing

Session Co-Chairs: Paolo Gamba, University of Pavia; Begum Demir, University of Trento

THP.PK.1 Board PK.1
AUTOMATIC CLOUDS/SHADOWS EXTRACTION METHOD FROM CBERS-2 CCD AND LANDSAT DATA
Mostapha Harb, Daniele De Vecchi?, University of Pavia; European Centre for Training and Research in Earthquake Engineering, Italy; Paolo Gamba, University of Pavia, Italy; Fabio Dell'Acqua, University of Pavia; European Centre for Training and Research in Earthquake Engineering, Italy; Raul Queiroz Feitosa, Pontifical Catholic University of Rio de Janeiro; Rio de Janeiro State University, Brazil

THP.PK.2 Board PK.2
EFFECTIVENESS OF POLARIZATION ON THE EXTRACTION OF BUILDINGS WITH DIFFERENT ORIENTATIONS
Ao Du, Yong Wang, University of Electronic Science and Technology of China, China

THP.PK.3 Board PK.3
A STUDY OF THE ROUGHNESS AND CURVATURE IN 3D POINT CLOUDS TO EXTRACT VERTICAL AND HORIZONTAL SURFACES
Borja Rodríguez-Cuenca, University of Alcalá, Spain; Silverio García-Cortés, Celestino Ordóñez, University of Oviedo, Spain; María Concepción Alonso, University of Alcalá, Spain

THP.PK.4 Board PK.4
DEFORMATION ANALYSIS OF A METROPOLIS FROM C- TO X-BAND PSI: PROOF-OF-CONCEPT WITH COSMO-SKYMED OVER ROME, ITALY
Deodato Tapete, Francesca Cigna, Natural Environment Research Council/National Research Council, United Kingdom; Rosa Lasaponara, Nicola Masini, National Research Council, Italy; Pietro Milillo, University of Basilicata, Italy

THP.PK.5 Board PK.5
SIMULATION OF URBAN TERRAIN MODELS USING VBS2, TERRATOOLS AND FZK VIEWER
Gisela Häufel, Dimitri Bulatov, Moritz Liebelt, Peter Solbrig, Fraunhofer IOSB, Germany

THP.PK.6 Board PK.6
URBAN AREA MONITORING VIA SYNERGIC USE OF COSMO-SKYMED AND RADARSAT-2 DATA
Gerardo Di Martino, Antonio Iodice, Daniele Riccio, Giuseppe Ruello, Università di Napoli Federico II, Italy

Land Cover Dynamics II

Session Co-Chairs: Steve Iris, Canadian Space Agency; Kadim Tasdemir, Antalya International University

THP.PL.1 Board PL.1 **MODIS EVI, NDVI, WDRVI, DAILY AND COMPOSITE: LOOKING FOR THE BEST CHOICE TO ESTIMATE PHENOLOGICAL PARAMETERS FROM DECIDUOUS FORESTS**
Stefano Testa, University of Turin, Italy; Luigi Boschetti, University of Idaho, United States; Enrico Borgogno Mondino, University of Turin, Italy

THP.PL.2 Board PL.2 **MAPPING OF BURNT AREAS IN BRAZILIAN AMAZON USING TERRASAR-X DATA**
Ron Hagensieker, Ribana Roscher, Björn Waske, Freie Universität Berlin, Germany

THP.PL.3 Board PL.3 **LAND COVER CHANGE ANALYSIS OF THE YUCATAN PENINSULA USING LANDSAT DATA FROM 1985 TO 2010**
Rene R. Colditz, Ricardo M. Llamas, National Commission for the Knowledge and Use of Biodiversity (CONABIO), Mexico; Vanessa S. Mascorro, University of British Columbia, Canada; Rainer A. Ressl, National Commission for the Knowledge and Use of Biodiversity (CONABIO), Mexico

THP.PL.4 Board PL.4 **LAND USE/COVER AND CARBON STORAGE CHANGES IN CENTRAL AND SOUTHERN LIAONING URBAN AGGLOMERATIONS, CHINA**
Fang Huang, Jinrong Han, Northeast Normal University, China

THP.PL.5 Board PL.5 **SHORTWAVE RADIATION REFLECTED FROM THE TERRITORY OF POLAND THROUGHOUT THE YEAR AS AN EFFECT OF SMOOTHING SOILS PREVIOUSLY PLOWED AND HARROWED**
Jerzy Cierniewski, Slawomir Królewicz, Cezary Kazmierowski, Jakub Ceglarek, Piotr Kusz, Adam Mickiewicz University in Poznan, Poland

THP.PL.6 Board PL.6 **MAPPING DYNAMICS OF DEFORESTATION AND FOREST DEGRADATION IN TROPICAL FORESTS USING ALOS PALSAR**
Neha Joshi, University of Copenhagen, Denmark; Edward Ta Mitchard, University of Edinburgh, Denmark; Martin R Jepsen, Andrea Ehammer, University of Copenhagen, Denmark; Murray Collins, University of Edinburgh, United Kingdom; Rasmus Fensholt, University of Copenhagen, Denmark

THP.PL.7 Board PL.7 **PHENOLOGY AND ITS RELATION TO PRECIPITATION IN THE BRAZILIAN SAVANNA**
Arielle Arantes, Laerte Ferreira, Manuel Ferreira, LAPIG, Brazil

THP.PL.8 Board PL.8 **DETERMINING THE MAGNITUDE AND DIRECTION OF LAND COVER CHANGES IN THE SEMI-NATURAL AREAS OF HASKOVO REGION, SOUTHEAST BULGARIA**
Daniela Avetisyan, Roumen Nedkov, Space Research and Technology Institute - Bulgarian Academy of Sciences, Bulgaria

THP.PL.9 Board PL.9 **DEVELOPMENT OF 10-DAYS COMPOSITE NDVI IMAGE FOR ASIA USING SUOMI NPP EDR DATA**
Dorj Ichikawa, Koji Wakamori, Japan Manned Space Systems Corporation, Japan

THP.PL.10 Board PL.10 **MAPPING OF LAND DEGRADATION AND ITS FACTORS USING LANDSAT AND DEM IN THE WESTERN AUSTRALIAN WHEATBELT**
Chiaki Kobayashi, Infoserve Inc., Japan; Kazuo Oki, University of Tokyo, Japan

Agricultural Applications

Session Chair: Chinatsu Yonezwa, Tohoku University

THP.PM.1 Board PM.1 **COMBINING METEOROLOGICAL AND LYSIMETER DATA TO EVALUATE ENERGY AND WATER FLUXES OVER A ROW CROP FOR REMOTE SENSING APPLICATIONS**
Luis Olivera-Guerra, Laboratory for Analysis of the Biosphere / University of Chile, Chile; Olivier Merlin, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Cristian Mattar, Claudio Durán-Alarcón, Andrés Santamaríá-Artigas, Laboratory for Analysis of the Biosphere / University of Chile, Chile; Vivien Stefan, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France

THP.PM.2 Board PM.2 **ASSESSING CROP RESIDUE COVER WHEN SCENE MOISTURE CONDITIONS CHANGE**
Craig S.T. Daughtry, U.S. Department of Agriculture, United States; Miguel Quemada, Technical University of Madrid, Spain

THP.PM.3 Board PM.3 **REMOTE SENSING-BASED ESTIMATE OF CROP WATER CONSUMPTION FOR IMPROVED IRRIGATION MANAGEMENT**
Yufang Jin, Daniele Zaccaria, Richard Snyder, University of California, Davis, United States

THP.PM.4 Board PM.4 **WEATHER INDEX FOR CROP INSURANCE TO MITIGATE BASIS RISK**
Kentaro Kuwata, Faizan Mahmood, Ryosuke Shibasaki, The University of Tokyo, Japan

THP.PM.5 Board PM.5 **ESTIMATION OF WATER REQUIREMENT FOR RICE CULTIVATION USING SATELLITE DATA**
Chiharu Hongo, Chiba University, Japan; Gunardi Sigit, Regional Office of Food Crops Service West Java Province, Indonesia, Indonesia; Ryohei Shikata, Ministry of Agriculture, Forestry and Fisheries, Japan, Japan; Eisaku Tamura, Chiba University, Japan

THP.PM.6 Board PM.6 **RICE YIELD ESTIMATION USING MULTISPECTRAL DATA FROM UAV: A PRELIMINARY EXPERIMENT IN NORTHERN ITALY**
Daniela Stroppiana, IREA-CNR, Italy; Mauro Migliazzi, GLOBI Hi-Tech Srl, Italy; Valter Chiarabini, KIM-RemoteSensing GmbH, Austria; Alberto Crema, Mauro Musanti, IREA-CNR, Italy; Carlo Franchino, Azienda Carlo Franchino, Italy; Paolo Villa, IREA-CNR, Italy

THP.PM.7 Board PM.7 **UNSUPERVISED EXTRACTION OF GREENHOUSES USING APPROXIMATE SPECTRAL CLUSTERING ENSEMBLE**
Esma Pala, Kadim Tasdemir, Antalya International University, Turkey; Dilek Koc-San, Akdeniz University, Turkey

Topography

Session Chair: Takeo Tadano, Japan Aerospace Exploration Agency

THP.PN.1 Board PN.1 **COMBINED SQUEE-SAR AND GPS GROUND DEFORMATION STUDY OF NISYROS-YALI VOLCANIC FIELD (GREECE) FOR PERIOD 2002-2012**
Vassilis Sakkas, National & Kapodistrian University of Athens, Greece; Fabrizio Novali, Tele-Rilevamento Europa - T.R.E. srl., Italy; Evangelos Lagios, National & Kapodistrian University of Athens, Greece; Alessandro Ferretti, Tele-Rilevamento Europa - T.R.E. srl., Italy; Spyridoula Vassilopoulou, National & Kapodistrian University of Athens, Greece; Fernando Bellotti, Jacopo Allievi, Tele-Rilevamento Europa - T.R.E. srl., Italy

THP.PN.2 Board PN.2 **GROUND DEFORMATION IN THE BROADER AREA OF THE ATALANTI FAULT ZONE (CENTRAL GREECE) BASED ON GPS & PSI-WAP**
Vassilis Sakkas, Evangelos Lagios, Spyridoula Vassilopoulou, National & Kapodistrian University of Athens, Greece; Nico Adam, German Aerospace Center (DLR), Germany

THP.PN.3 Board PN.3 **DEM AND GIS ANALYSIS OF THE STREAM GRADIENT INDEX FOR EVALUATING EFFECTS OF ACTIVE TECTONICS: TULA BASIN, NORTH TIBET, CHINA**
Lin Wang, Feng Cheng, Peking University, China

THP.PN.4 Board PN.4 **QUANTITATIVE MEASUREMENT OF THE TOPOGRAPHIC CHANGE AT OVERHANGING SEA CLIFF WITH SMALL UAV SURVEY SYSTEM**
Hiroyuki Obanawa, Chiba University, Japan

THP.PN.5 Board PN.5 **NATIONAL AIRBORNE LIDAR MAPPING AND EXAMPLES FOR APPLICATIONS IN DEEP-SEATED LANDSLIDES IN TAIWAN**
Cheng-Lung Chiu, Technical Specialist, Taiwan; Li-Yuan Fei, Director, Taiwan; Jin-King Liu, CEO/LIDAR TECHNOLOGY CO., LTD., Taiwan; Ming-Chee Wu, Professor, Taiwan

THP.PN.6 Board PN.6 **MAPPING OF SUBSURFACE THERMAL CONDUCTION AND CONVECTION USING SPATIAL STATISTICS**
Bingwei Tian, Sichuan University-The Hong Kong Polytechnic University, China; Ling Wang, Chengdu Institute of Biology, Chinese Academy of Sciences, China; Koike Katsuaki, Graduate School of Engineering, Kyoto University, Japan

THP.PN.7 Board PN.7 **THE MOHO DEPTH MAP AND ITS GEOLOGICAL SIGNIFICANCE IN THE LAND AND SEA OF CHINA AND ADJACENT AREAS**
Tianyao Hao, Weijian Hu, Jian Xing, Litian Hu, Jingxin Qin, Institute of Geology and Geophysics, Chinese Academy of Sciences, China

THP.PN.8 Board PN.8 **REMOTE SENSING AND GIS BASED ARTIFICIAL NEURAL NETWORK SYSTEM FOR LANDSLIDE SUCEPTIBILITY MAPPING**
Rohan Kumar, R Anbalagan, Indian Institute of Technology Roorkee, India

Data Management III

Session Co-Chairs: Linda Hayden, Elizabeth City State University; Andrea Lawrence, Spelman College

THP.PO.1 Board PO.1 **THE ROLE OF THE NASA GLOBAL HAWK LINK MODULE AS AN INFORMATION NEXUS FOR ATMOSPHERIC MAPPING MISSIONS**
Donald Sullivan, NASA, United States

THP.PO.2 Board PO.2 **THE NATIONAL ENTIRONMENTAL AND GEOLOGICAL INFORMATION SYSTEM FOR REMOTE SENSING SURVEY AND MONITORING**
Yunpeng Yan, Zhengmin He, Gang Liu, Yanzuo Wang, AGRS(China Aero Geophysical Survey and Remote Sensing Center for Land and Resources), China; Cong Han, China University of Geosciences, China

THP.PO.3 Board PO.3 **RESEARCH ON VECTOR SPATIAL DATA ACCESS BASED ON MAIN MEMORY DATABASE**
Xiao Yao, Qiang Qiu, Mengfei Zhang, Cuiting Chen, Jinyun Fang, Institute of Computing Technology, Chinese Academy of Sciences, China

THP.PO.4 Board PO.4 **SUPER-LOW FREQUENCY ELECTROMAGNETIC NOISE PROCESSING SYSTEM BASED ON ADAPTIVE FILTERING**
Shanshan Zhao, Nan Wang, Li Chen, Jian Hui, Chengye Zhang, Qiming Qin, Peking University, China

THP.PO.5 Board PO.5 **STUDY ON THE PRODUCTION COST PRICING MODEL OF QUANTITATIVE REMOTE SENSING PRODUCTS**
Lin Shen, Jian Jiao, Ruiyan Fan, Qiming Zeng, Institute of Remote Sensing and GIS, Peking University, China

THP.PO.6 Board PO.6 **MUTUAL INFORMATION UPPER BOND OF COMPRESSED DATA USING BLOCK ADAPTIVE QUANTIZATION ALGORITHM**
Haojie Zhang, Jie Chen, Hongcheng Zeng, Jingwen Li, Wei Yang, Beihang University, China

THP.PO.7 Board PO.7 **EFFICIENT SAR RAW DATA PARALLEL SIMULATION BASED ON MULTICORE VECTOR EXTENSION**
Chen Hu, Fan Zhang, College of Information Science & Technology, Beijing University of Chemical Technology, China; Lixiang Ma, China Academy of Space Technology, China; Guojun Li, Wei Hu, Wei Li, College of Information Science & Technology, Beijing University of Chemical Technology, China

THP.PO.8 Board PO.8 **ANALYSIS OF NOISE IMPACT ON GEO-OBJECT RECOGNITION IN INFRARED BANDS USING SIMULATED DATA**
Dandan Wei, Fuping Gan, Zhenhua Zhang, Chenchao Xiao, China Aero Geophysical Survey & Remote Sensing Center for Land and Resources, China; Huijie Zhao, Xianfei Qiu, Guorui Jia, Beihang University, China

Microwave Radiometer Instruments and Calibration I

Session Chair: Albin Gasiewski, University of Colorado

THP.PP.1 Board PP.1
STATISTICAL REGULARIZATION IN SYNTHETIC APERTURE IMAGING RADIOMETRY
Liang Wu, Fei Hu, Feng He, Jun Li, Xiaohui Peng, Dong Zhu, Huazhong University of Science and Technology, China

THP.PP.2 Board PP.2
AQUARIUS FARADAY ROTATION OBSERVATIONS
Liang Hong, NASA Goddard Space Flight Center/ SAIC, United States; Salem El-Nimri, NASA Goddard Space Flight Center/ ASRC, United States; Jinzheng Peng, Universities Space Research Association, United States

THP.PP.3 Board PP.3
SUPER-RESOLUTION RFI LOCALIZATION WITH COMPRESSIVE SENSING IN SYNTHETIC APERTURE INTERFEROMETRIC RADIOMETERS
Jun Li, Fei Hu, Feng He, Liang Wu, Xiaohui Peng, Yayun Cheng, Dong Zhu, Ke Chen, Huazhong University of Science and Technology, China

THP.PP.4 Board PP.4
VALIDATION OF SMOS AND AQUARIUS SOIL MOISTURE USING TWO IN SITU NETWORKS IN SPAIN
Ángel González-Zamora, Nilda Sánchez, José Martínez-Fernández, Ángela Gumuzzio, Universidad de Salamanca, Spain

THP.PP.5 Board PP.5
INTER-COMPARISON OF SMAP, AQUARIUS AND SMOS L-BAND BRIGHTNESS TEMPERATURE OBSERVATIONS
Rajat Bindlish, Thomas Jackson, U.S. Department of Agriculture, United States; Jeffrey R. Piepmeier, NASA, United States; Simon Yueh, California Institute of Technology, United States; Yann Kerr, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France

THP.PP.6 Board PP.6
PERFORMANCE ASSESSMENT OF AN LNA USED AS ACTIVE COLD LOAD
Sten Schmidl Søbjærg, Jan E. Balling, Niels Skou, Technical University of Denmark, Denmark

THP.PP.7 Board PP.7
ASSESSMENT OF BACK-END RFI MITIGATION TECHNIQUES IN PASSIVE REMOTE SENSING
Jorge Querol, Alberto Alonso-Arroyo, Raul Onrubia, Daniel Pascual, Adriano Camps, Universitat Politècnica de Catalunya - BarcelonaTech, Spain

THP.PP.8 Board PP.8
INVESTIGATION OF RADIATIVE TRANFER MODEL EFFECT ON RADIOMETRIC INTER-CALIBRATION OF GPM SOUNDER CHANNELS
Hamideh Ebrahimi, University of Central Florida, United States; Saswati Datta, Data and Image Processing Consultants, United States; W. Linwood Jones, University of Central Florida, United States

THP.PP.9 Board PP.9
ON-ORBIT ANTENNA REFLECTOR LOSS MEASUREMENTS FOR ADVANCED TECHNOLOGY MICROWAVE SOUNDER (ATMS) CALIBRATION
Hu Yang, Earth System Science Interdisciplinary Center, University of Maryland, United States; Fuzhong Weng, Ninghai Sun, NOAA Center for Satellite Applications and Research, United States

GNSS-R Sensors II

Session Chair: Hugo Carreno-Luengo, Universitat Politecnica de catalunya

THP.PQ.1 Board PQ.1
EVOLUTION OF PAU/PARIS END-TO-END PERFORMANCE SIMULATOR (P2EPS) TOWARDS GNSS REFLECTOMETRY, RADIO OCCULATION AND SCATTEROMETRY SIMULATOR (GEROS-SIM)
Hyuk Park, Adriano Camps, Daniel Pascual, Raul Onrubia, Alberto Alonso-Arroyo, Francisco Martin, Universitat Politècnica de Catalunya, Spain

THP.PQ.2 Board PQ.2
AN AIRBORNE GNSS-R FIELD EXPERIMENT OVER A VINEYARD FOR SOIL MOISTURE ESTIMATION AND MONITORING
Alberto Alonso-Arroyo, Adriano Camps, Universitat Politècnica de Catalunya - BarcelonaTech, Spain; Nilda Sánchez, Universidad de Salamanca, Spain; Miriam Pablos, Universitat Politècnica de Catalunya - BarcelonaTech, Spain; Ángel González-Zamora, José Martínez-Fernández, Universidad de Salamanca, Spain; Mercè Vall-llossera, Daniel Pascual, Universitat Politècnica de Catalunya - BarcelonaTech, Spain

THP.PQ.3 Board PQ.3
ADVANCES IN THE MIR INSTRUMENT: INTEGRATION, CONTROL SUBSYSTEM AND ANALYSIS OF THE FLIGHT DYNAMICS FOR BEAMSTEERING PURPOSES.
Raul Onrubia, Lidia Garrucho, Daniel Pascual, Hyuk Park, Jorge Querol, Alberto Alonso-Arroyo, Adriano Camps, Remote Sensing Laboratory - UPC, Spain

THP.PQ.4 Board PQ.4
A RESOLUTION ENHANCEMENT METHOD TO GENERATE HIGH-PERFORMANCE ADDED-VALUE GNSS-R IMAGING PRODUCTS
Domenico Schiavulli, CNRS and GET at Observatoire Midi-Pyrenees, France; Flavia Lenti, Università dell'insubria, Italy; Ferdinando Nunziata, Maurizio Migliaccio, Giovanni Pugliano, Università di Napoli Parthenope, Italy

THP.PQ.5 Board PQ.5
GLORI (GLOBAL NAVIGATION SATELLITE SYSTEM REFLECTOMETRY INSTRUMENT)
Erwan Motte, Pascal Fanise, Mehrez Zribi, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France

THP.PQ.6 Board PQ.6
GPS DIFFRACTIVE REFLECTOMETRY: FOOTPRINT OF A COHERENT RADIO REFLECTION INFERRED FROM THE SENSITIVITY KERNEL OF SNR MULTIPATH MEASUREMENTS
Felipe Geremia Nievinski, Matheus Ferreira e Silva, São Paulo State University, Brazil; Karen Boniface, Institut des Sciences de la Terre (ISTerre), France; João Francisco Galera Monico, São Paulo State University, Brazil

THP.PQ.7 Board PQ.7
SARGO - A SYSTEM TO ACQUIRE GNSS-R DATA FOR OCEAN ALTIMETRY
Rita Castro, Tiago Peres, Jorge Carola, Joao Silva, Jorge Bandeiras, Ricardo Capote, Nuno Catarino, Pedro F. Silva, DEIMOS Engenharia SA, Portugal

THP.PQ.8 Board PQ.8
STOCHASTIC SIMULATION OF DELAY-DOPPLER MAPS FOR GNSS-R
Pia Addabbo, Tiziana Beltramonte, Università degli Studi del Sannio, Italy; Salvatore D'Addio, European Space Agency (ESA), Netherlands; Maurizio Di Bisceglie, Carmela Galdi, Generoso Giangregorio, Silvia Liberata Ullo, Università degli Studi del Sannio, Italy

THP.PQ.9 Board PQ.9
GEROS-ISS: ANALYSIS OF REFLECTION POINTS
Jorge Bandeiras, Ana Sousa, DEIMOS Engenharia SA, Portugal; Stefania Tonetti, DEIMOS Space, Spain; Nuno Catarino, DEIMOS Engenharia SA, Portugal; Francisco Benito, Airbus Defence and Space, Spain; Manuel Martín-Neira, European Space Agency (ESA), Netherlands

THP.PQ.10 Board PQ.10
AIRBORNE GNSS-R, THERMAL AND OPTICAL DATA RELATIONSHIPS FOR SOIL MOISTURE RETRIEVALS
Nilda Sánchez, Universidad of Salamanca, Spain; Alberto Alonso-Arroyo, Universitat Politècnica de Catalunya, Spain; Ángel González-Zamora, José Martínez-Fernández, Universidad of Salamanca, Spain; Adriano Camps, Mercè Vall-llossera, Miriam Pablos, Universitat Politècnica de Catalunya, Spain; Carlos Miguel Herrero-Jiménez, Universidad of Salamanca, Spain

THP.PQ.11 Board PQ.11
A COMPUTER-TIME EFFECTIVE SCHEME TO RECONSTRUCT THE RADAR IMAGE FROM A NOISY GNSS-R DDM
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Monitoring Natural Disaster I

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THP.PR.1 Board PR.1 **VOLCANIC ACTIVITY ANALYSIS OF MT. SINABUNG IN INDONESIA USING INSAR AND GIS TECHNIQUES**
Chang-Wook Lee, Division of Science Education, Republic of Korea; Zhong Lu, Jin-Woo Kim, Southern Methodist University, United States; Seul-Ki Lee, National Institute of Meteorologica Research, Republic of Korea

THP.PR.2 Board PR.2 **REMOTE SENSING OF GLOBAL VOLCANIC ERUPTIONS USING FENGYUN SERIES**
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THP.PR.3 Board PR.3 **SYNERGY BETWEEN COSPEC OBSERVATIONS AND MODIS IMAGES IN THE MONITORING OF VOLCANIC SO2**
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THP.PR.4 Board PR.4 **AUTOMATIC MONITORING OF ASH AND METEOROLOGICAL CLOUDS BY NEURAL NETWORKS**
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THP.PR.5 Board PR.5 **SPEDITIVE COSMO-SKYMED SAR QUICK-LOOK ANALYSIS FOR CHANGE DETECTION IN SUPPORT TO DISASTER MANAGEMENT AND ENVIRONMENTAL MONITORING**
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THP.PR.6 Board PR.6 **SEGMENTATION OF ANTICYCLONIC EDDIES USING MODIS AND MERIS IMAGERY OF AN UNDERWATER VOLCANO**
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THP.PR.7 Board PR.7 **EO DATA FOR RAPID RISK ANALYSIS WITH THE RASOR PLATFORM**
Fifame N. Koudogbo, Altamira-Information, Spain; Roberto Rudari, CIMA Research Foundation, Italy; Andrew Eddy, Athena Global Europe, France; Eva Trasforini, Lauro Rossi, CIMA Research Foundation, Italy; Herve Yesou, Universite de Strasbourg - SERTIT, France; Joost Beckers, Deltares, Netherlands; Fabio Dell'Acqua, EUCENTRE, Italy; Martin Huber, Achim Roth, German Aerospace Center (DLR), Germany; Stefano Salvi, National Institute of Geophysics and Volcanology (INGV), Italy; Athanassios Ganas, National Observatory of Athens, Greece

THP.PR.8 Board PR.8 **THE PREFER FP7 PROJECT: DAMAGE SEVERITY MAPS VALIDATION RESULTS**
Giovanni Laneve, Lorenzo Fusilli, Pablo Marzialetti, Roberto De Bonis, Guido Bernini, Università di Roma "La Sapienza", Italy; Maria Lucia Tampellini, CGS, Italy

THP.PR.9 Board PR.9 **NEAR REAL-TIME ONBOARD GENERATION OF CO-REGISTERED VECTOR PRODUCTS USING LANDSAT CHIPS**
Daniel Mandl, Jacqueline Le Moigne, NASA Goddard Space Flight Center, United States; Patrice Cappelaere, Vlghtel Inc., United States; Vuong Ly, NASA Goddard Space Flight Center, United States; Stuart Frye, SGT Inc., United States

THP.PR.10 Board PR.10 **EVALUATION OF SIMULATED SOIL MOISTURE IN GLDAS USING IN-SITU MEASUREMENTS OVER THE TIBETAN PLATEAU**
Haiyun Bi, Institute of Geology, China Earthquake Administration, China; Jianwen Ma, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China

Analysis of Multitemporal Images V

Session Chair: Andrea Garzelli, University of Siena

THP.PS.1 Board PS.1 **A NEW METHOD FOR AUTOMATIC FINE REGISTRATION OF MULTI-SPECTRAL REMOTE SENSING IMAGES**
Yang Li, Yunping Chen, University of Electronic Science and Technology of China, China; Zhihang Xue, Yongxing Cao, Electric Power Research Institute of Sichuan, China; Wenzhu He, Sichuan Academy of Agricultural Sciences, China; Ling Tong, University of Electronic Science and Technology of China, China

THP.PS.2 Board PS.2 **EFFECTS OF NEAR SHORE LAND-USE DYNAMIC ON COASTAL EROSION IN PHUKET, THAILAND**
Chanida Suwanprasit, Chiang Mai University, Thailand

THP.PS.3 Board PS.3 **REGISTRATION FOR LONG-TERM MULTI-TEMPORAL REMOTE SENSING IMAGES UNDER SPATIAL CONSTRAINTS FROM HISTORICAL DATA**
Lei Hu, Jihua Ye, Yue Feng, Jiangxi Normal University, China; Yongmei Zhang, North China University of Technology, China

THP.PS.4 Board PS.4 **OBJECT-BASED CHANGE DETECTION MODEL USING CORRELATION ANALYSIS AND CLASSIFICATION FOR VHR IMAGE**
Zhipeng Tang, Hong Tang, Shi He, Ting Mao, Beijing Normal University, China

THP.PS.5 Board PS.5 **IMPROVED CLASSIFICATION AND LABELING OF HIGH RESOLUTION SAR IMAGES BY TIME SERIES DATA**
Gottfried Schwarz, Mihai Datcu, German Aerospace Center (DLR), Germany

Emergency Response II

Session Co-Chairs: Marco Gianinetto, Politecnico di Milano; Marco Chini, Lippmann

THP.PS.7 Board PS.7 **HOW DISTRIBUTED GEODATA SOLUTIONS IMPROVE EMERGENCY MANAGEMENT EFFICIENCY**
Andrea Ajmar, Simone Balbo, ITHACA, Italy; Piero Boccardo, Politecnico di Torino, Italy; Filippo Pongelli, Francesco Stompanato, World Food Programme, Italy

THP.PS.8 Board PS.8 **POST-DISASTER IMAGE ANALYSIS USING DOMAIN ADAPTATION**
Prakash Andugula, Surya Durbha, Indian Institute of Technology Bombay, India

THP.PS.9 Board PS.9 **SPACE SHEPHERD: SEARCH AND RESCUE OF ILLEGAL IMMIGRANTS IN THE MEDITERRANEAN SEA THROUGH SATELLITE IMAGERY**
Francesco Topputo, Mauro Massari, Riccardo Lombardi, Marco Gianinetto, Andrea Marchesi, Martina Aiello, Stefano Tebaldini, Francesco Banda, Politecnico di Milano, Italy

THP.PS.10 Board PS.10 **NORWEGIAN OIL-ON-WATER EXERCISE CAMPAIGN FOR DEVELOPMENT OF A MULTI-FREQUENCY SAR SLICK CHARACTERIZATION CAPABILITY**
Cathleen Jones, Jet Propulsion Laboratory, United States; Camilla Brekke, UiT-The Arctic University of Norway, Norway; Benjamin Holt, Jet Propulsion Laboratory, United States; Stine Skrunes, UiT-The Arctic University of Norway, Norway

THP.PS.11 Board PS.11 **IMPLEMENTATION OF GEOGRAPHIC KNOWLEDGE IN OIL SPILL RESPONSE PLAN FOR COLOMBIAN OFFSHORE PROJECTS**
Juan Carrillo, Harold Bogota, Universidad Distrital Francisco José de Caldas, Colombia, Colombia; Diana Borda, Université de Montréal, Canada, Canada; Sebastian Gonzalez, DIMAR Dirección General Marítima, Colombia, Colombia

Atmospheric Sounding III

Session Chair: Fuzhong Weng, NOAA

THP.PT.1 Board PT.1 **RETRIEVAL OF FOG MICROPHYSICAL PROPERTIES FROM CLOUD RADAR AND OPTICAL SENSORS**
Yunlong Li, Peter Hoogeboom, Herman Russchenberg, Delft University of Technology, Netherlands; Henk Klein Baltink, Royal Netherlands Meteorological Institute (KNMI), Netherlands

THP.PT.2 Board PT.2 **UNCERTAINTY ASSESSMENT OF SOLAR IRRADIANCES AT TWO BASELINE SURFACE RADIANCE NETWORK (BSRN) STATIONS**
Xuemei Zong, Jinhuan Qiu, Institute of Atmospheric Physics,Chinese Academy of Sciences, China

THP.PT.3 Board PT.3 **ESTIMATION OF THE VERTICAL GRADIENT OF THE ATMOSPHERIC REFRACTIVITY FROM WEATHER RADAR DATA USING SQUARE TRIHEDRAL CORNER REFLECTOR RETURNS**
Rubén Nocelo López, Verónica Santalla del Rio, University of Vigo, Spain

THP.PT.4 Board PT.4 **THE PREPROCESSOR OF THE NOAA UNIQUE CRIS/ATMS PROCESSING SYSTEM (NUCAPS)**
Changyi Tan, I.M. Systems Group, United States; Quanhua Liu, NOAA/NESDIS/STAR, United States; Antonia Gambacorta, Science and Technology Corporation, United States; Nicholas Nalli, Flavio Iturbide-Sanchez, Kexin Zhang, Michael Wilson, I.M. Systems Group, United States; Walter Wolf, NOAA/NESDIS/STAR, United States

THP.PT.5 Board PT.5 **SIMULATION OF IMAGING TECHNOLOGY FOR GEOSTATIONARY PASSIVE MICROWAVE OBSERVATION**
Ke Chen, Huazhong University of Science and Technology, China; Albin J. Gasiewski, Kun Zhang, University of Colorado at Boulder, United States; Wei Guo, Qingxia Li, Huazhong University of Science and Technology, China

Ocean Scatterometry

Session Co-Chairs: Celine Tison, CNES; Stephen Frasier, University of Massachussets

THP.PU.1 Board PU.1 **THEORETICAL AND EXPERIMENTAL ANALYSIS OF SPATIAL DECORRELATION OF DOPPLER SCATTEROMETER**
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THP.PU.2 Board PU.2 **AN UNFOCUSED SAR DESIGN TO IMPROVE AZIMUTH RESOLUTION OF DUAL-FREQUENCY FULL-POLARIZED SCATTEROMETER**
Gang Wang, National Space Science Center & University of Chinese Academy of Sciences, China; Xiaolong Dong, National Space Science Center, Chinese Academy of Sciences, China; Qingliu Bao, National Space Science Center & University of Chinese Academy of Sciences, China; Di Zhu, Xingou Xu, National Space Science Center, Chinese Academy of Sciences, China

THP.PU.3 Board PU.3 **ANALYSIS OF THE NOISE SCENARIO MEASURED BY ASCAT**
Francesca Ticconi, Craig Anderson, Julia Figa Saldana, Julian Wilson, EUMETSAT, Germany

THP.PU.4 Board PU.4 **AN ANALYSIS OF TROPICAL CYCLONES IN THE NORTHWEST PACIFIC OCEAN AND SOUTH CHINA SEA USING HY-2 SATELLITE OBSERVATIONS**
Yi Zhang, Mingsen Lin, Qingtao Song, National Satellite Ocean Application Service, China

Precipitation and Atmospheric Sounding

Session Chair: William Blackwell, MIT Lincoln Laboratory

THP.PU.7 Board PU.7 **DEVELOPMENT OF GNSS-RO AND EDTP SENSORS ONBOARD MICROSATELLITE FOR IONOSPHERE MONITORING**
Josaphat Tetuko Sri Sumantyo, Nobuyoshi Imura, Chiba University, Japan

THP.PU.8 Board PU.8 **ESTIMATION OF OUTGOING LONGWAVE RADIATION FROM CRIS RADIANCE OBSERVATIONS**
Kexin Zhang, IMSG, United States; Fengying Sun, INNOVIM, United States; Mitch Goldberg, NOAA, United States; Thomas King, IMSG, United States; Quanhua Liu, Walter Wolf, NOAA, United States; Changyi Tan, Letitia Soulliard, IMSG, United States

THP.PU.9 Board PU.9 **RESEARCH ON GLOBAL PROFILES AND PRECIPITATION RETRIEVALS FOR FY-3C MWHTS**
Jieying He, Shengwei Zhang, Center for Space Science and Applied Research, Chinese Academy of Sciences, China

THP.PU.10 Board PU.10 **VERTICAL PROFILES OF WEATHER RADAR REFLECTIVITY: CASE STUDY ANALYSIS FROM THE INTALIAN NETWORK FOR QUANTITAVE PRECIPITATION ESTIMATION**
Mario Montopoli, Sapienza University of Rome, Italy; Gianfranco Vulpiani, Presidency of the Council of Ministers, Italy; Emilio Guerriero, Selex ES, Italy

THP.PU.11 Board PU.11 **TESTING AND INTEGRATION OF JPSS OZONE MAPPING AND PROFILER SUITE (OMPS) ALGORITHMS USING THE ALGORITHM DEVELOPMENT LIBRARY (ADL)**
Bigyani Das, IMSG Inc, United States; Walter Wolf, Lawrence Flynn, NOAA, United States; Maria Caponi, Caponi & Assoc_SEAMM_s, United States; Trevor Beck, NOAA, United States; Zhihua Zhang, Jiangua Niu, IMSG Inc, United States

Remote Sensing Instruments for Winds and Waves

Session Chair: David Weissman, Hofstra University

THP.PV.1 Board PV.1 **EVALUATION OF MARINE VECTOR WINDS OBSERVED BY RAPIDSCAT ON THE INTERNATIONAL SPACE STATION USING STATISTICAL DISTRIBUTION**
Naoto Ebuchi, Hokkaido University, Japan

THP.PV.2 Board PV.2 **EVALUATION OF OPERATIONAL RAPIDSCAT OCEAN SURFACE VECTOR WINDS AT NOAA**
Zorana Jelenak, Paul Chang, Seubson Soisuvarn, Faozi Said, Joseph Sienkiewicz, Michael Brennan, NOAA/NESDIS, United States

THP.PV.3 Board PV.3 **NUMERICAL SIMULATION OF THE RUSSIAN SCATTEROMETER: CHOICE OF WIDTH SWATH**
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THP.PV.4 Board PV.4 **PERFORMANCE ANALYSIS OF THE AIRBORNE DOPPLERSCATT CONCEPT FOR SIMULTANEOUS MEASUREMENTS OF OCEAN SURFACE CURRENTS AND WINDS**
Maxim Neumann, Ernesto Rodriguez, Ninoslav Majurec, Dragana Perkovic-Martin, Karthik Srinivasan, Chad Baldi, Ken Cooper, Tamas Gal, Fabien Nicaise, Shadi Oveisgharan, Jet Propulsion Laboratory, United States

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Dawei Li, Hui Shen, Institute of Oceanology, Chinese Academy of Sciences, China; Haiyan Li, University of Chinese Academy of Sciences, China

THP.PV.6 Board PV.6 **NOAA OPERATIONAL SAR WINDS – CURRENT STATUS AND PLANS FOR SENTINEL-1A**
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THP.PV.7 Board PV.7 **DETECTION OF WIND-INDUCED COASTAL UPWELLING OF DEEPER MARINE WATERS FROM A X-BAND WAVE RADAR.**
Francesco Raffa, Institute for Coastal Marine Environment, National Research Council, Italy; Giovanni Ludeno, IREA-CNR, Italy; Bernardo Patti, Institute for Coastal Marine Environment, National Research Council, Italy; Antonio Natale, Franceco Serafino, Institute for Electromagnetic Sensing of the Environment (CNR IREA), Italy

THP.PV.8 Board PV.8 **SHIP BASED OBSERVATIONS OF OCEAN WAVES USING MULTIPLE X-BAND RADARS**
Shanka Wijesundara, Andrew O'Brien, Graeme Smith, Joel T. Johnson, The Ohio State University, United States; David R. Lyzenga, The University of Michigan, United States

THP.PV.9 Board PV.9 **BASIC STUDY OF UTILIZATION OF DBF OCEAN RADAR WITH VHF BAND FOR TSUNAMI DETECTION IN OPEN SEA**
Shin'ichi Sakai, Masafumi Matsuyama, Central Research Institute of Electric Power Industry, Japan; Kouzou Okuda, Fumihiro Uehara, Chubu Electric Power Co., Inc., Japan

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