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2018IGARSS
International Geoscience and Remote Sensing Symposium

Observing, Understanding and Forecasting the Dynamics of Our Planet

July 22-27, 2018 · VALENCIA, SPAIN
Feria Valencia Convention & Exhibition Center

Organizers GRSS IEEE

2018 IEEE International Geoscience and Remote Sensing Symposium

Observing, Understanding And Forecasting The Dynamics Of Our Planet

July 22–27, 2018
Valencia, Spain

IEEE

IEEE GRSS Geoscience and Remote Sensing Society

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living planet symposium

MILAN
13–17 May
2019

UNDERSTANDING THE EARTH SYSTEM

Scientific results advancing our understanding of the different earth systems and their interactions.

SPACE 4.0 AND EARTH OBSERVATION

Disruptive technologies impact on Earth Observation missions, data analysis and applications.

BENEFITS FOR A RESILIENT SOCIETY

Integration of Earth Observation-based services with local, national and global initiatives for sustainability and resilience.

PUBLIC AND PRIVATE SECTOR INTERACTIONS

New partnerships stimulating cross fertilization between public and private actors.

Deadlines

Session Proposals	Abstracts	Registration	
17 June 2018	11 November 2018	April 2019	lps19.esa.int

European Space Agency

Contents

Welcome from General Chair

On behalf of the local Organizing Committee, with great pleasure we welcome you to Valencia to participate in the International Geoscience and Remote Sensing Symposium (IGARSS 2018), the 38th annual symposium of the IEEE Geoscience and Remote Sensing Society (GRSS). Following the tradition of previous IGARSS, many colleagues in the geoscience and remote sensing community, from all over the world, will present the latest achievements, on-going activities and plans for future research, transferring knowledge and experiences from senior professional researchers to students and young professionals, between the academia and industry communities, between different geographical areas and cultures.

The theme of this year for IGARSS 2018 is "Observing, Understanding and Forecasting the Dynamics of our Planet". As Earth Observation becomes a mature technique and tools become more operational, we are moving towards systematic and continuous global Earth coverage of most relevant processes in land, oceans and the atmosphere. We are no longer just observing or monitoring, we are now understanding the processes and the dynamics of our planet, and being able to model such processes with increasing realism and accuracy. Hopefully this will bring us to the next step, which is the capability to forecast the future of our dynamical planet, with enough precision to make realistic estimates and to allow policy makers to make the right decisions in the benefit of the society. But at the same time new technologies emerge, new Earth Observation methods appear, and new type of data become available. We need to keep watching at such new opportunities as well, always keeping in mind that our final objective is to increase our understanding of the dynamics of the planet at all scales, to make really possible to estimate future trends.

These topics and ideas highlighted in the IGARSS-18 theme, will be discussed along the IGARSS week through the 2422 papers included in the final technical programme, distributed into 1037 oral papers in 221 sessions, and 1385 interactive papers in 161 poster sessions. Authors from 65 different countries have a contribution into the final programme, making the conference a really international success. Poster sessions will take place in the morning and in the afternoon in between oral sessions, during extended coffee breaks, to facilitate interactive presentations. There will be many learning and networking opportunities offered for students and young professionals through parallel activities as well.

This year there will be many more in IGARSS, apart from the oral and poster sessions composing the technical program. Before the conference we will have a summer school and many tutorials from where students can choose those more appropriate for their individual interests. In parallel to the oral and poster sessions we will have the Technology-Industry-Education (TIE) Forum, where in a format different from regular sessions, parallel topics about industry and academia, women and young professionals in geoscience and remote sensing, education, standards, application networks, will be covered through panel presentations and interactive discussions. This year we have a new element for the first time in IGARSS, the Code Workshop taking place on Friday, where participants can practice with open source tools for processing satellite data. Moreover, this year we have many technical meetings taking place in the afternoon after the oral sessions, including those organized by GRSS technical committees plus several other initiatives. Two of them are organized by the European Space Agency (ESA), platinum sponsor of IGARSS 2018: "SMOS–an ESA Earth Explorer satellite: from technology demonstrator to operational applications", and the presentation of the new "ESA Carbon Science Constellation Initiative", a consultation with the community about new ideas for enhanced exploitation of multi-mission satellite data. IGARSS-18 will also host a large exhibition, where space agencies, industry, editors and other companies will show recent developments. Many thanks to all of the people contributing to such parallel events.

At the opening plenary session, after IGARSS editions in Beijing and Fort Worth, and the coming editions in Yokohama and Hawaii, this year 2018 in Europe bring us the opportunity to highlight the activities done in Europe in the context of Earth Observation. Europe has become a key player with the Copernicus programme, Sentinel missions, and related activities. The opening plenary session will highlight presentations from the European Space Agency, the European Commission, Eumetsat and national representatives, allowing IGARSS participants a quite complete overall view of the many things going on in Europe.

The Award Banquet will take place at the City of Arts and Sciences of Valencia, within the Hemispheric area, the first building in the complex. Come and enjoy such extraordinary example of modern architecture. For the Ice Breaker we have something that you cannot miss in Valencia, the setup of a 'Falla'. But you will need to wait until the closing ceremony on Friday afternoon to see if fire will burn the IGARSS 2018 'Falla' or we have a different end for this special 'Falla'. We also plan many social events, including a boat ride at the Albufera lagoon. Do not miss the soccer game on Wednesday, after which you can enjoy a typical Valencian paella.

The local Organizing Committee is mostly composed by people from the University of Valencia. Being this year IGARSS organized by this university team, educational activities have been very relevant. Many undergraduate and postgraduate students, Master and PhD students, have been involved in IGARSS 2018 from the very beginning, and have participated in all the steps. It has been probably

a new experience for them to see how a large conference is organized from inside. Young people has also provided new ideas, and a tremendous enthusiasm in this team. The support of the Local Organizing Committee, and many local volunteers, is highly appreciated.

Finally, we would like to thank the team at Conference Management Services, Inc and Mondial & Cititravel Congresos, for their outstanding work in making IGARSS 2018 a reality, both on the paper submission, registration and technical program side and in the part covering the local organization, social events and logistic. Without the dedication of the two companies and the capability to react to the dynamical circumstances, it would have been impossible to achieve this.

We are looking forward to meeting you in Valencia, the city of Light and Fire, during July 2018. With such an intensive program along the whole IGARSS week, we expect fruitful sharing of recent research results, experiences and innovative ideas. Hopefully you will also find some time to visit the city and enjoy the many historical, cultural and natural attractions, including unforgettable sunset on boat at the Albufera or just a nice walk along the beach at night.

Please keep looking at the website and conference App to follow last minute changes and updates.

Welcome to IGARSS 2018, I wish you a very fruitful and enjoyable week in Valencia!

Jose Moreno
General Chair, IGARSS 2018

Welcome from the IEEE Geoscience and Remote Sensing Society President

Welcome to the 38th IEEE International Geoscience and Remote Sensing Symposium, IGARSS 2018, in Valencia, Spain! IGARSS is the flagship remote sensing conference organized by the IEEE Geoscience and Remote Sensing Society (GRSS). This year's theme, "Observing, Understanding and Forecasting the Dynamics of our Planet," reminds us that it is not just about remote sensors and platforms, but also about in-situ sensors, data assimilation, methods and techniques, as well as climate models that make up an entire system that is created to improve our understanding of our planet and manage the environment in a sustainable way.

To achieve this goal, Europe has developed the so-called Copernicus system. Being in Europe this year, IGARSS features special sessions on the Sentinels, a set of dedicated satellite missions to provide space-borne data for the Copernicus system. There is also a special session on SMOS (Soil Moisture and Ocean Salinity), a very successful ESA mission that has provided global soil moisture and sea surface salinity maps for the first time ever from space using an innovative L-band radiometer. As an Earth Explorer Mission, it was meant to test new sensor concepts, but it also has provided real-time or near real-time products to the weather services. And there are special sessions on the upcoming vegetation fluorescence missions, in which the IGARSS chair and his team have played a very significant role.

Complementing the space assets, this IGARSS includes sessions on the growing field of small satellites and UAVs, and the sensors deployed on these platforms, including both multi/hyperspectral and microwave. At this point, it is worth mentioning that GRSS is a participating Society in the IEEE Journal of Miniaturized Air and Space Systems (J-MASS), a new technical journal devoted to the rapidly evolving field of small air and space systems, including drones and small satellites. Please consider submitting your research work for review for publication in this new journal. The newest special session for the IGARSS 2018 program is dedicated to the memory of Prof. Wolfgang-Martin Boerner, who left us at the end of May. He will always be remembered for his contributions to SAR Polarimetry. GRSS also owes him substantial gratitude for our growth in the Asia-Pacific region. May he rest in peace.

IGARSS is the ideal environment for scientists, engineers, practitioners, and students to meet and exchange ideas, to obtain the latest information on remote sensing, and to attend updated continuing education and training tutorials. I cordially invite you to visit the IEEE GRSS booth to find out how GRSS can help in your professional career.

We would like to thank the IGARSS 2018 General Chair, Prof. José Moreno, the Technical Program Co-Chairs, Profs. José Sobrino and Gustau Camps-Valls, and the rest of the team for all the hard work and effort that they have put into the organization of an event like this. With more than 2100 registrants at the end of June, this is going to be one of the largest IGARSS ever.

I am looking forward to seeing you again at this great IGARSS 2018. Enjoy IGARSS, enjoy this Mediterranean jewel, its people, its climate, and its food!

Adriano Camps
2017-18 President
IEEE Geoscience and Remote Sensing Society

Welcome from Technical Program Committee

The IGARSS 2018 Technical Program Committee (TPC) expresses great pleasure in welcoming you to IGARSS 2018 and hopes that will you have an enjoyable stay in the beautiful city of València, the third largest city in Spain founded by the Romans in 137 BC. Few people know that the original latin name is Valentia, romans had to fight brave locals to settle the city down here. València is now an open, peaceful, Mediterranean city that welcomes you all.

IGARSS 2018 received 2756 abstract submissions from authors in 74 countries. Each submitted abstract was reviewed by a minimum of two expert reviewers, and the IGARSS 2018 Theme Coordinators and Session Organizers determined abstract acceptance and placement based on the relevance, technical soundness, and originality of the paper. Following the review process, the IGARSS 2018 Theme Coordinators led by Paolo Gamba met in Mallorca to coordinate our program. We thank the Theme Coordinators, Session Organizers, and Abstract Reviewers for their important contributions to the technical program.

The final technical program includes 2422 papers that will be presented, with 1037 oral presentations in 221 sessions and 1385 interactive poster papers. Posters will be displayed in two daily sessions throughout the morning and afternoon hours, with authors presenting during morning and afternoon extended coffee breaks. We encourage you to attend posters through the day, and to interact with poster authors during the poster sessions. All presented papers will be published in the conference proceedings on IEEE Xplore.

The theme of IGARSS 2018 is "Observing, Understanding and Forecasting the Dynamics of Our Planet". The technical program covers all related remote sensing areas including advances in data analysis methods, data management and Education, missions, sensors and calibration, and remote sensing of land, oceans, atmosphere, and cryosphere.

Six special themes were included this year: close range remote sensing, big machine learning in remote sensing, global essential variables from satellite observations, advances in model-data integration and assimilation, new remote sensing techniques and methods and education and outreach in remote sensing and geosciences. The final program fully captures the IGARSS 2018 theme, and we hope that numerous opportunities to expand international cooperation will occur during the course of the conference.

The program is further enriched by other events, including seminars and special activities that you can find in the Program Guide and by using the IGARSS 2018 App. In particular, the Technology, Industry, and Education (TIE) Forum will provide opportunities for panel discussions and other interactions on a variety of important topics. The six technical committees of GRSS (ESI, FARS, IADF, IFT, ISIS, and MIRS) will hold their meetings during the symposium, and warmly welcome all interested colleagues to participate. The technical program also includes the highly competitive IGARSS Student Prize Paper Competition. The ten selected finalist papers will be presented in two dedicated sessions on Tuesday morning, and winners will be announced at the awards banquet on Thursday evening, to which everyone is welcome.

We thank all the delegates who submitted their papers to IGARSS 2018, the Theme Coordinators, the Session Organizers, the Invited Session Organizers, and the Reviewers for their persistent hard work and generous support that has culminated in an excellent technical program. We thank Conference Management Services, Inc. for the contribution to the implementation of the IGARSS 2018 program, and especially Mr. Lance Cotton for his outstanding support through all our activities.

We hope you enjoy an exciting and productive week in València!

José A. Sobrino and Gustau Camps-Valls
IGARSS 2018 Technical Program Co-Chairs

IGARSS 2018 at a Glance

Tutorials & Welcome Reception

Sunday, July 22												
	Room 4A	Room 4C	Room 4D	Room 4F	Room 3F	Room 3G	Room 2G	Room 2H	Room 2F	Room 2E	Room 2I	Room 3B
09:30 - 13:00	FD-1: Remote Sensing with GNSS Reflectometry (GNSS-R) and Signals of Opportunity (SoOp)	FD-2: DART 3D radiative transfer model: an efficient tool for remote sensing studies	FD-3: Open Data Cube - A new way to manage satellite data utilizing an open source platform	FD-4: High Performance and Cloud Computing for Remote Sensing Data	FD-5: Machine Learning in Remote Sensing - Best practices and recent solutions	FD-6: SAR and optical data fusion with hands-on session using the ESA Toolbox SNAP	FD-7: Earth Observation Big Data Intelligence: theory and practice of deep learning and big data mining	FD-8: SAR Polarimetry & Applications for Current (Sentinel 1) & New (GF3, Biomass, SAOCOM, RCM) Missions	FD-10: Spectroscopic, fluorescence & thermal observations for SIF & physiological processes	HD-1: Satellite based L-Band observation of land surfaces		
13:00 - 14:30	Lunch Time											
14:30 - 18:00	[FD-1 Continued]	[FD-2 Continued]	[FD-3 Continued]	[FD-4 Continued]	[FD-5 Continued]	[FD-6 Continued]	[FD-7 Continued]	[FD-8 Continued]	[FD-10 Continued]	HD-6: Classification of satellite image time series with the Orfeo ToolBox and QGIS	HD-4: Spectrum Management, Detection and Mitigation of RFI in Microwave Remote Sensing	HD-7: Introduction to the ARTMO raditiative transfer models and retrieval toolboxes
18:00 - 20:00	Ice Breaker – Feria De Valencia: Exterior Terrace											

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

Monday, July 23													
09:00 - 12:50	Opening and Plenary Session – Room 1D												
09:30 - 13:00	Walking Tour – Valencia's Old Town – Meeting Point: City Hall square at 09:00. Tour starts at 09:30. (Transportation NOT included)												
12:50 - 14:10	Lunch Time												
	Room 1D	Room 3A	Room 1B	Room 1C	Room 3F	Room 3G	Room 4C	Room 4F	Room 4D	Room 2G-2H	Room 2E	Room 2F	Room 1A
14:10 - 15:50	MO3.R1 Data Fusion and Multimodality I	MO3.R2 Microwave Backscattering Models for Sea Surface	MO3.R3 Soil Moisture Validation	MO3.R4 Ocean Biology and Water Quality I	MO3.R5 International Spaceborne Imaging Spectroscopy Missions: Updates and News I	MO3.R6 Land Cover Dynamics I	MO3.R7 Physical Modeling in Microwave Remote Sensing I	MO3.R8 Distributed Spacecraft Missions: New Remote Sensing Capabilities for Earth Science I	MO3.R9 Radio Frequency Interference (RFI) in Microwave Remote Sensing I	MO3.R10 Multi-Sensor Data Integration for Enhanced Retrievals of Earth System Parameters I	MO3.R11 TanDEM-X Mission I	MO3.R12 Big Data in Distributed Clouds: Data Integration & Processing Challenges I	MO3.TIE
15:50 - 16:50	Poster Sessions & Break												
16:50 - 18:30	MO4.R1 Target Detection in SAR Images	MO4.R2 SAR Interferometry: Along and Across I	MO4.R3 Soil Parameters from Microwave and other Frequencies I	MO4.R4 Ocean Surface Winds and Currents I	MO4.R5 International Spaceborne Imaging Spectroscopy Missions: Updates and News II	MO4.R6 Land Surface Mapping and Monitoring	MO4.R7 Physical Modeling in Microwave Remote Sensing II	MO4.R8 Distributed Spacecraft Missions: New Remote Sensing Capabilities for Earth Science II	MO4.R9 Radio Frequency Interference (RFI) in Microwave Remote Sensing III	MO4.R10 Multi-Sensor Data Integration for Enhanced Retrievals of Earth System Parameters II	MO4.R11 TanDEM-X Mission II	MO4.R12 Big Data in Distributed Clouds: Data Integration & Processing Challenges II	MO4.TIE
18:30 - 20:00									FARS TC Meeting	ESI-TC Meeting	GSIS TC Meeting	GSEO TC Meeting	
19:00 - 21:00	Boat Ride – Albufera Lagoon, National Park – Load buses at Serranos Towers (Plaça dels Furs, s/n, 46003 València) beginning 18:30. Activity starts 19:00.												
19:00 - 22:00	Industry / Young Professionals / Women in GRSS Mixer Dinner – El Coso del Mar Restaurant (Transport by bus included)												
21:00 - 23:00	Flamenco Show and Dinner – "La Buleria" Restaurant												

IGARSS 2018 at a Glance

Oral Sessions. Technical and Social Events

Tuesday, July 24	Room 1D	Room 3A	Room 1B	Room 1C	Room 3F	Room 3G	Room 4C	Room 4F	Room 4D	Room 2G-2H	Room 2E	Room 2F	Room 1A
08:30 - 10:10	TU1.R1 Object Detection in Optical Images I	TU1.R2 SAR Interferometry: Along and Across II	TU1.R3 GNSS-R and other Signals of Opportunity for Soil Moisture	TU1.R4 Ocean Surface Winds and Currents II	TU1.R5 Copernicus Sentinel-1 Mission: Operational Status, Evolution and Scientific Applications Results I	TU1.R6 Remote Sensing for Surface Characterization and Mineral Exploration	TU1.R7 Optical Modeling in Remote Sensing I	TU1.R8 Big Machine Learning III	TU1.R9 Space Lidar: Missions, Technologies and Observations I	TU1.R10 Change Detection Techniques in Optical Images	TU1.R11 Small Satellite Technology	TU1.R12 Big Earth Data for Global Scale Applications I	TU1.TIE
09:30 - 13:00	Boat Ride – Albufera Lagoon, National Park – Load buses at Serranos Towers (Plaça dels Furs, s/n, 46003 València) beginning 09:00. Activity starts 09:30.												
10:10 - 11:10	Poster Sessions & Break												
11:10 - 12:50	TU2.R1 Building Detection	TU2.R2 Differential SAR Interferometry I	TU2.R3 Microwave Algorithms for Soil Moisture I	TU2.R4 Ocean Surface Winds and Currents III	TU2.R5 Copernicus Sentinel-1 Mission: Operational Status, Evolution and Scientific Applications Results II	TU2.R6 Urban Challenges and Remotely Sensed Information Capacities	TU2.R7 Optical Modeling in Remote Sensing II	TU2.R8 Big Machine Learning IV	TU2.R9 Space Lidar: Missions, Technologies and Observations II	TU2.R10 Change Detection Techniques in SAR and LiDAR Data	TU2.R11 Microwave Radiometer Missions and Methods	TU2.R12 Big Earth Data for Global Scale Applications II	TU2.TIE
12:50 - 14:10	Lunch												
12:50 - 14:10	Women in GRSS Luncheon – Feria Restaurant												
	Room 1D	**Room 3A**	**Room 1B**	**Room 1C**	**Room 3F**	**Room 3G**	**Room 4C**	**Room 4F**	**Room 4D**	**Room 2G-2H**	**Room 2E**	**Room 2F**	**Room 1A**
14:10 - 15:50	TU3.R1 Object Detection with RADAR/LIDAR	TU3.R2 Differential SAR Interferometry II	TU3.R3 SMOS over Land and Cryosphere: 8 Years of Achievements I	TU3.R4 Ocean Temperature and Salinity I	TU3.R5 JPSS Global Observations for Regional Services I	TU3.R6 Urban Remote Sensing I	TU3.R7 Data Fusion I	TU3.R8 Global Essential Variables III	TU3.R9 New Spaceborne SAR Instruments and Missions	TU3.R10 Analysis of Image Time Series I	TU3.R11 Land and Ocean Scatterometry	TU3.R12 Deep Learning Methods for Multispectral Image Analysis I	TU3.TIE
15:00 - 18:00	Lladró Studios - The City of Porcelain – Load buses at Serranos Towers (Plaça dels Furs, s/n, 46003 València) beginning 14:30. Activity starts 15:00.												
15:50 - 16:50	Poster Sessions & Break												
16:50 - 18:30	TU4.R1 Mapping and Mosaicking	TU4.R2 Differential SAR Interferometry III	TU4.R3 SMOS over Land and Cryosphere: 8 Years of Achievements II	TU4.R4 Coastal Zones	TU4.R5 JPSS Global Observations for Regional Services II	TU4.R6 Urban Remote Sensing II	TU4.R7 Data Fusion II	TU4.R8 Global Essential Variables IV	TU4.R9 Advances in Model-data Integration and Assimilation	TU4.R10 Analysis of Image Time Series II	TU4.R11 GNSS-R IV: Sensors and Applications	TU4.R12 Deep Learning Methods for Multispectral Image Analysis II	TU4.TIE
18:30 - 20:00		Assembly of the Spanish Remote Sensing Association			MIRS TC Meeting		IADF TC Meeting				IFT TC Meeting		ESA Special Session: SMOS - an ESA Earth Explorer Satellite
21:00 - 23:00	Flamenco Show and Dinner – "La Buleria" Restaurant												

Oral Sessions. Technical and Social Events

Wednesday, July 25													
	Room 1D	**Room 3A**	**Room 1B**	**Room 1C**	**Room 3F**	**Room 3G**	**Room 4C**	**Room 4F**	**Room 4D**	**Room 2G-2H**	**Room 2E**	**Room 2F**	**Room 1A**
08:30 - 10:10	WE1.R1 Manifold Learning	WE1.R2 Target Recognition	WE1.R3 Microwave Algorithms for Soil Moisture II	WE1.R4 Ocean Altimetry I	WE1.R5 IEEE GRSS Data Fusion Contest	WE1.R6 Fluorescence Forthcoming from FLEX I	WE1.R7 Student Paper Competition I	WE1.R8 Close Range Remote Sensing II	WE1.R9 Advances in Radar Sounder Science and Engineering I	WE1.R10 Multi-temporal Analysis of SAR Images	WE1.R11 GNSS-R V: Missions and Applications	WE1.R12 Deep Learning in Remote Sensing I	WE1.TIE
10:00 - 13:00	Lladró Studios - The City of Porcelain – Load buses at Serranos Towers (Plaça dels Furs, s/n, 46003 València) beginning 09:30. Activity starts 10:00.												
10:10 - 11:10	Poster Sessions & Break												
11:10 - 12:50	WE2.R1 Hyperspectral Image Classification I	WE2.R2 Bistatic and Digital Beamforming I	WE2.R3 Soil Moisture Scaling and Assessment	WE2.R4 Hyperspectral Techniques for Biophysical Parameter Estimation	WE2.R5 Clouds and Precipitation I	WE2.R6 Fluorescence Forthcoming from FLEX II	WE2.R7 Student Paper Competition II	WE2.R8 New Remote Sensing Techniques and Methods IV	WE2.R9 Advances in Radar Sounder Science and Engineering II	WE2.R10 Spectral Unmixing Techniques II	WE2.R11 Lidar Technology and Applications	WE2.R12 Deep Learning in Remote Sensing II	WE2.TIE
12:50 - 14:10	Lunch												
12:50 - 14:10	Authors and Editors Meet-Up – Room 1C												
12:50 - 14:10	TIE Forum Luncheon – Feria Restaurant												
	Room 1D	**Room 3A**	**Room 1B**	**Room 1C**	**Room 3F**	**Room 3G**	**Room 4C**	**Room 4F**	**Room 4D**	**Room 2G-2H**	**Room 2E**	**Room 2F**	**Room 1A**
14:10 - 15:50	WE3.R1 Deep Learning for Hyperspectral Remote Sensing	WE3.R2 SAR Image Formation I	WE3.R3 Science Products and Results Based on NASA Soil Moisture Active Passive (SMAP) Satellite Mission I	WE3.R4 Crop Identification and Classification using Remote Sensing I	WE3.R5 Clouds and Precipitation II	WE3.R6 Optical and Infrared Monitoring of Vegetation II	WE3.R7 Hyperspectral Denoising & Filtering	WE3.R8 New Remote Sensing Techniques and Methods V	WE3.R9 ALOS-2/ALOS-4 I	WE3.R10 Target Detection III	WE3.R11 Sensor Calibration I	WE3.R12 Deep Learning Theories and Applications in the Remote Sensing I	
15:50 - 16:50	Poster Sessions & Break												
16:50 - 18:30	WE4.L1 Spatial Feature Detection and Extraction	WE4.L2 Object Detection and Recognition I	WE4.L3 SAR Imaging Systems	WE4.L4 3-/4-D Computational Radar Imaging Advancements, System, and User Applications II	WE4.L5 Observations by the NASA Soil Moisture Active Passive Mission II	WE4.L6 Image and Data Fusion II	WE4.L7 Instrumentation Advances for Reflectometry with GNSS and Signals of Opportunity (GNSS+R) II	WE4.L8 Advanced Methods for Lidar Data Processing	WE4.L9 Ice Sheets and Glaciers III	WE4.L10 Forest Monitoring by Optical Radiometry I	WE4.L11 Ocean Monitoring with Satellite Altimetry and SAR	WE4.L12 Global Scale Spectroscopy from Space for the Health of Planet Earth II	
19:00 - 21:00	Walking Tour – Valencia's Old Town												
19:30 - 21:00	IGARSS World Cup & Paella Dinner – Load buses at Main Entrance Feria Valencia at 18:45. Match starts at 19:30.												
20:00 - 22:00	Technical Committee & Chapter Chairs Dinner – Fryda Restaruant (Transportación NOT incl.)												

IGARSS 2018 at a Glance

Oral Sessions. Technical and Social Events

Thursday, July 26													
	Room 1D	**Room 3A**	**Room 1B**	**Room 1C**	**Room 3F**	**Room 3G**	**Room 4C**	**Room 4F**	**Room 4D**	**Room 2G-2H**	**Room 2E**	**Room 2F**	**Room 1A**
08:30 - 10:10	TH1.R1 Hyperspectral Image Classification II	TH1.R2 SAR Interferometry / GMTI	TH1.R3 Forest Monitoring using Microwave Instruments	TH1.R4 Remote Sensing for Agricultural Monitoring	TH1.R5 Microwave Atmospheric Sounding	TH1.R6 Monitoring Urban Areas with SAR: New Applications I	TH1.R7 Estimation and Regression in Hyperspectral Data II	TH1.R8 Monitoring and Understanding Cryosphere Dynamics at Different Scales I	TH1.R9 Instrument Technologies to Enable Small Satellite Remote Sensing Missions I	TH1.R10 Target Detection IV	TH1.R11 Radiometric and Geometric Calibration	TH1.R12 Data Management and Systems	TH1.R13 Biodiversity and Remote Sensing I
10:00 - 13:00	Lladró Studios - The City of Porcelain – Tavernes Blanques, Valencia – Load buses at Serranos Towers (Plaça dels Furs, s/n, 46003 València) beginning 09:30. Activity starts 10:00.												
10:10 - 11:10	Poster Sessions & Break												
11:10 - 12:50	TH2.R1 Hyperspectral Data Processing III	TH2.R2 SAR Classification	TH2.R3 Forest Monitoring using LIDAR II	TH2.R4 Remote Sensing for Estimation of Biophysical Parameters IV	TH2.R5 Aerosol and Particulate Sensing	TH2.R6 Monitoring Urban Areas with SAR: New Applications II	TH2.R7 Estimation and Regression Methods	TH2.R8 Monitoring and Understanding Cryosphere Dynamics at Different Scales II	TH2.R9 Instrument Technologies to Enable Small Satellite Remote Sensing Missions II	TH2.R10 Spectral Unmixing Techniques IV	TH2.R11 UAV & Multi/ Hyperspectral Sensors	TH2.R12 Remote Sensing Data and Policy Decisions I	TH2.R13 Computational Methods and Applications for Agriculture using SAR I
12:50 - 14:10	Lunch												
12:50 - 14:10	Editors Luncheon – Feria Restaurant												
12:50 - 14:10	Young Professionals Luncheon – Feria Restaurant												
	Room 1D	**Room 3A**	**Room 1B**	**Room 1C**	**Room 3F**	**Room 3G**	**Room 4C**	**Room 4F**	**Room 4D**	**Room 2G-2H**	**Room 2E**	**Room 2F**	**Room 1A**
14:10 - 15:50	TH3.R1 Data Analysis Methods III	TH3.R2 SAR Simulations / Systems	TH3.R3 Vegetation Monitoring using MODIS	TH3.R4 Linking Chlorophyll Fluorescence Measurements and Radiative Transfer Modelling I: STATE OF THE ART	TH3.R5 New Remote Sensing Techniques and Methods for Extreme Weather and Ocean Events Monitoring I	TH3.R6 Field Scale Soil Moisture Retrieval I	TH3.R7 Segmentation	TH3.R8 Seasonal Snow Ground-Based Remote Sensing I	TH3.R9 Innovative Technologies to Enable Land Imaging from Small Satellites	TH3.R10 Geographic Information Science IV	TH3.R11 UAV & Airborne Microwave Sensors	TH3.R12 Education and Remote Sensing	TH3.R13 Computational Methods and Applications for Agriculture using SAR II
15:50 - 16:50	Poster Sessions & Break												
16:50 - 18:30	TH4.R1 Processing of SAR/ POLSAR Data	TH4.R2 Advanced Polarimetric SAR Methods	TH4.R3 Optical and Infrared Monitoring of Vegetation I	TH4.R4 Linking Chlorophyll Fluorescence Measurements and Radiative Transfer Modelling II: NEW PROSPECTS	TH4.R5 New Remote Sensing Techniques and Methods for Extreme Weather and Ocean Events Monitoring II	TH4.R6 Field Scale Soil Moisture Retrieval II	TH4.R7 Data Fusion and Multimodality II	TH4.R8 Seasonal Snow Ground-Based Remote Sensing II	TH4.R9 SAR Calibration	TH4.R10 Geographic Information Science V	TH4.R11 Ground Based Systems II	TH4.R12 Advanced Flood Monitoring and Prediction for Global Disaster Risk Reduction I	TH4.R13 GCOM status
20:30 - 23:00	IGARSS 2018 Award Banquet – Hemisferic Park; L´Hemisferic Venue Av. del Professor López Piñero, 3, 46013 València (Transportation NOT incl.)												

Oral Sessions

Friday, July 27													
	Room 1D	**Room 3A**	**Room 1B**	**Room 2G**	**Room 3F**	**Room 3G**	**Room 4C**	**Room 4F**	**Room 4D**	**Room 2H**	**Room 2E**	**Room 2F**	**Room 1A**
08:30 - 10:10	FR1.R1 Pansharpening and Superresolution III	FR1.R2 Polarimetry and PolinSAR	FR1.R3 Land Physical Processes Monitoring with Solar and Thermal Sensors Supporting GEOGLAM I	FR1.R4 Remote Sensing for Crop and Soil Parameters I	FR1.R5 Advances in Reflectometry with GNSS and Signals of Opportunity (GNSS+R) I	FR1.R6 Sensor and Product Developments: From Regional Mapping to Global Earth Science I	FR1.R7 Subsurface Sensing and Ground Penetrating Radar III	FR1.R8 Snow Cover	FR1.R9 Biomass I	FR1.R10 Open Data Cube I	FR1.R11 Sentinel-3: Applications of OLCI and SLSTR Data over Land in Synergy with other Sensors I	FR1.R12 Advanced Flood Monitoring and Prediction for Global Disaster Risk Reduction II	FR1.R13 Landsat 9
08:30 - 18:00	The Code Workshop – Room 1C												
10:10 - 11:10	Poster Sessions & Break												
11:10 - 12:50	FR2.R1 Data Fusion Techniques I	FR2.R2 Topics on POLSAR Applications and Analysis	FR2.R3 Land Physical Processes Monitoring with Solar and Thermal Sensors Supporting GEOGLAM II	FR2.R4 Plant Phenotyping – Platforms, Sensors and Processing	FR2.R5 Advances in Reflectometry with GNSS and Signals of Opportunity (GNSS+R) II	FR2.R6 Sensor and Product Developments: From Regional Mapping to Global Earth Science II	FR2.R7 Classification of SAR/ POLSAR Data II	FR2.R8 Ice Sheets and Glaciers II	FR2.R9 Biomass II	FR2.R10 Open Data Cube II	FR2.R11 Sentinel-3: Applications of OLCI and SLSTR Data over Land in Synergy with other Sensors II	FR2.R12 Forest Parameters Estimation: Techniques and Applications	
12:50 - 14:10	Lunch												
	Room 1D	**Room 3A**	**Room 1B**	**Room 2G**	**Room 3F**	**Room 3G**	**Room 4C**	**Room 4F**	**Room 4D**	**Room 2H**	**Room 2E**	**Room 2F**	**Room 1A**
14:10 - 15:50		FR3.R2 Tomography and 3D Mapping III	FR3.R3 Essential Urban Variables from Satellite Observations I	FR3.R4 Soil Parameters from Microwave and other Frequencies III	FR3.R5 Global Precipitation Measurement Instruments and Algorithms II	FR3.R6 Remote Sensing of Wetlands II	FR3.R7 Advanced Processing of SAR Data	FR3.R8 Sea Ice III	FR3.R9 Optical Satellite Calibration	FR3.R10 SAR Polarimetry: Theory and Applications I in memoriam of Wolfgang Martin Boerner	FR3.R11 Single Photon to Hyperspectral: Enhanced Airborne Mapping LiDAR Technologies and their Applications I	FR3.R12 UAV Quantitative Remote Sensing for Ecosystem Science I	FR3.R13 Data Fusion Techniques II
15:50 - 16:20	Break												
16:20 - 18:00		FR4.R2 Tomography and 3D Mapping IV	FR4.R3 Essential Urban Variables from Satellite Observations II	FR4.R4 Land Use Applications II	FR4.R5 Global Precipitation Measurement Instruments and Algorithms III	FR4.R6 Remote Sensing of Inland Waters II	FR4.R7 Spatial-spectral Approaches for Hyperspectral Remote Sensing	FR4.R8 Permafrost II	FR4.R9 Radar Missions	FR4.R10 SAR Polarimetry: Theory and Applications II in memoriam of Wolfgang Martin Boerner	FR4.R11 Single Photon to Hyperspectral: Enhanced Airborne Mapping LiDAR Technologies and their Applications II	FR4.R12 UAV Quantitative Remote Sensing for Ecosystem Science II	FR4.R13 Data Fusion: Coregistration and Super-resolution
17:30 - 18:00	Closing Ceremony – Room 1D												

IGARSS 2018 at a Glance

Poster Sessions

Monday, July 23			
	Session Code	**Poster Area Name**	**Session Name**
Exhibit Hall, Floor 1 15:50 - 16:50	MOP2.PA	Poster Area A	Microwave Models for Natural Media
	MOP2.PB	Poster Area B	Differential SAR Interferometry IV
	MOP2.PC	Poster Area C	Differential SAR Interferometry VII
	MOP2.PD	Poster Area D	Bistatic & Other SAR Systems
	MOP2.PE	Poster Area E	SAR Image Corrections and Jamming
	MOP2.PF	Poster Area F	PolSAR Filtering & Image Analysis
	MOP2.PG	Poster Area G	Applications of Deep Learning
	MOP2.PH	Poster Area H	Ship Detection
	MOP2.PI	Poster Area I	Geographic Information Science I
	MOP2.PJ	Poster Area J	Data Management and Education
	MOP2.PK	Poster Area K	Land Cover Dynamics II
	MOP2.PL	Poster Area L	Urban and Built Environment I
	MOP2.PM	Poster Area M	Clouds and Precipitation: Radar Techniques and Data
	MOP2.PN	Poster Area N	Clouds and Precipitation: IR and GPS Data Techniques
	MOP2.PO	Poster Area O	Ocean Biology and Water Quality II
	MOP2.PP	Poster Area P	Ocean Surface Winds and Currents I
	MOP2.PQ	Poster Area Q	Microwave Radiometers: Sensor Design and Development
	MOP2.PR	Poster Area R	GNSS-R I: Signal Processing
	MOP2.PS	Poster Area S	Optical Calibration I
	MOP2.PT	Poster Area T	Big Machine Learning II
	MOP2.PU	Poster Area U	Global Essential Variables I
	MOP2.PV	Poster Area V	New Remote Sensing Techniques and Methods I
	MOP2.PW	Poster Area W	Radio Frequency Interference (RFI) in Microwave Remote Sensing II

Authors for the morning poster session should have their posters in place by 8:30, stand by their poster during the 10:10-11:10 morning poster session, and remove their poster by 12:50. Authors for the afternoon poster session should have their posters in place by 14:10, stand by their poster during the 15:50-16:50 afternoon poster session, and remove their poster by 18:20.

IGARSS 2018 at a Glance

Poster Sessions

Tuesday, July 24			
	Session Code	**Starting Board Number**	**Session Name**
Exhibit Hall, Floor 1 10:10 - 11:10	TUP1.PA	Poster Area A	Microwave Models for Soil and Vegetation
	TUP1.PB	Poster Area B	Differential SAR Interferometry V
	TUP1.PC	Poster Area C	ISAR & Target Detection
	TUP1.PD	Poster Area D	SAR Water Applications & Speckle
	TUP1.PE	Poster Area E	Dual-Pol SAR
	TUP1.PF	Poster Area F	Object Detection in Optical Images II
	TUP1.PG	Poster Area G	Spectral-Spatial Approaches in Hyperspectral Remote Sensing
	TUP1.PH	Poster Area H	Classification of Hyperspectral Data
	TUP1.PI	Poster Area I	Estimation and Regression in Hyperspectral Data I
	TUP1.PJ	Poster Area J	Estimation and Regression in Microwave, Radar & Lidar Data
	TUP1.PK	Poster Area K	Remote Sensing of Vegetation I
	TUP1.PL	Poster Area L	Urban and Built Environment II
	TUP1.PM	Poster Area M	Clouds and Precipitation: Modeling and Evaluation
	TUP1.PN	Poster Area N	Microwave Radiometers: Calibration and Data Product Performance
	TUP1.PO	Poster Area O	GNSS-R II: Models and Applications
	TUP1.PP	Poster Area P	Lidar Systems and Applications
	TUP1.PQ	Poster Area Q	Optical Calibration II
	TUP1.PR	Poster Area R	Close Range Remote Sensing I
	TUP1.PS	Poster Area S	Global Essential Variables II
	TUP1.PT	Poster Area T	Advances in Model-data Integration and Assimilation
	TUP1.PU	Poster Area U	New Remote Sensing Techniques and Methods II
Exhibit Hall, Floor 1 15:50 - 16:50	TUP2.PA	Poster Area A	SAR Interferometry: Along and Across III
	TUP2.PB	Poster Area B	Differential SAR Interferometry VI
	TUP2.PC	Poster Area C	Object Detection in SAR Data
	TUP2.PD	Poster Area D	Classification of SAR/POLSAR Data I
	TUP2.PE	Poster Area E	Analysis of Optical/Hyperspectral Data
	TUP2.PF	Poster Area F	Estimation and Regression in Thermal IR Data
	TUP2.PG	Poster Area G	Estimation and Regression in Multspectral Data
	TUP2.PH	Poster Area H	Spectral Unmixing Techniques I
	TUP2.PI	Poster Area I	Target Detection I
	TUP2.PJ	Poster Area J	Target Detection II
	TUP2.PK	Poster Area K	Geographic Information Science II
	TUP2.PL	Poster Area L	Dynamics of Vegetated Areas
	TUP2.PM	Poster Area M	Land Mapping and Mineral Exploration
	TUP2.PN	Poster Area N	Science and Techniques in Atmospheric Sounding I
	TUP2.PO	Poster Area O	Ocean Surface Winds and Currents II
	TUP2.PP	Poster Area P	Ocean Surface Winds and Currents III
	TUP2.PQ	Poster Area Q	GNSS-R III: Sensors and Applications
	TUP2.PR	Poster Area R	Optical Calibration III
	TUP2.PS	Poster Area S	Big Machine Learning I
	TUP2.PT	Poster Area T	New Remote Sensing Techniques and Methods III

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IGARSS 2018 at a Glance

Poster Sessions

Wednesday, July 25			
	Session Code	**Starting Board Number**	**Session Name**
Exhibit Hall, Floor 1 10:10 - 11:10	WEP1.PA	Poster Area A	SAR Interferometry: Along and Across IV
	WEP1.PB	Poster Area B	General SAR Applications
	WEP1.PC	Poster Area C	POLSAR Classification Methods
	WEP1.PD	Poster Area D	POLSAR Applications
	WEP1.PE	Poster Area E	Band Selection for Hyperspectral Data
	WEP1.PF	Poster Area F	Hyperspectral Data Processing I
	WEP1.PG	Poster Area G	Object Detection in Optical Images III
	WEP1.PH	Poster Area H	SAR/InSAR Surface Evolution Analysis
	WEP1.PI	Poster Area I	Land Use and Land Cover Changes Analysis
	WEP1.PJ	Poster Area J	Techniques for Multi-temporal Optical Image Analysis
	WEP1.PK	Poster Area K	Hyperspectral Data Processing II
	WEP1.PL	Poster Area L	Pansharpening and Superresolution I
	WEP1.PM	Poster Area M	Optical Remote Sensing of Snow Cover
	WEP1.PN	Poster Area N	Data Management and Systems I
	WEP1.PO	Poster Area O	Forest monitoring using SAR
	WEP1.PP	Poster Area P	Optical and Infrared Monitoring of Forests I
	WEP1.PQ	Poster Area Q	Remote Sensing of Vegetation II
	WEP1.PR	Poster Area R	Soil Moisture Product Evaluation and Applications
	WEP1.PS	Poster Area S	Ocean Surface Winds and Currents IV
Exhibit Hall, Floor 1 15:50 - 16:50	WEP2.PA	Poster Area A	Bistatic and Digital Beamforming II
	WEP2.PB	Poster Area B	Data Analysis Methods I
	WEP2.PC	Poster Area C	Radar and Lidar
	WEP2.PD	Poster Area D	Applications of Remote Sensing
	WEP2.PE	Poster Area E	Scene Classification
	WEP2.PF	Poster Area F	Techniques for Multi-temporal Radar Image Analysis
	WEP2.PG	Poster Area G	Surface Parameter Estimation
	WEP2.PH	Poster Area H	Change Detection and Multitemporal Analysis
	WEP2.PI	Poster Area I	Data Fusion IV
	WEP2.PJ	Poster Area J	Geographic Information Science III
	WEP2.PK	Poster Area K	Microwave Remote Sensing of Snow Cover
	WEP2.PL	Poster Area L	Ice Sheets and Glaciers I
	WEP2.PM	Poster Area M	Optical and Infrared Monitoring of Forests II
	WEP2.PN	Poster Area N	Crop Identification and Classification using Remote Sensing II
	WEP2.PO	Poster Area O	Remote Sensing for Crop Growth and Yield Estimation
	WEP2.PP	Poster Area P	Remote Sensing for Estimation of Biophysical Parameters I
	WEP2.PQ	Poster Area Q	Earthquake, Landslide and Volcano Monitoring from Space
	WEP2.PR	Poster Area R	Science and Techniques in Atmospheric Sounding II
	WEP2.PS	Poster Area S	Ocean Temperature and Salinity II
	WEP2.PT	Poster Area T	Active Microwave Sensors and Missions
	WEP2.PU	Poster Area U	UAV and Airborne Platforms I

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IGARSS 2018 at a Glance

Poster Sessions

Thursday, July 26			
	Session Code	**Starting Board Number**	**Session Name**
Exhibit Hall, Floor 1 10:10 - 11:10	THP1.PA	Poster Area A	Polarimetric SAR
	THP1.PB	Poster Area B	Tomography and 3D Mapping I
	THP1.PC	Poster Area C	Subsurface Sensing and Ground Penetrating Radar I
	THP1.PD	Poster Area D	Data Analysis Methods II
	THP1.PE	Poster Area E	Processing and Analysis of Optical Images
	THP1.PF	Poster Area F	Processing and Analysis of SAR Data
	THP1.PG	Poster Area G	Object Detection Methods
	THP1.PH	Poster Area H	Machine Learning
	THP1.PI	Poster Area I	Pansharpening and Superresolution II
	THP1.PJ	Poster Area J	Data Fusion V
	THP1.PK	Poster Area K	Sea Ice I
	THP1.PL	Poster Area L	Data Management and Systems II
	THP1.PM	Poster Area M	Vegetated Area and Ecological Applications
	THP1.PN	Poster Area N	Forest monitoring using LIDAR I
	THP1.PO	Poster Area O	Microwave Remote Sensing of Vegetation
	THP1.PP	Poster Area P	Remote Sensing of Vegetation III
	THP1.PQ	Poster Area Q	Remote Sensing for Estimation of Biophysical Parameters III
	THP1.PR	Poster Area R	Hydrology Applications with Remotely Sensed Soil Moisture
	THP1.PS	Poster Area S	Remote Sensing of Coastal Areas I
	THP1.PT	Poster Area T	Remote Sensing of Coastal Areas II
	THP1.PU	Poster Area U	New Remote Sensing Techniques and Methods VII
Exhibit Hall, Floor 1 15:50 - 16:50	THP2.PA	Poster Area A	SAR Image Processing 1
	THP2.PB	Poster Area B	Tomography and 3D Mapping II
	THP2.PC	Poster Area C	Subsurface Sensing and Ground Penetrating Radar II
	THP2.PD	Poster Area D	Data Analysis Methods IV
	THP2.PE	Poster Area E	Classification
	THP2.PF	Poster Area F	Data Fusion III
	THP2.PG	Poster Area G	Sea Ice II
	THP2.PH	Poster Area H	Permafrost I
	THP2.PI	Poster Area I	Remote Sensing Data and Policy Decisions II
	THP2.PJ	Poster Area J	Disaster Monitoring and Early Warning
	THP2.PK	Poster Area K	Remote Sensing of Crop and Soil Parameters
	THP2.PL	Poster Area L	Surface Characterization and Mineral Mapping from Remote Sensing
	THP2.PM	Poster Area M	Soil Parameters from Microwave and other Frequencies II
	THP2.PN	Poster Area N	Aerosols and Atmospheric Chemistry I
	THP2.PO	Poster Area O	Ocean Altimetry II
	THP2.PP	Poster Area P	Ocean Altimetry III
	THP2.PQ	Poster Area Q	Optical Sensors and Missions
	THP2.PR	Poster Area R	Clouds and Precipitation: Radar Techniques
	THP2.PS	Poster Area S	UAV and Airborne Platforms II
	THP2.PT	Poster Area T	Ground Based Systems I
	THP2.PU	Poster Area U	New Remote Sensing Techniques and Methods VIII

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IGARSS 2018 at a Glance

Poster Sessions

Friday, July 27			
	Session Code	**Starting Board Number**	**Session Name**
Exhibit Hall, Floor 1 10:10 - 11:10	FRP1.PA	Poster Area A	SAR Image Processing II
	FRP1.PB	Poster Area B	Land Use Applications I
	FRP1.PC	Poster Area C	Biodiversity and Remote Sensing II
	FRP1.PD	Poster Area D	Forest Mornitoring by Optical Remote Sensing
	FRP1.PE	Poster Area E	Estimation of Above Ground Vegetation Parameters
	FRP1.PF	Poster Area F	Remote Sensing for Crop and Soil Parameters II
	FRP1.PG	Poster Area G	Microwave Algorithms for Soil Moisture III
	FRP1.PH	Poster Area H	Aerosols and Atmospheric Chemistry II
	FRP1.PI	Poster Area I	Passive Microwave Sensors and Missions
	FRP1.PJ	Poster Area J	Current Developments in Active Microwave and Optical Missions
	FRP1.PK	Poster Area K	Sensors and Calibration
	FRP1.PL	Poster Area L	Ground Based Systems III
	FRP1.PM	Poster Area M	Remote Sensing of Wetlands I
	FRP1.PN	Poster Area N	Remote Sensing of Inland Waters I
	FRP1.PO	Poster Area O	Global Precipitation Measurement Instruments and Algorithms I

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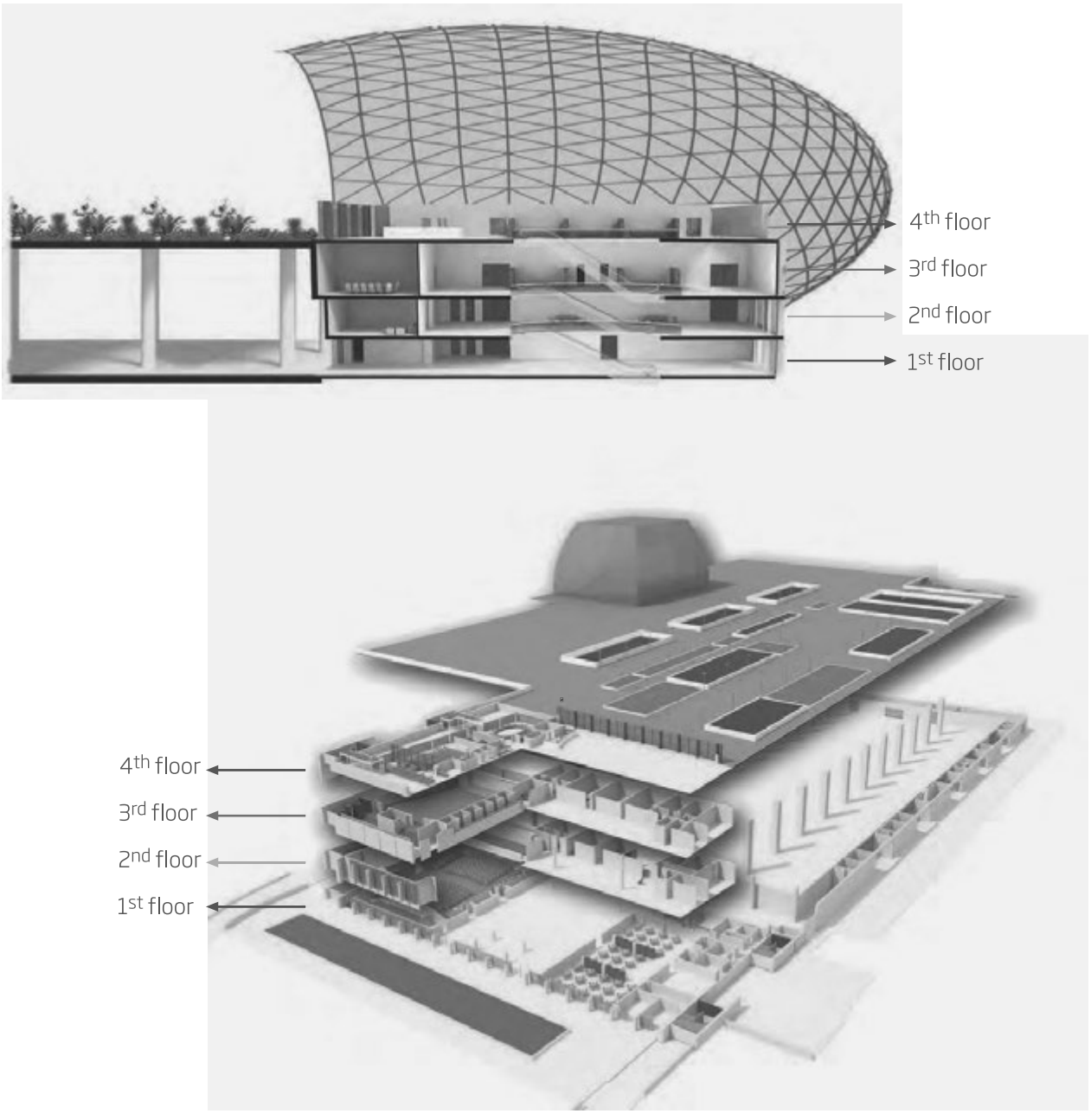
Feria Valencia Convention & Exhibition Centre — Overview

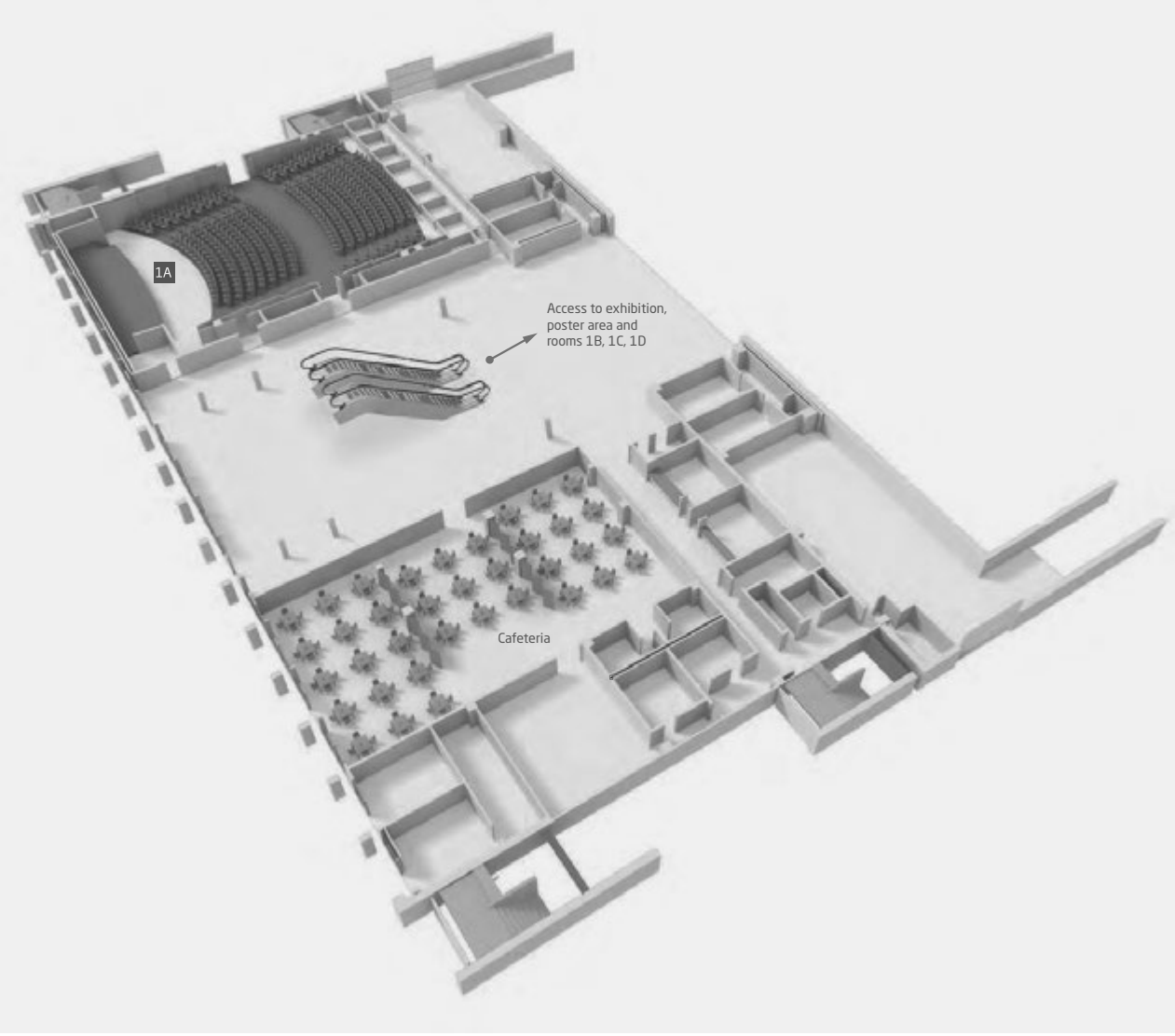
CENTRO DE EVENTOS / CONVENTION & EXHIBITION CENTRE



Feria Valencia Convention & Exhibition Centre — 1st Floor

CENTRO DE EVENTOS / CONVENTION & EXHIBITION CENTRE

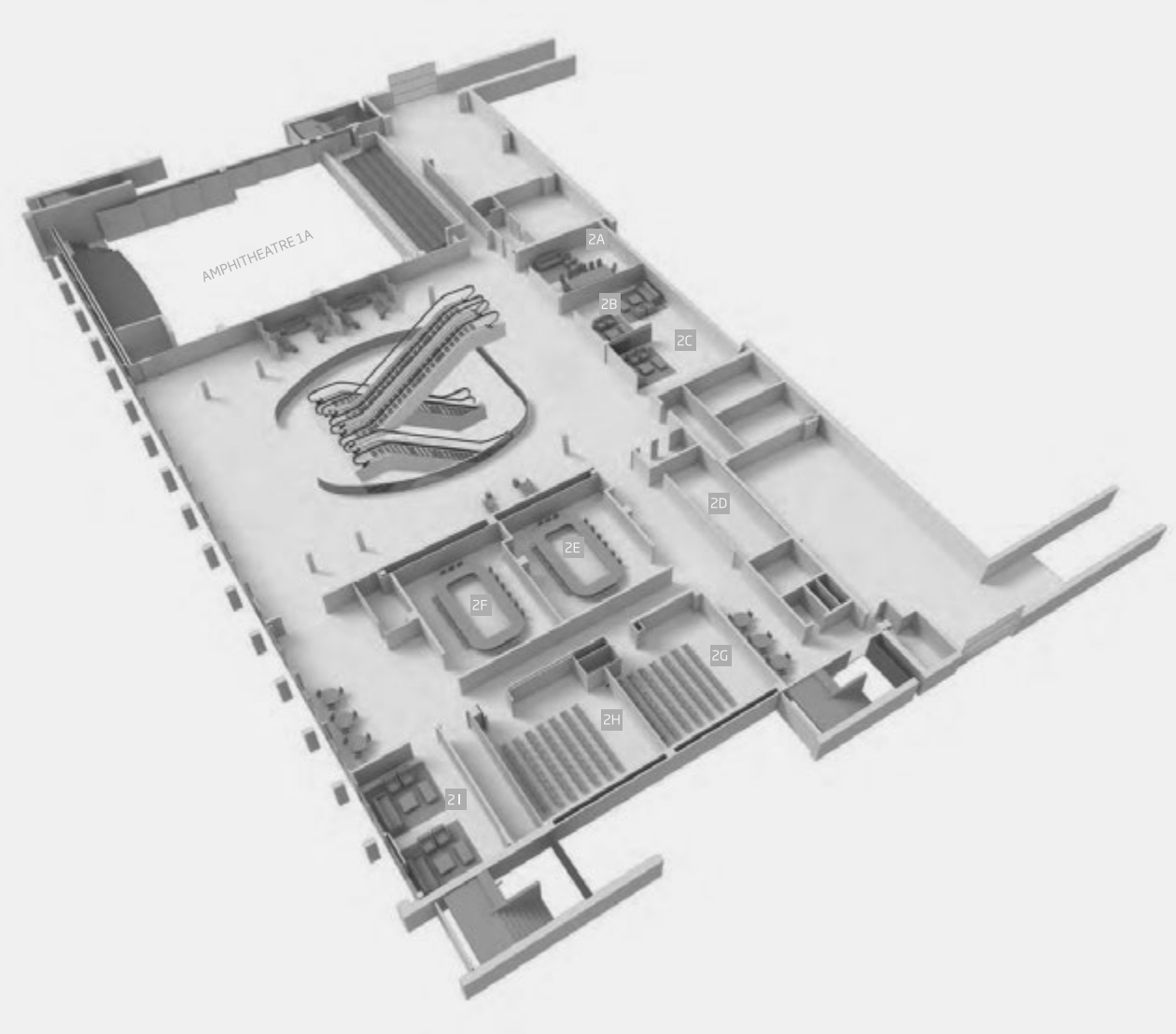
1st Floor



Feria Valencia Convention & Exhibition Centre — 2nd Floor

CENTRO DE EVENTOS / CONVENTION & EXHIBITION CENTRE

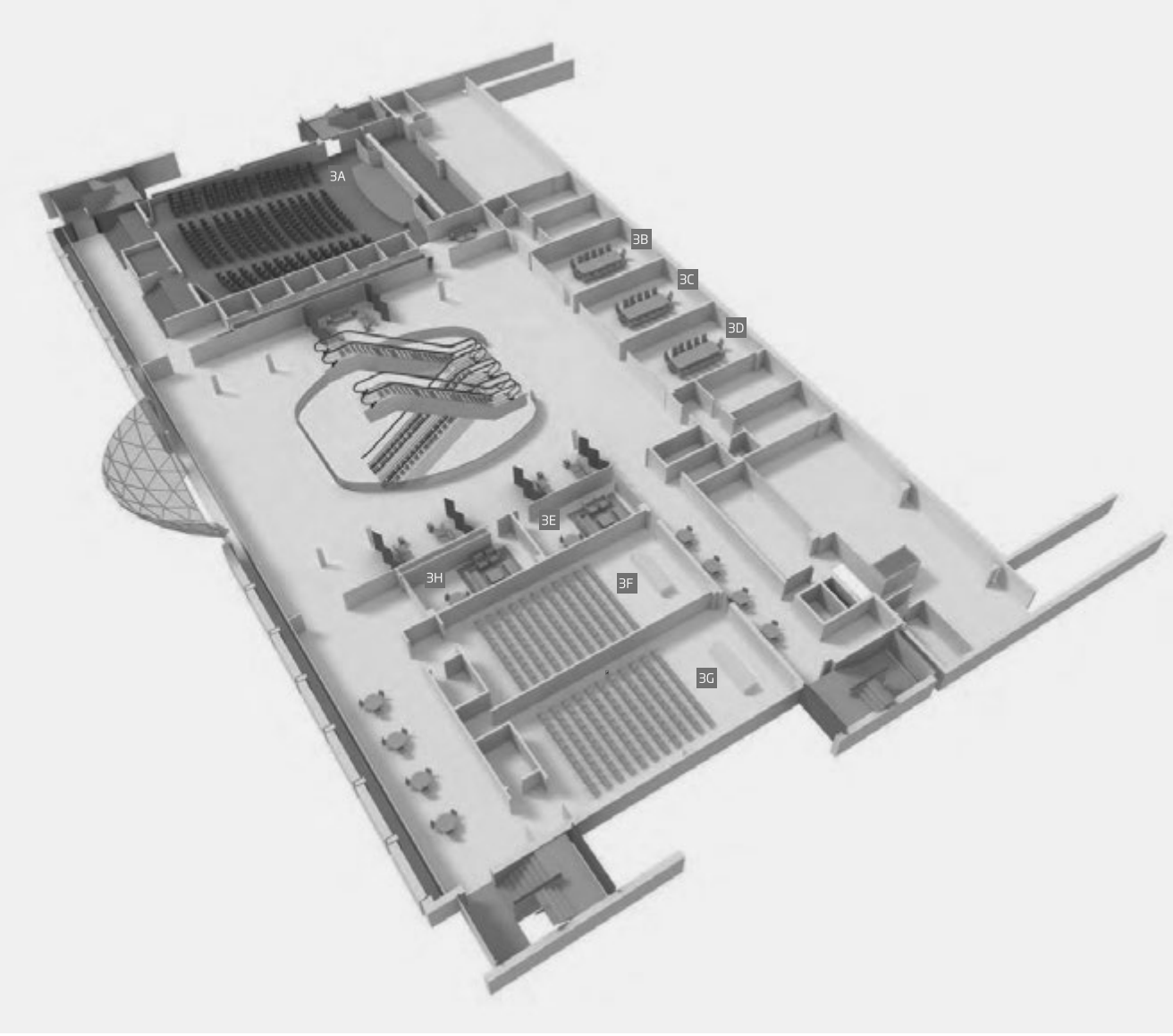
2ond Floor



Feria Valencia Convention & Exhibition Centre — 3rd Floor

CENTRO DE EVENTOS / CONVENTION & EXHIBITION CENTRE

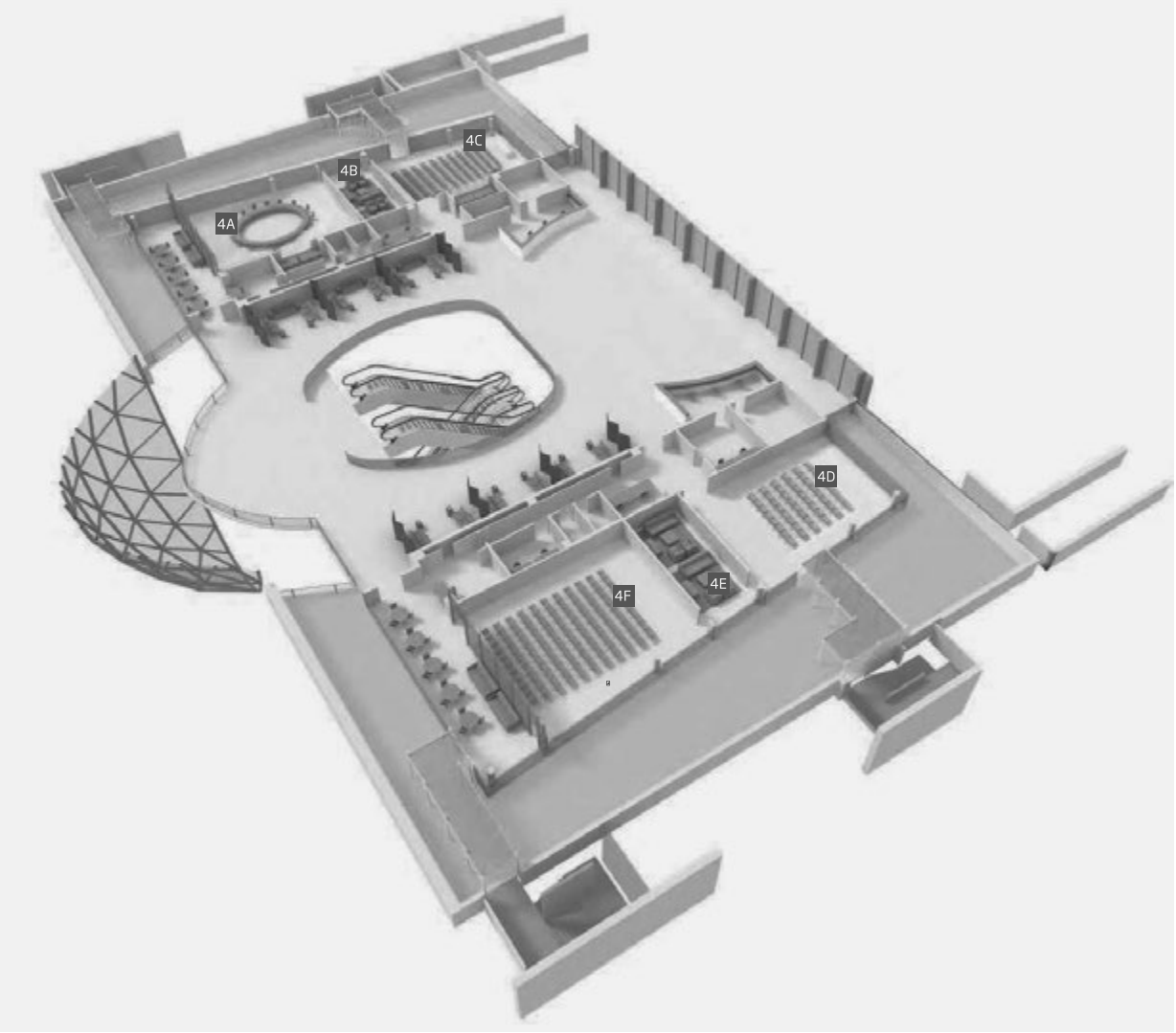
3rd Floor



Feria Valencia Convention & Exhibition Centre — 4th Floor

CENTRO DE EVENTOS / CONVENTION & EXHIBITION CENTRE

4th Floor



Feria Valencia Convention & Exhibition Centre — Campus Overview

CENTRO DE EVENTOS / CONVENTION & EXHIBITION CENTRE

DESDE CASTELLÓN Y BARCELONA:
AP-7 / N-340 / BY PASS SALIDA 501 ó 497
FROM CASTELLÓN AND BARCELONA :
AP-7 / N-340 / BY PASS EXIT 501 AND 497

DESDE ALICANTE:
AP-7 / N-430 / BY PASS SALIDA 501 ó 497 / V30
FROM ALICANTE:
AP-7 / N-340 / BY PASS EXIT 501 AND 497 / V30

DESDE MADRID:
A-3 / BY PASS SALIDA 501 ó 497
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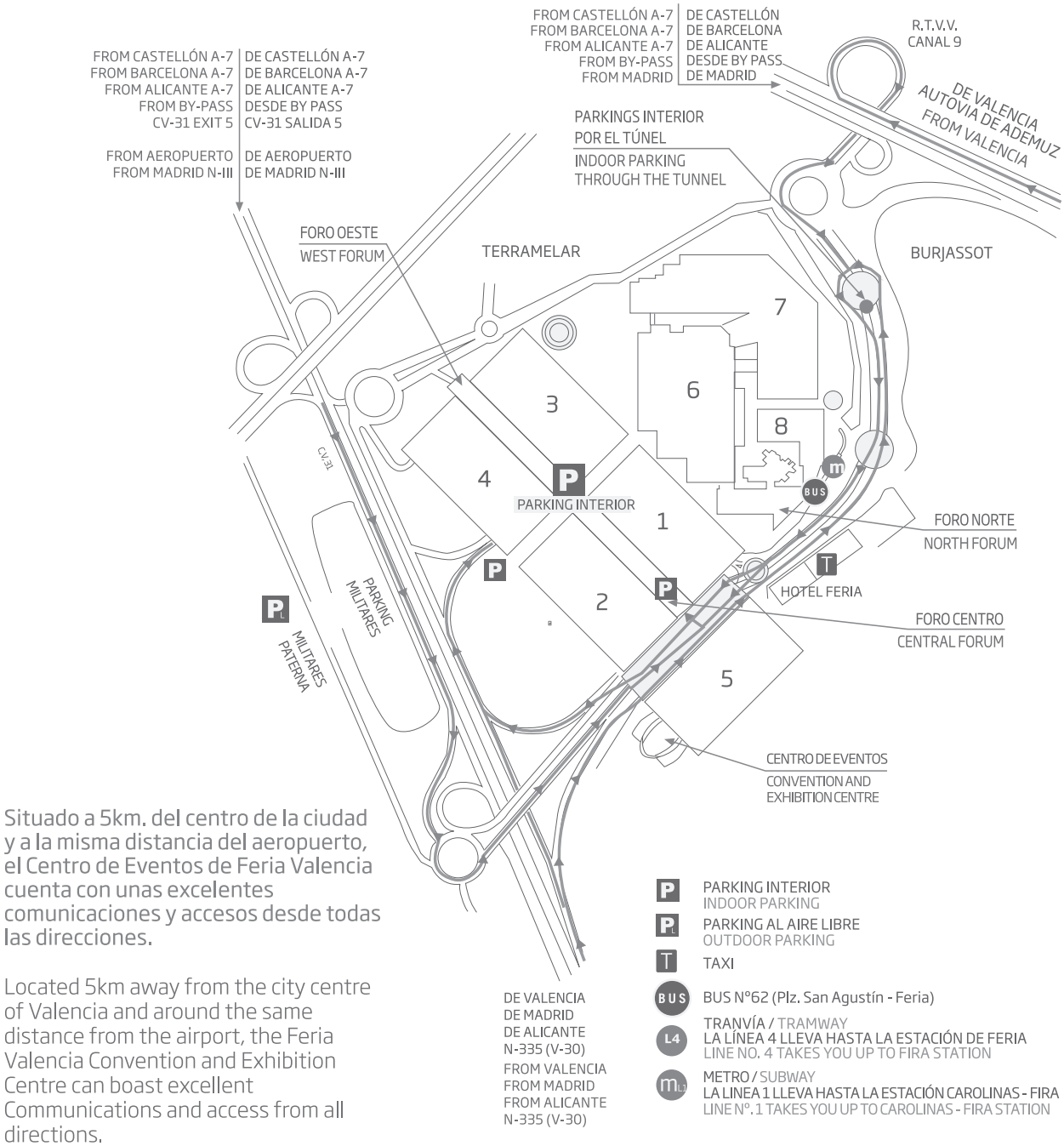
A-3 / BY PASS EXIT 501 AND 497



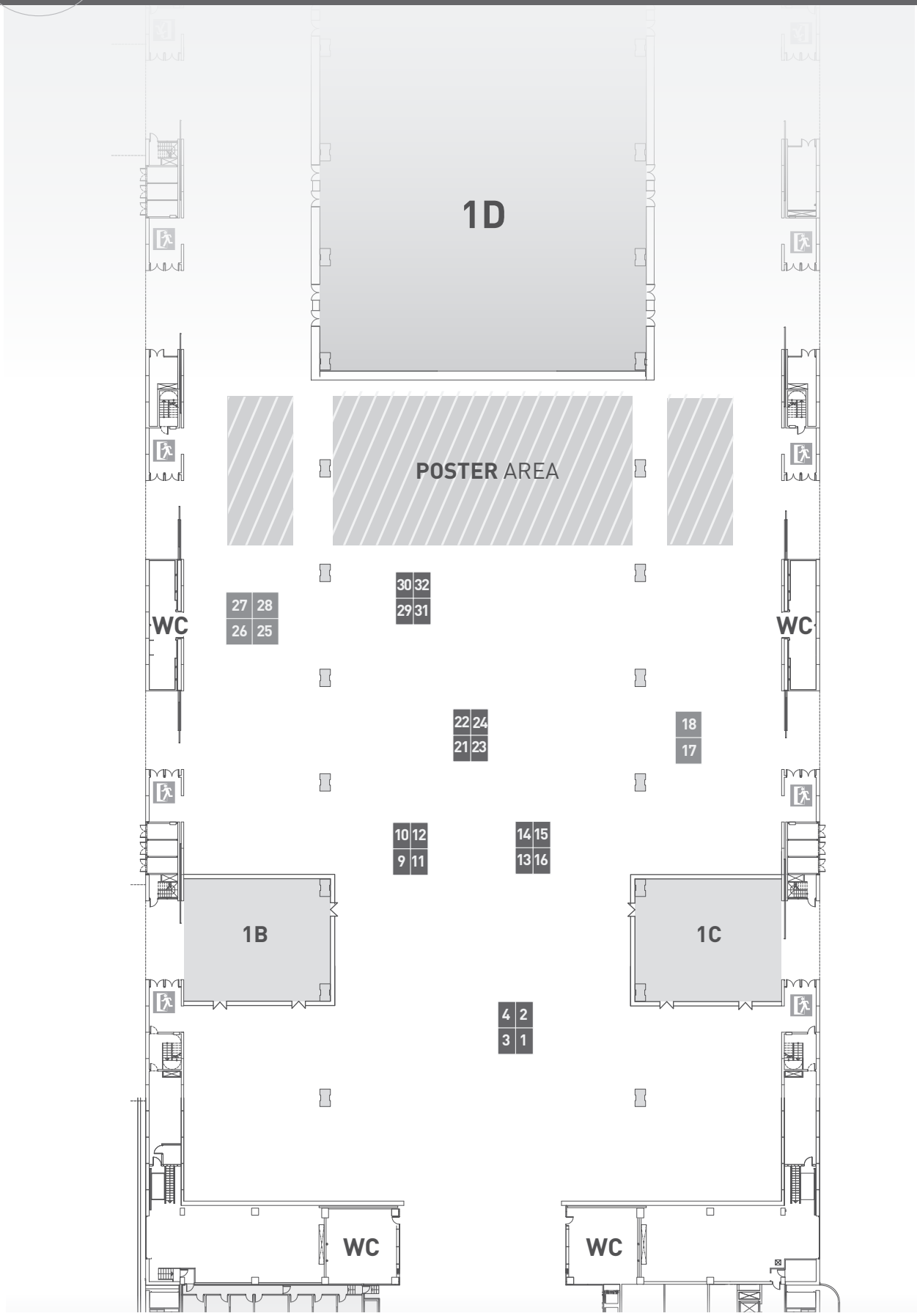
Situado a 5km. del centro de la ciudad y a la misma distancia del aeropuerto, el Centro de Eventos de Feria Valencia cuenta con unas excelentes comunicaciones y accesos desde todas las direcciones.

Located 5km away from the city centre of Valencia and around the same distance from the airport, the Feria Valencia Convention and Exhibition Centre can boast excellent Communications and access from all directions.

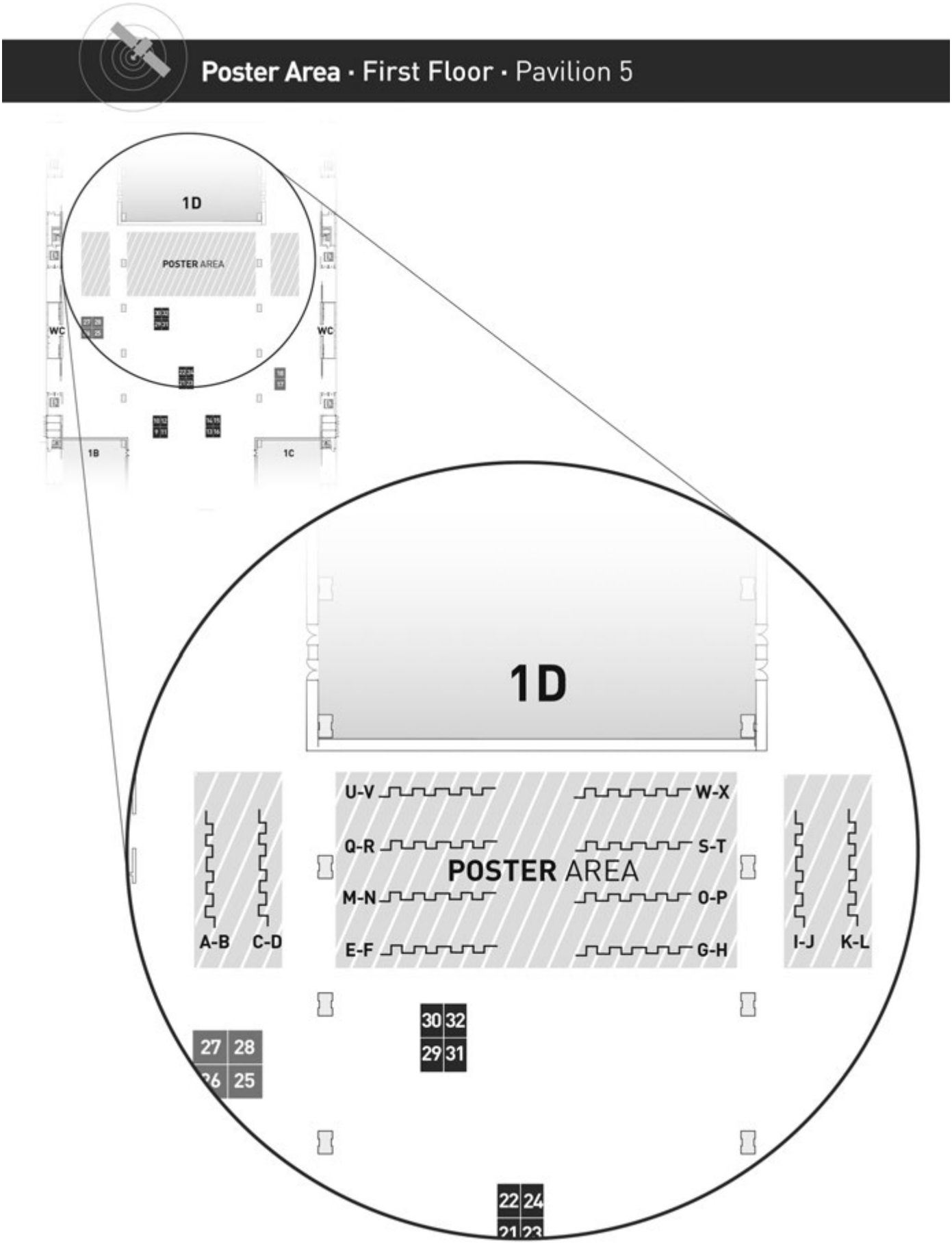
- PARKING INTERIOR / INDOOR PARKING
- PARKING AL AIRE LIBRE / OUTDOOR PARKING
- TAXI
- BUS Nº62 (Plz. San Agustín - Feria)
- TRANVÍA / TRAMWAY — LA LÍNEA 4 LLEVA HASTA LA ESTACIÓN DE FERIA / LINE NO. 4 TAKES YOU UP TO FIRA STATION
- METRO / SUBWAY — LA LINEA 1 LLEVA HASTA LA ESTACIÓN CAROLINAS - FIRA / LINE Nº. 1 TAKES YOU UP TO CAROLINAS - FIRA STATION

Feria Valencia Convention & Exhibition Centre — Poster and Exhibit Area

Venue Map · First Floor · Pavilion 5



Feria Valencia Convention & Exhibition Centre — Poster Area Detail



IEEE GRSS Membership

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

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Membership includes

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

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

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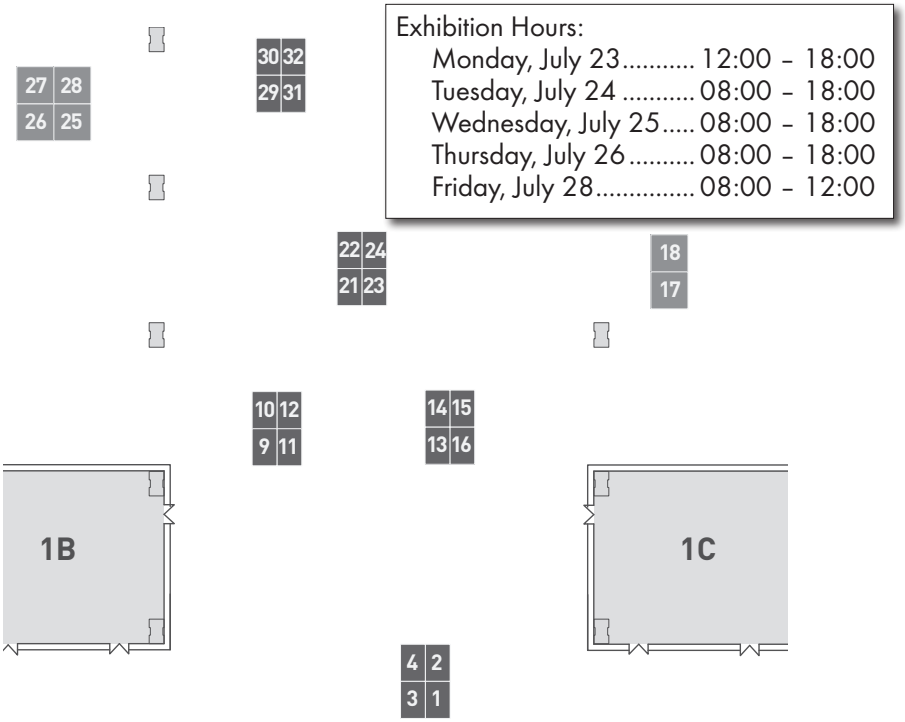
Exhibits — First Floor, Pavilion 5



15	ASD Inc.
3	Beijing PIESAT Information Technology Co., Ltd
16	Canadian Remote Sensing Society
11	CEOS SEO
13	CS Systemes d'Information
25, 26, 27, 28	European Space Agency
29, 30, 31, 32	GRSS
12	Headwall Photonics
4	HinaLea Imaging
14	HySpex
24	IGARSS 2019
17, 18	ImPACT SHIRASAKA Program
23	Japan Aerospace Exploration Agency (JAXA)
1	The National Center for Airborne Laser Mapping (NCALM)
21	MDPI AG
22	Universitat de València
9	Universitat Politècnica de Catalunya (UPC)

Exhibitors

Malvern Panalytical	ASD Inc. ASD Inc., a Malvern Panalytical company, is the global leader in remote sensing and hyperspectral measurement solutions, providing unparalleled ground truthing results. Our rugged, portable FieldSpec® 4 line of spectroradiometers provides the freedom to rapidly collect high-quality spectra in the field. Trusted by top research experts at thousands of universities and research institutions, ASD's full-range spectrometers are used in more than 70 countries. For more information, please visit us at booth 7 and www.asdi.com. http://www.asdi.com
北京航天宏图信息技术股份有限公司 Beijing Piesat Information Technology Co.,Ltd.	Beijing PIESAT Information Technology Co., Ltd Beijing PIESAT Information Technology Co., Ltd is a Chinese high-tech enterprise specializing in research and application of satellite technology (Remote sensing satellite and Navigation satellite). Founded in 2008, PIESAT keeps on providing professional services and applications of domestic satellites as its mission. PIESAT has independently developed software Pixel Information Expert (PIE), offering its clients integrated solution of geospatial information application. PIESAT locates in Beijing and has branches and representative offices in over 20 cities nationwide. PIESAT has more than 800 employees, and has a strong R&D team of which over 80% are geomatics experts.
Canadian Remote Sensing Society Société Canadienne de Télédétection	Canadian Remote Sensing Society The Canadian Remote Sensing Society - Société Canadienne de Télédéction (CRSS-SCT) is a fully independent, not-for-profit professional society that provides a focal point for leadership and excellence to advance the art, science, technologies and applications of remote sensing and related fields. These activities encompassed government, industry, and educational institutions. We maintain partnerships with other organizations in the remote sensing field, across Canada and internationally. The CRSS-SCT holds an annual symposium and in association with Taylor and Francis, publishes the Canadian Journal of Remote Sensing. https://crss-sct.ca/
CEOS	CEOS SEO The Committee on Earth Observation Satellites (CEOS) Systems Engineering Office (SEO) provides systems engineering leadership and support to CEOS through technical and management services and the development of tools and products that facilitate systems engineering solutions for societal benefit. http://www.ceos.org
CS The power of innovation	CS Systemes d'Information Designer, integrator and operator of mission-critical systems, CS is present all along the value chain for its customers. With a turnover of €176M and 1,800 employees, CS is recognized by its major customers thanks to the expertise & commitment of its staff. CS solutions for space, ground or embedded systems and applications can be found at the heart of many civil and military programs. As supplier to the CNES (national space research center) and the European Space Agency (ESA), CS has been involved in most of the major European space programs for over 35 years. https://www.c-s.fr/
esa	European Space Agency The European Space Agency is Europe's gateway to space. Its mission is to shape the development of Europe's space capability and ensure that investment in space continues to deliver benefits to the citizens of Europe and the world. ESA is an international organisation with 22 Member States. By coordinating the financial and intellectual resources of its members, it can undertake programmes and activities far beyond the scope of any single European country. ESA's job is to draw up the European space programme and carry it through. ESA's programmes are designed to find out more about Earth, its immediate space environment, our Solar System and the Universe, as well as to develop satellite-based technologies and services, and to promote European industries. ESA also works closely with space organisations outside Europe. http://www.esa.int
IEEE GRSS	IEEE Geoscience and Remote Sensing Society http://grss-ieee.org/

Headwall	Headwall Photonics Headwall produces hyperspectral and multispectral imaging solutions for remote sensing applications. Headwall's all-reflective concentric optical designs feature high spectral and spatial resolution, a wide field of view, high signal-to-noise, and aberration correction. Spectral ranges include visible-near-infrared (VNIR, 400-1000nm), near-infrared (NIR, 900-1700nm), and shortwave-infrared (SWIR, 900-2500nm). Sensors can be mounted aboard UAVs and aircraft, and small-satellite configurations from Headwall are in low-earth-orbit now. Headwall's VNIR-SWIR sensor covers the 400-2500nm range with co-registered pixels. A new chlorophyll fluorescence sensor targets the 670-780nm VNIR range with very high resolution. Headwall's integrated solutions include UAV, sensor, GPS/IMU, all software, and LiDAR if needed. http://www.headwallphotonics.com
HinaLea	HinaLea Imaging HinaLea Imaging, a division of TruTag Technologies, Inc., is a technology solutions provider that develops complete hyperspectral imaging solutions both directly and on behalf of strategic partners to address specific problems across a variety of industries, including medical diagnostics, precision agriculture and the quality assurance of food and consumer goods. As part of its solution offering, HinaLea developed the world's first high-resolution, handheld autonomous hyperspectral camera, which was awarded the SPIE Best Camera and Imager Prism Award in 2017. http://www.TruTags.com
HySpex	HySpex HySpex are high-performance and versatile hyperspectral cameras for applications - ranging from UAV/airborne to field, lab and industrial use of imaging spectroscopy. HySpex operate in the 0.4–2.5µm wavelength range with industry-leading performance, providing scientific-grade quality to our industry, academic, government and defense partners. HySpex is part of Norsk Elektro Optikk AS (NEO), a privately-owned Norwegian company focused on high-end research within the field of electro-optics. http://www.hyspex.no
IGARSS 2019	IGARSS 2019 Hosted by the IEEE Geoscience and Remote Sensing Society, the IGARSS 2019 will be held from Sunday July 28th through Friday August 2nd, 2019 at the Convention Center "PACIFICO Yokohama" in Yokohama, Japan. The conference main theme highlights "Disasters and Environment." We will distribute Call for Papers and Call for Sponsors & Exhibitors at our booth as well as introduce the charm of Yokohama and Japan. Please do not miss the opportunity to get latest information about the IGARSS 2019. https://igarss2019.org/
ImPACT SHIRASAKA Program	ImPACT SHIRASAKA Program ImPACT SHIRASAKA Program develops a lightweight, highly compact SAR satellite system while drastically saving the production cost. Our aimed system also achieves high-performance SAR imaging with 1m spatial resolution. By incorporating high-performance SAR imaging with "high-revisit whole earth monitoring by constellation", we explore areas in which EO has not been actively used so far and cater to increasingly diverse and sophisticated commercial needs. The big data, acquired from the unprecedented system, enables us to pursue innovating new applications and pioneering new business in which the high-level information is vital for important decision making all around the world.
JAXA Japan Aerospace Exploration Agency	Japan Aerospace Exploration Agency (JAXA) The Japan Aerospace Exploration Agency (JAXA) is a core performance agency to support the Japanese government's overall aerospace development and utilization. JAXA conducts integrated operations from basic research and development, to utilization. JAXA obtains an enormous quantity of data from satellites such as the Greenhouse Gases Observation Satellite (GOSAT), the Global Precipitation Measurement/Dual-frequency Precipitation Radar (GPM/DPR), the Global Change Observation Mission (CGOM-W/C), and the Advanced Land Observation Satellite-2 (ALOS-2). JAXA provides accurate and systematic information that elucidates the earth environment change process and supports our lives by continuous earth observation using satellites. http://global.jaxa.jp/
isprs International Journal of Geo-Information an Open Access Journal by MDPI	MDPI AG MDPI is an academic open access publisher of peer-reviewed journals established in 1996 and based in Basel, Switzerland. MDPI publishes over 180 diverse peer-reviewed, scientific, open access, electronic journals, including ISPRS International Journal of Geo-Information (Impact Factor 1.502), Remote Sensing (Impact Factor 3.244), Sensors (Impact Factor 2.677), Sustainability (Impact Factor 1.789), Future Internet and Data. With over 110,000 published papers within the last two decades, MDPI has become a pioneer in academic open access publishing industry. All our content is open access, distributed under a Creative Commons License. MDPI is a member of COPE, STM and OASPA. http://www.mdpi.com
NCALM	The National Center for Airborne Laser Mapping (NCALM) The National Center for Airborne Laser Mapping (NCALM) is based at the University of Houston and is operated in partnership with the University of California, Berkeley. The center is supported by the National Science Foundation and is associated with the multi-disciplinary Geosensing Systems Engineering & Sciences graduate program at the University of Houston. NCALM's mission is to: • Provide research-quality airborne light detection and ranging (lidar) observations to the scientific community. • Advance the state of the art in airborne laser mapping. • Train and educate graduate students with knowledge of airborne mapping to meet the needs of academic institutions, government agencies, and private industry. http://www.ncalm.org/
Universitat de València IPL Image Processing Laboratory	Universitat de València Universitat de València (University of Valencia, UV) is a non-profit public higher education institution with over 45,000 students. The UV occupies a unique position among Spanish universities in the most prestigious academic international rankings, maintaining a leading position in teaching and research. In the Center for World University Rankings 2017 the UV obtained the ninth position in Remote Sensing worldwide, and the second position in Europe. The Image Processing Laboratory (IPL) of the UV has high expertise in image and signal processing, machine learning techniques, and algorithm development for biophysical parameters retrieval based on airborne and spaceborne remote sensors. IPL is active in EO projects for current and future space missions, at national and international levels such as ESA's 8th Earth Explorer mission FLEX. http://ipl.uv.es/
Excelencia María de Maeztu CommSensLab	Universitat Politècnica de Catalunya (UPC) CommSensLab - Unidad de Excelencia María de Maeztu Research Lab, is part of the Department of Signal Theory and Communications, Universitat Politecnica de Catalunya, Barcelona, Spain. CommSensLab main research areas are focused on Antennas and Radio Systems, Free Space Optical Communications, Microwave Systems, NanoSatellites, and Remote Sensing, including LiDAR and Active and Passive Microwaves. Most research funds come from competitive calls. As a result of an active policy to foster researchers' careers, CommSensLab recent graduates have three permanent positions at NASA/JPL, several at ESA and DLR, one at NSSC (China), two at EPFL, or occupy decision-making positions in companies.

Location: Room 1D, Feria Valencia Convention & Exhibition Centre

Opening and Awards Session

09:00 - 09:20 Welcome to Valencia

Joan Ribó, Valencia Mayor
Mª Dolores Real, Vice-Rector for Innovation, University of Valencia

09:20 - 09:40 Welcome from IEEE President

José Moura, IEEE President Elect

09:40 - 10:00 Welcome from IEEE GRSS President

Adriano Camps, President, IEEE Geoscience and Remote Sensing Society

10:00 - 10:40 Major Awards and Recognitions

Master of Ceremony: Alberto Moreira

2018 IEEE Fellows
2018 IEEE GRSS Education Award
2018 IEEE GRSS Outstanding Service Award
2018 IEEE GRSS Industry Leader Award
2018 IEEE GRSS Distinguished Achievement Award
2018 IEEE GRSS Honorary Life Member

10:40 - 11:10 Coffee Break

Plenary Session

11:10 - 11:30 ESA EO: Latest Science and Developments

Josef Aschbacher
Director of Earth Observation Programmes, European Space Agency (ESA)

11:30 - 11:50 European Commission Copernicus Programme

Thibaud Delourme
Space Data for Societal Challenges and Growth, European Commission

11:50 - 12:10 Eumetsat Programmes and Activities

Cristian Bank
Director for Programme Preparation and Development, Eumetsat

12:10 - 12:30 Spanish Participation in Earth Observation Programmes

Mónica López
CDTI - Centre for the Development of Industrial Technology

Symposium Introduction

12:30 - 12:45 IGARSS 2018 Technical Program

Jose Sobrino and Gustau Camps-Valls, IGARSS 2018 Technical Chairs

12:45 - 12:50 Closing Remarks

Jose Moreno, IGARSS 2018 General Chair

12:50 - 14:10 Lunch

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General Chair

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Technical Program Committee Co-Chairs

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Gustau Camps-Valls

Finance Chairs

Juan Manuel López-Sánchez

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Eduardo de Miguel

Local Arrangements Chairs

Julia Amorós

Jesús Delegido

Technical Program Committee

Theme Coordinators

Data Analysis Methods (Optical, Multispectral, Hyperspectral, SAR)	Federic Baret	A.1 - Electromagnetic Modelling
	Irena Hajnsek	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
	Lorenzo Crocco	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	Josée Lévesque	D.1 - Data Management and Systems D.2 - Remote Sensing Data and Policy Decisions D.3 - Education and Remote Sensing
Land Applications	Tom Jackson	L.1 - Land Use Applications L.2 - Land Cover Dynamics L.3 - Forest and Vegetation: Application and Modelling L.4 - Forest and Vegetation: Biomass and Carbon Cycle L.5 - Agriculture L.6 - Urban and Built Environment L.7 - Topography, Geology and Geomorphology L.8 - Soils and Soil Moisture L.9 - Wetlands L.10 - Inland Waters
	Maria Piles	L.8 - Soils and Soil Moisture
Atmosphere Applications	Al Gasiewski	M.1 - Precipitation and Clouds M.2 - Numerical Weather Prediction and Data Assimilation M.3 - Atmospheric Sounding M.4 - Aerosols and Atmospheric Chemistry
Oceans	Simon Yueh	O.1 - Ocean Biology (Color) and Water Quality O.2 - Ocean Surface Winds and Currents O.3 - Ocean Temperature and Salinity O.4 - Coastal Zones O.5 - Ocean Altimetry
Mission, Sensors and Calibration	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 S.7 - Lidar Sensors
	Irena Hajnsek	S.3 - SAR Instrument and Calibration
	Paolo Gamba	S.8 - Passive Optical, Hyperspectral Sensors and Calibration S.9 - UAV and Airborne Platforms
	Gustau Camps-Valls	S.10 - Ground based Systems
Special Theme: International Cooperation for Global Awareness	Jose A. Sobrino	ST.1 - Close range remote sensing ST.5 - New remote sensing techniques and methods ST.6 - Education and outreach in remote sensing and geosciences
	Gustau Camps-Valls	ST.2 - Big machine learning in remote sensing ST.3 - Global Essential Variables from satellite observations ST.4 - Advances in model-data integration and assimilation
Invited Sessions	Bertrand Le Saux	I.14 - IEEE GRSS Data Fusion Contest
Student Paper Competition	Xiuping Jia	All

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Sidharth Misra
Josef Mittermayer
Miguel Moctezuma-Flores

Dmitri Moisseev
Matthieu Molinier
Alejandro Monsivais
Albert R. Monteith
Martin Montes-Hugo
Andrea Monti-Guarnieri
Mario Montopoli
Wooil M. Moon
David I. Morales Avila
Alberto Moreira
Jose Moreno
Gabriele Moser
Mahdi Motagh
Seyedmohammad Mousavi
Detlef Mueller
Jordi Munoz-Mari
Thomas Nagler
Nicholas Nalli
Adib Nashashibi
Catherine M Naud
Thomas Neff
Son Nghiem
wenjian Ni
Giovanni Nico
Allan Aasbjerg Nielsen
Olaf Niemann
Edip Niver
Sima Noghanian
Yoo-jeong Noh
Charles Norton
Claudia Notarnicola
Jean-Francois Nouvel
Ferdinando Nunziata
Andrew O'Brien
Yisok Oh
Roger Oliva
Hakan Olsson
Peggy O'Neill
Cindy Ong
Helene Oriot
Roberto Orosei
Catherine Ottlé
Kazuo Ouchi
Fabio Pacifici
Sharmila Padmanabhan
Francesco Palazzo
Roman Palenychka
Simonetta Paloscia
Paolo Pampaloni
Ovidiu Pancrati
Suraj Pandey
Matteo Pardini
Marie Parrens
Vito Pascazio
Chakrapani Patnaik
Swarnajyoti Patra
Ramona Pelich
Antonio Pepe
George Percivall
Felix Perez-Martinez
Stefano Perna
Claudio Persello
Henrik J. Persson
Birgit Peterson
Simone Pettinato
Stuart Phinn
Riccardo Piantanida
Nazzareno Pierdicca
Stefano Pignatti Morano
Maria Piles
Pedro Pina
Javier Plaza
Gennadiy P. Pochanin
Sorin Popescu
Pierre Potin
Eric Pottier
Scott Powell
Pau Prats-Iraola
Ruiliang Pu
Eldon Puckrin
Yuntao Qian
Graham Quartly
Marco Quartulli
Shaun Quegan
Parinaz Rahimzadeh-Bajgiran
Atiqur Rahman
Naoufal Raissouni
Nareenart Raksuntorn
Hampapuram Ramapriyan
Keith Raney
Diego Reale
Alberto Refice
Andreas Reigber
Steven C. Reising
Mathieu Renaud
John A Richards
Philippe Richaume
Rafael Rincon
Dar Roberts
Fabio Rocca
Marc Rodriguez-Cassola
Nemesio Rodriguez-Fernandez
Jean-Claude Roger
Filomena Romano
Roland Romeiser
Petri Rönnholm
Rafael Antonio da Rosa
Paul Rosen
Philip Rosenkranz
Achim Roth
Stanley Rotman
Helmut Rott
Jean-Louis Roujean
Hélène Roussel
Tod Rubin
Christoph Rudiger
Yuji Sakuno
Nazmi Saleous
Brian Salmon
Denis Salvadeo
Mercedes Salvia
Alim Samat
Edson Sano
Veronica Santalla del Rio
Emanuele Santi
Jojene Santillan
Maurizio Santoro
Maria Rosaria Santovito
Makoto Satake
Dinesh Sathyamoorthy
Motoyuki Sato
Ryoichi Sato
Rolf Scheiber
Bernd Scheuchl
Paul Scheunders
Gilda Schirinzi
Michael Schmitt
Martin Schneebeli
Dustin Schroeder
Marcus Schwaebisch
Gabriele Schwaizer
Klaus Scipal
Evan Seed
Michael Seymour
Rashmi Shah
Yun Shao
Nimmi C. Parikh Sharma
Andrii Shelestov
Jiancheng Shi
Yosio Edemir Shimabukuro
Masanobu Shimada
Haruhisa Shimoda
Michal SHIMONI
Fridon Shubitidze
Claudionor Silva
Jean-Robert Simard
Ingo Simonis
Ramesh Singh
Upendra Singh
Vern Singhroy
Ramesh Sivanpillai
Gail Skofronick-Jackson
Mark Sletten
David Small
Anne Smith
Jose A. Sobrino
Yady Tatiana Solano-Correa
Yan Soldo
Jesus Soria-Ruiz
Boularbah Souissi
Metin Soycan
Josaphat Tetuko Sri Sumantyo
Michael Starek
James Stiles
Uwe Stilla
Erich Stocker
Thomas Stone
Tazio Strozzi
Hongbo Su
Lihong Su
Filiz Sunar
Robert Sundberg
John J Szymanski
Kaoru Tachiiri
Takeo Tadono
Nobuhiro Takahashi
Wataru Takeuchi
Bingxiang TAN
Shojiro Tanaka
Yuliya Tarabalka
Stefano Tebaldini
Fernando Lisboa Teixeira
Ana Claudia Teodoro
Medhavy Thankappan
Jérome Théau
James Theiler
Christian Thiel
Christian Thom
Werner Peter Thomas
Kurt Thome
James C. Tilton
Saibun Tjuatja
Mitsuhiro Tomosada
Hüseyin Topan
Konstantinos Topouzelis
Francesc Torres
Ridha Touzi
Robert Treuhaft
Alexander Trishchenko
Emmanuel Trouvé
Melanie Trudel
Maria Tsakiri-Strati
Leung Tsang
Devis Tuia
Florence Tupin
Caroline Turcotte
Kalum Priyanath Udagepola
Lars Ulander
Silvia Liberata Ullo
Kuniaki Uto
Rajesh Kumar Vaidyanathan
David Valencia
Mercedes Vall-llossera
Enric Valor
Jan Van Aardt
Sebastian van der Linden
Douglas Vandemark
Gabriel Vasile
Mikko Vastaranta
Jorge Vazquez
Niko E.C. Verhoest
Eric Vermote
Frank Veroustraete
Jochem Verrelst
Ana Vidal-Pantaleoni
Stefano Vignudelli
Ivan E. Villalon-Turrubiates
Massimo Vincini

Anthony Vodacek
Peter Voelger
Michele Volpi
Alexander Voronovich
Valeriu Vrabie
Hiroyuki Wakabayashi
Jeffrey Walker
Ingo Walterscheid
Chao Wang
Feng Wang
Haipeng Wang
He Wang
Jinfei Wang
Robert Wang
Weimin Wang
Yanting Wang
Yong Wang
Zhuosen Wang
Wardoyo Wardoyo
Timothy Warner
Lars T. Waser
Bjoern Waske
Manabu Watanabe
Shimon Wdowinski
Christiane Weber
Urs Wegmüller
Matthias Weiß
David Weissman
Qihao Weng
James West
Werner Wiesbeck
Jean-Pierre Wigneron
Thomas Wilheit
Joong Sun Won
Junshi Xia
George Xian
Xiaoxiong Xiong
Feng Xu
Xiaolan Xu
John Yackel
Hiroyoshi Yamada
Yasushi Yamaguchi
Yoshio Yamaguchi
Fumio Yamazaki
Banghua Yan
Jian Yang
Wenli Yang
Xiaofeng Yang
Xiaohui Yang
Xiguang Yang
Zhengwei Yang
zutao yang
Tian Yao
Herve Yesou
Yonghong Yi
Naoto Yokoya
Chinatsu Yonezawa
Hiroki Yoshioka
Nicolas Younan
Marwan Younis
Qian Yu
Xiaolei Yu
Jinchun Yuan
Peng Yue
Igor Zakharov
Yu Zang
Evan Zaugg
Valery Zavorotny
Howard Zebker
Qiming Zeng
Yijian Zeng
Bing Zhang
Fengli Zhang
Junping Zhang
Lefei Zhang
Liangpei Zhang
Lifu Zhang
Peng Zhang
Qiaoping Zhang
Xianfeng Zhang
Xiaoyang Zhang
Yun Zhang
Tianjie Zhao
Yongqiang Zhao
Yujie Zheng
Ping Zhong
Yanfei Zhong
Guoqing Zhou
Ji Zhou
Jun Zhou
Zheng-Shu Zhou
Xiao Xiang Zhu
Simona Zoffoli
Maciel Zortea
Weibao Zou
Mehrez Zribi

Call for Papers

IGARSS 2019

2019 IEEE
International Geoscience and
Remote Sensing Symposium

July 28 - August 2, 2019 Yokohama, JAPAN
Pacifico Yokohama

ORGANIZERS

IEEE GRSS

Invitation to IGARSS 2019 in Yokohama

Hosted by the IEEE Geoscience and Remote Sensing Society, the International Geoscience and Remote Sensing Symposium 2019 (IGARSS 2019) will be held from Sunday July 28th through Friday August 2nd, 2019 at the Convention Center "PACIFICO Yokohama" in Yokohama, Japan. The conference main theme highlights "Disasters and Environment."
On behalf of the IEEE Geoscience and Remote Sensing Society and the IGARSS Organizing Committee, we invite you to participate in IGARSS 2019, the world's premier symposium on geoscience, remote sensing and related topics. We look forward to meeting you in Yokohama during IGARSS 2019.

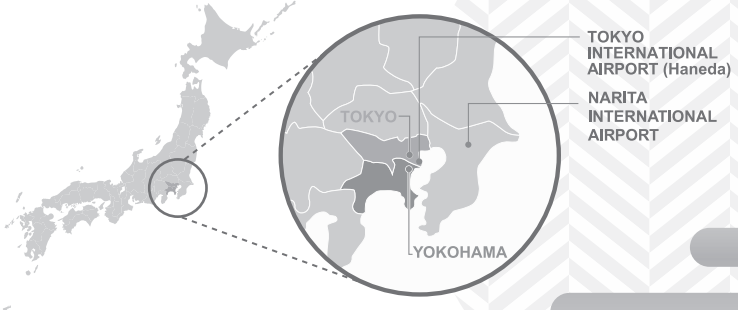
Organizing Committee

General Chair	**Akira Hirose** (The University of Tokyo)
Technical Program Co-Chairs	**Irena Hajnsek** (ETH Zurich, DLR) **Akira Iwasaki** (The University of Tokyo) **Hiroyoshi Yamada** (Niigata University)
Finance Chair	**Takeo Tadono** (JAXA)
Local Arrangements Chair	**Kei Suwa** (Mitsubishi Electric Co.)
Sponsorship Chair	**Shouhei Kidera** (Univ. Electro-Commun.)
Publicity Chair	**Ryo Natsuaki** (The University of Tokyo, DLR)
Publications Co-Chairs	**Takuya Sakamoto** (University of Hyogo) **Junichi Susaki** (Kyoto University)
Tutorial Chair	**Ryoichi Sato** (Niigata University)
Special Events Chair	**Motofumi Arii** (Mitsubishi Space Software Co.)
Exhibition Chair	**Tsunekazu Kimura** (NEC)
Student Activity Co-Chairs	**Kuniaki Uto** (Tokyo Institute of Technology) **Hiroaki Kuze** (Chiba University)
Education Co-Chairs	**Aya Yamamoto** (Tohoku University) **Chinatsu Yonezawa** (RESTEC)
Social Events Chair	**Yu Okada** (Mitsubishi Electric Co.)
Technical Tour Co-Chairs	**Shoichiro Kojima** (NICT; National Institute of Information and Communications Technology) **Kazunori Takahashi** (Oyo Corporation)
Outreach Chair	**Fang Shang** (Univ. Electro-Commun.)
International Liaison Chair	**Josaphat Tetuko Sri Sumantyo** (Chiba University)

Important Dates

Invited Session Proposal Deadline	5 October 2018
Invited Session Acceptance Notification	5 November 2018
Paper Submission System On-line	12 November 2018
Tutorial Proposal Deadline	12 November 2018
Tutorial Proposal Acceptance Notification	10 December 2018
Paper Submission Deadline	8 January 2019
Student Paper Competition Deadline	8 January 2019
Travel Support Application Deadline	8 January 2019
Submission Status Available On-line	29 March 2019
Registration Open	29 March 2019
Final Submission Deadline	27 May 2019
Early Registration Deadline	27 May 2019
IGARSS 2019	28 July - 2 August 2019

Location of Yokohama



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.

Ice Breaker

Location: Feria de Valencia: Outside Terrace
Time: Sunday, July 22, 18:00 - 20:00
Cost: Included in registration

Please join us for our customary welcome reception.

Walking Tour

Location: Valencia's Old Town
Time: Two different tours are offered:
- **Monday, July 23, 09:30 - 13:00**. Meeting point: City Hall entrance at 09:00. Tour starts at 09:30. (Transportation NOT incl. – walking tour Speaking English Guide incl.)
- **Wednesday, July 25, 19:00 - 21:00**. Meeting point: City Hall entrance at 18:30. Tour starts at 19:00. (Transportation NOT incl. – walking tour Speaking English Guide incl.)

Cost: US $15 (VAT included)

The tour will bring you to the historical and cultural part of Valencia, from the oldest and crowdedsquare in Valencia, where the kilometer 0 of the city is marked, to the modernist Market or the bullfight ring where bullfights are still hold twice a year.

Boat Ride

Location: Albufera Lagoon - National Park
Time: Two different tours are offered:
- **Monday, July 23, 19:00 - 21:00**. Load buses at Serranos Towers beginning at 18:30. Activity starts 19:00. Meeting point: Serranos Towers: Plaça dels Furs, s/n, 46003 València. (Transportation by coach, Boat Tour, English Speaking Guide incl.)
- **Tuesday, July 24, 09:30 - 13:00**. Load buses at Serranos Towers beginning 09:00. Activity starts 19:30. Meeting point: Serranos Towers: Plaça dels Furs, s/n, 46003 València. (Transportation by coach, Boat Tour, English Speaking Guide incl.)

Cost: US $50 (VAT included)

The Albufera lake Park is 11 kilometres south of Valencia. This huge expanse of freshwater is cut off from the sea by sand dunes and pine forests and is a paradise for migrating birds and home to a bewildering variety of wildlife.

Experience a unique boat ride, in an authentic fisherman boat!

Flamenco Show and Dinner

Location: "La Buleria" Restaurant.
Carrer del Bisbe Jaume Pérez, 24, 46006 València
Time: Two different shows are offered:
- **Monday, July 23, 21:00 - 23:00**
- **Tuesday, July 24, 21:00 - 23:00**

(Transportation NOT incl.)
Cost: US $65 (VAT included)

"La Bulería" is responding to a new concept of "Tablao Flamenc", in which a modernised and more up-to-the-minute flamenco is presented to the delight of spectators. A whole world of sensations preceded by a gastronomic experience based on the best ingredients of the traditional Spanish cuisine.

Lladró Studios - The City of Porcelain

Location: Tavernes Blanques, Valencia
Time: Three different tours are offered:
- **Tuesday, July 24, 15:00 - 18:00.** Load buses at Serranos Towers beginning 14:30. Activity starts 15:00. Meeting point: Serranos Towers: Plaça dels Furs, s/n, 46003 València. (Transportation by coach, English-Speaking guide and Entrance Factory incl.)
- **Wednesday, July 25, 10:00 - 13:00.** Load buses at Serranos Towers beginning 14:30. Activity starts 15:00. Meeting point: Serranos Towers: Plaça dels Furs, s/n, 46003 València. (Transportation by coach, English-Speaking guide and Entrance Factory incl.)
- **Thursday, July 26, 10:00 - 13:00.** Load buses at Serranos Towers beginning 09:30. Activity starts 10:00. Meeting point: Serranos Towers: Plaça dels Furs, s/n, 46003 València. (Transportation by coach, English-Speaking guide and Entrance Factory incl.)

Cost: US $20 (VAT included)

See how the famous Lladró porcelain is made and see how the artists create each sculpture from dozens of fragments, modelling flower petals, giving shape to tiny expressive details, applying colours and glazes will make the visitors appreciate the beauty of these widely praised works of art, treasured in over one hundred countries around the world.

IGARSS World Cup

Location: Campus Burjassot
Time: Wednesday, July 25, 19:30 - 21:00. Meeting point: Load buses at Main Entrance Feria Valencia at 18:45. Match starts at 19:30 (Transportation incl. in/out)
Cost: Player US $40 (VAT included)
Spectator US $25 (VAT included)
Dinner US $20 (VAT included)

Optional paella dinner in the stadium.

IGARSS 2018 Award Banquet

Location: Hemisferic Park
L´Hemisferic Venue Av. del Professor López Piñero, 3, 46013 València
Time: Thursday, July 26, 20:30 - 23:00
(Transportation NOT incl.)
Cost: US $80 (VAT included)

The most ambitious of these projects is the City of Arts and Science, a complex featuring remarkable modern architecture which now dominates the southern end of the city. Hemisferic, the eye- shaped building is conceived with the idea that the visitor can experience the sensations offered by the latest technology in image and sound.

Professional Events

Industry / Young Professionals / Women in GRSS mixer Dinner

Location: El Coso del Mar Restaurant
Paseo Neptuno, 12
46011 Valencia
Valencia center (Transport by bus included)
Time: Monday, July 23, 19:00 - 22:00
Cost: (IEEE Member) US $10 (VAT included)
(Non-Member) US $35 (VAT included)

The Industry/Young Professionals/Women in GRSS Dinner provides an informal forum for scientist to interact with their peers and IEEE senior members in an informal setting. The lunch will provide a forum for discussion on career paths, skill sets beneficial to secure employment in the geosciences and remote sensing industries, as well as professional development opportunities.

Check with the Registration desk for exact bus location.

Women in GRSS Luncheon

Location: Feria Restaurant
Time: Tuesday, July 24, 12:50 - 14:10
Cost: US $40 (VAT included)

Everyone is welcome! Be sure to register for the Women in GRSS Luncheon on Tuesday July 24, 2018. This will be the seventh consecutive year for the Women in GRSS Luncheon. The luncheon immediately follows the Women in STEM Forum, which we hope you can attend. The luncheon provides a forum for men & women interested in supporting diversity to interact in an informal setting. After a short welcome and introductions, you will have the opportunity to discuss & network with other participants and the Women in STEM Forum speakers over lunch.

Authors And Editors Meet-up

Location: Room 1C
Time: Wednesday, July 25, 12:50 - 14:10
Cost: Free *[Lunch not provided]*

An opportunity for potential authors of IEEE papers to meet with editors of journals and reviewers to discuss paper publication, journal opportunities, the publication process, and more. The event will begin with brief introductions by journal editors, followed by breakout sessions where authors and editors can engage in discussion and interaction.

Lunch is not provided for this event. Attendees may bring a lunch to the event.

TIE Forum Luncheon

Location: Feria Restaurant
Time: Wednesday, July 25, 12:50 - 14:10
Cost: US $40 (VAT included)

The TIE forum luncheon provides an opportunity for further interaction between all forum speakers and conference attendees. The lunch will be held on Wednesday between two sessions focusing on current topics related to citizen science and education in Earth observation.

Technical Committee and Chapter Chairs' Dinner

Location: Fryda Restaurant
Avinguda de les Corts Valencianes, 58
46035 València
(Transportación NOT incl.)
Time: Wednesday, July 25, 20:00 - 22:00
Cost: US $50 (VAT included)

This event provides a venue for discussion of GRSS Technical Committee activities accompanied by a fine meal. The best 2018 Chapters as well as the data contest winners are awarded during the evening and some other surprises will be offered. Members of GRSS Technical Committees and GRSS Chapter Chairs are especially invited, but all IGARSS delegates (and guests) are welcome to participate.

Editors Luncheon

Location: Feria Restaurant
Time: Thursday, July 26, 12:50 - 14:10
Note: By Invitation Only

This event provides a space for the GRSS editors and best reviewers to discuss about today challenges and how to overcame it during the following years. 2018 best reviewers will get awarded for their work.

Young Professionals GRSS Luncheon

Location: Feria Restaurant
Time: Thursday, July 26, 12:50 - 14:10
Cost: US $40 (VAT included)

The Young Geoscience Professional's lunch is intended to provide an informal forum for young professional, i.e.

engineers and students, to interact with other YP and senior members in an informal setting.

Symposium Information

Conference Venue

Feria Valencia Convention & Exhibition Centre
Avda. de las Ferias, s/n
Valencia – 46035, Spain
Phone: (817) 392-6338

With a century of existence, Feria Valencia is the oldest venue in event organizing, (1917) as well as having the largest exhibition area in Spain, among one of the ten largest in the world with a total area of over 230,000 square meters.

Symposium Registration

IGARSS 2018 Registration will open on Sunday, July 22 at the Feria Valencia Convention & Exhibition Centre and will continue throughout the duration of the symposium.

Operating hours are:

Sunday, July 22	08:30 – 18:30
Monday, July 23	08:00 – 18:30
Tuesday, July 24	08:00 – 18:30
Wednesday, July 25	08:00 – 18:30
Thursday, July 26	08:00 – 18:30
Friday, July 27	08:00 – 18:30

Name Badges

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

Receipt and Proof of Attendance

Registration receipt will be included in the participant kit.

Language

The official language of IGARSS 2018 is English and all presentations must be given in English. No simultaneous interpretation service will be provided.

Wireless Internet Access

Complimentary wireless internet access is available for IGARSS 2018 attendees. Following is the login information:

Network Name: IGARSS
Password: IGARSS_2018

Twitter

#IGARSS18VLC

https://twitter.com/igarss18vlc

Mobile App

The IGARSS 2018 mobile app is a native application for tablets and smartphones, a hybrid web-based app for Blackberry. There is also a web-based version of the application for all other web browser-enabled phones. View the complete symposium schedule, view speaker details, and more.

Downloading the app is easy. Simply:

- Scan the QR Code (all device types)
- Search for IGARSS in the app store (Android and iOS)
- Type the following URL into your device's mobile browser: http://m.core-apps.com/igarss2018

Mobile Phones

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

Emergency Phone Numbers

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

Tickets for Social Events

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

Speakers' Preview Room

On the 3rd floor there will be a room to download the presentations, the room will be connected with each session room through private LAN. There will be 4 computers to download presentations with staff and 4 computers for the speakers to modify the presentations if needed. **It is important that all speakers know that presentation slides must be loaded in the Speaker's Preview Room—not directly in the session room.**

The Speakers' Ready Room is 3D, on the 3rd floor. Opening hours:

Sunday, July 22	16:00 - 19:00
Monday, July 23	08:00 – 18:30
Tuesday, July 24	08:00 – 18:30
Wednesday, July 25	08:00 – 18:30
Thursday, July 26	08:00 – 18:30
Friday, July 27	08:00 – 18:00

Professional staff at the Speakers' Ready Room will be happy to help you in case of any technical problem with your presentation.

Recording Policy

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

asked to stop their recording media and delete recorded material.

Coffee/Tea Breaks

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

Prayer Room

Room 2D will be available during the symposium session hours.

Restaurants

For your information there will be a cafeteria located on the 1st floor that will serve coffee, tea, pastries, soft drinks, snacks. There will be open also a buffet restaurant in the Feria (not located in the same convention centre) that will offer a buffet for lunch from Monday to Friday, rate per person: 22€, VAT included.

Parking

As part of the usage of the venue space, all IGARSS participants will have free access to parking facilities. The indications to access to the parking are in the map on page 20. From the parking inside, take an elevator to the upper conference levels.

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 2018 IEEE International Geoscience and Remote Sensing Symposium (IGARSS 2018), 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 2018 or related events.

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

Future IGARSS Symposia

- IGARSS 2019: July 28– August 2, Yokohama, Japan
- IGARSS 2020: July 19–24, Hawaii, USA

Welcome to Valencia

Valencia, on the east coast of Spain, is the capital of the autonomous community of Valencia. With 800,000 habitants in the administrative centre and 1.7 to 2.5 million habitants together with the metropolitan area is the third-largest city of Spain.

History

Valencia itself was founded by the Romans in 138 BC and given the name 'Valentia'.

It has been inhabited by the Greeks, Phoenicians, Carthaginians, Romans, Visigoths, Byzantines and in the 8th century the Moors occupied Valencia for 500 years.

The Moors brought with them oranges, olives, silk, rice and ceramics which are still an integral part of Valencia. Most importantly they introduced the highly beneficial irrigation system which is still in use today.

In 1094 Rodrigo Díaz de Vivar, better known as El Cid (The Boss), conquered Valencia. This was shortlived as King Jaime I of Aragón took the city in 1238 and made Valencia a kingdom.

The 15th Century was Valencia's Golden Age and the history of Valencia Spain illustrates just how prosperous and advanced Valencia really was. This was the era in which many of Valencia's famous buildings such as La Lonja (the silk exchange), El Miguelete (bell tower), Palau de la Generalitat (the Valencian Community Government Palace) and Torres de Quart (Quart Towers) were constructed.

Valencia was one of the most cultured and important trading powers in the Mediterranean.

The early 19th century gave birth to what is referred to as the Renaixenca (Renaissance). This was the time when the Valenciano language was rediscovered as part of the national heritage.

In the late 19th century Valencia's city walls were demolished in order for the city to expand. Nonetheless, you still get the feeling that the wall is still there as major landmarks such as Torres de Quart and Torres de Serranos still remain.

The river Turia had often flooded the nearby Old Quarter of Valencia and in 1957 the floods killed many Valencians so the river was re-routed. During the 1990s the original dry riverbed was converted into the beautiful Turia Gardens that we now enjoy.

Climate

Valencia enjoys a Mediterranean climate with mild, sunny winters, warm summers and relatively low rainfall. The average temperatures in July are 22/26°C minimum and 28/32°C maximum. Our sunny summer days are ideal for strolling along the shop lined promenades or sitting out on a restaurant or café terrace.

Credit Cards, Currency and Exchange

All major international credit cards are accepted. Foreign currency and traveler's checks can be exchanged at banks and foreign exchange offices. Cash-point machines accepting major international credit card and charge cards

are available at most banks. The Spanish currency is the Euro.

Essential places to visit

- The City of Arts and Sciences: You can find science, nature and art in one of the largest complexes in Europe devoted to scientific and cultural dissemination.
- Barrio del Carmen, Palaces and Towers: This part of the medieval old town is famous for the many cafes, bars and restaurants. Calle Caballeros, which is just off the square, is one of the best places to go for nightlife in Valencia.
- Plaza de la Virgen, the cathedral quarter and Plaza de la Reina: Plaza de la Virgen is a pedestrianized square just a few meters away from Plaza de la Reina. The Cathedral of Valencia and the stunning bell-tower of El Micalet tower over this lovely square.
- Las Arenas & Malvarrosa Beaches: These beaches can be reached from the center of town by bus in 15-20 minutes or with the tram from Pont de Fusta (opposite Torres de Serranos) close to Barrio del Carmen. The journey takes about 10 minutes to Las Arenas beach.
- Lonja de la Seda (Silk Exchange): La Lonja was built from 1482 to 1498 and in 1996 was declared a UNESCO World Heritage Site. Built in the style of a fortress the building towers over the Old Town with the Valencian flag flying on top.
- The Turia Gardens: are the gem of Valencia winding through the city from the Bioparc to the City of Arts and Sciences. They are an essential and very beautiful part of Valencia and not to be missed. Throughout the year festivals and events are held in the gardens.
- Plaza del Ayuntamiento: Plaza del Ayuntamiento (Town Hall Square) in the city of Valencia towers over the fountain and flower filled square of this magical city. Similar to Trafalgar Square in London and Times Square in New York, this is where all the major festivals and events are held.
- Art Galleries and Museums: The art galleries and museums in Valencia are full of works by Velazquez, Van Dyck, Goya, El Greco and amazing modern art and sculptures and porcelain models from Lladro.
- The Albufera Nature Park: is a very beautiful nature reserve just 12km from the center of Valencia. As well as being famous for the lovely freshwater lake and rice fields, it's also the birthplace of the national dish of Spain.
- Bioparc: The Bioparc is a zoological park of a new generation located in the Cabecera Park. Valencia Bioparc is in a 200,000 m2 section at the top end of the Turia Gardens.
- Oceanogràfic: Valencia Aquarium is housed in L'Oceanografic which is the largest marine park in Europe and the largest aquarium in Europe. This stunning building was designed by Felix Candela and is reminiscent of the amazing work of Barcelona's Antoni Gaudí. The oceans and species of the sea are well represented in this truly spectacular area in the center of Valencia. The complex also contains a planetarium, science museum, botanical garden and opera house.
- Central Market: can be found in El Barrio del Carmen in the old town. This is one of the oldest and largest indoor markets in Europe, built with ceramics and an ornate iron and glass covered dome which reaches up to 30 meters.

For more information, please visit http://www.valencia-tourist-travel-guide.com/

Public transportation

Valencia is a relatively small city. However, if you are only visiting for a short period, public transport could be a convenient tool for seeing much of the city in a limited time.

- **Buses in Valencia City**: Taking buses around Valencia will offer you the opportunity to get around the city whilst seeing the sights as you travel. It is important to remember that when you are taking the bus you will need to be reasonably independent - you will not necessarily know when you need to get off the bus so it can be more intimidating than catching the metro. If you decide to travel by bus, it is worth considering buying combined tickets that will allow you to take the bus as well as the tram and the metro (see below for more details). The options include the Valencia tourist card or the Integrated Transport Ticket.
- **The Metro system** (underground / subway system) in Valencia City. Valencia's underground system is one of the quickest and easiest ways to get around the city. It is a comfortable way to travel in the summer as there is air conditioning in the carriages. (For more information of the metro, you can check the network map)
- **Taxis**: Taxis in Valencia may be ordered by phone, picked up at authorized taxi stands or flagged down in the street. Taxis must usually be paid in cash through some accept credit cards.
  Radio Taxi: +34 963 703 333
  Tele Taxi: +34 963 571 313
  Taxi for disabled people: +34 685 360 360

Shopping

Normal trading shopping hours are Monday to Saturday from 9:00 to 13:00 and 16:30 to 20:30. Some shopping malls are also opened on Sundays.

Banks

Official opening hours of banks in Spain are from 8.30 to 14.00 from Monday to Friday, closed in the afternoon. It is possible to change foreign currency into Euros in the main city hotels.

Electricity

A 2-pin round adapter is necessary for electrical appliances. The electric current used is 220 volts/50hz.

Restaurants

Valencia's restaurants range from gourmet-type to informal rand tapas restaurants. There are also many international restaurants in the city, offering almost any kind of cuisine. In

Spain, lunch is generally served between 13:30 – 15:30 h, dinner around 20:30 – 23:30 h.

Smoking

In Spain smoking is prohibited in public buildings and public transport (including taxis), at workplaces, railway stations, discotheques, bars and restaurants. Tobacco consumption is also not allowed outside the grounds of hospitals, health centers, schools and kindergartens.

Smoking is permitted on terraces (e.g., restaurants), in one's own home and balcony, in hotel rooms - if not prohibited by the owner - and in the fresh air with the exceptions referred to above.

Tipping

Service is generally included in restaurant bills. A 5/10% tip is customary to show appreciation of services provided.

Useful Telephone Numbers

Emergency: 112
Local police: 092
RENFE (Spanish railway): Customer Service +34 902 320 320
Valencia Airport: +34 902 40 47 04

VAT

There is a variable value added tax (VAT) of 10% to 21% applied to most items and services but in most prices you see will include it. When it is not included, this should be clearly indicated. Neither the Organisation nor Mondial & Cititravel Congresos accepts responsibility for any changes, which may occur due to an official increase of VAT.

Student Paper Competition

All IEEE student members were invited and encouraged to enter the IGARSS Student Paper Competition. Ten finalists have been selected by a committee to present their papers during a special session at the symposium in Valencia, on Wednesday morning, July 25, in room Room 4C. Three prizes will be presented: First Prize (Mikio Takagi Student Prize) endowed with US$1000.00, Second Prize endowed with US$750.00, Third Prize endowed with US$500.00, plus certificates for each. Following the special session at IGARSS, a complimentary ticket to the GRSS Annual Awards Banquet has been offered to the 10 finalists. The ten finalists are listed below.

WE1.R7.1: MULTI-ATTRIBUTE SUPER-TENSOR MODEL FOR REMOTE SENSING IMAGE CLASSIFICATION WITH HIGH SPATIAL RESOLUTION

Tianzhu LIU, Yanfeng Gu

WE1.R7.2: IMPROVED CALIBRATION OF CYGNSS MEASUREMENTS FOR DOWNBURSTS IN THE INTERTROPICAL CONVERGENCE ZONE

Rajeswari Balasubramaniam, Christopher Ruf

WE1.R7.3: ACCURATE BUILDING DETECTION IN VHR REMOTE SENSING IMAGES USING GEOMETRIC SALIENCY

Jin Huang, Gui-Song Xia, Fan Hu, Liangpei Zhang

WE1.R7.4: DETECTION & SEPARATION OF COHERENT REFLECTIONS IN GNSS-R MEASUREMENTS USING CYGNSS DATA

Eric Loria, Andrew O'Brien, Inder J. Gupta

WE1.R7.5: FUSION OF MULTITEMPORAL LIDAR DATA FOR INDIVIDUAL TREE CROWN PARAMETER ESTIMATION ON LOW DENSITY POINT CLOUDS

Daniele Marinelli, Claudia Paris, Lorenzo Bruzzone

WE2.R7.1: HYPERSPECTRAL IMAGE SUPER-RESOLUTION VIA LOCAL LOW-RANK AND SPARSE REPRESENTATIONS

Renwei Dian, Shutao Li, Leyuan Fang, Jose Bioucas

WE2.R7.2: OPTIMIZING KERNEL RIDGE REGRESSION FOR REMOTE SENSING PROBLEMS

Gonzalo Mateo-García, Valero Laparra, Luis Gómez-Chova

WE2.R7.3: CHARACTERIZATION OF THE TRANSMIT POWER AND ANTENNA PATTERN OF THE GPS CONSTELLATION FOR THE CYGNSS MISSION

Tianlin Wang, Christopher Ruf, Bruce Block, Darren McKague

WE2.R7.4: HY-DEMOSAICING: HYPERSPECTRAL BLIND RECONSTRUCTION FROM SPECTRAL SUBSAMPLING

Lina Zhuang, Jose Bioucas-Dias

WE2.R7.5: MULTIOUTPUT AUTOMATIC EMULATOR FOR RADIATIVE TRANSFER MODELS

Daniel Heestermans Svendsen, Luca Martino, Jorge Vicent, Gustau Camps-Valls

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 Committee include the organization of special sessions at IGARSS along with hosting a committee meeting open to all IGARSS participants. The following is a list of current technical committees, brief statement of interest, special sessions and meetings at IGARSS 2018.

Technical Committee Chairs Meeting

Monday, July 23, 12:50 - 14:10, Room 4A
For Technical Committee Chairs only

Frequency Allocation in Remote Sensing (FARS)

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

Invited Sessions:
MO3.R9: Radio Frequency Interference (RFI) in Microwave Remote Sensing I
Monday, July 23, 14:10-15:50, Room 4D
MOP2.PW: Radio Frequency Interference (RFI) in Microwave Remote Sensing II
Monday, July 23, 15:50-16:50, Poster Area W
MO4.R9: Radio Frequency Interference (RFI) in Microwave Remote Sensing III
Monday, July 23, 16:50-18:30, Room 2G-2H
TC Meeting:
Monday, July 23, 18:30-20:00 , Room 4D

Geoscience Spaceborne Imaging Spectroscopy (GSIS)

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

Invited Sessions:
MO3.R5: International Spaceborne Imaging Spectroscopy Missions: Updates and News I
Monday July 23, 14:10-15:50, Room 3F
MO4.R5: International Spaceborne Imaging Spectroscopy Missions: Updates and News II
Monday July 23, 16:50-18:30, Room 3F
TC Meeting:
Monday, July 23, 13:30-20:00, Room 3F

GRSS Standards for Earth Observation (GSEO)

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

Invited Sessions:
Hyperspectral Standards Working Group Meeting
Tuesday, July 24, 18:30-20:00, Room 4D
SAR Standards Working Group Meeting
Wednesday, July 25, 18:30-20:00, Room 2E
TC Meeting:
Monday, July 23, 18:30-20:00, Room 3G

Earth Science Informatics (ESI)

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

TC Meeting:
Monday, July 23, 18:30-20:00, Room 4F

Instrumentation and Future Technologies (IFT)

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

Invited Sessions:
TU1.R9: Space Lidar: Missions, Technologies and Observations I
Tuesday, July 24, 08:30-10:10, Room 4D
TU2.R9: Space Lidar: Missions, Technologies and Observations II
Tuesday, July 24, 11:10-12:50, Room 4D
TU3.R9: New Spaceborne SAR Instruments and Missions
Tuesday, July 24, 14:10-15:50, Room 4D

TU4.R11: GNSS-R IV: Sensors and Applications
Tuesday, July 24, 16:50-18:30, Room 2E

TC Meeting:
Tuesday, July 24, 18:30-20:00, Room 2E

Image Analysis and Data Fusion (IADF)

The Image Analysis and Data Fusion Technical Committee (IADFTC) mission is to serve as a global, multi-disciplinary, network for geospatial data fusion, with the aim of connecting people and resources, educating students and professionals, and promoting the best practices in data fusion applications.

Invited Sessions:
TU3.R7: Data Fusion I
Tuesday, July 24, 14:10-15:50, Room 4F

TU4.R7: Data Fusion II
Tuesday, July 24, 16:50-18:30, Room 4F

WE1.R5: IEEE GRSS Data Fusion Contest
Wednesday, July 25, 08:30-10:10, Room 3F

TC Meeting:
Tuesday, July 24, 18:30-20:00, Room 4C

Modeling in Remote Sensing (MIRS)

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

Invited Session:
MO3.R7: Physical Modeling in Microwave Remote Sensing I
Monday, July 23, 14:10-15:50, Room 4C

MO4.R7: Physical Modeling in Microwave Remote Sensing II
Monday, July 23, 16:50-18:30, Room 4C

TU1.R7: Optical Modeling in Remote Sensing I
Tuesday, July 24, 8:30-10:10, Room 4C

TU2.R7: Optical Modeling in Remote Sensing II
Tuesday, July 24, 11:10-12:50, Room 4C

TC Meeting:
Tuesday, July 24, 18:30-20:00, Room 3F

Standards For Characterization And Calibration Of UV-SWIR Hyperspectral Imaging Devices - P4001 Working Group Meeting

The P4001 will use this WG meeting time for a foundational discussion concerning terms and definitions. There will be one or more additional short technical presentations concerning testing parameters and characterization. An agenda can also be found at the group website: http://sites.ieee.org/sagroups-hyperspectral/

TC Meeting:
Tuesday July 24, 18:30-20:00, Room 4D

Chair: Siri Jodha Khalsa

Assembly of the Spanish Remote Sensing Association

TC Meeting:
Tuesday, July 24, 18:30-20:00, Room 3A

Chair: Jose Sobrino

Meeting of the IEEE GRSS Working Group on SAR Metadata Standard

Anyone interested in contributing their thoughts on what metadata is needed to describe SAR data products is welcome to attend this meeting. Discussions will include harmonization with ISO and OGC efforts, as well as using the best ad-hoc standards that are already in use, such as SICD, SIDD, and instrument-specific standards. If you are an expert in processing and/or using SAR data for your research you should come and get your opinions heard.

TC Meeting:
Wednesday, July 25, 18:30-20:00, Room 2E

Chair: Leland Pierce

L-Band Inter-Comparison Working Group Meeting

The focus of this working group is to identify an optimum approach for inter-comparison of data from the three L-band sensors SMOS, AQUARIUS and SMAP and future sensors (e.g. IMI on WCOM) 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).

TC Meeting:
Wednesday, July 25, 18:30-20:00, Room 2F

Chair: David Le Vine
Co-chairs: Yann Kerr and M. Portabella

IGARSS 2019 Organizing Committee Meeting

TC Meeting:
Wednesday, July 25, 18:30-20:00, Room 4A

Technology, Industry, and Education (TIE) Forum

Monday, July 23 **13:40 - 18:30** **Room 1A**
Session MO3-4.TIE **Oral**

TIE Industry Forum

Session Chairs: Kevin Corbley

The second annual Remote Sensing Industry Forum will host professionals from around the world to discuss industry's perspective of geospatial technology and its rapid evolution. Speakers from Deimos Imaging/UrtheCast, European Space Imaging, Google, and Climate Corporation will debate around the theme: "The Golden Age of Commercial Remote Sensing: Are We There Yet? What Comes Next?"

14:10 - 15:50

MO3.TIE.1 **Remote Sensing Industry Forum I**
The first session of this Forum will host oral presentations from each of the panelists to illustrate their backgrounds and the unique perspective that they bring to the conversation.

15:50 - 16:50 Coffee Break

16:50 - 18:30

MO4.TIE.1 **Remote Sensing Industry Forum II**
The second session of the Remote Sensing Industry Forum will continue the conversation introduced by the oral presentations of the first session. It will consist of a discussion among the panel members moderated by Kevin Corbley. Audience participation is encouraged.

Tuesday, July 24 **08:30 - 12:50** **Room 1A**
Session TU1-2.TIE **Oral**

Industry Tutorials

Session Chair - Development Seed: Drew Bollinger
Session Chair - Descartes Labs: Kornelijus Survila

The TIE Forum industry tutorials are designed as a low-barrier opportunity for conference participants to learn about software capabilities available to remote sensing professionals.

08:30 - 10:10

TU1.TIE.1 **Development Seed Tutorial**
Development Seed will introduce open data and open technology projects and toolsets that are built to solve the world's hardest geospatial problems.

10:10 - 11:10 Coffee Break

11:10 - 12:50

TU2.TIE.1 **Descartes Labs Tutorial**
Descartes Labs will introduce their geospatial platform and will walk through hands-on examples using open data. The session is designed to give participants an easy and interactive introduction to global-scale data processing. Participants will get the most out of the session by bringing a personal laptop.

Tuesday, July 24 **14:10 - 18:30** **Room 1A**
Session TU3-4.TIE **Panel**

Women in STEM Forum

Session Chairs: Mariko S. Burgin and Lori Bruce

The Women in STEM Forum is organized to promote diversity, inclusion, and career success in GRSS, with a particular focus on women and minorities. This year's Women in STEM Forum features a panel of speakers and an interactive professional development workshop. Come to learn, be inspired, and network!

12:50 - 14:10 Lunch – Women in GRSS Luncheon – Location: Feria Restaurant

14:10 - 15:50

TU3.TIE.1 **Panel**
The panel will feature speakers from government, industry, and academia: Dr. Diane Evans (NASA JPL), Dr. Caitlin Kontgis (Descartes Lab), Dr. Melba Crawford (Purdue University), Dr. Keely Roth (The Climate Corp.), and Dr. Karen St. Germaine (NOAA). Each speaker will give a 15 minute presentation where they give insights into their careers and share their thoughts & stories as women in STEM, followed by an open Q&A discussion.

15:50 - 16:50 Coffee Break

16:50 - 18:30

TU4.TIE.1 **Workshop**
Dr. Regina Eckert from the Center of Creative Leadership will give an interactive professional development workshop on how to thrive as a STEM woman in your organization. She will review trends on retention and promotion, what organizations are doing to strengthen the bench of STEM women leaders, and discuss what unique challenges STEM women face. Participants will gain tangible leadership skills to increase their visibility and create opportunities for career advancement.
The Center for Creative Leadership (CCL) is a leading provider of research and development in leadership and executive education for more than 5 decades. CCL published the first book on women's leadership development in 1998, and has pioneered in the space of technical women's leadership development with the launch of the Advancing Technical Women's program in 2018.

Wednesday, July 25 **08:30 - 10:10** **Room 1A**
Session WE1.TIE **Oral**

Open forum on test and calibration standards for spectral imaging devices

Session Chair: Christopher Durell, Labsphere, Inc

Hyperspectral Imaging (HSI) as a field continues to mature from a specialized tool to a routine method applied to many facets of society. Standards provide common reference points that foster an understanding between different entities and standardization is needed in the HSI field. This group is intended to review the range of standards currently available and to identify gaps where new standards are needed for hyperspectral technology. IEEE has agreed to provide the infrastructure for the P4001 working group to begin investigating VIS-NIR (250-2500nm) hyperspectral methods and means. The range of standards is open for discussion to encompass all aspects related to hyperspectral imaging and may include performance specifications, calibration standards, data formats, terminology, best practices and, eventually, other wavelength ranges. This workshop will begin with a brief overview of the industry situation today and the P4001 progress to date.

After each presentation, discussion will be opened to the audience to provide an open feedback forum for the TIE attendees. The desired outcome of this meeting is to raise awareness of the P4001 and entice industry experts for their contribution to the standard. This meeting is open to all IGARSS registered attendees.

08:30 - 08:40
WE1.TIE.1 **Overview, P4001 Status & Terminology**
Christopher Durell, Labsphere

08:40 - 08:50
WE1.TIE.2 **Calibration & Test Methods**
Christopher Durell, Labsphere

08:50 – 09:00
WE1.TIE.3 **Types and Classes of Instruments**
Dr. Kwok Wong, Headwall

09:00 – 09:10
WE1.TIE.4 **Applications**
Dr. Miguel Velez-Reyes, UTEP

09:10 – 09:20
WE1.TIE.5 **Metadata & Data Processing**
Dr. Siri-Jodha Khalsa, NSIDC (IEEE)

09:20 – 10:10
WE1.TIE.6 **Open discussion and extended Q&A**

Wednesday, July 25 **11:10 - 12:50** **Room 1A**
Session WE2.TIE **Oral**

Citizen Science in Earth Observation

Session Chair: Shawn Carlisle

In times when almost 51% of the world's population have access to internet and technology the impact of the scientific discoveries in the society (i.e. citizens, policy makers, and business) is stronger than ever. At the same time, scientist are taking advances of the new technologies to engage students and the public worldwide to be part of their discoveries (i.e. testing new algorithms and/or collecting auxiliary data using their smart phones).

At the IGARSS 2018 Science for Society forum, we would like to present different scenarios where user-friendly technologies (i.e. mobile apps and simple tools) are tightening the gap between science and society. At the same time, we would like to open a discussion about the problems and/or limitations we scientist face when trying to develop tools for the society, for example:

- Are the scientific outputs too complex for the general public?
- Are the tools we are using too expensive for the general public?
- How can be engage the public worldwide to be part of our studies?

The IGARSS 2018 Science for Society forum will feature scientists from a mix of backgrounds and with diverse career paths. Each speaker will have the opportunity to give a short presentation of ten minutes followed by an open discussion and extended Q&A.

We are inviting you to join the Science for Society Forum. Come to learn, share your experience, and network!

11:10 – 11:20
WE2.TIE.1 **Introduction**

11:20 – 11:30
WE2.TIE.2 **Dr. Shawn Carlisle Kefauver**
Department of Plant Biology, University of Barcelona

11:30 – 11:40
WE2.TIE.3 **Dr. Juan Manuel Sanchez Tomas**
Department of Applied Physics, University of Castilla-Lla Mancha

11:40 – 11:50
WE2.TIE.4 **Dr. Jorge Tamayo**
Valencian Community territorial delegate, Ibero-American Cooperation Coordinator, AEMET- National Meteorological Agency

12:00 – 12:50
WE2.TIE.5 **Open discussion and extended Q&A**

12:50 – 14:10
Lunch – TIE Forum Luncheon – Location: Feria Restaurant

Wednesday, July 25 **14:10 - 15:50** **Room 1A**
Session WE3.TIE **Oral**

Education Forum

Session Chair: Josée Lévesque

A good education program and quality scientific outputs have a significant and strong correlation. In times when the information is available with a simple click or a touch in our smart phone, we need to differentiate between basic scientific information and scientific knowledge and understanding. We can easily download a code from the internet to process our data set. However, if we do not understand what the code is doing our results and the conclusions could be completely wrong.

At the IGARSS 2018 Science and Education forum, we would like to present different educations systems, from online seminars and summers schools to traditional lecture-based classes. At the same time, we would like to open a discussion about the new tools available for education as well as the problems and/or limitations we face when trying to educate the scientific community to publish high quality results. For example, we will discuss about:

- Are traditional lecture-based classes needed anymore?
- Which are the pros and cons of online lectures?
- Can we educate the scientific community through our scientific publications? It is, are we in need of more papers focused on measurements protocols or quality check procedures.

Each speaker will have the opportunity to give a short presentation of 15 minutes followed by an open discussion and extended Q&A.

We are inviting you to join the Science for Society Forum. Come to learn, share your experience, and network!

14:10 – 14:20
WE3.TIE.1 **Introduction**

14:20 – 14:35
WE3.TIE.2 **Josée Lévesque**
IEEE GRSS Director of Education

14:35 – 14:50
WE3.TIE.3 **Francesco Sarti**
Scientific Coordinator of the Education and Training Activities, ESA

14:50 – 15:05
WE3.TIE.4 **Cesar Coll**
Master in Remote Sensing, University of Valencia

15:05 – 15:50
WE3.TIE.5 **Open discussion and extended Q&A**

Wednesday, July 25 **16:50 - 18:30** **Room 1A**
Session WE4.TIE **ORal**

JECAM SAR Inter-Comparison Special Event

Session Chair: Heather McNairn

In 2017, under the leadership of Agriculture and Agri-Food Canada and in the context of the Group on Earth Observations Global Agricultural Monitoring (GEOGLAM) and the Joint Experiment for Crop Assessment and Monitoring (JECAM), the international agriculture community came together to collectively assess, adapt and compare methods to monitor agriculture using SAR technologies. This 3-year multi-nation experiment is focused on SAR-based methods to classify crop types and estimate productivity across diverse cropping systems. The expected outcomes are validated and ready to implement SAR-based approaches that will assist national, regional and international efforts to monitor crop production and flag emerging food insecurities. To date, 20 countries have confirmed participation in this experiment with new partners continuing to come on line.

JECAM welcomes you to a special event during the 2018 International Geoscience and Remote Sensing Symposium (IGARSS 2018). This event will summarize the framework of the JECAM SAR Inter-Comparison Experiment, and with four participating JECAM partners lead you through a comprehensive discussion of critical questions facing users of SAR for agriculture monitoring, including:

What are the challenges for users of SAR for agriculture monitoring?

What is Analysis Ready Data (ARD) and what level would you consider beneficial for your research?

What is your Application Readiness Level (ARL)?

Who are your 'clients'?

16:50 – 17:10
WE4.TIE.1 **Overview: JECAM and SAR Inter-Comparison Experiment**
Mehdi Hosseini, co-lead, Ottawa, Canada

17:10 – 17:20
WE4.TIE.2 **Katarzyna Dabrowska-Zielinska**
Head of Remote Sensing Center Institute of Geodesy and Cartography, Warszawa, Poland

17:20 – 17:30
WE4.TIE.3 **Dipankar Mandal & Avik Bhattacharya**
Indian Institute of Technology Bombay, Centre of Studies in Resources Engineering (CSRE), Mumbai, India

17:30 – 17:40
WE4.TIE.4 **Anna Balenzano**
Italian National Research Council, Apulian Tavolieri, Italy

17:40 – 17:50
WE4.TIE.5 **Gérard Dedieu**
Venμs co-PI, Centre d'Etudes Spatiales de la Biosphère (CESBIO), Toulouse, France

17:50 – 18:00
WE4.TIE.6 **Spontaneous Lightning Partner Talk(s)**

18:00 - 18:30
WE4.TIE.7 **Moderated Discussion**
Heather McNairn, co-Principal Investigator, Ottawa, Canada

Friday, July 27	08:30 - 18:00	Room 1C
Session FR1-4.TIE		Workshop

Code Workshop (come and go all day!)

Session Chair: Drew Bollinger

The purpose of the TIE Forum is to cross the bridge between the research efforts of academia and the technology of industry. In this spirit, we are holding a code workshop designed to build hands-on experience with open source software tools capable of interacting with satellite data. Come and work together with others that share your desire to create a vibrant community of open remote sensing software tools. Bring your laptop and your own project ideas or join in moving forward two existing projects: Sat-utils and Label Maker. We will have prepared projects suitable to all different experience levels with various end goals (analysis, visualization, querying, etc.). We will have developers available throughout the day for questions and coding assistance.

Sat-utils is a collection of open source tools for querying and processing satellite data. We will give a brief overview of the tools and their current roadmaps and participants can choose to contribute to the repos directly or use the tools to build a new project.

Label Maker is an open source python library which creates custom machine-learning-ready satellite training data for most popular ML frameworks, including Keras, TensorFlow, and MXNet. We will walk through a basic example of using the library and then give participants the option to build on the software directly or use curated datasets to train their own machine learning classifier.

08:30 – 10:40 Code Workshop
10:40 – 11:10 Coffee break
11:10 – 12:50 Code Workshop
12:50 – 14:10 Lunch
14:10 – 15:50 Code Workshop
15:50 – 16:20 Coffee break
16:20 – 18:00 Code Workshop

IGARSS Summer School

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

"Reflectance-Based Calibration of Imaging Spectrometer Training Course"

July, 19 – 21 2018

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

The goal of this summer course is to:

- teach the basic procedures and methods of the reflectance-based calibration method for use with imaging spectrometry
- describe how those concepts translate into an error budget, both for understanding the repeatability, as well as the absolute uncertainty, and,
- demonstrate the concepts with a practicum in the field.

The training activity will include demonstration of measurement protocols for surface and atmospheric parameters that minimize uncertainties and, weather permitting, collection of data as part of the reflectance-based calibration for an airborne sensor. An emphasis will be placed on techniques and protocols suitable for calibration of imaging spectrometers.

The duration of the course is three days, beginning with an introduction to the terminology and techniques of imaging spectroscopy calibration (both laboratory-based and in-flight) and an overview of the Reflectance-Based Method. Discussions on atmospheric and surface measurements will be provided as well as an overview of atmospheric radiative transfer. Each section includes a discussion of the tools used, their related uncertainties, and the impact on the reflectance-based results. The training will include a field-based practical session at a pseudo invariant target close to the University of Valencia as a means to demonstrate the application of the concepts and to foster participant discussion within the course.

The main tutors/guides for this course are Dr Kurtis Thome (NASA Goddard), Mr Chris MacLellan,Mr Andrew Gray (University of Edinburgh) and Dr. Martin Bachmann (DLR).

Please register your interest in attending the field practicum with Dr Cindy Ong (cindy.ong@csiro.au) or Dr Kurt Thome (kurtis.thome@nasa.gov). Please provide a biography/CV of yourself and the reasons why you believe you would be a good candidate for this course. A requirement of the course is that participants have some previous experience and/or formal background in optical remote sensing. Preference will be given to early career scientists from developing countries and people associated and/or are working in spaceborne imaging spectroscopy spaceborne mission teams with a willingness to continue collaboration with the GSIS TC for further analysis and publications of the results of the experimental work.

Venue: ETSE School, University of Valencia, Burjassot Campus. It is located at a few hundred meters from IGARSS venue (Feria Valencia), so attendants might book in the same hotel for both events. The field training will take place in the proximity of the school.

Occupational health and safety: The average day time high temperatures at the site in late July are +35 °C and can exceed 40 °C. We recommend a minimum personal protection of long sleeves collared shirts, long pants, wide brim hats, covered shoes, sun glasses and high SPF sun screen. Water will be provided but consider having personal water bottles.

ESA Special Events

SMOS – an ESA Earth Explorer satellite

Tuesday, July 24, 18:30- 20:00, Room 1A

From technology demonstrator to operational applications

The European Space Agency's (ESA) Soil Moisture and Ocean Salinity (SMOS) mission was launched in 2009 and is successfully operating and delivering data to the scientific and operational user community since then. Originally conceived under ESA's Earth Explorer initiative, it was intended to demonstrate novel technology in space and deliver unique data in support of scientific questions not been tackled previously. After more than 8 years in orbit SMOS has successfully achieved both:

SMOS carries the first interferometric L-Band radiometer flown in space. The interferometry technology has been developed for radio-astronomy and provides the opportunity to measure at a spatial resolution suitable for the global measurements required. Interferometry is used to address the constraint (in space) that the antenna size is proportional to the wavelength and the spatial resolution achieved, hence synthetic aperture and interferometric processing are required for space applications addressing the Earth's water cycle. The technical concept used for SMOS is unique in that it has been applied in space, for an Earth Observation mission, for the first time. SMOS is in excellent technical condition with no limiting factors for operations beyond the currently foreseen operations to 2019 and beyond, pending the availability of funding.

SMOS was also the first satellite mission to provide global maps of soil moisture and ocean salinity from space. Over recent years SMOS has bridged the gap between originally being conceived as a technology demonstrator to becoming the provider of essential information for scientific, operational and climate applications. SMOS data have been used in numerical weather prediction, hydrological forecasting and ocean modeling. They provide a large variety of information in support of agricultural applications and natural hazards. Operational Copernicus services already use SMOS data, for example sea ice data for ship routing. Given the ever extending life time SMOS data now also support the monitoring of seasonal and inter-annual changes over land, ocean and sea ice and hence have great potential for climate applications. Soil moisture, ocean salinity, and sea ice have been identified as Essential Climate Variables, with a clear need for long-term data series for such measurements.

The special event will focus on the technological excellence, showcasing the contribution of European research and industry in achieving this, and the scientific achievements leading to operational applications providing benefit to society.

	Title	Presenter
18:30	Welcome and opening address	Susanne Mecklenburg, ESA
18:35	The first interferometric L-Band radiometer flown in space	Manuel Martin-Neira, ESA
18:40	MIRAS: The SMOS instrument: a technology challenge	Josep Closa, EADS CASA
18:45	Agricultural applications: root zone soil moisture, drought index, vegetation optical depth	Yann Kerr, CESBIO
18:50	SMOS neural network soil moisture assimilation for NWP	Patricia de Rosnay, ECMWF
18:55	Fire-drought relationship and wildfire prediction with SMOS	Maria Piles, University of Valencia
19:00	Operational High Resolution Soil Moisture for Desert Locust Management	Maria Jose Escorihuela, isardsat
19:05	Using SMOS soil moisture in the Copernicus Climate Change Service (C3S)	Wouter Dorigo, Vienna University of Technology
19:10	Impact of SMOS Sea-ice thickness and salinity observations in the Copernicus Marine service	Antonio Reppucci, Copernicus Marine Environment Monitoring Service
19:20	Severe storms over ocean	Roberto Sabia, ESA on behalf of Nicolas Reul, IFREMER
19:25	High-resolution SMOS salinity products in the Mediterranean	Antonio Turiel, Barcelona Expert Centre
19:30	Sea Surface Salinity: a tracer of Ocean and Atmosphere anomalies during ENSO events'	Jacqueline Boutin, LOCEAN
	Closing remarks and aperitif	Susanne Mecklenburg, ESA

ESA Carbon Science Constellation Initiative

Wednesday, July 25 18:30 - 20:00, Room 4F

Chair: Diego Fernandez
Head of the Research & Development Section
EO Science, Applications and Climate Department
European Space Agency (ESA)

The next launch of BIOMASS and FLEX represent a major opportunity for terrestrial carbon research. The potential synergies offered by the complementary use of FLEX, BIOMASS, S2, S2, S3, SMOS, TerraSAR-X and other non-European missions (e.g., GEDI, NISAR) will open an unique opportunity to address the main knowledge gaps in terrestrial carbon science. The ESA Carbon Science Constellation Initiative aims at preparing the community for the fast exploitation of the synergic capabilities provided by these missions. With this approach ESA aims at fostering new developments in terms of novel joint retrievals, innovative multi-mission products, advance modelling and new scientific results that not a single mission can achieve alone. In this context, this session aims at consulting with the community to establish such an initiative and collect feedback and recommendation that may guide ESA investments in the coming future. The session will be organised around few key note talks followed by a discussions. The ultimate target of the session is to prepare a short report collecting the main recommendations from the community to launch this initiative in 2019.

Program	Presenter
1. Towards an ESA Carbon Science Constellation Initiative.	Diego Fernandez
2. The Terrestrial Carbon Science: knowledge gaps and challenges.	Markus Reichstein
3. Challenges in Carbon modelling and perspectives for 2022+.	Thomas Kaminski
4. Opportunities and challenges to maximise the impact of coming multi-mission capacity (1).	Jochem Verelst
5. Opportunities and challenges to maximise the impact of coming multi-mission capacity (2).	Shaun Quegan
General discussion	

Tutorials

Full-Day, Sunday, July 22, 09:30 - 18:00

FD-1: Remote Sensing with GNSS Reflectometry (GNSS-R) and Signals of Opportunity (SoOp)

James L. Garrison, Purdue University; Estel Cardellach, Institute of Space Sciences (ICE-CSIC/IEEC); and Adriano Camps, Universitat Politechnica de Catalunya (UPC)

Location: Room 4A

FD-2: DART 3D radiative transfer model: an efficient tool for remote sensing studies

J.P. Gastellu-Etchegorry, CESBIO, Toulouse University (Paul Sabatier University, (CNRS, CNES, IRD), France; T. Yin, NASA GSFC, Washington, USA, CESBIO, Toulouse University, France; and Jianbo Qi, Beijing Normal University, China

Location: Room 4C

FD-3: Open Data Cube - A new way to manage satellite data utilizing an open source platform

Brian Killough, NASA; Syed Rizvi, Sanjay Gowda; Analytical Mechanics and Associates Inc.

Location: Room 4D

FD-4: High Performance and Cloud Computing for Remote Sensing Data

Gabriele Cavallaro, Ahmed Shiraz Memon, Jülich Supercomputing Centre; Ernir Erlingsson, University of Iceland; Juan Mario Haut, Mercedes Paoletti, Antonio Plaza, and Javier Plaza, University of Extremadura

Location: Room 4F

FD-5: Machine Learning in Remote Sensing - Best practices and recent solutions

Devis Tuia, Bertrand Le Saux, Yuliya Tarabalka, Ronny Hänsch; Laboratory of GeoInformation Science and Remote Sensing - Wageningen University and Research - The Netherlands, Information Processing Dpt at ONERA - The French Aerospace Laboratory, TITANE team of Inria Sophia-Antipolis Méditerranée, Computer Vision & Remote Sensing group of the Technische Universität Berlin

Location: Room 3F

FD-6: SAR and optical data fusion with hands-on session using the ESA Toolbox SNAP

Lorenzo Bruzzone, Universitá di Trento; Miguel Castro Gómez, Serco SpA; Cécile Cazals, CS-SI; Francesco Sarti, ESA; Mickaël Savinaud, CS-SI; Tereza Šmejkalová, Serco SpA

Location: Room 3G

FD-7: Earth Observation Big Data Intelligence: theory and practice of deep learning and big data mining

Mihai Datcu, DLR; Feng Xu, Fudan University

Location: Room 2G

FD-8: SAR Polarimetry & Applications for Current (Sentinel 1) & New (GF3, Biomass, SAOCOM, RCM) Missions

Carlos Lopez-Martinez, Luxembourg Institute of Science and Technology; Eric Pottier, Universite de Rennes-1

Location: Room 2H

FD-10: Spectroscopic, fluorescence & thermal observations for SIF & physiological processes

Alasdair MacArthur, University of Edinburgh; Luis Alonso and Juan Carlos Jiménez-Muñoz, University of Valencia

Location: Room 2F

Morning, Sunday, July 22, 09:30 - 13:00

HD-1: Satellite based L-Band observation of land surfaces

Ahmad AL Bitar, CESBIO/CNRS; Susanne Mecklenburg, ESA; Arnaud Mialon and Nemesio Rodriguez-Fernandez, CESBIO/CNRS

Location: Room 2E

Afternoon, Sunday, July 22, 14:30 - 18:00

HD-4: Spectrum Management, Detection and Mitigation of RFI in Microwave Remote Sensing

Jasmeet Judge, University of Florida; Jeffrey Piepmeier, NASA Goddard Space Flight Center; Michael Inggs, University of Cape Town; and Paolo de Matthaeis, NASA Goddard Space Flight Center

Location: Room 2I

HD-6: Classification of satellite image time series with the Orfeo ToolBox and QGIS

Stéphane May,CNES

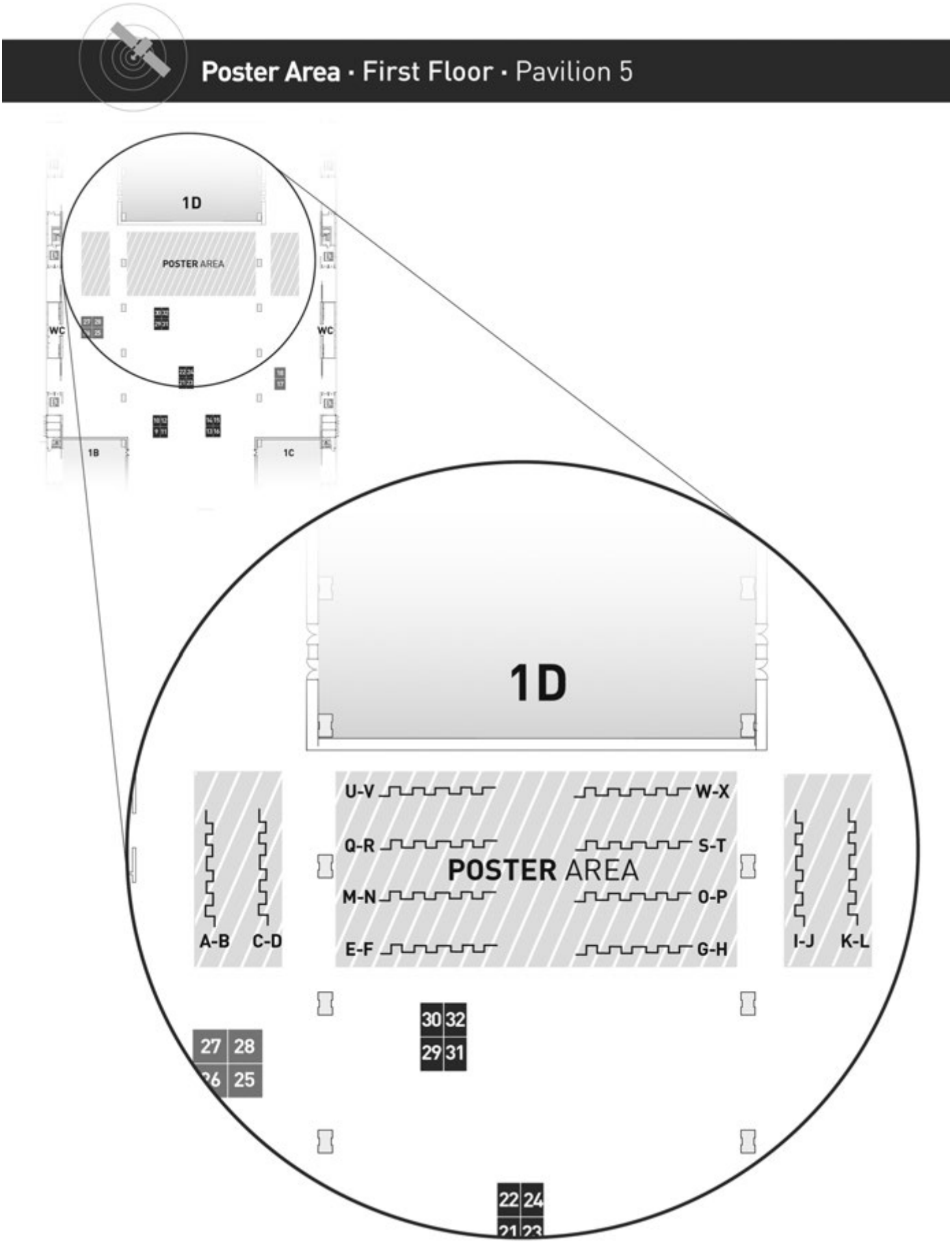
Location: Room 2E

HD-7: Introduction to the ARTMO raditiative transfer models and retrieval toolboxes

Jochem Verrelst and Juan Pablo Rivera-Caicedo, Image Processing Laboratory (IPL), Laboratory of Earth Observation, University of Valencia

Location: Room 3B

Feria Valencia Convention & Exhibition Centre — Poster Area Detail



Presentation Instructions

Guidelines for Speakers and Oral Presenters

The official language of the Symposium is English. Each oral presentation is allocated 20 minutes. We recommend that presentation of your slides should take about 17-18 minutes, leaving 2-3 minutes for introduction, summary, and questions from the audience. Speakers are requested to respect the timing allowed to the session and to each presentation. Pre-recorded presentations are NOT ALLOWED, and the person giving the presentation MUST be able to take and answer questions regarding the content of the paper and associated research. The presenter must be present in the room, remote virtual presenters are NOT allowed.

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

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

Speakers' Preview Room

On the 3rd floor there will be a room to download the presentations, the room will be connected with each session room through private LAN. There will be 4 computers to download presentations with staff and 4 computers for the speakers to modify the presentations if needed. **It is important that all speakers know that presentation slides must be loaded in the Speaker's Preview Room—not directly in the session room.**

The Speakers' Ready Room is 3D, on the 3rd floor. Opening hours:

Sunday, July 22 ..... 16:00 - 19:00
Monday, July 23 ..... 08:00 – 18:30
Tuesday, July 24 ..... 08:00 – 18:30
Wednesday, July 25 ..... 08:00 – 18:30
Thursday, July 26 ..... 08:00 – 18:30
Friday, July 27 ..... 08:00 – 18:00

Professional staff at the Speakers' Ready Room will be happy to help you in case of any technical problem with your presentation.

Guidelines for Poster Presenters

For each paper accepted within a poster session, two adjacent boards are reserved for your use. Each board has a width of 100cm (39.4 inches) and a height of 258cm (46.8 inches). You will be able to use the full width of one board. The poster is not required to fill this entire space, but it cannot be any larger than the board size. It is recommended to use A0 Portrait for your poster size.

Authors for the morning poster session should have their posters in place by 8:30, stand by their poster during the 10:10-11:10 morning poster session, and remove their poster by 12:50. Authors for the afternoon poster session should have their posters in place by 14:10, stand by their poster during the 15:50-16:50 afternoon poster session, and remove their poster by 18:30.

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

IGARSS 2018 Technical Program

Monday, July 23 14:10 - 15:50 Room 1D
Session MO3.R1 Oral

Data Fusion and Multimodality I

Session Co-Chairs: Yanfeng Gu, Harbin Institute of Technology; Jocelyn Chanussot, Grenoble Institute of Technology

MO3.R1.1 14:10 **GABOR WAVELET BASED FEATURE EXTRACTION AND FUSION FOR HYPERSPECTRAL AND LIDAR REMOTE SENSING DATA**
Sen Jia, Meng Zhang, Jiasong Zhu, College of Computer Science and Software Engineering, Shenzhen University, China

MO3.R1.2 14:30 **MULTI-FEATURE-BASED DECISION FUSION FRAMEWORK FOR HYPERSPECTRAL IMAGERY CLASSIFICATION**
Sen Jia, Junjian Xian, Shenzhen University, China

MO3.R1.3 14:50 **COMBINE REFLECTANCE WITH SHADING COMPONENT FOR HYPERSPECTRAL IMAGE CLASSIFICATION**
Xudong Jin, Yanfeng Gu, Harbin Institute of Technology, China

MO3.R1.4 15:10 **OBJECT DETECTION FOR HIGH-RESOLUTION SAR IMAGES UNDER THE SPATIAL CONSTRAINTS OF OPTICAL IMAGES**
Qi Li, Ye Zhang, Hao Chen, Guangjiao Zhou, Harbin Institute of Technology, China

MO3.R1.5 15:30 **AUTOMATIC ASSOCIATION BETWEEN SAR AND OPTICAL IMAGES BASED ON ZERO-SHOT LEARNING**
Takahiro Toizumi, Kazutoshi Sagi, Yuzo Senda, NEC Corporation, Japan

Monday, July 23 16:50 - 18:30 Room 1D
Session MO4.R1 Oral

Target Detection in SAR Images

Session Chair: Christian Bignami, Istituto Nazionale di Geofisica e Vulcanologia

MO4.R1.1 16:50 **ROLLABLE LATENT SPACE FOR AZIMUTH INVARIANT SAR TARGET RECOGNITION**
Kazutoshi Sagi, Takahiro Toizumi, Yuzo Senda, NEC Corporation, Japan

MO4.R1.2 17:10 **INSHORE SHIP DETECTION IN SAR IMAGES BASED ON DEEP NEURAL NETWORKS**
Lei Liu, Guowei Chen, Zongxu Pan, Bin Lei, Quanzhi An, Institute of Electronics, Chinese Academy of Sciences, China

MO4.R1.3 17:30 **ACHIEVING SAR TARGET CONFIGURATION RECOGNITION BY COMBINING SPARSE GRAPH AND LOCALITY PRESERVING PROJECTIONS**
Ming Liu, Shaanxi Normal University, China; Shichao Chen, Fugang Lu, Jun Wang, Xi'an Modern Control Technology Research Institute, China; Jie Wu, Shaanxi Normal University, China; Taoli Yang, University of Electronic Science and Technology of China, China

MO4.R1.4 17:50 **THE INFLUENCE OF SAR IMAGE QUANTIZATION METHOD ON DETECTION PRECISION**
Bing Sun, Zhixiong Zuo, Pengbo Wang, Beihang University, China

MO4.R1.5 18:10 **IDENTITY REGULARIZED SPARSE REPRESENTATION FOR AUTOMATIC TARGET RECOGNITION IN SAR IMAGES**
Zongxu Pan, Lei Liu, Bin Lei, Institute of Electronics, Chinese Academy of Sciences, China

Monday, July 23 14:10 - 15:50 Room 3A
Session MO3.R2 Oral

Microwave Backscattering Models for Sea Surface

Session Co-Chairs: Maurizio Migliaccio, Università di Napoli Parthenope; Honglei Zheng, ENSTA Bretagne

MO3.R2.1 14:10 **INVESTIGATION OF DOPPLER SPECTRA OF SEA BACKSCATTER THROUGH LARGE-SCALE MONTE CARLO SIMULATIONS: DIRECT NUMERICAL SOLUTION AND APPROXIMATE MODELS**
Jakov Toporkov, Mark Sletten, U.S. Naval Research Laboratory, United States

MO3.R2.2 14:30 **PHYSICAL MODELING OF OIL AT SEA: APPLICATION FOR MICROWAVE CO-POLARIZED RADAR IMAGERY**
Olivier Boisot, Sébastien Angelliaume, Office National d'Etudes et de Recherches Aérospatiales (ONERA), France; Charles-Antoine Guérin, Mediterranean Institute of Oceanography (MIO), France

MO3.R2.3 14:50 **SEA OIL SEEP MONITORING USING A TIME SERIES OF CO–POLARIZED COHERENT SAR MEASUREMENTS**
Carina R. de Macedo, Andrea Buono, Ferdinando Nunziata, Università di Napoli Parthenope, Italy; Domenico Velotto, German Aerospace Center (DLR), Germany; Maurizio Migliaccio, Università di Napoli Parthenope, Italy

MO3.R2.4 15:10 **NORMALIZED RADAR CROSS SECTIONS OF SEA SURFACE ESTIMATED USING ASYMPTOTIC AND SEMI-EMPIRICAL METHODS IN C BAND**
Honglei Zheng, Ali Khenchaf, Ghanmi Helmi, ENSTA Bretagne, France; Yunhua Wang, Chaofang Zhao, Ocean University of China, China

MO3.R2.5 15:30 **A STUDY OF CROSS-POLARIZED SEA CLUTTER USING THE SSA2 HIGH FREQUENCY APPROXIMATION AND THE TWO-SCALE MODEL**
Shanka Wijesundara, Joel Johnson, The Ohio State University, United States

Monday, July 23 16:50 - 18:30 Room 3A
Session MO4.R2 Oral

SAR Interferometry: Along and Across I

MO4.R2.1 16:50 **IMPROVED PSINSAR BASED URBAN LAND DEFORMATION MONITORING UTILIZING ASCENDING AND DESCENDING PASS SENTINEL-1 TOPS DATASETS**
Shubham Awasthi, Kamal Jain, Vishal Mishra, Indian Institute of Technology Roorkee, India

MO4.R2.2 17:10 **COHERENCE CHANGE DETECTION FOR SENTINEL-1 SAR: METHODS AND APPLICATIONS**
Andrea Monti-Guarnieri, Maria Antonia Brovelli, Mauro Mariotti d'Alessandro, Marco Manzoni, Monia Elisa Molinari, Daniele Oxoli, Politecnico di Milano, Italy

MO4.R2.3 17:30 **INSAR MISSION-LEVEL PRODUCTS ON DEMAND – DO WE NEED RANGE-DOPPLER?**
Howard Zebker, Stanford University, United States

MO4.R2.4 17:50 **THE 2-LOOKS TOPS MODE: ENHANCED SENSITIVITY TO GROUND DISPLACEMENT IN AZIMUTH DIRECTION WITH BURST-MODE SAR SYSTEMS. DEMONSTRATION WITH TERRASAR-X**
Nestor Yague-Martinez, Pau Prats-Iraola, Steffen Wollstadt, DLR - German Aerospace Center, Germany

MO4.R2.5 18:10 **TWO-DIMENSIONAL DISPLACEMENT ANALYSIS WITH SAR IMAGES BASED ON PERSISTENT SCATTERER CLUSTERING**
Daisuke Ikefuji, Taichi Tanaka, Osamu Hoshuyama, NEC Corporation, Japan

Monday, July 23 14:10 - 15:50 Room 1B
Session MO3.R3 Oral

Soil Moisture Validation

Session Chair: Brian Hornbuckle, Iowa State University

MO3.R3.1 14:10 **SURFACE SOIL MOISTURE ESTIMATION FROM MODIS APPARENT THERMAL INERTIA: A COMPARISON WITH SMOS AND SMAP SOIL MOISTURE PRODUCTS**
Miriam Pablos, Ángel González-Zamora, Nilda Sánchez, University of Salamanca, Spain; Gerard Portal, Mercè Vall-llossera, Universitat Politècnica de Catalunya, Spain; José Martínez-Fernández, University of Salamanca, Spain

MO3.R3.2 14:30 **VALIDATION OF SOIL MOISTURE IN THE BRAZILIAN SEMIARID, USING SMOS SATELLITE PRODUCT AND SIMAGRI MODEL**
Luciana Rossato, Mercè Vall-llossera, Adriano Camps, Gerard Portal, Universitat Politècnica de Catalunya, IEEC/UPC and SMOS Barcelona Expert Centre, Spain; Jojhy Sakuragi, Carlos Frederico Angelis, Marcelo Zeri, National Centre for Monitoring and Early Warning of Natural Disasters, Brazil; Humberto Barbosa, Franklin Paredes, Federal University of Alagoas, Brazil

MO3.R3.3 14:50 **INTERCALIBRATION OF LOW FREQUENCY BRIGHTNESS TEMPERATURE MEASUREMENTS FOR LONG-TERM SOIL MOISTURE RECORD**
Emmanuel Dinnat, Chapman University & NASA/GSFC, United States; Mariko S Burgin, Andreas Colliander, Chunsik Chae, Jet Propulsion Laboratory, California Institute of Technology, United States; Michael H. Cosh, USDA-ARS Hydrology and Remote Sensing Laboratory, United States; Ying Gao, Monash University, Australia

MO3.R3.4 15:10 **EVALUATION OF LAND SURFACE MODEL AGAINST SMAP AND IN-SITU OBSERVATIONS FOR INDIAN REGION**
Kamal Das, Jitendra Singh, RSM, IBM Research, India; Jagabondhu Hazra, Manager, IBM Research, India, India; Shivkumar Kalyanaraman, Sr Manager, IBM Research, India, India

MO3.R3.5 15:30 **DETERMINATION OF BEST LOW-FREQUENCY MICROWAVE ANTENNA APPROACH FOR FUTURE HIGH RESOLUTION MEASUREMENTS FROM SPACE**
Peggy O'Neill, Rajat Bindlish, Jeffrey Piepmeier, David Le Vine, Derek Hudson, Lihua Li, Gerado Cruz-Ortiz, David Olney, NASA Goddard Space Flight Center, United States

Monday, July 23 16:50 - 18:30 Room 1B
Session MO4.R3 Oral

Soil Parameters from Microwave and other Frequencies I

Session Co-Chairs: Juan M. Lopez-Sanchez, University of Alicante; Francesco Mattia

MO4.R3.1 16:50 **A FIRST-ORDER RADIATIVE TRANSFER MODEL FOR GLOBAL SOIL MOISTURE RETRIEVALS UNDER VEGETATION CANOPIES**
Andrew Feldman, Ruzbeh Akbar, Dara Entekhabi, Massachusetts Institute of Technology, United States

MO4.R3.2 17:10 **IDENTIFYING SMOS AND SMAP PIXELS THAT EXHIBIT DISTINCT ROUGHNESS-VEGETATION PATTERNS IN LEVEL 2 OPTICAL THICKNESS RETRIEVALS**
Victoria Walker, Brian K. Hornbuckle, Brian Gelder, Iowa State University, United States

MO4.R3.3 17:30 **UNCERTAINTY OF EFFECTIVE ROUGHNESS PARAMETERS CALIBRATED ON BARE AGRICULTURAL LAND USING SENTINEL-1 SAR**
Harm-Jan F. Benninga, Rogier van der Velde, Zhongbo Su, University of Twente, Netherlands

MO4.R3.4 17:50 **IRRIGATION MAPPING USING STATISTICS OF SENTINEL-1 TIME SERIES**
Qi Gao, isardSAT, Spain; Mehrez Zribi, CESBIO, France; Maria Jose Escorihuela, isardSAT, Spain; Nicolas Baghdadi, IRSTEA, France; Pere Quintana-Segui, Observatori de l'Ebre, Spain

MO4.R3.5 18:10 **SOIL MOISTURE ESTIMATION OVER THE PAMPAS REGION USING L BAND SAR**
Marc Thibeault, Danilo Jose Dadamia, Matias Palomeque, Juan Manuel Caceres, Mario Alberto Acuña, CONAE, Argentina; Paolo Ferrazzoli, Leila Guerriero, Università Tor Vergata, Italy

Monday, July 23 14:10 - 15:50 Room 1C
Session MO3.R4 Oral

Ocean Biology and Water Quality I

MO3.R4.1 14:10 **LINKING WEATHER PATTERNS, WATER QUALITY AND INVASIVE MUSSEL DISTRIBUTIONS IN THE DEVELOPMENT AND APPLICATION OF A WATER CLARITY INDEX FOR THE GREAT LAKES**
Varis Ransibrahmanakul, U.S. National Oceanic & Atmospheric Administration, United States; Simon Pittman, Plymouth University, United Kingdom; Douglas Pirhalla, U.S. National Oceanic & Atmospheric Administration, United States; Scott Sheridan, Cameron Lee, Kent State University, United States; Brian Barnes, Chuanmin Hu, University of South Florida, United States; Karsten Shein, U.S. National Oceanic & Atmospheric Administration, United States

MO3.R4.2 14:30 **RETRIEVAL OF CASE 2 WATER QUALITY PARAMETERS WITH MACHINE LEARNING**
Ana Belen Ruescas, Gonzalo Mateo-García, Gustau Camps-Valls, University of Valencia, Spain; Martin Hieronymi, Helmholtz-Zentrum Geesthacht, Germany

MO3.R4.3 14:50 **EFFECTS OF NONUNIFORM VERTICAL PROFILES OF SUSPENDED PARTICLES ON REMOTE SENSING REFLECTANCE OF TURBID WATER**
Jue Huang, Tao Jiang, Shandong University of Science and Technology, China

MO3.R4.4 15:10 **EVALUATION OF TIDAL EFFECT ON WATER CONSTITUENT VARIATIONS USING OPTICAL OBSERVATIONS AND TIDE GAUGE RECORDS IN THE DUTCH WADDEN SEA**
Behnaz Arabi, Mhd.Suhyb Salama, Wouter Verhoef, University of Twente, Netherlands

MO3.R4.5 15:30 **SHALLOW WATER OCEAN COLOR OBSERVATIONS INVERSION USING PARTICLE SWARM OPTIMIZATION AND GENETIC ALGORITHM**
Srinivas Kolluru, Shirish S. Gedam, Inamdar A B, Indian Institute of Technology Bombay, India

Monday, July 23 16:50 - 18:30 Room 1C
Session MO4.R4 Oral

Ocean Surface Winds and Currents I

Session Chair: Hans Graber, University of Miami

MO4.R4.1 16:50 **NON-SUN-SYNCHRONOUS OCEAN SURFACE WIND MEASUREMENT UNDER HEAVY RAIN BY CYGNSS**
W Timothy Liu, Xiaosu Xie, California Institute of Technology, United States

MO4.R4.2 17:10 **HOW FAST ARE FAST SCATTERERS ASSOCIATED WITH BREAKING WIND WAVES?**
Yury Yurovsky, Vladimir Kudryavtsev, Russian State Hydrometeorological University, Russian Federation; Bertrand Chapron, Institut Francais de Recherche pour l'Exploitation de la Mer, France; Semyon Grodsky, University of Maryland, France

MO4.R4.3 17:30 **A NEW TECHNIQUE FOR PHASE-RESOLVING OCEAN WAVE OBSERVATIONS BY SPACEBORNE SPOTLIGHT-MODE SYNTHETIC APERTURE RADAR**
Roland Romeiser, Hans Graber, University of Miami RSMAS, United States

MO4.R4.4 17:50 **HURRICANE HUNTER OBSERVATIONS OF WIND AND WAVE SPECTRAL PROPERTIES: IMPLICATIONS ON TROPICAL CYCLONE REMOTE SENSING**
Paul Hwang, Yalin Fan, NRL, United States; Edward Walsh, NOAA, United States

MO4.R4.5 18:10 **ADVANCES IN SURFACE CURRENT OBSERVATIONS FROM SPACE: THE GLOBCURRENT CASE**
Johnny A. Johannessen, Nansen Envionmental and Remotre Sensing Center, Norway; Bertrand Chapron, IFREMER, France; Fabrice Collard, OceanDataLab, France; Marie-Helene Rio, Collecte Localisation Satellite, France; Graham Quartly, Plymouth Marine Laboratory, United Kingdom; Craig Donlon, European Space Agency, Netherlands

Monday, July 23 | 14:10 - 15:50 | Room 3F
Session MO3.R5 | Oral-Invited

International Spaceborne Imaging Spectroscopy Missions: Updates and News I

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

MO3.R5.1 14:10 **TOWARDS THE COPERNICUS HYPERSPECTRAL IMAGING MISSION FOR THE ENVIRONMENT (CHIME)**
Jens Nieke, European Space Agency/ESTEC, Netherlands; Michael Rast, European Space Agency/ESRIN, Italy

MO3.R5.2 14:30 **HISUI STATUS TOWARD FY2019 LAUNCH**
Tsuneo Matsunaga, National Institute for Environmental Studies, Japan; Akira Iwasaki, University of the Tokyo, Japan; Satoshi Tsuchida, Koki Iwao, National Institute of Advanced Industrial Science and Technology, Japan; Jun Tanii, Osamu Kashimura, Japan Space Systems, Japan; Ryosuke Nakamura, Hirokazu Yamamoto, Soushi Kato, Kenta Obata, National Institute of Advanced Industrial Science and Technology, Japan; Koichiro Mouri, Tetsushi Tachikawa, Japan Space Systems, Japan

MO3.R5.3 14:50 **A STUDY ON THE AEROSOL OPTICAL PROPERTY OVER VALIDATION SITES IN JAPAN FOR HISUI ATMOSPHERICALLY CORRECTED SURFACE REFLECTANCE**
Hirokazu Yamamoto, Satoshi Tsuchida, AIST, Japan; Masao Moriyama, Nagasaki University, Japan

MO3.R5.4 15:10 **THE ENMAP GERMAN IMAGING SPECTROSCOPY MISSION: STATUS AND SUMMARY OF PREPARATORY ACTIVITIES**
Luis Guanter, Karl Segl, Saskia Foerster, Sabine Chabrillat, Helmholtz Center Potsdam, GFZ German Research Center for Geosciences, Germany; Sebastian Fischer, Benjamin Gentz, Godela Rossner, Stefanie Schrader, Space Administration, German Aerospace Center (DLR), Germany; Tobias Storch, Earth Observation Center (EOC), German Aerospace Center (DLR), Germany

MO3.R5.5 15:30 **STATUS REPORT OF THE ENMAP GROUND SEGMENT: PRESENTATION OF THE DESIGN AND THE CHANGES RECENTLY ACCOMPLISHED**
Martin Habermeyer, Martin Bachmann, Emiliano Carmona, Heiko Damerow, Sabine Engelbrecht, Thomas Fruth, Uta Heiden, Klaus-Dieter Missling, Helmut Mühle, Andreas Ohndorf, Gintautas Palubinskas, Tobias Storch, Steffen Zimmermann, DLR - German Aerospace Center, Germany

Monday, July 23 | 16:50 - 18:30 | Room 3F
Session MO4.R5 | Oral-Invited

International Spaceborne Imaging Spectroscopy Missions: Updates and News II

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

MO4.R5.1 16:50 **PRISMA: THE ITALIAN HYPERSPECTRAL MISSION**
Rosa Loizzo, Rocchina Guarini, Francesco Longo, Tiziana Scopa, Roberto Formaro, Claudia Facchinetti, Giancarlo Varacalli, Italian Space Agency, Italy

MO4.R5.2 17:10 **PRISMA HYPERSPECTRAL MISSION PRODUCTS**
Rocchina Guarini, Rosa Loizzo, Claudia Facchinetti, Francesco Longo, Italian Space Agency, Italy; Beatrice Ponticelli, Marco Faraci, Michele Dami, Massimo Cosi, Leonardo S.p.a., Italy; Leonardo Amoruso, Vito De Pasquale, Nicolò Taggio, Francesca Santoro, Planetek Italia srl, Italy; Paolo Colandrea, Efer Miotti, Walter Di Nicolantonio, OHB Italia SpA, Italy

MO4.R5.3 17:30 **GLOBAL VSWIR IMAGING SPECTROSCOPY AND THE 2017 DECADAL SURVEY**
Robert Green, Jet Propulsion Laboratory, California Institute of Technology, United States

MO4.R5.4 17:50 **INTERCOMPARISON OF FIELD METHODS FOR ACQUIRING GROUND REFLECTANCE AT RAILROAD VALLEY PLAYA FOR SPECTRAL CALIBRATION OF SATELLITE DATA**
Ian Lau, Cindy Ong, CSIRO, Australia; Kurtis Thome, NASA Goddard Space Flight Center, United States; Andreas Mueller, Uta Heiden, German Aerospace Center (DLR), Germany; Jeffrey Czapla-Myers, Stuart Biggar, Nikolaus Anderson, University of Arizona, United States; Lorcan McGonigle, William Thomas, Spaceflight Industries, United States; Carolina Barrientos, Aerial Photogrammetric Service (SAF), Chile; Yuki Itoh, University of Massachusetts Amherst, United States; Brian Wenny, NASA Goddard Space Flight Center, United States

MO4.R5.5 18:10 **PROCESSING, VALIDATION AND QUALITY CONTROL OF SPACEBORNE IMAGING SPECTROSCOPY DATA FROM DESIS MISSION ON THE ISS**
Rupert Mueller, Martin Bachmann, Kevin Alonso, Emiliano Carmona, Daniele Cerra, Raquel De los Reyes, Birgit Gerasch, Harald Krawczyk, Valentin Ziel, Uta Heiden, David Krutz, German Aerospace Center (DLR), Germany

Monday, July 23 | 14:10 - 15:50 | Room 3G
Session MO3.R6 | Oral

Land Cover Dynamics I

Session Chair: Jordi Inglada, CESBIO

MO3.R6.1 14:10 **A NOVEL APPROACH TO MONITOR DEFORESTATION IN THE AMAZON RAINFOREST BY MEANS OF SENTINEL-1 AND TANDEM-X DATA**
Paola Rizzoli, José Luis Bueso Bello, Andrea Pulella, Francescopaolo Sica, Manfred Zink, German Aerospace Center (DLR), Germany

MO3.R6.2 14:30 **TIMELY MAPPING OF CROP STAGE AND WATERING EVENTS THROUGH SENTINEL-1 TIME-SERIES**
Lorenzo Iannini, Ramses Molijn, Silvia Alfieri, Susan Steele-Dunne, Massimo Menenti, Delft University of Technology, Netherlands

MO3.R6.3 14:50 **SPATIALLY PRECISE CONTEXTUAL FEATURES BASED ON SUPERPIXEL NEIGHBORHOODS FOR LAND COVER MAPPING WITH HIGH RESOLUTION SATELLITE IMAGE TIME SERIES**
Dawa Derksen, Jordi Inglada, CESBIO, France; Julien Michel, Centre National d'Etudes Spatiales, France

MO3.R6.4 15:10 **INTRODUCING EUROSAT: A NOVEL DATASET AND DEEP LEARNING BENCHMARK FOR LAND USE AND LAND COVER CLASSIFICATION**
Patrick Helber, Benjamin Bischke, Andreas Dengel, Damian Borth, German Research Center for Artificial Intelligence, Germany

Monday, July 23 | 16:50 - 18:30 | Room 3G
Session MO4.R6 | Oral

Land Surface Mapping and Monitoring

Session Co-Chairs: Linlin Ge, University of New South Wales; Vern Singhroy, Canada Centre for Remote Sensing

MO4.R6.1 16:50 **SQUEESAR ANALYSIS BASED ON SENTINEL-1 DATA IN THE SEISMIC ACTIVE AREA OF PATRAS GULF (W. GREECE)**
Vassilis Sakkas, National & Kapodistrian University of Athens, Greece; Maite Garcia, Marco Bianchi, TRE ALTAMIRA SLU, Spain; Evangelos Lagios, National & Kapodistrian University of Athens, Greece

MO4.R6.2 17:10 **INSAR MONITORING OF PIPELINE ROUTES**
Vernon Singhroy, Junhua Li, Canada Centre for Remote Sensing, Canada; Andree Blais-Stevens, Geological Survey of Canada, Canada; Mary-Anne Fobert, Planetary and Space Science Centre, Canada

MO4.R6.3 17:30 **ADVANCES IN MAPPING ICE-FREE SURFACES WITHIN THE NORTHERN ANTARCTIC PENINSULA REGION USING POLARIMETRIC RADARSAT-2 DATA**
Thomas Schmid, CIEMAT, Spain; Stéphane Guillaso, GFZ German Research Center for Geosciences, Germany; Jerónimo López-Martínez, Ana Nieto, Universidad Autónoma de Madrid, Spain; Sandra Mink, Instituto Geológico y Minero de España, Spain; Magaly Koch, Boston University, United States

MO4.R6.4 17:50 **GEOLOGICAL MAPPING OF HYDROTHERMAL ALTERATION ON VOLCANOES FROM MULTI-SENSOR PLATFORMS**
Gabor Kereszturi, Reddy Pullanagari, Stuart Mead, Massey University, New Zealand; Lauren Schaefer, University of Canterbury, New Zealand; Jonathan Procter, Massey University, New Zealand; William Kirk Schleiffarth, Northern Arizona University, United States; Ben Kennedy, University of Canterbury, New Zealand

MO4.R6.5 18:10 **EVALUATING THE EFFECTS OF VEGETATION HEIGHT AND SLOPE ON THE VERTICAL ACCURACY OF THE TANDEM-X WORLDDEM RAPID CITY SAMPLE TILE**
Juan Carlos Fernandez-Diaz, Hyongki Lee, Ramesh L. Shrestha, University of Houston / NCALM, United States

Monday, July 23 | 14:10 - 15:50 | Room 4C
Session MO3.R7 | Oral-Invited

Physical Modeling in Microwave Remote Sensing I

Session Chair: Joel Johnson, Ohio State University

MO3.R7.1 14:10 **PHYSICAL MODELING OF THE UPWIND-DOWNWIND ASYMMETRY IN MICROWAVE RETURN FROM THE SEA SURFACE**
Zaynab Guerraou, Sébastien Angelliaume, ONERA, France; Charles-Antoine Guérin, Université de Toulon, France

MO3.R7.2 14:30 **AN ANALYSIS OF BISTATIC SEA CLUTTER STATISTICS**
Ahmed M. Balakhder, Joel Johnson, Hongkun Li, ElectroScience Laboratory, The Ohio State University, United States

MO3.R7.3 14:50 **MODELING SIGNALS OF OPPORTUNITY SCATTERING FROM EARTH'S SURFACE WITH AN IMPROVED BISTATIC RADAR EQUATION**
Valery Zavorotny, Alexander Voronovich, NOAA Earth System Research Laboratory, United States

MO3.R7.4 15:10 **BISTATIC SCATTERING MODELING FOR DYNAMIC MAPPING OF TROPICAL WETLANDS WITH CYGNSS**
Marco Lavalle, Mary Morris, Rashmi Shah, Cinzia Zuffada, Son V. Nghiem, NASA Jet Propulsion Laboratory, United States; Clara Chew, University Corporation for Atmospheric Research, United States; Valery Zavorotny, NOAA, United States

MO3.R7.5 15:30 **BISTATIC SCATTERING FROM INHOMOGENEOUS ROUGH SURFACE WITH CONTINUOUS DIELECTRIC PROFILE**
Ying Yang, Chinese Academy of Sciences/University of Chinese Academy of Sciences, China; Kun-Shan Chen, Chinese Academy of Sciences, China

Monday, July 23 | 16:50 - 18:30 | Room 4C
Session MO4.R7 | Oral-Invited

Physical Modeling in Microwave Remote Sensing II

Session Chair: Joel Johnson, Ohio State University

MO4.R7.1 16:50 **MODELING L-BAND SYNTHETIC APERTURE RADAR OBSERVATIONS THROUGH DIELECTRIC CHANGES IN SOIL MOISTURE AND VEGETATION OVER SHRUBLANDS**
Seungbum Kim, Jet Propulsion Laboratory, United States; Motofumi Arii, Mitsubishi Electric Corporation, Japan; Thomas Jackson, USDA, United States

MO4.R7.2 17:10 **PHYSICS-BASED MODELING OF ACTIVE-PASSIVE MICROWAVE COVARIATIONS FOR GEOPHYSICAL RETRIEVALS**
Thomas Jagdhuber, German Aerospace Center (DLR), Germany; Dara Entekhabi, Massachusetts Institute of Technology, United States; Narendra N. Das, California Institute of Technology, United States; Moritz Link, German Aerospace Center (DLR), Germany; Martin Baur, University of Bayreuth, Germany; Ruzbeh Akbar, Massachusetts Institute of Technology, United States; Carsten Montzka, Research Centre Jülich, Germany; SeungBum Kim, Simon Yueh, California Institute of Technology, United States; Ismail Baris, Friedrich-Schiller University Jena, Germany

MO4.R7.3 17:30 **FIRST-ORDER SSA MODELING OF THE ANISOTROPIC ROUGH-SOIL BISTATIC SCATTERING**
Davide Comite, Nazzareno Pierdicca, Sapienza Università di Roma, Italy

MO4.R7.4 17:50 **ROUGH SURFACE EFFECTS IN BACKSCATTER RETURNS FROM FORESTS**
Roger Lang, Can Suer, George Washington University, United States

MO4.R7.5 18:10 **NMM3D FULL WAVE SIMULATIONS OF VEGETATION AND FOREST EFFECTS IN MICROWAVE REMOTE SENSING**
Huanting Huang, Leung Tsang, University of Michigan, Ann Arbor, United States; Andreas Colliander, Rashmi Shah, Simon Yueh, NASA Jet Propulsion Laboratory, California Institute of Technology, United States

Monday, July 23 | 14:10 - 15:50 | Room 4F
Session MO3.R8 | Oral-Invited

Distributed Spacecraft Missions: New Remote Sensing Capabilities for Earth Science I

Session Co-Chairs: Jacqueline Le Moigne, NASA Goddard Space Flight Center; Afreen Siddiqi, Massachusetts Institute of Technology

MO3.R8.1 14:10 **SENSOR WEBS OF EARTH SCIENCE INSTRUMENTS TO IMPROVE OUR UNDERSTANDING OF NATURAL PHENOMENA AND PHYSICAL PROCESSES**
Michael Little, Michael Seablom, NASA, United States; Brandi Quam, NASA Langley Research Center, United States; Jacqueline LeMoigne-Stewart, NASA, United States; Dan Crichton, Jet Propulsion Laboratory, United States; Marge Cole, SGT, Inc., United States

MO3.R8.2 14:30 **DESIGNING FUTURE SPACE SYSTEMS**
Olivier de Weck, Massachusetts Institute of Technology, United States

MO3.R8.3 14:50 **DISTRIBUTED MISSIONS AND THE SUSTAINABLE LAND IMAGING (SLI) PROGRAM**
Philip Dabney, Matthew Holland, NASA Goddard Space Flight Center, United States; Nahal Kardan, Prime Science & Technology, Inc., United States

MO3.R8.4 15:10 **IS THERE A FUTURE FOR GEO-BASED WEATHER MONITORING? THE COVERAGE-COST ARGUMENT**
Daniel Selva, Prachi Dutta, Cornell University, United States

Monday, July 23 | 16:50 - 18:30 | Room 4F
Session MO4.R8 | Oral-Invited

Distributed Spacecraft Missions: New Remote Sensing Capabilities for Earth Science II

Session Co-Chairs: Afreen Siddiqi, Massachusetts Institute of Technology; Jacqueline Le Moigne, NASA Goddard Space Flight Center

MO4.R8.1 16:50 **ENABLING SAMPLING PROPERTIES OF THE CYGNSS SATELLITE CONSTELLATION**
Christopher Ruf, Charles Bussy-Virat, Darren McKague, Aaron Ridley, University of Michigan, United States; Mary Morris, Jet Propulsion Laboratory, United States

MO4.R8.2 17:10 **TROPICS: A DISTRIBUTED SPACECRAFT MISSION FOR STUDYING TROPICAL STORMS**
William Blackwell, MIT Lincoln Laboratory, United States

MO4.R8.3 17:30 **MAGNETOSPHERIC CONSTELLATION: LEVERAGING SPACE 2.0 FOR BIG SCIENCE**
Larry Kepko, NASA Goddard Space Flight Center, United States

MO4.R8.4 17:50 **EVALUATING EXPECTED PERFORMANCE AND GRACEFUL DEGRADATION IN DISTRIBUTED SPACECRAFT MISSIONS**
Afreen Siddiqi, Massachusetts Institute of Technology, United States; Jacqueline Le Moigne, NASA Goddard Space Flight Center, United States

MO4.R8.5 18:10 **DISTRIBUTED SPACECRAFT MISSIONS (DSM) TECHNOLOGY DEVELOPMENT AT NASA GODDARD SPACE FLIGHT CENTER**
Jacqueline Le Moigne, NASA Goddard Space Flight Center, United States

Monday, July 23 | 14:10 - 15:50 | Room 4D
Session MO3.R9 | Oral-Invited

Radio Frequency Interference (RFI) in Microwave Remote Sensing I

Session Co-Chairs: Paolo de Matthaeis, NASA Goddard Space Flight Center; Roger Oliva, European Space Agency

MO3.R9.1 14:10 **TESTING AND OPERATION PLANNING OF THE CUBESAT RADIOMETER RADIO FREQUENCY INTERFERENCE TECHNOLOGY VALIDATION (CUBERRT) SYSTEM**
Christa McKelvey, Christopher Ball, Chi-Chih Chen, Andrew O'Brien, Graeme Smith, Mark Andrews, J. Landon Garry, Joel Johnson, The Ohio State University, United States; Sidharth Misra, Shannon Brown, Robert Jarnot, Rudi Bendig, Carl Felten, NASA, United States; Jonathan Kocz, California Institute of Technology, United States; Kevin Horgan, Jared Lucey, Carlos Duran-Aviles, Michael Solly, Jinzheng Peng, Jeffrey Piepmeier, NASA, United States; Doug Laczkowski, David Hall, Ervin Krauss, Blue Canyon Technologies, United States

MO3.R9.2 14:30 **RADIO FREQUENCY INTERFERENCE TRENDS FOR THE AMSR-E AND AMSR2 RADIOMETERS**
David Draper, Ball Aerospace, United States; Paolo de Matthaeis, NASA Goddard Space Flight Center, United States

MO3.R9.3 14:50 **BENEFITS OF APPLYING NODAL SAMPLING TO SMOS DATA OVER SEMI-ENCLOSED SEAS AND STRONGLY RFI-CONTAMINATED REGIONS**
Verónica González-Gambau, Estrella Olmedo, Justino Martínez, Antonio Turiel, Barcelona Expert Centre, Consejo Superior de Investigaciones Científicas, Spain; Ignasi Corbella, Universitat Politècnica de Catalunya, Spain; Roger Oliva, Manuel Martín-Neira, European Space Agency, Spain

MO3.R9.4 15:10 **MITIGATION OF SMOS RFI CONTAMINATION BASED ON BT FREQUENCY EXTRAPOLATION**
Roger Oliva, Zenithal Blue Technologies, Spain

MO3.R9.6 15:50 **RECENT ADVANCES IN SMAP RFI PROCESSING**
Yan Soldo, NASA Goddard Space Flight Center / USRA, United States; David Le Vine, NASA Goddard Space Flight Center, United States; Alexandra Bringer, Ohio State University, United States; Priscilla Mohammed, NASA Goddard Space Flight Center / Morgan State University, United States; Paolo de Matthaeis, NASA Goddard Space Flight Center / USRA, United States; Jeffrey Piepmeier, NASA Goddard Space Flight Center, United States; Joel Johnson, Ohio State University, United States

Monday, July 23 | 16:50 - 18:30 | Room 4D
Session MO4.R9 | Oral-Invited

Radio Frequency Interference (RFI) in Microwave Remote Sensing III

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

MO4.R9.1 16:50 **SPECTRUM MANAGEMENT FOR SCIENTIFIC USES IN US AND EUROPE**
Jasmeet Judge, University of Florida, United States; Elena Daganzo, European Space Agency, ESA-ESTEC, Netherlands

MO4.R9.2 17:10 **PROFILES OF RFI IN ALOS-2 IMAGES - A CASE STUDY IN TOKYO BAY, JAPAN**
Ryo Natsuaki, Akira Hirose, The University of Tokyo, Japan

MO4.R9.3 17:30 **DIGITAL BEAMFORMING BASED RFI MITIGATION FOR SYNTHETIC APERTURE RADAR**
Tobias Bollian, USRA/NASA, United States; Batuhan Osmanoglu, Rafael Rincon, NASA, United States; SeungKuk Lee, UMD/NASA, United States; Temilola Fatoyinbo, NASA, United States

MO4.R9.4 17:50 **MITIGATION OF ULTRA WIDE-BAND INTERFERENCE FOR SAR USING NONNEGATIVE MATRIX FACTORIZATION WITH PRIOR CONSTRAINTS**
Mingliang Tao, Northwestern Polytechnical University, China; Xinyu Zhang, Lanzhou University, China; Jia Su, Northwestern Polytechnical University, China; Zijing Zhang, Xidian University, China

MO4.R9.5 18:10 **RFI EXCISION IN RADIOMETERS: A RADIO ASTRONOMY PERSPECTIVE**
Kaushal Buch, Giant Metrewave Radio Telescope, India

Monday, July 23 | 14:10 - 15:50 | Room 2G-2H
Session MO3.R10 | Oral-Invited

Multi-Sensor Data Integration for Enhanced Retrievals of Earth System Parameters I

Session Co-Chairs: Thomas Jagdhuber, German Aerospace Center (DLR); Jean-Pierre Wigneron, INRA

MO3.R10.1 14:10 **STATISTICAL MERGING OF ACTIVE AND PASSIVE MICROWAVE OBSERVATIONS INTO LONG-TERM SOIL MOISTURE CLIMATE DATA RECORDS**
Wouter Dorigo, Vienna University of Technology, Austria; Alexander Gruber, KU Leuven (University of Leuven), Austria; Robin van der Schalie, Christoph Paulik, VanderSat B.V., Netherlands; Tracy Scanlon, Vienna University of Technology, Austria; Christoph Reimer, Richard Kidd, EODC GmbH, Austria; Richard de Jeu, VanderSat B.V., Netherlands; Wolfgang Wagner, Vienna University of Technology, Austria

MO3.R10.2 14:30 **PHYSICS-BASED RETRIEVAL OF SURFACE ROUGHNESS PARAMETERS FOR BARE SOILS FROM COMBINED ACTIVE-PASSIVE MICROWAVE SIGNATURES**
Anke Fluhrer, Thomas Jagdhuber, German Aerospace Center (DLR), Germany; Dara Entekhabi, Massachusetts Institute of Technology, United States; Michael H. Cosh, United States Department of Agriculture/Agricultural Research Service, United States; Peggy O'Neill, NASA Goddard Space Flight Center, United States; Roger Lang, George Washington University, United States; Ismail Baris, German Aerospace Center (DLR), Germany

MO3.R10.3 14:50 **MICROWAVE AND OPTICAL DATA FUSION FOR GLOBAL MAPPING OF SOIL MOISTURE AT HIGH RESOLUTION**
Gerard Portal, Mercè Vall-llossera, Universitat Politècnica de Catalunya / Institut d'Estudis Espacials de Catalunya (IEEC), Spain; María Piles, Image Processing Laboratory / Universitat de València, Spain; Adriano Camps, David Chaparro, Universitat Politècnica de Catalunya / Institut d'Estudis Espacials de Catalunya (IEEC), Spain; Miriam Pablos, Instituto Hispano-Luso de Investigaciones Agrarias (CIALE) and the University of Salamanca (USAL), Spain; Luciana Rossato, Khalid Aabouch, Universitat Politècnica de Catalunya, Spain

MO3.R10.4 15:10 **SEMI-PHYSICAL INTEGRATION OF SCATTERING MODELS FOR MICROWAVES AND OPTICAL WAVELENGTHS**
Ismail Baris, Thomas Jagdhuber, Harald Anglberger, German Aerospace Center (DLR), Germany; Stefan Erasmi, Georg-August-University Göttingen, Germany; François Jonard, Université catholique de Louvain, Belgium

Monday, July 23 | 16:50 - 18:30 | Room 2G-2H
Session MO4.R10 | Oral-Invited

Multi-Sensor Data Integration for Enhanced Retrievals of Earth System Parameters II

Session Co-Chairs: Maria Piles, Universitat de València; Dara Entekhabi, Massachusetts Institute of Technology

MO4.R10.1 16:50 **INTERPOLATION AND GAP FILLING OF LANDSAT REFLECTANCE TIME SERIES**
Alvaro Moreno, Marco Maneta, University of Montana, United States; Gustau Camps-Valls, University of Valencia, Spain; Luca Martino, Universidad Carlos III de Madrid, Spain; Nathaniel Robinson, Brady Allred, Steven W Running, University of Montana, United States

MO4.R10.2 17:10 **ESTIMATING GRAVIMETRIC MOISTURE OF VEGETATION USING AN ATTENUATION-BASED MULTI-SENSOR APPROACH**
Anita Fink, University of Augsburg, German Aerospace Center, Germany; Thomas Jagdhuber, German Aerospace Center (DLR), Germany; María Piles, University of Valencia, Spain; Jennifer Grant, Netherlands Space Office, Netherlands; Martin Baur, University of Bayreuth, Germany; Moritz Link, Ludwig-Maximilian University of Munich, Germany; Dara Entekhabi, Massechusetts Institute of Technology, United States

MO4.R10.3 17:30 **VEGETATION EFFECTS ON COVARIATIONS OF L-BAND RADIOMETER AND C-BAND/L-BAND RADAR OBSERVATIONS**
Moritz Link, German Aerospace Center (DLR), Germany; Dara Entekhabi, Massachusetts Institute of Technology, United States; Thomas Jagdhuber, German Aerospace Center (DLR), Germany; Paolo Ferrazzoli, Leila Guerriero, Tor Vergata University of Rome, Italy; Martin Baur, University of Bayreuth, Germany; Ralf Ludwig, Ludwig-Maximilian University of Munich, Germany

MO4.R10.4 17:50 **MULTI-SENSOR SAR DATA FOR IMPROVED MODELING OF MICROWAVE BRIGHTNESS TEMPERATURE OVER BOREAL FOREST**
Oleg Antropov, Jaakko Seppänen, Aalto University, Finland; Thomas Jagdhuber, DLR - German Aerospace Center, Germany; Martti Hallikainen, Jaan Praks, Aalto University, Finland

MO4.R10.5 18:10 **MULTI-FREQUENCY ESTIMATION OF CANOPY PENETRATION DEPTHS FROM SMAP/AMSR2 RADIOMETER AND ICESAT LIDAR DATA**
Martin Baur, University of Bayreuth, Germany; Thomas Jagdhuber, German Aerospace Center (DLR), Germany; Moritz Link, Ludwig-Maximilian University of Munich, Germany; María Piles, Universitat de València, Spain; Ruzbeh Akbar, Dara Entekhabi, Massachusetts Institute of Technology, United States

Monday, July 23 14:10 - 15:50 Room 2E
Session MO3.R11 Oral-Invited

TanDEM-X Mission I

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

MO3.R11.1 14:10 **TANDEM-X: SCIENCE ACTIVITIES**
Irena Hajnsek, ETH / DLR, Germany; Thomas Busche, DLR - German Aerospace Center, Germany

MO3.R11.2 14:30 **SEVEN YEARS OF TANDEM-X: VOLUME LOSS OF GROSSER ALETSCHGLETSCHER, SWITZERLAND**
Silvan Leinss, ETH Zurich, Switzerland; Irena Hajnsek, German Aerospace Center (DLR), Germany

MO3.R11.3 14:50 **QUANTIFICATION OF HORIZONTAL FOREST STRUCTURE FROM HIGH RESOLUTION TANDEM-X INTERFEROMETRIC COHERENCES**
Changhyun Choi, Matteo Pardini, Konstantinos Papathanassiou, German Aerospace Center (DLR), Germany

MO3.R11.4 15:10 **GEDI AND TANDEM-X FUSION FOR 3D FOREST STRUCTURE PARAMETER RETRIEVAL**
Seung-Kuk Lee, Temilola Fatoyinbo, NASA, United States; Wenlu Qi, Steven Hancock, John Armston, Ralph Dubayah, University of Maryland, United States

MO3.R11.5 15:30 **UNVEILING THE COMPLEX STRUCTURE OF TASMANIAN TEMPERATE FORESTS WITH MODEL-BASED TANDEM-X TOMOGRAPHY**
Maciej Soja, Susan Baker, Gregory Jordan, Arko Lucieer, University of Tasmania, Australia; Robert Musk, Sustainable Timber Tasmania, Australia; Lars M. H. Ulander, Chalmers University of Technology, Sweden; Mark Williams, Horizon Geoscience Consulting, Australia; Richard White, University of Tasmania, Australia

Monday, July 23 16:50 - 18:30 Room 2E
Session MO4.R11 Oral-Invited

TanDEM-X Mission II

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

MO4.R11.1 16:50 **EFFECT OF THE DOUBLE-BOUNCE CONTRIBUTION IN POLINSAR-BASED HEIGHT ESTIMATES OF RICE CROPS USING TANDEM-X BISTATIC DATA**
Noelia Romero-Puig, Juan M. Lopez-Sanchez, J. David Ballester-Berman, University of Alicante, Spain

MO4.R11.2 17:10 **RICE PADDY HEIGHT ESTIMATION BY MEANS OF POL-INSAR FROM SINGLE-POLARIZATION TANDEM-X DATA**
Sun Yong Yoon, Yonsei University, Republic of Korea; Seung-kuk Lee, NASA Goddard Space Flight Center, United States; Joong-sun Won, Yonsei University, Republic of Korea

MO4.R11.3 17:30 **A STUDY ON THE INFORMATION CONTENT OF ALONG-TRACK INTERFEROMETRIC COHERENCE USING DUAL CO-POLARIZED TANDEM-X DATA**
Paco Lopez-Dekker, Ehsan Karimi Shahmarvandi, Delft University of Technology, Netherlands; Pau Prats-Iraola, German Aerospace Center (DLR), Germany

MO4.R11.4 17:50 **HIGH-RESOLUTION DEMS OF ACTIVE VOLCANOES FROM TANDEM-X DATA: IMPLICATIONS FOR FLOW MODELING AND HAZARD ASSESSMENT**
Sylvain Charbonnier, Fanghui Deng, Timothy Dixon, Rocco Malservisi, University of South Florida, United States

MO4.R11.5 18:10 **TERRESTRIAL IMPACT CRATERS – THE TANDEM-X VIEW**
Manfred Gottwald, Thomas Fritz, Helko Breit, Birgit Schättler, Remote Sensing Technology Institute, German Aerospace Center, Germany

Monday, July 23 14:10 - 15:50 Room 2F
Session MO3.R12 Oral-Invited

Big Data in Distributed Clouds: Data Integration & Processing Challenges I

Session Chair: Ingo Simonis, OGC

MO3.R12.1 14:10 **ONTOLOGY-BASED DATA ACCESS AND VISUALIZATION OF BIG VECTOR AND RASTER DATA**
Konstantina Bereta, George Stamoulis, Manolis Koubarakis, National and Kapodistrian University of Athens, Greece

MO3.R12.2 14:30 **DISCOVERING AND LINKING SPATIO-TEMPORAL BIG LINKED DATA**
Christian Zinke, InfAI e.V., Germany; Axel-Cyrille Ngonga Ngomo, University of Paderborn, Germany

MO3.R12.3 14:50 **ADVANCED VISUALISATION OF BIG DATA FOR AGRICULTURE AS PART OF DATABIO DEVELOPMENT**
Karel Charvat, Lesprojekt sluzby, Czech Republic; Tomas Reznik, Masaryk University, Czech Republic; Vojtech Lukas, Mendel University, Czech Republic; Karel Charvat, Lesprojekt sluzby, Czech Republic; Karel Jedlicka, University of West Bohemia, Czech Republic; Raul Palma, PSNC, Poland; Raitis Berzins, Baltic Open Solution Centre, Latvia

MO3.R12.4 15:10 **GEOSPATIAL BIG DATA PROCESSING IN HYBRID CLOUD ENVIRONMENTS**
Ingo Simonis, OGC, Germany

MO3.R12.5 15:30 **GENERALIZING A DATA ANALYSIS PIPELINE IN THE CLOUD TO HANDLE DIVERSE USE CASES IN NASA'S EOSDIS**
Christopher Lynnes, Rahul Ramachandran, NASA, United States

Monday, July 23 16:50 - 18:30 Room 2F
Session MO4.R12 Oral-Invited

Big Data in Distributed Clouds: Data Integration & Processing Challenges II

Session Chair: Ingo Simonis, OGC

MO4.R12.1 16:50 **BRIDGING CLIMATE AND EARTH OBSERVATION DATA ANALYTICS IN A FEDERATED CLOUD INFRASTRUCTURE USING INTEROPERABLE MULTIDISCIPLINARY WORKFLOWS**
Tom Landry, Samuel Foucher, David Byrns, Kevin Heffner, Computer Research Institute of Montreal, Canada; David Huard, Blaise Gauvin St-Denis, Diane Chaumont, Ouranos, Canada; Nils Hempelmann, Deutsche Gesellschaft für internationale Zusammenarbeit, Germany; Stephen Kindermann, German Climate Computing Center, Germany; Brian Low, Natural Resources Canada, Canada

MO4.R12.2 17:10 **DATACUBES: A TECHNOLOGY SURVEY**
Peter Baumann, Dimitar Misev, Vlad Merticariu, Bang Pham Huu, Brennan Bell, Jacobs University, Germany

MO4.R12.3 17:30 **ANALYSIS-READY EARTH OBSERVATION DATA AND THE UNITED NATIONS SUSTAINABLE DEVELOPMENT GOALS**
Argyro Kavvada, NASA / Booz Allen Hamilton, United States; Alex Held, Commonwealth Scientific and Industrial Research Organization, Australia

MO4.R12.4 17:50 **WATER ACROSS SYNTHETIC APERTURE RADAR DATA (WASARD): SAR WATER BODY CLASSIFICATION FOR THE OPEN DATA CUBE**
Zachary Kreiser, Analytical Mechanics Associates, United States; Brian Killough, NASA Langley Research Center, United States; Syed R Rizvi, Analytical Mechanics Associates, United States

MO4.R12.5 18:10 **SCALING THE COLOMBIAN DATA CUBE USING A DISTRIBUTED ARCHITECTURE**
Mario Villamizar, Harold Castro, Christian Ariza-Porras, María Paula Mancipe, Santiago Cabrera, Los Andes University, Colombia; Indira Pachón, Salomón Ramírez, Diana Fonseca, Pilar Lozano-Rivera, Edersson Cabrera, María Teresa Becerra, Institute of Meteorological, Hydrological and Environmental Studies (IDEAM), Colombia

Tuesday, July 24 **08:30 - 10:10** **Room 1D**
Session TU1.R1 **Oral**

Object Detection in Optical Images I

Session Co-Chairs: Fabio Pacifici, DigitalGlobe; Wenzhi Liao Liao, Ghent University

TU1.R1.1 08:30 **CNN BASED RENORMALIZATION METHOD FOR SHIP DETECTION IN VHR REMOTE SENSING IMAGES**
Tengfei Wang, Yanfeng Gu, Harbin Institute of Technology, China

TU1.R1.2 08:50 **A NOVEL TECHNIQUE FOR BUILDING ROOF MAPPING IN VERY-HIGH-RESOLUTION MULTISPECTRAL SATELLITE DATA**
Alessandro Andreoni, Fabio Dell'Acqua, University of Pavia, Italy; Riccardo Freddi, OHB Italia SpA, Italy

TU1.R1.3 09:10 **FUSING INFORMATION FROM SUBPIXEL TO SUPERPIXEL FOR HYPERSPECTRAL ANOMALY DETECTION**
Zhihong Huang, Shutao Li, Leyuan Fang, Hunan University, China

TU1.R1.4 09:30 **GAN-BASED DOMAIN ADAPTATION FOR OBJECT CLASSIFICATION**
Mesay Belete Bejiga, Farid Melgani, University of Trento, Italy

TU1.R1.5 09:50 **OBJECT DETECTION IN SATELLITE IMAGERY USING 2-STEP CONVOLUTIONAL NEURAL NETWORKS**
Hiroki Miyamoto, Kazuki Uehara, Masahiro Murakawa, Hidenori Sakanashi, Hirokazu Nosato, Toru Kouyama, Ryosuke Nakamura, National Institute of Advanced Industrial Science and Technology, Japan

Tuesday, July 24 **11:10 - 12:50** **Room 1D**
Session TU2.R1 **Oral**

Building Detection

Session Chair: Marco Chini, Luxembourg Institute of Science and Technology

TU2.R1.1 11:10 **A NOVEL BUILDING DETECTION METHOD USING ZY-3 MULTI-ANGLE IMAGERY OVER URBAN AREAS**
Huijun Chen, Xin Huang, Chun Liu, Jiayi Li, Jianya Gong, Wuhan University, China

TU2.R1.2 11:30 **RANSAC-BASED SEGMENTATION FOR BUILDING ROOF FACE DETECTION IN LIDAR POINT CLOUD**
Aluir Porfirio Dal Poz, Michelle Sayuri Yano, São Paulo State University, Brazil

TU2.R1.3 11:50 **DETECTING BUILDINGS OF ANY SIZE USING INTEGRATION OF CNN MODELS**
Ryuhei Hamaguchi, Keisuke Nemoto, Tomoyuki Imaizumi, Shuhei Hikosaka, PASCO CORPORATION, Japan

TU2.R1.4 12:10 **CORRECTING MISALIGNED RURAL BUILDING ANNOTATIONS IN OPEN STREET MAP USING CONVOLUTIONAL NEURAL NETWORKS EVIDENCE**
John Edgar Vargas Muñoz, University of Campinas, Brazil; Diego Marcos, Sylvain Lobry, Wageningen University & Research, Netherlands; Jefersson Alex dos Santos, Universidade Federal de Minas Gerais, Brazil; Alexandre Xavier Falcão, University of Campinas, Brazil; Devis Tuia, Wageningen University & Research, Netherlands

TU2.R1.5 12:30 **EFFECTIVE BUILDING EXTRACTION BY LEARNING TO DETECT AND CORRECT ERRONEOUS LABELS IN SEGMENTATION MASK**
Praveer Singh, Nikos Komodakis, Ecole des Ponts ParisTech, France

Tuesday, July 24 **14:10 - 15:50** **Room 1D**
Session TU3.R1 **Oral**

Object Detection with RADAR/LIDAR

Session Chair: Sebastiano Serpico, University of Genoa

TU3.R1.1 14:10 **INFLUENCE OF HALF-SPACE BACKGROUND ON RADAR SIGNATURES OF SMALL DRONES**
Xin Qi, Zaiping Nie, Xiaofeng Que, Yue Wang, Jun Hu, University of Electronic Science and Technology of China, China

TU3.R1.2 14:30 **AUTOMATIC TRAFFIC SIGN DETECTION AND RECOGNITION USING MOBILE LIDAR DATA WITH DIGITAL IMAGES**
Haiyan Guan, Nanjing University of Information Science and Technology, China; Dilong Li, Wuhan University, China; Yongtao Yu, Huaiyin Institute of Technology, China; Liang Zhong, Changjiang Spatial Information Technology Engineering Co., Ltd., China

TU3.R1.3 14:50 **DYNAMIC PROGRAMMING TRACK BEFORE DETECT ALGORITHM FOR MULTISTATIC MIMO STAP RADAR**
Shusen Wang, Ze Yu, Yukun Guo, Liwei Sun, Yanan Yu, Beihang University, China

TU3.R1.4 15:10 **A TERRAIN INFORMATION CONSTRAINED SEMIDEFINITE RELAXATION METHOD FOR DOPPLER SHIFT BASED SOURCE LOCALIZATION**
Lijuan Deng, Ping Wei, Zhan Zhang, Ningkang Chen, Hongshu Liao, Wen Sun, University of Electronic Science and Technology of China, China

TU3.R1.5 15:30 **INFLUENCE OF DIFFERENT FORMATION PARAMETERS ON ELECTROMAGNETIC RESPONSE OF MICRO-CYLINDRICALLY FOCUSED LOGGING**
Peng Hao, Xiangyang Sun, Zaiping Nie, School of Electronic Engineering, University of Electronic Science and Technology of China (UESTC), China

Tuesday, July 24 **16:50 - 18:30** **Room 1D**
Session TU4.R1 **Oral**

Mapping and Mosaicking

TU4.R1.1 16:50 **VERY HIGH RESOLUTION OPTICAL IMAGE CLASSIFICATION USING WATERSHED SEGMENTATION AND A REGION-BASED KERNEL**
Andrea De Giorgi, Gabriele Moser, University of Genoa, Italy; Giovanni Poggi, Giuseppe Scarpa, University of Naples, Italy; Sebastiano Serpico, University of Genoa, Italy

TU4.R1.2 17:10 **SPARSITY-DRIVEN DIGITAL TERRAIN MODEL EXTRACTION**
Fatih Nar, Konya Food and Agriculture University, Turkey; Erdal Yilmaz, Zibumi Studios, Turkey; Gustau Camps-Valls, University of Valencia, Spain

TU4.R1.3 17:30 **AN IMPROVED ADAPTIVE ANT COLONY ALGORITHM FOR INTELLIGENT SEAMLINE DETECTION OF ORTHOIMAGE MOSAICKING**
Guoqing Zhou, Qingyang Wang, Bin Jia, Qiuyu Pan, Hongjun Sha, Xiaofan Liu, Shengxin Huang, Haoyu Wang, Guilin University of Technology, China

TU4.R1.4 17:50 **BUILDING RECONSTRUCION USING THREE-DIMENSIONAL ZERNIKE MOMENTS IN DIGITAL SURFACE MODEL**
Bing Ma, Ye Zhang, Shu Tian, Harbin Institute of Technology, China

TU4.R1.5 18:10 **SUPERPIXEL PARTITIONING OF VERY HIGH RESOLUTION SATELLITE IMAGES FOR LARGE-SCALE CLASSIFICATION PERSPECTIVES WITH DEEP CONVOLUTIONAL NEURAL NETWORKS**
Tristan Postadjian, Arnaud Le Bris, Univ. Paris Est, LASTIG MATIS, IGN, ENSG, France; Hichem Sahbi, CNRS, LIP6 UPMC Sorbonne Universités, Paris, France; Clément Mallet, Univ. Paris Est, LASTIG MATIS, IGN, ENSG, France

Tuesday, July 24 | 08:30 - 10:10 | Room 3A
Session TU1.R2 | Oral

SAR Interferometry: Along and Across II

Session Chair: Andrea Montiguarnieri, Polimi

TU1.R2.1 08:30 **ON THE CHARACTERIZATION OF FREQUENCY-PERSISTENT SCATTERERS IN SPLIT-BAND INTERFEROMETRY**
Ludivine Libert, Dominique Derauw, Université de Liège, Belgium; Nicolas d'Oreye, European Center for Geodynamics and Seismology, Luxembourg; Anne Orban, Christian Barbier, Université de Liège, Belgium

TU1.R2.2 08:50 **INVESTIGATION OF TANDEM-X PENETRATION DEPTH OVER THE GREENLAND ICE SHEET**
Sahra Abdullahi, Birgit Wessel, Tobias Leichtle, Martin Huber, Christian Wohlfart, Achim Roth, German Aerospace Center (DLR), Germany

TU1.R2.3 09:10 **FIRST RESULTS OF EXPERIMENTAL POLARIMETRIC SAR-GMTI MODES ON RADARSAT-2**
Shen Chiu, Christoph Gierull, Mamoon Rashid, Defence R&D Canada - Ottawa, Canada

TU1.R2.4 09:30 **STRONG CLUTTER SUPPRESSION FOR SPACEBORNE DUAL–CHANNEL SAR/GMTI**
Mingjie Zheng, Weidong Yu, Lei Zhang, Robert Wang, Institute of Electronics, Chinese Academy of Sciences, China

TU1.R2.5 09:50 **IBIS-ARCSAR: AN INNOVATIVE GROUND-BASED SAR SYSTEM FOR SLOPE MONITORING**
Federico Viviani, Alberto Michelini, Lorenzo Mayer, Francesco Coppi, IDS GeoRadar Srl, Italy

Tuesday, July 24 | 11:10 - 12:50 | Room 3A
Session TU2.R2 | Oral

Differential SAR Interferometry I

Session Chair: Paul Rosen, NASA Jet Propulsion Laboratory, California Institute of Technology

TU2.R2.1 11:10 **PRELIMINARY RESULTS OF TEMPORAL DEFORMATION ANALYSIS IN ISTANBUL USING MULTI-TEMPORAL INSAR WITH SENTINEL-1 SAR DATA**
Mumin Imamoglu, TUBITAK-BILGEM, Turkey; Saygın Abdikan, Bulent Ecevit University, Turkey; Fatih Kahraman, TUBITAK-BILGEM, Turkey

TU2.R2.2 11:30 **PERSISTENT SCATTERER STATISTICS AND THEIR DETECTION**
Howard Zebker, Stacey Huang, Stanford University, United States

TU2.R2.3 11:50 **A NON-STATIONARY PERIODIC TEMPORAL DECORRELATION MODEL FOR INSAR STACKS OVER PASTURE AREAS**
Sami Samiei-Esfahany, University of Tehran, Netherlands; Ramon F. Hanssen, Delft University of Technology, Netherlands

TU2.R2.4 12:10 **ESA SNAP – STAMPS INTEGRATED PROCESSING FOR SENTINEL-1 PERSISTENT SCATTERER INTERFEROMETRY**
Michael Foumelis, BRGM - French Geological Survey, France; Jose Manuel Delgado Blasco, ESA Research and Service Support, Italy; Yves-Louis Desnos, Marcus Engdahl, Diego Fernández, European Space Agency, Italy; Luis Veci, Jun Lu, Cecilia Wong, Array Systems Computing Inc., Canada

Tuesday, July 24 | 14:10 - 15:50 | Room 3A
Session TU3.R2 | Oral

Differential SAR Interferometry II

Session Co-Chairs: Nico Adam, German Aerospace Center (DLR); Howard Zebker, Stanford University

TU3.R2.1 14:10 **COSEISMIC SURFACE DEFORMATIONS OF GLOBAL LARGE EARTHQUAKES IN 2014-2016 DETECTED BY ALOS-2 INSAR**
Yu Morishita, Geospatial Information Authority of Japan, Japan

TU3.R2.2 14:30 **A DATA-ADAPTIVE EOF BASED METHOD FOR DISPLACEMENT SIGNAL EXTRACTION FROM INTERFEROGRAM TIME SERIES**
Rémi Prébet, Yajing Yan, Matthias Jauvin, Emmanuel Trouvé, Université Savoie Mont Blanc, France

TU3.R2.3 14:50 **EXPLOITATION OF MULTI-FREQUENCY DATA FOR DINSAR PROCESSING**
Matteo Nannini, German Aerospace Center (DLR), Germany; Takuma Anahara, Japan Aerospace Exploration Agency, Japan; Muriel Pinheiro, Pau Prats-Iraola, German Aerospace Center (DLR), Germany

TU3.R2.4 15:10 **ITERATIVE FILTERING BASED ON ADAPTIVE CHEBYSHEV KERNEL FUNCTIONS FOR NOISE SUPPRESSION IN DIFFERENTIAL SAR INTERFEROGRAMS**
Alejandro Mestre-Quereda, Juan M. Lopez-Sanchez, Jesus Selva, University of Alicante, Spain; Pablo J. Gonzalez, University of Liverpool, United Kingdom

TU3.R2.5 15:30 **THREE-DIMENSIONAL DEFORMATION MONITORING AND STRUCTURAL RISK ASSESSMENT OF BRIDGES BY INTEGRATING OBSERVATIONS FROM MULTIPLE SAR SENSORS**
Xiaoqiong Qin, The Hong Kong Polytechnic Univeristy / Wuhan University, China; Xiaoli Ding, The Hong Kong Polytechnic Univeristy, China; Mingsheng Liao, Wuhan University, China

Tuesday, July 24 | 16:50 - 18:30 | Room 3A
Session TU4.R2 | Oral

Differential SAR Interferometry III

Session Co-Chairs: Jordi Mallorqui, Universitat Politècnica de Catalunya; Ramon Hanssen, University of Delft

TU4.R2.1 16:50 **THE DEVELOPMENT OF A HIGH PRECISION TROPOSPHERE EFFECT MITIGATION PROCESSOR FOR SAR INTERFEROMETRY**
Nico Adam, German Aerospace Center (DLR), Germany

TU4.R2.3 17:30 **THREE-DIMENSIONAL SURFACE DEFORMATION RELATED TO THE 2017 NORTH KOREA NUCLEAR TEST OBSERVED BY SAR OFFSET-TRACKING APPROACH**
Won-Kyung Baek, University of Seoul, Republic of Korea; Min-Jeong Jo, USRA, United States; Hyung-Sup Jung, University of Seoul, Republic of Korea

TU4.R2.4 17:50 **MEASUREMENT OF VERTICAL DEFORMATION IN KARACHI USING MULTI-TEMPORAL INSAR**
Shamsa Kanwal, Xiaoli Ding, Lei Zhang, The Hong Kong Polytechnic University, Hong Kong SAR of China

TU4.R2.5 18:10 **FIRST ANALYSIS OF C-BAND ECR TRANSPONDERS FOR INSAR GEODESY**
Hans van der Marel, Freek van Leijen, Ramon F. Hanssen, Delft University of Technology, Netherlands

Tuesday, July 24 08:30 - 10:10 Room 1B
Session TU1.R3 Oral

GNSS-R and other Signals of Opportunity for Soil Moisture

Session Chair: Brian Hornbuckle, Iowa State University

TU1.R3.1 08:30 **P-BAND SIGNALS OF OPPORTUNITY FOR REMOTE SENSING OF ROOT ZONE SOIL MOISTURE**
Simon Yueh, Xiaolan Xu, Rashmi Shah, California Institute of Technology, United States; Steve Margulis, University of California, Los Angeles, United States; Kelly Elder, US Department of Agriculture, United States

TU1.R3.2 08:50 **TOWARDS SOIL MOISTURE RETRIEVAL USING TOWER-BASED P-BAND RADIOMETER OBSERVATIONS**
Nithyapriya Boopathi, IITB-Monash Research Academy, Australia; Nan Ye, Xioling Wu, Jeffrey Walker, Monash university, Australia; Rao Y.S., Indian Institute of Technology Bombay, India; Thomas Jackson, USDA-ARS Hydrology and Remote Sensing Laboratory, United States; Yann Kerr, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Edward Kim, NASA Goddard Space Flight Center, United States; Andrew McGrath, Airborne Research Australia, Australia; In-Young Yeo, University of Newcastle, Australia

TU1.R3.3 09:10 **ANALYSIS OF CYGNSS DATA FOR SOIL MOISTURE APPLICATIONS**
Maria Paola Clarizia, Deimos Space UK Ltd, United Kingdom; Nazzareno Pierdicca, University of La Sapienza, Italy; Fabiano Costantini, Deimos Space UK Ltd, United Kingdom

TU1.R3.4 09:30 **3CAT-3/MOTS, AN EXPERIMENTAL NANOSATELLITE FOR MULTISPECTRAL AND GNSS-R EARTH OBSERVATION: AIRBORNE OPTICAL AND GNSS-R CAMPAIGN**
Jordi Castellvi-Esturi, Universitat Politècnica de Catalunya / Institut Cartogràfic i Geològic de Catalunya (ICGC), Spain; Adriano Camps, Universitat Politècnica de Catalunya, Spain; Jordi Corbera Simó, Institut Cartogràfic i Geológic de Catalunya, Spain; Raul Onrubia, Universitat Politècnica de Catalunya, Spain; Ramon Alamús, Institut Cartogràfic i Geológic de Catalunya, Spain; Daniel Pascual, Jorge Querol, Hyuk Park, Universitat Politècnica de Catalunya, Spain

Tuesday, July 24 11:10 - 12:50 Room 1B
Session TU2.R3 Oral

Microwave Algorithms for Soil Moisture I

Session Co-Chairs: Susan Steele-Dunne, Delft University of Technology; Jasmeet Judge, University of Florida

TU2.R3.1 11:10 **SOIL MOISTURE RETRIEVAL USING FULL WAVE SIMULATIONS OF 3-D MAXWELL EQUATIONS FOR COMPENSATING VEGETATION EFFECTS**
Andreas Colliander, Eni Njoku, Jet Propulsion Laboratory, California Institute of Technology, United States; Huanting Huang, Leung Tsang, University of Michigan, United States

TU2.R3.2 11:30 **MODELLING OF NEAR-SURFACE SOIL MOISTURE USING MACHINE LEARNING AND MULTI-TEMPORAL SENTINEL 1 IMAGES IN NEW ZEALAND**
Istvan Hajdu, Ian Yule, Massey University, New Zealand; Mohammad Hossain Dehghan-Shoar, School of Engineering and Advanced Technology, Massey University, Palmerston North, New Zealand

TU2.R3.3 11:50 **ESTIMATING SOIL MOISTURE FROM C AND X BAND SAR USING MACHINE LEARNING ALGORITHMS AND COMPACT POLARIMETRY**
Emanuele Santi, Simone Pettinato, Simonetta Paloscia, IFAC-CNR, Italy; Mohammed Dabboor, Environment Canada, Canada; Claudia Notarnicola, Antonio Padovano, Felix Greifeneder, Giovanni Cuozzo, EURAC, Italy

TU2.R3.4 12:10 **SENTINEL-1 SENSITIVITY TO SOIL MOISTURE AT HIGH INCIDENCE ANGLE AND ITS IMPACT ON RETRIEVAL**
Davide Palmisano, La Sapienza, University of Rome, Italy; Anna Balenzano, Giuseppe Satalino, Francesco Mattia, Consiglio Nazionale delle Ricerche (CNR), Italy; Nazzareno Pierdicca, La Sapienza, University of Rome, Italy; Andrea Monti-Guarnieri, Politecnico di Milano, Italy

TU2.R3.5 12:30 **L-, C- AND X-BAND PASSIVE MICROWAVE SOIL MOISTURE RETRIEVAL ALGORITHM PARAMETERIZATION USING IN SITU VALIDATION SITES**
Ying Gao, JIFRESSE, UCLA, United States; Andreas Colliander, Mariko S Burgin, NASA Jet Propulsion Laboratory, United States; Jeffrey Walker, Monash University, Australia; Chunsik Chae, NASA Jet Propulsion Laboratory, United States; Emmanuel Dinnat, NASA Goddard Space Flight Center, United States; Michael H. Cosh, USDA-ARS, United States; Todd Caldwell, The University of Texas at Austin, United States; Aaron Berg, University of Guelph, Canada; José Martínez-Fernández, University of Salamanca, Spain

Tuesday, July 24 14:10 - 15:50 Room 1B
Session TU3.R3 Oral-Invited

SMOS over Land and Cryosphere: 8 Years of Achievements I

Session Co-Chairs: Susanne Mecklenburg, European Space Agency; Yann Kerr, CESBIO

TU3.R3.1 14:10 **SMOS INSTRUMENT PERFORMANCE AFTER MORE THAN 8 YEARS IN ORBIT AND LESSONS LEARNT FOR FUTURE L-BAND MISSIONS**
Manuel Martín-Neira, Roger Oliva, European Space Agency, Netherlands; Ignasi Corbella, Francesc Torres, Nuria Duffo, Israel Duran, Polytechnic University of Catalonia, Spain; Juha Kainulainen, Harp Technologies Ltd, Finland; Josep Closa, Alberto Zurita, Airbus Defence and Space, Spain; François Cabot, Ali Khazaal, Eric Anterrieu, CESBIO, France; Jose Barbosa, RDA, Switzerland; Gonçalo Lopes, Deimos Engenharia S.A, Portugal; Joe Tenerelli, OceanDataLab, France; Raúl Díez-García, IDEAS, Spain; Jorge Fauste, European Space Agency, Spain; Antonio Turiel, Verónica González-Gambau, SMOS Barcelona Expert Centre, Spain; Raffaele Crapolicchio, Martin Suess, European Space Agency, Italy

TU3.R3.2 14:30 **INTER COMPARISON OF L-BAND BRIGHTNESS TEMPERATURES**
François Cabot, Ali Khazaal, Eric Anterrieu, Yann Kerr, CESBIO, France

TU3.R3.3 14:50 **HOW DOES THE SPATIAL SCALE MISMATCH BETWEEN IN SITU AND SMOS SOIL MOISTURE EVOLVE THROUGH TIMESCALES?**
Beatriz Molero-Rodenas, Philippe Richaume, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Delphine J. Leroux, Centre National de la Recherche Météorologique (CNRM), Météo-France, CNRS, France; Yann Kerr, Olivier Merlin, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Michael H. Cosh, USDA-ARS Hydrology and Remote Sensing Laboratory, United States; Rajat Bindlish, NASA Goddard Space Flight Center, United States

TU3.R3.4 15:10 **SMOS DATA ASSIMILATION FOR NUMERICAL WEATHER PREDICTION**
Patricia de Rosnay, ECMWF, United Kingdom; Nemesio Rodríguez-Fernández, CESBIO/CNRS, France; Joaquín Muñoz-Sabater, ECMWF, United Kingdom; Clément Albergel, Meteo-France/CNRS, France; David Fairbairn, Heather Lawrence, Stephen English, ECMWF, United Kingdom; Matthias Drusch, European Space Agency, Netherlands; Yann Kerr, CESBIO/CNES, France

TU3.R3.5 15:30 **SMOS-IC: CURRENT STATUS AND OVERVIEW OF SOIL MOISTURE AND VOD APPLICATIONS**
Jean-Pierre Wigneron, INRA, France; Arnaud Mialon, CESBIO, France; Gabrielle De Lannoy, KU Leuven (University of Leuven), France; Roberto Fernandez-Moran, Amen Al-Yaari, INRA, France; Mohsen Ebrahimi, University of Tehran, Iran; Nemesio Rodríguez-Fernández, Yann Kerr, CESBIO, France; Jan Quets, KU Leuven (University of Leuven), France; Thierry Pellarin, IGE, France; Lei Fan, INRA, France; Feng Tian, Rasmus Fensholt, Martin Brandt, University of Copenhagen, Denmark

Tuesday, July 24 16:50 - 18:30 Room 1B
Session TU4.R3 Oral-Invited

SMOS over Land and Cryosphere: 8 Years of Achievements II

Session Co-Chairs: Yann Kerr, CESBIO; Susanne Mecklenburg, European Space Agency

TU4.R3.1 16:50 **CONSTRAINING TERRESTRIAL CARBON FLUXES THROUGH ASSIMILATION OF SMOS PRODUCTS**
Thomas Kaminski, The Inversion Lab, Germany; Marko Scholze, Wolfgang Knorr, Lund University, Sweden; Michael Voßbeck, The Inversion Lab, Germany; Mousong Wu, Lund University, Sweden; Paolo Ferrazzoli, Tor Vergata University, Italy; Yann Kerr, Arnaud Mialon, Philippe Richaume, Nemesio Rodríguez-Fernández, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Cristina Vittucci, Tor Vergata University, Italy; Jean-Pierre Wigneron, Institut National de la Recherche Agronomique, France; Matthias Drusch, European Space Agency, Netherlands

TU4.R3.2 17:10 **MODELLING FOREST DECLINE USING SMOS SOIL MOISTURE AND VEGETATION OPTICAL DEPTH**
David Chaparro, Universitat Politècnica de Catalunya, Spain; María Piles, Universitat de València, Spain; Jordi Martínez-Vilalta, Centre for Ecological Research and Forestry Applications (CREAF) & Universitat Autònoma de Barcelona (UAB), Spain; Mercè Vall-llossera, Universitat Politècnica de Catalunya, Spain; Jordi Vayreda, Mireia Banqué-Casanovas, Centre for Ecological Research and Forestry Applications (CREAF), Spain; Adriano Camps, Universitat Politècnica de Catalunya, Spain

TU4.R3.3 17:30 **SMOS RETRIEVALS OF SOIL FREEZING AND THAWING AND ITS APPLICATIONS**
Kimmo Rautiainen, Juha Lemmetyinen, Tuula Aalto, Aki Tsuruta, Vilma Kangasaho, Jaakko Ikonen, Juval Cohen, Anna Kontu, Juho Vehviläinen, Jouni Pulliainen, Finnish Meteorological Institute, Finland

TU4.R3.4 17:50 **SNOW WETNESS RETRIEVED FROM L-BAND RADIOMETRY**
Reza Naderpour, Mike Schwank, Swiss Federal Research Institute WSL, Switzerland

TU4.R3.5 18:10 **SMOS IN ANTARCTICA FOR THE SNOWMELT MONITORING**
Marion Leduc-Leballeur, IFAC-CNR, Italy; Ghislain Picard, UGA - CNRS, IGE (UMR5001), France; Giovanni Macelloni, IFAC-CNR, Italy; Arnaud Mialon, Yann Kerr, CESBIO (CNES, CNRS, IRD, UPS), France

Tuesday, July 24 08:30 - 10:10 Room 1C
Session TU1.R4 Oral

Ocean Surface Winds and Currents II

Session Co-Chairs: Roland Romeiser, University of Miami; David Weissman, Hofstra University

TU1.R4.1 08:30 **OCEAN SURFACE CURRENTS AND WINDS USING DOPPLERSCATT**
Ernesto Rodriguez, Alexander Wineteer, Dragana Perkovic-Martin, Tamas Gal, Bryan Stiles, Noppasin Niamsuwan, Raquel Rodriguez Monje, Jet Propulsion Laboratory, California Institute of Technology, United States

TU1.R4.2 08:50 **SYNTHETIC APERTURE RADAR OBSERVATIONS OF INTERANNUAL OCEAN-ATMOSPHERE COUPLING OVER THE SOMALI CURRENT**
Michael Caruso, Hans Graber, University of Miami, United States

TU1.R4.3 09:10 **STATISTICAL ANALYSIS OF EDDIES IN THE WESTERN MEDITERRANEAN BASED ON MULTIPLE SAR IMAGERY**
Martin Gade, Universität Hamburg, Germany; Svetlana Karimova, Université de Liège, Belgium; Annika Buck, Universität Hamburg, Germany

TU1.R4.4 09:30 **QUANTIFYING OF THE EFFECT OF RAIN-INDUCED SUB-FOOTPRINT SCALE WIND VARIABILITY ON THE RAPIDSCAT KU-BAND NRCS**
David Weissman, Hofstra University, United States

Tuesday, July 24 11:10 - 12:50 Room 1C
Session TU2.R4 Oral

Ocean Surface Winds and Currents III

Session Co-Chairs: Xiaolong Dong, Chinese Academy of Sciences; Martin Gade, University of Hamburg

TU2.R4.1 11:10 **PERFORMANCES OF THE ROTATING FANBEAM SCATTEROMETER ON CFOSAT**
Wenming Lin, Nanjing University of Information Science and Technology, China; Xiaolong Dong, Xing-Ou Xu, Di Zhu, The CAS Key Laboratory of Microwave Remote Sensing, National Space Science Center, Chinese Academy of Sciences, China; Zhixiong Wang, Yijun He, Nanjing University of Information Science and Technology, China

TU2.R4.2 11:30 **A NEW APPROACH TO DETECT SURFACE CURRENTS OF COMPLEX FLOWS USING DOPPLER MARINE RADAR**
Lisa Nyman, Björn Lund, Roland Romeiser, Hans Graber, University of Miami: Rosenstiel School of Marine and Atmospheric Science, United States; Jochen Horstmann, Helmholtz-Zentrum Geesthacht, Germany

TU2.R4.3 11:50 **THE SIMULATION OF OCEAN SURFACE WIND MEASURED BY POLARIMETRIC SCATTEROMETER**
Juhong Zou, Shuyan Lang, Yarong Zou, Mingsen Lin, Youguang Zhang, National Satellite Ocean Application Service, China; Xiaobin Yin, Qingliu Bao, Beijing Piesat Information Technology Co., Ltd, China

TU2.R4.4 12:10 **WIND FIELD RETRIEVING UNDER RAINY CONDITIONS BASED ON SUPPORT VECTOR MACHINE FOR COMBINED ACTIVE/PASSIVE OBSERVATIONS OF HY-2A**
Xingou Xu, Xiaolong Dong, The CAS Key Laboratory of Microwave Remote Sensing, National Space Science Center, Chinese Academy of Sciences, China

TU2.R4.5 12:30 **AIR-SEA INTERACTION AND ECOSYSTEM RESPONSE TO WIND FORCING USING HIGH-RESOLUTION SAR WINDS**
Kyung-Ae Park, Seoul National University, Republic of Korea; Jae-Cheol Jang, Jae-Jin Park, Student/Seoul National University, Republic of Korea

Tuesday, July 24 14:10 - 15:50 Room 1C
Session TU3.R4 Oral

Ocean Temperature and Salinity I

Session Co-Chairs: Roberto Sabia, European Space Agency; maria Jacob, Unisversidad Nacional de Cordoba

TU3.R4.1 14:10 **AN END-TO-END SIMULATION OF OCEAN SALINITY USING L/S/C TRI-FREQUENCY RADIOMETER FOR WATER CYCLE OBSERVATION MISSION (WCOM)**
Li Yan, Liu Hao, National Space Science Center, Chinese Academy of Sciences, China

TU3.R4.2 14:30 **USING 0.5-2 GHZ MICROWAVE RADIOMETRY TO DERIVE OCEAN SALINITY**
Oguz Demir, Alexandra Bringer, Joel Johnson, Mark Andrews, Ethan Raines, ElectroScience Laboratory, The Ohio State University, United States; Kenneth Jezek, Byrd Polar Research Center, The Ohio State University, United States; Giovanni Macelloni, Marco Brogioni, Institute of Applied Physics, Italy

TU3.R4.3 14:50 **EMPIRICAL CHARACTERIZATION OF THE SMOS BRIGHTNESS TEMPERATURE BIAS AND UNCERTAINTY FOR IMPROVING SEA SURFACE SALINITY**
Estrella Olmedo, Verónica González-Gambau, Antonio Turiel, Justino Martínez, Carolina Gabarró, Joaquim Ballabrera-Poy, Marcos Portabella, Insitute of Marine Science, CSIC, Spain; Manuel Arias, ARGANS, United Kingdom; Roberto Sabia, European Space Agency, Italy

TU3.R4.4 15:10 **SMOS SATELLITE INFERENCE OF ALKALINITY OVER MEDITERRANEAN BASIN**
Roberto Sabia, Telespazio-Vega for ESA, Italy; Estrella Olmedo, Antonio Turiel, Justino Martínez, BEC, Spain; Aida Alvera Azcarate, AGO-GHER Université de Liège, Belgium

TU3.R4.5 15:30 **SALINITY RAIN IMPACT MODEL (RIM) STRATIFICATION ANALYSIS UNDER SEVERAL WIND SPEED CONDITIONS**
Maria Jacob, Universidad Nacional de Cordoba, Argentina; Kyla Drushka, William Asher, University of Washington, United States; W. Linwood Jones, Andrea Santos-Garcia, University of Central Florida, United States; Carlos Marcelo Scavuzzo, Universidad Nacional de Cordoba, Argentina

Tuesday, July 24 16:50 - 18:30 Room 1C
Session TU4.R4 Oral

Coastal Zones

Session Co-Chairs: Paul Hwang, NRL; Werner Alpers, University of Hamburg

TU4.R4.1 16:50 **MONITORING TOPOGRAPHY OF COASTAL LAGOONS USING SATELLITE RADAR ALTIMETRY**
Edward Salameh, LEGOS/M2C, France; Frédéric Frappart, OMP, France; Vincent Marieu, EPOC, France; Alexandra Spodar, LOG, France; Jean-Paul Parisot, Vincent Hanquiez, EPOC, France; Imen Turki, Benoit Laignel, M2C, France

TU4.R4.2 17:10 **ANALYSIS OF MARLENE RADAR DATA : FOCUS ON DOPPLER SPECTRA AND GROUP LINES**
Florestan Platzer, ONERA, France; Saillard Marc, MIO - University of Toulon, France; Vincent Fabbro, ONERA, France

TU4.R4.3 17:30 **BENTHIC MAPPING USING HIGH RESOLUTION MULTISPECTRAL AND HYPERSPECTRAL IMAGERY**
Javier Marcello, Francisco Eugenio, Universidad de Las Palmas de Gran Canaria, Spain; Ferran Marques, Universitat Politècnica de Catalunya - BarcelonaTech, Spain

TU4.R4.4 17:50 **SHALLOW WATER BATHYMETRY MAPPING USING HYPERSPECTRAL DATA**
Satomi Kakuta, Emiko Ariyasu, Asia Air Survey Co., Ltd., Japan; Tomomi Takeda, Japan Space Systems, Japan

TU4.R4.5 18:10 **MAPPING MULTIDECADAL MORPHOLOGICAL VARIABILITY VIA SATELLITE DERIVED BATHYMETRIES**
Annette Burke, Hsing-Chung Chang, Macquarie University, Australia; Hannah E Power, University of Newcastle, Australia

Tuesday, July 24 | 08:30 - 10:10 | Room 3F
Session TU1.R5 | Oral-Invited

Copernicus Sentinel-1 Mission: Operational Status, Evolution and Scientific Applications Results I

Session Co-Chairs: Ramon Torres, European Space Agency; Pierre Potin, European Space Agency

TU1.R5.1 08:30 **SENTINEL-1 CONSTELLATION MISSION OPERATIONS STATUS**
Pierre Potin, Betlem Rosich, Nuno Miranda, Patrick Grimont, Ian Shurmer, Alistair O'Connell, Mike Krassenburg, Jean-Baptiste Gratadour, European Space Agency, Italy

TU1.R5.2 08:50 **S-1 INSTRUMENT AND PRODUCT PERFORMANCE STATUS: 2018 UPDATE**
Nuno Miranda, European Space Agency, Italy; Riccardo Piantanida, Andrea Recchia, Niccolo Franceschi, Aresys s.r.l, Italy; David Small, Adrian Schubert, University of Zürich, Switzerland; Peter Meadows, BAE Systems Applied Intelligence Laboratories, United Kingdom

TU1.R5.3 09:10 **SENTINEL-1 SATELLITE EVOLUTION**
Ramón Torres, Dirk Geudtner, Svein Lokas, David Bibby, Paul Snoeij, Ignacio Navas Traver, Francisco Ceba Vega, Jelle Poupaert, Steve Osborne, European Space Agency, Netherlands

TU1.R5.4 09:30 **SENTINEL-1 C&D SAR PERFORMANCE**
Mathias von Alberti, Eberhard Schied, Siegmund Idler, Airbus Defence and Space, Germany; Ignacio Navas-Traver, Francisco Ceba Vega, Paul Snoeij, David Bibby, European Space Agency/ ESTEC, Netherlands

Tuesday, July 24 | 11:10 - 12:50 | Room 3F
Session TU2.R5 | Oral-Invited

Copernicus Sentinel-1 Mission: Operational Status, Evolution and Scientific Applications Results II

Session Co-Chairs: Pierre Potin, European Space Agency; Ramon Torres, European Space Agency

TU2.R5.1 11:10 **SENTINEL-1 MISSION SCIENTIFIC EXPLOITATION**
Magdalena Fitrzyk, RSAC c/o ESA-ESRIN, Italy; Yves-Louis Desnos, Marcus Engdahl, Diego Fernández, European Space Agency/ESRIN, Italy

TU2.R5.2 11:30 **GLOBAL MONITORING OF FAULT ZONES AND VOLCANOES WITH SENTINEL-1**
Andrew Hooper, Tim Wright, Karsten Spaans, University of Leeds, United Kingdom; Richard Walters, Durham University, United Kingdom; John Elliott, Jonathan Weiss, Marco Bagnardi, Emma Hatton, University of Leeds, United Kingdom; Pablo J. Gonzalez, University of Liverpool, United Kingdom; Fabien Albino, University of Bristol, United Kingdom; Susanna Ebmeier, University of Leeds, United Kingdom; Juliet Biggs, University of Bristol, United Kingdom; Matthew Gaddes, Qiang Qiu, Alistair McDougall, University of Leeds, United Kingdom

TU2.R5.3 11:50 **INNOVATIVE EXPLOITATION OF LONG, DENSE AND COHERENT INSAR SENTINEL-1 TIME SERIES FOR LAND SURVEY AND CLASSIFICATION**
Javier Duro, Fernando Vicente, Giuseppe Centolanza, Rubén Iglesias, Dares Technology, Spain

TU2.R5.4 12:10 **SENTINEL-1 ACHIEVEMENTS FOR OCEAN AND EXTREME EVENTS MONITORING**
Romain Husson, CLS, France; Alexis Mouche, IFREMER, France; Harald Johnsen, NORUT, Norway; Fabrice Collard, OceanDataLab, France; Geir Engen, NORUT, Norway; Nicolas Longepe, CLS, France; Gilles Guitton, OceanDataLab, France; He Wang, NOTC, China; Xuan Wang, OUC, China; François Soulat, CLS, France; Bertrand Chapron, IFREMER, France

TU2.R5.5 12:30 **SENTINEL-1 MONITORING OF SANTORINI VOLCANO POST-UNREST STATE**
Elena Papageorgiou, Aristotle University of Thessaloniki, Greece; Michael Foumelis, BRGM - French Geological Survey, France; Antonios Mouratidis, Costas Papazachos, Aristotle University of Thessaloniki, Greece

Tuesday, July 24 | 14:10 - 15:50 | Room 3F
Session TU3.R5 | Oral-Invited

JPSS Global Observations for Regional Services I

Session Co-Chairs: Mitchell Goldberg, National Oceanic Atmospheric Administration; Claus Zehner, European Space Agency

TU3.R5.1 14:10 **THE JOINT POLAR SATELLITE SYSTEM OVERVIEW**
Mitch Goldberg, NOAA/NESDIS, United States

TU3.R5.2 14:30 **JOINT POLAR SATELLITE SYSTEM (JPSS) DATA PRODUCTS: ALGORITHM DEVELOPMENT AND SCIENTIFIC MATURITY**
Lihang Zhou, NOAA/NESDIS, United States; Murty Divakarla, Xingpin Liu, IMSG, United States; Harry Cikanek, NOAA/NESDIS/STAR, United States; Arron Layns, Mitch Goldberg, NOAA/ NESDIS, United States

TU3.R5.3 14:50 **SENTINEL-5 PRECURSOR MISSION STATUS AND FIRST RESULTS**
Claus Zehner, European Space Agency, Italy

TU3.R5.4 15:10 **THE COPERNICUS PROGRAMME AND ITS CLIMATE CHANGE SERVICE**
Jean-Noel Thepaut, ECMWF, United Kingdom; Bernard Pinty, European Commission, Belgium; Dick Dee, Richard Engelen, ECMWF, United Kingdom

Tuesday, July 24 | 16:50 - 18:30 | Room 3F
Session TU4.R5 | Oral-Invited

JPSS Global Observations for Regional Services II

Session Chair: William Sjoberg, NOAA JPSS Program

TU4.R5.1 16:50 **THE USE OF SATELLITE DATA IN THE COPERNICUS ATMOSPHERE MONITORING SERVICE (CAMS)**
Vincent-Henri Peuch, Richard Engelen, Melanie Ades, Jerôme Barré, Antje Inness, Johannes Flemming, Zak Kipling, Anna Agusti-Panareda, Mark Parrington, Roberto Ribas, Martin Suttie, European Centre for Medium Range Weather Forecasts, United Kingdom

TU4.R5.2 17:10 **JPSS DIRECT READOUT – EASY ACCESS TO REAL-TIME DATA**
Allen Huang, University of Wisconsin-Madison, United States; Mitch Goldberg, National Oceanic and Atmospheric Administration, United States

TU4.R5.3 17:30 **JPSS VIIRS OCEAN COLOR PRODUCTS AND APPLICATIONS**
Menghua Wang, Lide Jiang, Xiaoming Liu, SeungHyun Son, Junqiang Sun, Wei Shi, Karlis Mikelsons, Liqin Tan, Xiaolong Wang, Mike Chu, Veronica Lance, NOAA/NESDIS/STAR, United States

TU4.R5.4 17:50 **GLOBAL FLOOD MAPPING SERVICES FROM JPSS**
Bill Sjoberg, JPSS Program - NESDIS NOAA, United States

TU4.R5.5 18:10 **MONITORING THE CRYOSPHERE FOR COMMERCE AND TRANSPORTATION**
Arron Layns, Bonnie Reed, NOAA JPSS, United States

Tuesday, July 24 | 08:30 - 10:10 | Room 3G
Session TU1.R6 | Oral

Remote Sensing for Surface Characterization and Mineral Exploration

Session Co-Chairs: Takeo Tadono, JAXA; Cristian Rossi, Satellite Applications Catapult

TU1.R6.1 08:30 **QUALITY IMPROVEMENTS OF 'AW3D' GLOBAL DSM DERIVED 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

TU1.R6.2 08:50 **AN EARTH OBSERVATION FRAMEWORK FOR THE LITHIUM EXPLORATION**
Cristian Rossi, Stephen Spittle, Maral Bayaraa, Anoop Pandey, Niki Henry, Satellite Applications Catapult, United Kingdom

TU1.R6.3 09:10 **LONG-WAVE HYPERSPECTRAL IMAGING FOR LITHOLOGICAL MAPPING: A CASE STUDY**
Sandra Lorenz, Moritz Kirsch, Robert Zimmermann, Laura Tusa, Robert Möckel, Helmholtz-Zentrum Dresden-Rossendorf, Germany; Martin Chamberland, Telops Inc., Canada; Richard Gloaguen, Helmholtz-Zentrum Dresden-Rossendorf, Germany

TU1.R6.4 09:30 **REMOTE COMPOSITIONAL PYROXENE ESTIMATES IN THE REINER GAMMA FORMATION USING FEATURE-ORIENTED PCA: NEW INSIGHTS INTO LUNAR SWIRLS**
Shashwat Shukla, Shashi Kumar, Indian Institute of Remote Sensing, ISRO, India

Tuesday, July 24 | 11:10 - 12:50 | Room 3G
Session TU2.R6 | Oral-Invited

Urban Challenges and Remotely Sensed Information Capacities

Session Co-Chairs: Christiane Weber, CNRS; Andrea Marinoni, University of Pavia

TU2.R6.1 11:10 **HYPERSPECTRAL IMAGERY FOR ENVIRONMENTAL URBAN PLANNING**
Cody Weber, R. Aguejdad, CNRS, France; Xavier Briottet, J. Avala, S. Fabre, ONERA, France; J. Demuynck, E. Zenou, ISAE SUPAERO, France; Yannick Deville, Moussa Sofiane Karoui, F. Z. Benhalouche, IRAP, France; Sébastien Gadal, W. Ourghemmi, University of Aix Marseille, France; Clément Mallet, Arnaud Le Bris, Nesrine Chehata, IGN, France

TU2.R6.2 11:30 **URBAN VEGETATION MAPPING USING HYPERSPECTRAL IMAGERY AND SPECTRAL LIBRARY**
Walid Ouerghemmi, Sébastien Gadal, ESPACE (UMR 7300) -CNRS/Aix-Marseille université, France; Gintautas Mozgeris, Aleksandras Stulginskis University, Lithuania

TU2.R6.3 11:50 **EVALUATION OF DIMENSIONAL REDUCTION METHODS ON URBAN VEGEGATION CLASSIFICATION PERFORMANCE USING HYPERSPECTRAL DATA**
Charlotte Brabant, Emilien Alvarez-Vanhard, Gwénaël Morin, Kim Thanh Nguyen, Achour Laribi, Université Rennes 2, France; Thomas Houet, CNRS, Université Rennes II, France

TU2.R6.4 12:10 **DETECTION AND AREA ESTIMATION FOR PHOTOVOLTAIC PANELS IN URBAN HYPERSPECTRAL REMOTE SENSING DATA BY AN ORIGINAL NMF-BASED UNMIXING METHOD**
Moussa Sofiane Karoui, Fatima Zohra Benhalouche, Centre des Techniques Spatiales, Algeria; Yannick Deville, IRAP, Université de Toulouse, UPS-OMP, CNRS, CNES, France; Khelifa Djerriri, Centre des Techniques Spatiales, Algeria; Xavier Briottet, ONERA, France; Arnaud Le Bris, Univ. Paris-Est, LASTIG MATIS, IGN, ENSG, France

TU2.R6.5 12:30 **STRUCTURAL OPTIMIZATION FOR ACCURATE CHARACTERIZATION OF URBAN AREAS IN HYPERSPECTRAL DATASETS**
Andrea Marinoni, Paolo Gamba, University of Pavia, Italy

Tuesday, July 24 | 14:10 - 15:50 | Room 3G
Session TU3.R6 | Oral

Urban Remote Sensing I

Session Chair: Tom Ainsworth, NRL

TU3.R6.1 14:10 **SPATIAL IDENTIFICATION OF URBAN FLOOD AREAS USING TEMPORAL AMSR-2 DATA**
Venkata Sai Krishna Vanama, Subrahmanyeswara Rao Yalamanchili, Indian Institute of Technology Bombay, India

TU3.R6.2 14:30 **A HYBRID APPROACH FOR DELINEATION OF BUILDING FOOTPRINTS FROM SPACE-BORNE STEREO IMAGES**
Gholam Reza Dini, IGI mbH, Germany; Karsten Jacobsen, Franz Rottensteiner, University of Hannover, Germany; Mehdi Ravanbakhsh, University of Western Australia, Australia; Paolo Gamba, University of Pavia, Italy; Christian Heipke, University of Hannover, Germany

TU3.R6.3 14:50 **A COMPARATIVE STUDY OF IMPERVIOUS SURFACE ESTIMATION FROM OPTICAL AND SAR DATA USING DEEP CONVOLUTIONAL NETWORKS**
Hongsheng Zhang, Luoma Wan, Ting Wang, Yinyi Lin, Hui Lin, The Chinese University of Hong Kong, Hong Kong SAR of China; Zezhong Zheng, University of Electronic Science and Technology of China, China

TU3.R6.4 15:10 **SPARSE REPRESENTATION FOR IMPERVIOUS SURFACE AREA EXTRACTION USING WORLDVIEW-2 AND TERRASAR-X DATA**
Yinyi Lin, Hongsheng Zhang, Gang Li, Ting Wang, Hui Lin, The Chinese University of Hong Kong, Hong Kong SAR of China

TU3.R6.5 15:30 **GROUND STABILITY ANALYSIS OF CONSTANȚA CITY, ROMANIA THROUGH PSI WITH ATMOSPHERIC PHASE SCREEN REMOVAL USING ERA-INTERIM DATA**
Stefan-Adrian Toma, Military Technical Academy, Romania; Delia Teleaga, Valentin Poncos, Terrasigna, Romania

Tuesday, July 24 | 16:50 - 18:30 | Room 3G
Session TU4.R6 | Oral

Urban Remote Sensing II

Session Chair: Mihai Datcu, DLR

TU4.R6.1 16:50 **AIR QUALITY MONITORING IN URBAN AREAS USING IN-SITU AND SATELLITE DATA WITHIN ERA-PLANET PROJECT**
Andrii Shelestov, Andrii Kolotii, Mykola Lavreniuk, EOS Data Analytics, Ukraine; Kyrylo Medyanovskyi, National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute", Ukraine; Vladimir Vasiliev, EOS Data Analytics, Ukraine; Tatyana Bulanaya, Igor Gomilko, Noosphere Engineering School, Ukraine

TU4.R6.2 17:10 **VALIDATION OF THE SURFACE ENERGY BALANCE RETRIEVED FROM REMOTE SENSING DATA FOR THE METROPOLITAN AREA OF RIO DE JANEIRO (MARJ)**
Vitor Miranda, Federal University of Rio de Janeiro, Brazil; Leonardo Peres, Federal University of Rio de Janeiro/ The Portuguese Institute for Sea and Atmosphere, Brazil; Edson Pereira, Federal University of Bahia, Brazil; José Ricardo França, Federal University of Rio de Janeiro, Brazil

TU4.R6.3 17:30 **AUTOMATED BUILDING ENERGY CONSUMPTION ESTIMATION FROM AERIAL IMAGERY**
Artem Streltsov, Kyle Bradbury, Jordan Malof, Duke University, United States

TU4.R6.4 17:50 **ANALYSIS OF BUCHAREST'S LAND COVER EVOLUTION OVER A PERIOD OF 33 YEARS USING MULTI-SENSOR DATA**
Alexandru-Cosmin Grivei, University Politehnica of Bucharest, Romania; Mihai Datcu, German Aerospace Center (DLR), Germany

TU4.R6.5 18:10 **URBAN RADIATION SENSING AND MODELING**
Masoud Ghandehari, New York University, United States; Thorsten Emig, Massachusetts Institute of Technology, United States; Milad Aghamohamadnia, New York University, United States

Tuesday, July 24 08:30 - 10:10 Room 4C
Session TU1.R7 Oral-Invited

Optical Modeling in Remote Sensing I

Session Co-Chairs: John Kerekes, Rochester Institute of Technology; Jochem Verrelst, University of Valencia

TU1.R7.1 08:30 **PROGRESS IN EMULATION FOR RADIATIVE TRANSFER MODELING AND MAPPING**
Jochem Verrelst, University of Valencia, Spain; Juan Pablo Rivera-Caicedo, CONACYT-UAN, Mexico; José Moreno, Image Processing Laboratory, Spain

TU1.R7.2 08:50 **DART: A TOOL FOR STUDYING EARTH SURFACES - TIME SERIES OF URBAN RADIATIVE BUDGET FROM EO SATELLITES -**
Jean-Philippe Gastellu-Etchegorry, Lucas Landier, University of Toulouse, France; Ahmad Albitar, CNRS, France; Nicolas Lauret, University of Toulouse, France; Tiangang Yin, NASA, United States; Jianbo Qi, Jordan Guilleux, Eric Chavanon, University of Toulouse, France; Cristian Feigenwinter, Basel University, Switzerland; Zina Mitraka, Nektarios Chrysoulakis, Foundation for Research and Technology, Greece

TU1.R7.3 09:10 **RECENT PROGESSES ON OPTICAL REMOTE SENSING MODELLING OVER COMPLEX LAND SURFACE**
Qinhuo Liu, Jing Li, Yelu Zeng, Wentao Yu, Jing Zhao, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China

TU1.R7.4 09:30 **STATISTICAL LEARNING FOR END-TO-END SIMULATIONS**
Jorge Vicent, Jochem Verrelst, University of Valencia, Spain; Juan Pablo Rivera-Caicedo, CONACYT-UAN, Mexico; Neus Sabater, Jordi Muñoz-Marí, Gustau Camps-Valls, José Moreno, University of Valencia, Spain

Tuesday, July 24 11:10 - 12:50 Room 4C
Session TU2.R7 Oral-Invited

Optical Modeling in Remote Sensing II

Session Co-Chairs: Jochem Verrelst, University of Valencia; John Kerekes, Rochester Institute of Technology

TU2.R7.1 11:10 **MODTRAN®6 MULTIPLE LINE-OF-SIGHT (MLOS) OPTION**
Alexander Berk, Spectral Sciences, Inc., United States; Christopher Rice, Air Force Institute of Technology, United States

TU2.R7.2 11:30 **FORWARD MODELING OF CLOUD SHADOWS AND THE IMPACT OF CLOUD SHADOWS ON REMOTE SENSING DATA PRODUCTS**
Robert Sundberg, Spectral Sciences, Inc., United States

TU2.R7.3 11:50 **A SPECTRAL INVARIANT APPROACH TO MODELLING RADIATIVE TRANSFER OF SUN-INDUCED CHLOROPHYLL FLUORESCENCE**
Peiqi Yang, Christiaan van der Tol, University of Twente, Netherlands

TU2.R7.4 12:10 **A METHOD TO ENHANCE THE GEOMETRIC-OPTICAL KERNEL FOR FURTHER IMPROVING HOTSPOT EFFECT IN MODIS BRDF MODEL**
Ziti Jiao, Yadong Dong, Beijing Normal University, China

TU2.R7.5 12:30 **METHANE DETECTION IN THE LONGWAVE INFRARED**
John Kerekes, Cody Webber, Rolando Raqueno, Rochester Institute of Technology, United States

Tuesday, July 24 14:10 - 15:50 Room 4C
Session TU3.R7 Oral-Invited

Data Fusion I

Session Co-Chairs: Ronny Hänsch, Technische Universität Berlin; Naoto Yokoya, RIKEN

TU3.R7.1 14:10 **MULTIPLE SOURCES DATA FUSION VIA DEEP FOREST**
Junshi Xia, The University of Tokyo, Japan; Zuheng Ming, University of La Rochelle, France; Akira Iwasaki, The University of Tokyo, Japan

TU3.R7.2 14:30 **A CONDITIONAL GENERATIVE ADVERSARIAL NETWORK TO FUSE SAR AND MULTISPECTRAL OPTICAL DATA FOR CLOUD REMOVAL FROM SENTINEL-2 IMAGES**
Claas Grohnfeldt, Michael Schmitt, Technical University of Munich (TUM), Germany; Xiao Xiang Zhu, German Aerospace Center (DLR), Germany

TU3.R7.3 14:50 **TIMELY AND SEMI-AUTOMATIC DETECTION OF FOREST LOGGING EVENTS IN BOREAL FOREST USING ALL AVAILABLE LANDSAT DATA**
Matthieu Molinier, Heikki Astola, Tomi Räty, VTT Technical Research Centre of Finland Ltd, Finland; Curtis Woodcock, Boston University, United States

TU3.R7.4 15:10 **DECISION FUSION OF SPOT6 AND MULTITEMPORAL SENTINEL2 IMAGES FOR URBAN AREA DETECTION**
Cyril Wendl, EPFL, Switzerland; Arnaud Le Bris, IGN France / LaSTIG, France; Nesrine Chehata, EA G&E Bordeaux INP-Université Bordeaux Montaigne, France; Anne Puissant, CNRS UMR 7362 LIVE-Universit\'e de Strasbourg, France; Tristan Postadjian, IGN France / LaSTIG, France

TU3.R7.5 15:30 **HARMONIZATION AND FUSION OF GLOBAL SCALE DATA**
Nathan Longbotham, Caitlin Kontgis, Conor Maguire, Descartes Labs, United States

Tuesday, July 24 16:50 - 18:30 Room 4C
Session TU4.R7 Oral-Invited

Data Fusion II

Session Co-Chairs: Ronny Hänsch, Technische Universität Berlin; Naoto Yokoya, RIKEN

TU4.R7.1 16:50 **LIDAR-DRIVEN SPATIAL REGULARIZATION FOR HYPERSPECTRAL UNMIXING**
Tatsumi Uezato, Mathieu Fauvel, Nicolas Dobigeon, University of Toulouse, France

TU4.R7.2 17:10 **BANANA DISEASE DETECTION BY FUSION OF CLOSE RANGE HYPERSPECTRAL IMAGE AND HIGH-RESOLUTION RGB IMAGE**
Wenzhi Liao, Ghent University, Belgium; Daniel Ochoa, Escuela Superior Polit\'ecnica del Litoral, ESPOL, Ecuador; Yongqiang Zhao, Northwestern Polytechnical University, China; Gladys Maria Villegas Rugel, Wilfried Philips, Ghent University, Belgium

TU4.R7.3 17:30 **A VISUAL QUALITY ASSESSMENT PROTOCOL FOR PANSHARPENED REMOTE SENSING IMAGES**
Christine Pohl, University of Osnabrueck, Germany; Kevin Fries, ITS Service Group, Germany

TU4.R7.4 17:50 **IMAGE TRANSLATION BETWEEN SAR AND OPTICAL IMAGERY WITH GENERATIVE ADVERSARIAL NETS**
Kenji Enomoto, Nagoya University, Japan; Ken Sakurada, Weiming Wang, National Institute of Advanced Industrial Science and Technology, Japan; Nobuo Kawaguchi, Nagoya University, Japan; Masashi Matsuoka, Tokyo Institute of Technology, Japan; Ryosuke Nakamura, National Institute of Advanced Industrial Science and Technology, Japan

TU4.R7.5 18:10 **A STUDY ON FULL SCALE INJECTION COEFFICIENTS FOR PANSHARPENING**
Gemine Vivone, Rocco Restaino, University of Salerno, Italy; Jocelyn Chanussot, Grenoble Institute of Technology, France

Tuesday, July 24 **08:30 - 10:10** **Room 4F**
Session TU1.R8 **Oral**

Big Machine Learning III

Session Chair: Devis Tuia, Wageningen

TU1.R8.1 08:30 **EARTH SCIENCE DEEP LEARNING: APPLICATIONS AND LESSONS LEARNED**
Manil Maskey, Rahul Ramachandran, NASA Marshall Space Flight Center, United States; J.J. Miller, University of Alabama in Huntsville, United States; Jia Zhang, Carnegie Mellon University, United States; Iksha Gurung, University of Alabama in Huntsville, United States

TU1.R8.2 08:50 **EDDYNET: A DEEP NEURAL NETWORK FOR PIXEL-WISE CLASSIFICATION OF OCEANIC EDDIES**
Redouane Lguensat, Université Grenoble Alpes, France; Miao Sun, Key Laboratory of Digital Ocean, China; Ronan Fablet, IMT Atlantique, France; Evan Mason, Mediterranean Institute for Advanced Studies, Spain; Pierre Tandeo, IMT Atlantique, France; Ge Chen, Ocean University of China, China

TU1.R8.3 09:10 **PREDICTING LANDSCAPES AS SEEN FROM SPACE FROM ENVIRONMENTAL CONDITIONS**
Christian Requena-Mesa, Computer Vision Group, Computer Science, FSU Jena, Germany, Germany; Markus Reichstein, Miguel Mahecha, Basil Kraft, Department of Biogeochemical Integration, Max-Planck-Institute for Biogeochemistry, Germany; Joachim Denzler, Computer Vision Group, Computer Science, FSU Jena, Germany, Germany

TU1.R8.4 09:30 **CLOUD-GAN: CLOUD REMOVAL FOR SENTINEL-2 IMAGERY USING A CYCLIC CONSISTENT GENERATIVE ADVERSARIAL NETWORKS**
Praveer Singh, Nikos Komodakis, Ecole des Ponts ParisTech, France

Tuesday, July 24 **11:10 - 12:50** **Room 4F**
Session TU2.R8 **Oral**

Big Machine Learning IV

Session Co-Chairs: Valero Laparra, Universitat de València; Mihai Datcu, German Aerospace Center (DLR)

TU2.R8.1 11:10 **AUTOMATED GEOPHYSICAL CLASSIFICATION OF SENTINEL-1 WAVE MODE SAR IMAGES THROUGH DEEP-LEARNING**
Chen Wang, Alexis Mouche, Laboratoire d'Oceanographie Physique et Spatiale, Ifremer, France; Pierre Tandeo, UMR LabSTICC, Institut Mines-Telecom Atlantique, France; Justin Stopa, Bertrand Chapron, Laboratoire d'Oceanographie Physique et Spatiale, Ifremer, France; Ralph Foster, Applied Physics Laboratory, United States; Douglas Vandemark, Ocean Processes Analysis Laboratory, University of New Hampshire, United States

TU2.R8.2 11:30 **CSRS-SIAT: A BENCHMARK REMOTE SENSING DATASET TO SEMANTIC-ENABLED AND CROSS-SCALES SCENE RECOGNITION**
Yuan Shen, Shenzhen Institute of Advanced Technology, CAS; Shenzhen College of Advanced Technology, University of Chinese Academy of Sciences, China; Xiran Zhou, Arizona State University, United States; Jun Liu, Jinsong Chen, Shenzhen Institute of Advanced Technology, CAS, China

TU2.R8.3 11:50 **A TWO-STREAM UNIFIED INTERPRETATION NETWORK FOR HETEROGENEOUS REMOTE SENSING IMAGES CLASSIFICATION.**
Yan Wang, Chu He, Dehui Xiong, Mingxia Tu, Electronic Information School, Wuhan University, China

TU2.R8.4 12:10 **FLOODED AREA DETECTION FROM UAV IMAGES BASED ON DENSELY CONNECTED RECURRENT NEURAL NETWORKS**
Maryam Rahnemoonfar, Texas A&M University-Corpus Christi, United States; Robin Murphy, Texas A&M University, United States; Marina Vicens Miquel, Dugan Dobbs, Ashton Adams, Texas A&M University-Corpus Christi, United States

TU2.R8.5 12:30 **SCALING SUPPORT VECTOR MACHINES TOWARDS EXASCALE COMPUTING FOR CLASSIFICATION OF LARGE-SCALE HIGH-RESOLUTION REMOTE SENSING IMAGES**
Ernir Erlingsson, University of Iceland, Germany; Gabriele Cavallaro, Morris Riedel, Jülich Supercomputing Centre, Germany; Helmut Neukirchen, University of Iceland, Iceland

Tuesday, July 24 **14:10 - 15:50** **Room 4F**
Session TU3.R8 **Oral**

Global Essential Variables III

TU3.R8.1 14:10 **MAPPING SURFACE ALBEDO FROM THE COMPLETE LANDSAT ARCHIVE SINCE THE 1980S AND ITS CRYOSPHERIC APPLICATION**
Tao He, Wuhan University, China; Shunlin Liang, University of Maryland, College Park, United States

TU3.R8.2 14:30 **SURFACE ALBEDO MEASUREMENT COMPARISONS OVER SLOPING TERRAIN WITH TWO DIFFERENT RADIOMETER PLACEMENTS**
Wu Shengbiao, Jianguang Wen, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China

TU3.R8.3 14:50 **A SENSOR INVARIANT ATMOSPHERIC CORRECTION METHOD FOR SATELLITE IMAGES**
Feng Yin, Jose Gómez-Dans, Philip Lewis, University College London, United Kingdom

TU3.R8.4 15:10 **UNCERTAINTY FOR BURNT AREA PRODUCTS**
James Brennan, Jose Gómez-Dans, Philip Lewis, Maxim Chernetskiy, University College London, United Kingdom; Angelika Heil, Max Planck Institute for Chemistry, Germany

TU3.R8.5 15:30 **UNCERTAINTY CHARACTERISATION & VALIDATION WITHIN ESA FIRE-CCI**
James Brennan, Philip Lewis, Jose Gómez-Dans, Maxim Chernetskiy, University College London, United Kingdom; Emilio Chuvieco, Joshua Lizundia, University of Alcala, Spain; Manuel Campagnolo, Jose Pereira, Duarte Oom, University of Lisbon, Portugal

Tuesday, July 24 **16:50 - 18:30** **Room 4F**
Session TU4.R8 **Oral**

Global Essential Variables IV

TU4.R8.1 16:50 **SOIL MOISTURE ESTIMATION BY LINEAR REGRESSION FROM SMAP POLARIMETRIC RADAR DATA WITH AQUARIUS DERIVED COEFFICIENTS**
Mariko S Burgin, Lukas Mandrake, Gary B Doran, Brian D Bue, Jakob J van Zyl, NASA Jet Propulsion Laboratory, United States

TU4.R8.2 17:10 **TOWARDS A MERGED TOTAL WATER VAPOUR RETRIEVAL FROM AMSU-B AND AMSR-E DATA IN THE ARCTIC REGION**
Arantxa Triana Gómez, Georg Heygster, Christian Melsheimer, Gunnar Spreen, University of Bremen, Germany

TU4.R8.3 17:30 **THE SENSAGRI SENTINEL-2 LAI GREEN AND BROWN PRODUCT: FROM ALGORITHM DEVELOPMENT TOWARDS OPERATIONAL MAPPING**
Eatidal Amin Darei, Image Processing Laboratory, Spain; Jochem Verrelst, University of Valencia, Spain; Juan Pablo Rivera-Caicedo, CONACYT-UAN, Mexico; Nieves Pasqualotto, Jesús Delegido, Antonio Ruiz-Verdú, José Moreno, Image Processing Laboratory, Spain

TU4.R8.4 17:50 **GENERATION OF GLOBAL VEGETATION PRODUCTS FROM EUMETSAT AVHRR/METOP SATELLITES**
Francisco Javier García-Haro, Manuel Campos-Taberner, Beatriz Martínez, Sergio Sánchez-Ruiz, María Amparo Gilabert, Gustau Camps-Valls, Jordi Muñoz-Marí, Valero Laparra, Universitat de València, Spain; Fernando Camacho, Jorge Sánchez-Zapero, Beatriz Fuster, Earth Observation Laboratory (EOLAB), Spain

TU4.R8.5 18:10 **PATTERNS COMPARISON BETWEEN GOME-2 SUN-INDUCED FLUORESCENCE AND MSG GROSS PRIMARY PRODUCTION**
Beatriz Martínez, Sergio Sánchez-Ruiz, Manuel Campos-Taberner, Francisco Javier García-Haro, María Amparo Gilabert, University of Valencia, Spain

Tuesday, July 24 | 08:30 - 10:10 | Room 4D
Session TU1.R9 | Oral-Invited

Space Lidar: Missions, Technologies and Observations I

Session Co-Chairs: Upendra Singh, NASA Langley Research Center; Georgios Tzeremes, European Space Agency

TU1.R9.1 08:30 **ESA SPACE WIND LIDAR MISSION: AEOLUS READY FOR LAUNCH**
Anders Elfving, Denny Wernham, Anne Grete Straume, Thomas Kanitz, European Space Agency/ESTEC, Netherlands; Olivier Le Crenier, Jean-Claude Barthes, Airbus Defence and Space SAS, France; Phil McGoldrick, Airbus Defence and Space Ltd, United Kingdom

TU1.R9.2 08:50 **FLIGHT LASERS TRANSMITTER DEVELOPMENT FOR NASA ICE TOPOGRAPHY ICESAT-2 SPACE MISSION**
Nicholas Sawruk, Patrick Burns, Ryan Edwards, Viatcheslav Litvinovitch, Floyd Hovis, Fibertek, Inc., United States

TU1.R9.3 09:10 **THE ESA EARTHCARE MISSION: APPROACHING LAUNCH**
Alain Lefebvre, Arnaud Hélière, Kotska Wallace, Joao Pereira do Carmo, European Space Agency, Netherlands; Hirotaka Nakatsuka, Eiichi Tomita, Japan Aerospace Exploration Agency, Japan

TU1.R9.4 09:30 **ANTIMONIDE BASED INFRARED DETECTORS FOR REMOTE SENSING**
Sanjay Krishna, The Ohio State University, United States

TU1.R9.5 09:50 **CSEM SPACE LIDARS FOR IMAGING AND RANGEFINDING**
Alexandre Pollini, Christophe Pache, Jacques Haesler, Centre Suisse d'Electronique et de Microtechnique, Switzerland

Tuesday, July 24 | 11:10 - 12:50 | Room 4D
Session TU2.R9 | Oral-Invited

Space Lidar: Missions, Technologies and Observations II

Session Co-Chairs: Georgios Tzeremes, European Space Agency; Upendra Singh, NASA Langley Research Center

TU2.R9.1 11:10 **FIBER-BASED LASER TRANSMITTER TECHNOLOGY MATURATION FOR SPECTROSCOPIC MEASUREMENTS FROM SPACE**
Mark Stephen, Anthony Yu, Jeffrey Chen, Kenji Numata, Stewart Wu, Brayler Gonzalez, Lawrence Han, Molly Fahey, Michael Plants, NASA Goddard Space Flight Center, United States; Michael Rodriguez, Graham Allan, William Hasselbrack, Sigma, United States; James Abshire, NASA Goddard Space Flight Center, United States; Jeffrey Nicholson, Anand Hariharan, OFS, United States; William Mamakos, Brian Bean, Designinterface, United States

TU2.R9.2 11:30 **WATER VAPOR COLUMN MEASUREMENTS WITH INFRARED ACTIVE OPTICAL IPDA LIDAR**
Upendra Singh, NASA Langley Research Center, United States; Syed Ismail, AS&M Inc, United States; Tamer Refaat, Mulugeta Petros, NASA Langley Research Center, United States

TU2.R9.3 11:50 **CURRENT STATUS OF THE ISS-VEGETATION LIDAR MISSION-MOLI**
Daisuke Sakaizawa, Rei Mitsuhashi, Murooka Junpei, Tadashi Imai, Toshiyoshi Kimura, Japan Aerospace Exploration Agency, Japan; Kazuhiro Asai, Tohoku Institute of Technology, Japan

TU2.R9.4 12:10 **MCT AVALANCHE PHOTODIODE DETECTOR FOR TWO-MICRON ACTIVE REMOTE SENSING APPLICATIONS**
Tamer Refaat, Upendra Singh, Mulugeta Petros, Ruben Remus, NASA Langley Research Center, United States

TU2.R9.5 12:30 **ESA AIRBORNE 3+2+2 HSRL FOR ALADIN/ATLID CAL/VAL**
Ilya Serikov, Björn Brügmann, Holger Linné, Ludwig Worbes, Max Planck Institute for Meteorology, Germany; Doina Nicolae, Livio Belegante, National Institute of Research and Development for Optoelectronics, Romania; Vassilis Amiridis, National Observatory of Athens, Greece

Tuesday, July 24 | 14:10 - 15:50 | Room 4D
Session TU3.R9 | Oral-Invited

New Spaceborne SAR Instruments and Missions

Session Co-Chairs: José Marquez Martinez, Airbus UK; Marwan Younis, German Aerospace Center (DLR)

TU3.R9.1 14:10 **THE CAPELLA SYNTHETIC APERTURE RADAR CONSTELLATION**
Gordon Farquharson, William Woods, Craig Stringham, Navneet Sankarambadi, Lucas Riggi, Capella Space, United States

TU3.R9.2 14:30 **METASENSING X BAND SAR PAYLOAD FOR SMALL SATELLITE AND HIGH ALTITUDE STRATOSPHERIC PLATFORMS: DESIGN AND VALIDATION MEASUREMENTS**
Adriano Meta, Filippo Speziali, Christian Trampuz, MetaSensing, Netherlands

TU3.R9.3 14:50 **SAR CONSTELLATION FOR LOW COST AND RAPID EARTH MONITORING**
Sam Doody, Airbus Defence and Space, United Kingdom; Martin Cohen, Emanuele Monchieri, Airbus Defence and Space Ltd, United Kingdom; Jose Marquez-Martinez, Airbus Defence and Space, United Kingdom

Tuesday, July 24 | 16:50 - 18:30 | Room 4D
Session TU4.R9 | Oral

Advances in Model-data Integration and Assimilation

Session Co-Chairs: Jose Gomez-Dans, UCL; Juan M. Lopez-Sanchez, University of Alicante

TU4.R9.1 16:50 **COMBINATION OF CROP GROWTH MODEL AND RADIATION TRANSFER MODEL WITH REMOTE SENSING DATA ASSIMILATION FOR FAPAR ESTIMATION**
Gaoxiang Zhou, China University of Geosciences Beijing, China; Ming Liu, University of Waterloo, Canada; Xiangnan Liu, China University of Geosciences Beijing, China; Jonathan Li, University of Waterloo, Canada

TU4.R9.2 17:10 **A MODEL DRIVEN APPROACH FOR SNOW WETNESS RETRIEVAL WITH SENTINEL-1**
Carlo Marin, Mattia Callegari, EURAC Research, Italy; Daniel Günther, University of Innsbruck, Austria; Giacomo Bertoldi, EURAC Research, Italy; Thomas Marke, Ulrich Strasser, University of Innsbruck, Austria; Lorenzo Bruzzone, University of Trento, Italy; Marc Zebisch, Claudia Notarnicola, EURAC Research, Italy

TU4.R9.3 17:30 **ASSIMILATION OF INSAR PROPAGATION DELAY MAPS IN HIGH-RESOLUTION NUMERICAL WEATHER MODEL: IMAGING OF WATER VAPOR STRUCTURES IN ATMOSPHERE**
Pedro Mateus, University of Lisbon, Portugal; Giovanni Nico, Consiglio Nazionale delle Ricerche (CNR), Italy; João Catalao, University of Lisbon, Portugal

TU4.R9.4 17:50 **INTEGRATION AND ASSIMILATION OF METEOROLOGICAL (ECMWF) AEROSOL ESTIMATES INTO SEN2COR ATMOSPHERIC CORRECTION**
Jérôme Louis, Telespazio France, France; Bringfried Pflug, Magdalena Main-Knorn, German Aerospace Center (DLR), Germany; Vincent Debaecker, Telespazio France, France; Uwe Mueller-Wilm, Telespazio Vega Deutschland, Germany; Ferran Gascon, European Space Agency, Italy

TU4.R9.5 18:10 **APPROXIMATING EXPERIMENTAL VEGETATION SPECTROSCOPY DATA THROUGH EMULATION**
Jochem Verrelst, University of Valencia, Spain; Juan Pablo Rivera-Caicedo, CONACYT-UAN, Mexico; Jorge Vicent, José Moreno, Image Processing Laboratory, Spain

Tuesday, July 24 | **08:30 - 10:10** | **Room 2G-2H**
Session TU1.R10 | **Oral**

Change Detection Techniques in Optical Images

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

TU1.R10.1 08:30 **UNSUPERVISED MULTIPLE-CHANGE DETECTION IN VHR OPTICAL IMAGES USING DEEP FEATURES**
Sudipan Saha, University of Trento and Fondazione Bruno Kessler, Italy; Francesca Bovolo, Fondazione Bruno Kessler, Italy; Lorenzo Bruzzone, University of Trento, Italy

TU1.R10.2 08:50 **STACKED AUTOENCODERS FOR MULTICLASS CHANGE DETECTION IN HYPERSPECTRAL IMAGES**
Javier López-Fandiño, Alberto S. Garea, Dora B. Heras, Francisco Argüello, Universidade de Santiago de Compostela, Santiago de Compostela, Spain

TU1.R10.3 09:10 **UNSUPERVISED MULTI-CLASS CHANGE DETECTION IN BITEMPORAL MULTISPECTRAL IMAGES USING BAND EXPANSION**
Sicong Liu, Qian Du, Tongji University, China; Lorenzo Bruzzone, University of Trento, Italy; Alim Samat, Xinjiang Institute of Ecology and Geography, Chinese Academy of Sciences, China; Xiaohua Tong, Tongji University, China

TU1.R10.4 09:30 **CHANGE DETECTION IN OPTICAL REMOTE SENSING IMAGES WITH A FULLY OBJECT-LEVEL APPROACH**
Long Ma, Zhengzhou University, China; Zhihong Mai, He Chen, Wenchao Liu, Fan Feng, Beijing Institute of Technology, China; Guichi Liu, Zhengzhou University, China; Nouman Qadeer Soomro, Mehran University of Engineering and Technology, Pakistan

TU1.R10.5 09:50 **LEARNING DEEP RELATIONSHIP FOR IMAGE CHANGE DETECTION**
Chunlei Huo, Yushuang Zhang, Institute of Automation, Chinese Academy of Sciences, China; Jiayuan Yu, Beijing University of Civil Engineering and Architecture, China; Yunpeng Jing, Beijing Information Science and Technology University, China; Chunhong Pan, Institute of Automation, Chinese Academy of Sciences, China

Tuesday, July 24 | **11:10 - 12:50** | **Room 2G-2H**
Session TU2.R10 | **Oral**

Change Detection Techniques in SAR and LiDAR Data

Session Co-Chairs: Lorenzo Bruzzone, University of Trento; Emmanuel Trouvé, Université Savoie Mont Blanc

TU2.R10.1 11:10 **AN UNSUPERVISED CHANGE DETECTION METHOD FOR LIDAR DATA IN FOREST AREAS BASED ON CHANGE VECTOR ANALYSIS IN THE POLAR DOMAIN**
Daniele Marinelli, University of Trento, Italy; Nicholas C. Coops, Douglas K. Bolton, University of British Columbia, Canada; Lorenzo Bruzzone, University of Trento, Italy

TU2.R10.2 11:30 **FLOODPLAIN DEM EXTRACTION BASED ON SWOT HR INSAR DATA**
Emmanuelle Sarrazin, Damien Desroches, Roger Fjørtoft, CNES, France; David Youssefi, CS-SI, France; Alessio Domeneghetti, Università di Bologna, Italy; Brent Williams, Jet Propulsion Laboratory, United States

TU2.R10.3 11:50 **CORRELATION-BASED VARIATIONAL CHANGE DETECTION FOR ELEVATION MODELS**
Gizem Aktaş, Middle East Technical University, Turkey; Fatih Nar, Konya Food and Agriculture University, Turkey; Fatoş Tunay Yarman Vural, Middle East Technical University, Turkey

TU2.R10.4 12:10 **LAND COVER CHANGE DETECTION FOR FULLY POLARIMETRIC SAR IMAGES**
Heena Kaldane, Dr. Varsha Turkar, Vidyalakar Institute of Technology, University of Mumbai, India

TU2.R10.5 12:30 **MULTI-POLARIZATION METHODS TO DETECT DAMAGES RELATED TO EARTHQUAKES**
Emanuele Ferrentino, Università di Napoli Parthenope, Italy; Armando Marino, The Open University, United Kingdom; Ferdinando Nunziata, Maurizio Migliaccio, Università di Napoli Parthenope, Italy

Tuesday, July 24 | **14:10 - 15:50** | **Room 2G-2H**
Session TU3.R10 | **Oral**

Analysis of Image Time Series I

Session Co-Chairs: Fabio Pacifici, DigitalGlobe; Mathieu Fauvel, National Polytechnic Institute of Toulouse

TU3.R10.1 14:10 **A MULTIVARIATE CHANGE VECTOR ANALYSIS SYSTEM FOR UNSUPERVISED DETECTION OF CLEAR-CUTS IN SENTINEL-2 TIME SERIES OF THE INDONESIAN FOREST**
Massimo Zanetti, Lorenzo Bruzzone, University of Trento, Italy; Diego Fernández-Prieto, European Space Agency/ESRIN, Italy

TU3.R10.2 14:30 **AUTOMATIC DERIVATION OF CROPLAND PHENOLOGICAL PARAMETERS BY ADAPTIVE NON-PARAMETRIC REGRESSION OF SENTINEL-2 NDVI TIME SERIES**
Yady Tatiana Solano-Correa, Fondazione Bruno Kessler - University of Trento, Italy; Francesca Bovolo, Fondazione Bruno Kessler, Italy; Lorenzo Bruzzone, University of Trento, Italy; Diego Fernández-Prieto, European Space Agency, Italy

TU3.R10.3 14:50 **CROP-ROTATION STRUCTURED CLASSIFICATION USING MULTI-SOURCE SENTINEL IMAGES AND LPIS FOR CROP TYPE MAPPING**
Simon Bailly, Sébastien Giordano, Loïc Landrieu, IGN, France; Nesrine Chehata, EA G&E Bordeaux INP, France

Tuesday, July 24 | **16:50 - 18:30** | **Room 2G-2H**
Session TU4.R10 | **Oral**

Analysis of Image Time Series II

Session Co-Chairs: Florence Tupin, Télécom ParisTech; Francesca Bovolo, Fondazione Bruno Kessler

TU4.R10.1 16:50 **ESTIMATING THE NDVI FROM SAR BY CONVOLUTIONAL NEURAL NETWORKS**
Antonio Mazza, Massimiliano Gargiulo, University Federico II, Italy; Raffaele Gaetano, CIRAD, France; Giuseppe Scarpa, University Federico II, Italy

TU4.R10.2 17:10 **AN INTERVAL-BASED APPROACH FOR REASONING ABOUT LAND USE CHANGE TRAJECTORIES**
Adeline Maciel, Lubia Vinhas, Gilberto Camara, Michelle Picoli, Rodrigo Begotti, National Institute for Space Research - INPE, Brazil

TU4.R10.3 17:30 **SENTINEL-1 AND SENTINEL-2 DATA FUSION FOR URBAN CHANGE DETECTION**
Benedetti Alessia, Matteo Picchiani, Fabio Del Frate, Tor Vergata University, Italy

TU4.R10.4 17:50 **MONITORING OF DYNAMIC DETAILED CHANGES IN URBAN AND BUILT ENVIRONMENT BY USING SELF-ADAPTIVE WEIGHT CHANGE VECTOR ANALYSIS**
Qiang Chen, Beijing University of Civil Engineering and Architecture, China

TU4.R10.5 18:10 **LAND COVER CHANGE DETECTION BASED ON SPATIAL-TEMPORAL SUB-PIXEL EVOLUTION MAPPING: A CASE STUDY FOR URBAN EXPANSION**
Da He, Yanfei Zhong, Liangpei Zhang, Wuhan University, China

Tuesday, July 24 **08:30 - 10:10** **Room 2E**
Session TU1.R11 **Oral**

Small Satellite Technology

Session Co-Chairs: Josaphat Tetuko Sri Sumantyo, Chiba University; Adriano Camps, Universitat Politècnica de Catalunya

TU1.R11.1 08:30 **MULTIBAND CIRCULARLY POLARIZED SYNTHETIC APERTURE RADAR (CP-SAR) ONBOARD MICROSATELLITE CONSTELLATION**
Josaphat Tetuko Sri Sumantyo, Nobuyoshi Imura, Katia Nagamine Urata, Chiba University, Japan; Robertus Heru Triharjanto, National Institute for Aeronautics and Space, Indonesia; Steven Gao, University of Kent, United Kingdom

TU1.R11.2 08:50 **THE ON-ORBIT CALIBRATION METHOD BASED ON TERRAIN MATCHING WITH PYRAMID-SEARCH FOR THE SPACEBORNE LASER ALTIMETER**
Xie Jun Feng, Mo Fan, Satellite Surveying and Mapping Application Center, NASG, China; Feng Wanwan, Southwest Forestry University, China; Liu Ren, Liaoning Technology University, China

TU1.R11.3 09:10 **INSTRUMENT NEEDS FOR THE COPERNICUS SPACE INFRASTRUCTURE IN THE TIMEFRAME 2020-2030**
Estefany Lancheros, Adriano Camps, Hyuk Park, Universitat Politècnica de Catalunya - BarcelonaTech, Spain; Pedro Rodriguez, Thales Alenia Space Spain, Spain; Stefania Tonetti, Deimos Space S.L.U, Spain; Hripsime Matevosvan, Ignasi Lluch, Skolkovo Institute of Science and Technology, Russian Federation; Pierre Sicard, Antoine Mangin, ACRI-ST, France

TU1.R11.4 09:30 **MINIATURE SPECTRAL IMAGER IN-ORBIT DEMONSTRATION RESULTS FROM AALTO-1 NANOSATELLITE MISSION**
Jaan Praks, Petri Niemelä, Aalto University, Finland; Antti Näsilä, VTT Technical Research Centre of Finland Ltd, Finland; Antti Kestilä, Nemanja Jovanovic, Bagus Riwanto, Aalto University, Finland; Tuomas Tikka, Reaktor Space Lab, Finland; Hannu Leppinen, SSF, Finland; Rami Vainio, University of Turku, Finland; Pekka Janhunen, Finnish Meteorological Institute, Finland

TU1.R11.5 09:50 **DESIGN, TESTING AND RELIABILITY ANALYSIS OF COMMAND AND DATA HANDLING (C&DH) SUBSYSTEM FOR THE TROPOSPHERIC WATER AND CLOUD ICE (TWICE) INSTRUMENT FOR A 6U-CLASS SMALL SATELLITE**
Mehmet Ogut, Steven C. Reising, Colorado State University, United States; Xavier Bosch-Lluis, California Institute of Technology, United States; Yuriy V. Goncharenko, Braxton Kilmer, Colorado State University, United States; Pekka Kangaslahti, Erich Schlecht, Richard Cofield, Anders Skalare, Sharmila Padmanabhan, Jonathan Jiang, Shannon Brown, California Institute of Technology, United States; William Deal, Alex Zamora, Northrop Grumman Corporation, United States

Tuesday, July 24 **11:10 - 12:50** **Room 2E**
Session TU2.R11 **Oral**

Microwave Radiometer Missions and Methods

Session Chair: Sharmila Padmanabhan, NASA Jet Propulsion Laboratory, California Institute of Technology

TU2.R11.1 11:10 **PRESENT AND FUTURE OF L-BAND RADIOMETRY**
Yann Kerr, CNES, France; Dara Entekhabi, Massachusetts Institute of Technology, United States; Rajat Bindlish, Tong Lee, Simon Yueh, NASA, United States; Gary Lagerloef, ESR, United States; Jean-Pierre Wigneron, INRA, France; Nemesio Rodríguez-Fernández, CESBIO, France; Jacqueline Boutin, LOCEAN, France; Nicolas Reul, IFREMER, France; Lars Kaleschle, Hambourg University, Germany

TU2.R11.2 11:30 **A MULTI-BAND PASSIVE RADIOMETER FOR SEA SALINITY, SOIL MOISTURE AND CRYOSPHERE STUDIES**
Giovanni De Amici, NASA, United States; Emmanuel Dinnat, chapman university, United States; David Le Vine, Jeffrey Piepmeier, NASA, United States

TU2.R11.3 11:50 **CRYORAD: A LOW FREQUENCY WIDEBAND RADIOMETER MISSION FOR THE STUDY OF THE CRYOSPHERE**
Giovanni Macelloni, Marco Brogioni, Marion Leduc-Leballeur, Francesco Montomoli, IFAC-CNR, Italy; Annett Bartsch, B.GEOS GmbH, Austria; Arnaud Mialon, CESBIO, France; Catherine Ritz, Université Grenoble Alpes, France; Josep Closa Soteras, Airbus Defence and Space, Spain; Detlef Stammer, University of Hamburgh, Germany; Ghislain Picard, Université Grenoble Alpes, France; Giacomo De Carolis, IREA-CNR, Italy; Jacqueline Boutin, UPMC, France; Joel Johnson, The Ohio State University, United States; Keith Nicholls, British Antarctic Survey, United Kingdom; Kenneth Jezek, The Ohio State University, United States; Kimmo Rautiainen, Finnish Meteorological Institute, Finland; Lars Kaleschke, University of Hamburgh, Germany; Laurent Bertino, NERSC, Norway; Leung Tsang, University of Michigan, United States; Michiel van den Broeke, Utrecht University, Netherlands; Niels Skou, Technical University of Denmark, Denmark; Steffen Tietsche, ECMWF, United Kingdom

TU2.R11.4 12:10 **RADIOMETER FOR THE TEMPORAL EXPERIMENT FOR STORMS AND TROPICAL SYSTEMS TECHNOLOGY DEMONSTRATION MISSION**
Sharmila Padmanabhan, Todd C. Gaier, Boon H. Lim, Robert Stachnik, Alan Tanner, Shannon Brown, Jet Propulsion Laboratory, United States; Steven C. Reising, Wesley Berg, Christian D. Kummerow, V. Chandrasekar, Colorado State University, United States

TU2.R11.5 12:30 **PERFORMANCE AND RESULTS FROM THE JUNO MICROWAVE RADIOMETER**
Shannon Brown, Sidharth Misra, Michael Janssen, Jet Propulsion Laboratory, United States

Tuesday, July 24 **14:10 - 15:50** **Room 2E**
Session TU3.R11 **Oral**

Land and Ocean Scatterometry

Session Co-Chairs: Friedhelm Rostan, Airbus; Alexander Fore, NASA Jet Propulsion Laboratory, California Institute of Technology

TU3.R11.1 14:10 **BROADBAND FULL POLARIMETRIC SCATTEROMETRY FOR MONITORING SOIL MOISTURE AND VEGETATION PROPERTIES OVER A TIBETAN MEADOW**
Jan Hofste, Rogier van der Velde, University of Twente, Netherlands; Xin Wang, Northwest Institute of Eco-Environment and Resources, Chinese Academy of Sciences, China; Donghai Zheng, Institute of Tibetan Plateau Research, Chinese Academy of Sciences, China; Jun Wen, Northwest Institute of Eco-Environment and Resources, Chinese Academy of Sciences, China; Christiaan van der Tol, Zhongbo Su, University of Twente, Netherlands

TU3.R11.2 14:30 **FULLY POLARIMETRIC AIRBORNE WIND VECTOR SCATTEROMETER TO SUPPORT SPACE-BORNE GNSS-R MEASUREMENTS**
Juha Kainulainen, Sampo Salo, Janne Lahtinen, Harp Technologies Oy, Finland; Guifre Molera, Jaakko Seppänen, Jaan Praks, Aalto University, Finland; Teemu Hakala, Yuwei Chen, Juha Hyyppä, National Land Survey, Finland; Martin Unwin, Philip Jales, Surrely Satellite Technology Ltd., United Kingdom; Gerhard Ressler, Tânia Casal, Josep Rosello, European Space Agency, Netherlands

TU3.R11.3 14:50 **SMAP TROPICAL CYCLONE SIZE AND INTENSITY VALIDATION**
Alexander Fore, Simon Yueh, Wenqing Tang, Bryan Stiles, Akiko Hayashi, Jet Propulsion Laboratory, United States

TU3.R11.4 15:10 **IN-FLIGHT CALIBRATION OF THE METOP-SG SCA WIND SCATTEROMETER**
Friedhelm Rostan, Dieter Ulrich, Eberhard Schied, Christoph Heer, Airbus Defence and Space GmbH, Germany; Allan Ostergaard, European Space Agency/ESTEC, Netherlands

TU3.R11.5 15:30 **DECONVOLUTION APPROACHES FOR RESOLUTION ENHANCEMENT WITH DPS SCATTEROMETER**
Liling Liu, China University of Mining and Technology, Beijing, China; Xiaolong Dong, The CAS Key Laboratory of Microwave Remote Sensing, National Space Science Center, Chinese Academy of Sciences, China; Wenming Lin, Nanjing University of Information Science and Technology, China

Tuesday, July 24 **16:50 - 18:30** **Room 2E**
Session TU4.R11 **Oral**

GNSS-R IV: Sensors and Applications

Session Co-Chairs: Andrew O'Brien, Ohio State University; Hugo Carreno-Luengo, Centre Tecnòlogic de Telecommunicacions de Catalunya (CTTC/CERCA)

TU4.R11.1 16:50 **PRELIMINARY END-TO-END RESULTS OF THE MIR INSTRUMENT: THE MICROWAVE INTERFEROMETRIC REFLECTOMETER**
Raul Onrubia, Daniel Pascual, Jorge Querol, Hyuk Park, Adriano Camps, Universitat Politècnica de Catalunya, Spain

TU4.R11.2 17:10 **GEOPHYSICAL RELATIONSHIP BETWEEN CYGNSS GNSS-R BISTATIC REFLECTIVITY AND SMAP MICROWAVE RADIOMETRY BRIGHTNESS TEMPERATURE OVER LAND SURFACES**
Hugo Carreno-Luengo, Guido Luzi, Michele Crosetto, Centre Tecnològic de Telecomunicacions de Catalunya, Sri Lanka

TU4.R11.3 17:30 **GNSS-R TIME-SERIES SOIL MOISTURE RETRIEVALS FROM VEGETATED SURFACES**
Mohammad Al-Khaldi, Joel Johnson, Andrew O'Brien, The Ohio State University, United States; Francesco Mattia, Anna Balenzano, Istituto sui Sistemi Intelligenti per l'Automazione, Italy

TU4.R11.4 17:50 **PERFORMANCES OF GNSS-R GLORI DATA OVER LANDE FOREST**
Mehrez Zribi, CNRS, France; Dominique Guyon, INRA, France; Erwan Motte, CNRS, France; Jean-Pierre Wigneron, INRA, France; Nicolas Baghdadi, IRSTEA, France; Nazzareno Pierdicca, University of Roma, Italy; Pascal Fanise, IRD, France

TU4.R11.5 18:10 **TOWARDS REAL-TIME GNSS REFLECTOMETRY USING KALMAN FILTERING**
Joakim Strandberg, Thomas Hobiger, Rüdiger Haas, Chalmers University of Technology, Sweden

Tuesday, July 24 | 08:30 - 10:10 | Room 2F
Session TU1.R12 | Oral-Invited

Big Earth Data for Global Scale Applications I

Session Co-Chairs: Michal Shimoni, SIC-RMA; Nathan Longbotham, Descartes Labs

TU1.R12.1 08:30 **PRINCIPLES AND APPLICATIONS OF THE GLOBAL HUMAN SETTLEMENT LAYER**
Martino Pesaresi, European Commission, Joint Research Centre (JRC), Italy

TU1.R12.2 08:50 **DATACUBE STANDARDS AND THEIR CONTRIBUTION TO ANALYSIS-READY DATA**
Peter Baumann, Jacobs University | rasdaman GmbH, Germany

TU1.R12.3 09:10 **AN AUTOMATIC DEPLOYMENT SUPPORT FOR PROCESSING REMOTE SENSING DATA IN THE CLOUD**
André Lage-Freitas, Raphael P. Ribeiro, Naelson D. C. Oliveira, Alejandro C. Frery, Universidade Federal de Alagoas, Brazil

TU1.R12.4 09:30 **ANALYSIS OF LOWLAND RICE ACROSS ASIA**
Caitlin Kontgis, Kornelijus Survila, Descartes Labs, United States

Tuesday, July 24 | 11:10 - 12:50 | Room 2F
Session TU2.R12 | Oral-Invited

Big Earth Data for Global Scale Applications II

Session Co-Chairs: Nathan Longbotham, Descartes Labs; Michal Shimoni, SIC-RMA

TU2.R12.1 11:10 **DISCOVERING TEMPORAL PATTERNS OF AIR QUALITY IN DIFFERENT PARTS OF EUROPE WITH DATA DRIVEN FEATURE EXTRACTION**
Andrea Marinoni, University of Pavia, Italy; Daniele De Vecchi, Ticinum Aerospace, Italy; Devis Tuia, Wageningen University & Research, Netherlands; Paolo Gamba, University of Pavia, Italy

TU2.R12.2 11:30 **SETTLEMENT DETECTION USING CONVOLUTIONAL NEURAL NETWORKS ON THE DIGITALGLOBE GEOSPATIAL BIG DATA PLATFORM**
Kostas Stamatiou, Lukas Kobr, Nikki Aldeborgh, Digital Globe, Inc, United States

TU2.R12.3 11:50 **WORLDPOP - FUSION OF EARTH AND BIG DATA FOR INTRAURBAN POPULATION MAPPING**
Jessica E Steele, Jeremiah Nieves, Andrew J Tatem, University of Southampton, United Kingdom; Yann Forget, University of Brussels, Belgium; Michal Shimoni, Royal Military Academy, Belgium; Catherine Linard, University of Brussels, University of Namur, Belgium

TU2.R12.4 12:10 **FUSION SCHEME FOR AUTOMATIC AND LARGE-SCALED BUILT-UP MAPPING**
Yann Forget, Université Libre de Bruxelles, Belgium; Michal Shimoni, Juanfran Lopez, Royal Military Academy, Belgium; Catherine Linard, Marius Gilbert, Université Libre de Bruxelles, Belgium

TU2.R12.5 12:30 **PREDICTING DENGUE INCIDENCE IN BRAZIL USING BROAD-SCALE SPECTRAL REMOTE SENSING IMAGERY**
Amanda Ziemann, Geoffrey Fairchild, Jessica Conrad, Carrie Manore, Nidhi Parikh, Sara Del Valle, Nicholas Generous, Los Alamos National Laboratory, United States

Tuesday, July 24 | 14:10 - 15:50 | Room 2F
Session TU3.R12 | Oral-Invited

Deep Learning Methods for Multispectral Image Analysis I

Session Co-Chairs: Matthieu Molinier, VTT Technical Research Centre of Finland Ltd; Mihai Datcu, German Aerospace Center (DLR)

TU3.R12.1 14:10 **EXPLORATORY VISUAL ANALYSIS OF MULTISPECTRAL EO IMAGES BASED ON DNN**
Iulia Neagoe, Daniela Faur, Corina Vaduva, University Politehnica of Bucharest UPB, Romania; Mihai Datcu, University Politehnica of Bucharest UPB, German Aerospace Centre DLR, Romania

TU3.R12.2 14:30 **END-TO-END LEARNING OF POLYGONS FOR REMOTE SENSING IMAGE CLASSIFICATION**
Nicolas Girard, Yuliya Tarabalka, UCA, Inria, TITANE team, France

TU3.R12.3 14:50 **THE INFLUENCE OF SAMPLING METHODS ON PIXEL-WISE HYPERSPECTRAL IMAGE CLASSIFICATION WITH 3D CONVOLUTIONAL NEURAL NETWORKS**
Julius Lange, Humboldt-Universität zu Berlin, Germany; Gabriele Cavallaro, Markus Götz, Forschungszentrum Jülich, Germany; Emir Erlingsson, University of Iceland, Germany; Morris Riedel, Forschungszentrum Jülich, Germany

TU3.R12.4 15:10 **FUSENET: END-TO-END MULTISPECTRAL VHR IMAGE FUSION AND CLASSIFICATION**
John Ray Bergado, Claudio Persello, Alfred Stein, University of Twente, Netherlands

TU3.R12.5 15:30 **MODELING URBANIZATION PATTERNS WITH GENERATIVE ADVERSARIAL NETWORKS**
Adrian Albert, Massachusetts Institute of Technology, United States; Emanuele Strano, German Aerospace Center (DLR), Germany; Jasleen Kaur, Philips Research USA, United States; Marta Gonzalez, University of California, Berkeley, United States

Tuesday, July 24 | 16:50 - 18:30 | Room 2F
Session TU4.R12 | Oral-Invited

Deep Learning Methods for Multispectral Image Analysis II

Session Co-Chairs: Matthieu Molinier, VTT; Mihai Datcu, DLR

TU4.R12.1 16:50 **IMPROVING MAPS FROM CNNS TRAINED WITH SPARSE, SCRIBBLED GROUND TRUTHS USING FULLY CONNECTED CRFS**
Luca Maggiolo, University of Genoa, Italy; Diego Marcos, Wageningen University, Netherlands; Gabriele Moser, University of Genoa, Italy; Devis Tuia, Wageningen University, Netherlands

TU4.R12.2 17:10 **CONVOLUTIONAL NEURAL NETWORKS FOR CLOUD SCREENING: TRANSFER LEARNING FROM LANDSAT-8 TO PROBA-V**
Gonzalo Mateo-García, Luis Gómez-Chova, Universidad de València, Spain

TU4.R12.3 17:30 **DEEPCLOUD - A FULLY CONVOLUTIONNAL NEURAL NETWORK FOR CLOUD AND SHADOW MASKING IN OPTICAL SATELLITE IMAGES**
Matthieu Molinier, Niko Reunanen, Arttu Lämsä, Heikki Astola, Tomi Räty, VTT Technical Research Centre of Finland Ltd, Finland

TU4.R12.4 17:50 **TRANSFER LEARNING WITH CONVOLUTIONAL NETWORKS FOR ATMOSPHERIC PARAMETER RETRIEVAL**
David Malmgren-Hansen, Danmarks Tekniske Universitet, Denmark; Valero Laparra, University of Valencia, Spain; Allan Aasbjerg Nielsen, Danmarks Tekniske Universitet, Denmark; Gustau Camps-Valls, University of Valencia, Spain

TU4.R12.5 18:10 **URBAN CHANGE DETECTION FOR MULTISPECTRAL EARTH OBSERVATION USING CONVOLUTIONAL NEURAL NETWORKS**
Rodrigo Caye Daudt, Bertrand Le Saux, Alexandre Boulch, ONERA, France; Yann Gousseau, Télécom ParisTech, France

Wednesday, July 25 08:30 - 10:10 Room 1D
Session WE1.R1 Oral

Manifold Learning

WE1.R1.1 08:30 **IMPROVING LINEAR CLASSIFICATION USING SEMI-SUPERVISED INVERTIBLE MANIFOLD ALIGNMENT**
Wolfgang Gross, Nayeli Espinosa, Merlin Becker, Simon Schreiner, Wolfgang Middelmann, Fraunhofer Institute of Optronics, System Technologies and Image Exploitation (IOSB), Germany

WE1.R1.2 08:50 **LEARNING A STABLE LOCAL MANIFOLD REPRESENTATION FOR HYPERSPECTRAL LINEAR DIMENSIONALITY REDUCTION**
Wenbo Yu, Miao Zhang, Yi Shen, Harbin Institute of Technology, China

WE1.R1.3 09:10 **GROUND-BASED INFRARED CLOUD CLASSIFICATION BASED ON MANIFOLD KERNEL DICTIONARY LEARNING AND SPARSE CODING**
Qixiang Luo, Zeming Zhou, Yong Meng, College of Meteorology and Oceanology, National University of Defense Technology, China

WE1.R1.4 09:30 **FULLY CONVOLUTIONAL NETWORK WITH POLARIMETRIC MANIFOLD FOR SAR IMAGERY CLASSIFICATION**
Mingxia Tu, Gong Han, Xinlong Liu, Chu He, Wuhan University, China

WE1.R1.5 09:50 **A MANIFOLD LEARNING APPROACH OF LAND COVER CLASSIFICATION FOR OPTICAL AND SAR FUSING DATA**
Xiangyu Tan, Yunnan Electric Power Research Institute, Yunnan Power Grid Co., Ltd., China; Shaobin Jiang, Zezhong Zheng, Pingchuan Zhong, University of Electronic Science and Technology of China, China; Mingcang Zhu, Land and Resources Department of Sichuan Province, China; Yong He, Sichuan Institute of Geo-Environment Monitoring, China; Zhenlu Yu, Na Wang, Ling Jiang, University of Electronic Science and Technology of China, China; Guoqing Zhou, Guangxi Key Laboratory for Spatial Information and Geomatics, China; Hongsheng Zhang, The Chinese University of Hong Kong, China; Jiang Li, Old Dominion University, United States

Wednesday, July 25 11:10 - 12:50 Room 1D
Session WE2.R1 Oral

Hyperspectral Image Classification I

Session Chair: Jocelyn Chanussot, Grenoble Institute of Technology

WE2.R1.1 11:10 **HYPERSPECTRAL IMAGE CLASSIFICATION BASED ON CAPSULE NETWORK**
Wei-Ye Wang, Heng-Chao Li, Lei Pan, Gang Yang, Southwest Jiaotong University, China; Qian Du, Mississippi State University, China

WE2.R1.2 11:30 **AN ADVERSARIAL APPROACH TO CROSS-SENSOR HYPERSPECTRAL DATA CLASSIFICATION**
Mesay Belete Bejiga, Farid Melgani, University of Trento, Italy

WE2.R1.3 11:50 **GLOBAL SPATIAL AND LOCAL SPECTRAL SIMILARITY-BASED GROUP SPARSE REPRESENTATION FOR HYPERSPECTRAL IMAGERY CLASSIFICATION**
Haoyang Yu, University of Chinese Academy of Sciences, China; Lianru Gao, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China; Wenzhi Liao, IMEC-TELIN-Ghent University, Belgium; Paolo Gamba, Dipartimento di Ingegneria Industriale e dell'Informazione, Università degli Studi di Pavia, Italy; Bing Zhang, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China

WE2.R1.4 12:10 **AN UNMIXING-BASED CONTENT RETRIEVAL METHOD FOR HYPERSPECTRAL IMAGERY REPOSITORY ON CLOUD COMPUTING PLATFORM**
Peng Zheng, Zebin Wu, Nanjing University of Science and Technology, China; Weixuan Zhang, Jingling High School, China; Min Li, Nanjing University of Science and Technology, China; Jiandong Yang, China Satellite Maritime Tracking and Control Department, China; Yi Zhang, Zhihui Wei, Nanjing University of Science and Technology, China

WE2.R1.5 12:30 **COVARIANCE MATRIX BASED FEATURE FUSION FOR SCENE CLASSIFICATION**
Nanjun He, Leyuan Fang, Shutao Li, Hunan University, China; Antonio Plaza, University of Extremadura, Spain

Wednesday, July 25 14:10 - 15:50 Room 1D
Session WE3.R1 Oral

Deep Learning for Hyperspectral Remote Sensing

Session Chair: Qian Du, Mississippi State University

WE3.R1.1 14:10 **HYPERSPECTRAL IMAGE CLASSIFICATION BASED ON A CONVOLUTIONAL NEURAL NETWORK AND DISCONTINUITY PRESERVING RELAXATION**
Qishuo Gao, Samsung Lim, University of New South Wales, Australia

WE3.R1.2 14:30 **SIMILARITY-PRESERVING DEEP FEATURES FOR HYPERSPECTRAL IMAGE CLASSIFICATION**
Weiwei Song, Leyuan Fang, Shutao Li, Hunan University, China

WE3.R1.3 14:50 **LARGE-SCALE LAND COVER CLASSIFICATION IN GAOFEN-2 SATELLITE IMAGERY**
Xin-Yi Tong, Qikai Lu, Gui-Song Xia, Liangpei Zhang, Wuhan University, China

WE3.R1.4 15:10 **EVALUATION OF DIFFERENT REGULARIZATION METHODS FOR THE EXTREME LEARNING MACHINE APPLIED TO HYPERSPECTRAL IMAGES**
Juan M. Haut, Hyperspectral Computing Laboratory, Spain; Yi Liu, Faculty of Information Technology and Electrical Engineering, Norway; Mercedes E. Paoletti, Hyperspectral Computing Laboratory, Spain; Xiong Xu, College of Surveying and Geo-Informatics, China; Javier Plaza, Antonio Plaza, Hyperspectral Computing Laboratory, Spain

WE3.R1.5 15:30 **AN INVESTIGATION ON SELF-NORMALIZED DEEP NEURAL NETWORKS FOR HYPERSPECTRAL IMAGE CLASSIFICATION**
Mercedes E. Paoletti, Juan M. Haut, Javier Plaza, Antonio Plaza, Hyperspectral Computing Laboratory, Spain

Wednesday, July 25 16:50 - 18:30 Room 1D
Session WE4.R1 Oral

Learning and Domain Adaptation

Session Chair: Shutao Li, Hunan University

WE4.R1.1 16:50 **SEMISUPERVISED ADVERSARIAL DISCRIMINATIVE DOMAIN ADAPTATION, WITH APPLICATION TO REMOTE SENSING DATA**
Rui Wang, Leslie Collins, Kyle Bradbury, Jordan Malof, Duke University, United States

WE4.R1.2 17:10 **BOOSTING FOR DOMAIN ADAPTATION EXTREME LEARNING MACHINES FOR HYPERSPECTRAL IMAGE CLASSIFICATION**
Junshi Xia, The University of Tokyo, Japan; Naoto Yokoya, RIKEN Center for Advanced Intelligence Project, Japan; Akira Iwasaki, The University of Tokyo, Japan

WE4.R1.3 17:30 **A NOVEL METHOD BASED ON SOURCE DOMAIN UNDERSTANDING AND MODELING TO TRANSFER LABELS FROM LAND-COVER VECTOR MAPS TO CLASSIFIERS FOR MULTISPECTRAL IMAGES**
Claudia Paris, Lorenzo Bruzzone, University of Trento, Italy; Diego Fernández-Prieto, European Space Agency, Italy

WE4.R1.4 17:50 **DOMAIN ADAPTATION FOR LARGE SCALE CLASSIFICATION OF VERY HIGH RESOLUTION SATELLITE IMAGES WITH DEEP CONVOLUTIONAL NEURAL NETWORKS**
Tristan Postadjian, Arnaud Le Bris, Univ. Paris Est, LASTIG MATIS, IGN, ENSG, France; Hichem Sahbi, CNRS, LIP6 UPMC Sorbonne Universités, Paris, France; Clément Mallet, Univ. Paris Est, LASTIG MATIS, IGN, ENSG, France

WE4.R1.5 18:10 **CROSS-DOMAIN CNN FOR HYPERSPECTRAL IMAGE CLASSIFICATION**
Hyungtae Lee, Sungmin Eum, Booz Allen Hamilton Inc., United States; Heesung Kwon, US Army Research Laboratory, United States

Wednesday, July 25 **08:30 - 10:10** **Room 3A**
Session WE1.R2 **Oral**

Target Recognition

Session Chair: Shutao Li, Hunan University

WE1.R2.1 08:30 **SALIENT OBJECT DETECTION VIA DOUBLE SPARSE REPRESENTATIONS UNDER VISUAL ATTENTION GUIDANCE**
Xiang Wang, Yongjun Zhang, Xunwei Xie, Yansheng Li, School of Remote Sensing and Information Engineering, Wuhan University, China

WE1.R2.2 08:50 **AIRCRAFT TARGET RECOGNITION USING COPULA JOINT STATISTICAL MODEL AND SPARSE REPRESENTATION BASED CLASSIFICATION**
Ayoub Karine, Lab-STICC UMR CNRS 6285, ENSTA Bretagne, Brest, France & LRIT-CNRST, URAC 29, Rabat IT Center, Faculty of Sciences, Mohammed V University in Rabat, Rabat, Morocco, Morocco; Abdelmalek Toumi, Khenchaf Ali, Lab-STICC UMR CNRS 6285, ENSTA Bretagne, Brest, France, France; Mohammed El Hassouni, LRIT-CNRST, URAC 29, Rabat IT Center, FLSH, Mohammed V University in Rabat, Rabat, Morocco, Morocco

WE1.R2.3 09:10 **HIGH FRAME-RATE BASED MOVING POINT TARGET DETECTION**
Wenlong Niu, Yong Wu, Wei Zheng, Zhen Yang, National Space Science Center, Chinese Academy of Sciences, China; Balazs Vagvolgyi, Johns Hopkins University, United States; Bo Liu, National Space Science Center, Chinese Academy of Sciences, China

WE1.R2.4 09:30 **DETECTING ANIMALS IN REPEATED UAV IMAGE ACQUISITIONS BY MATCHING CNN ACTIVATIONS WITH OPTIMAL TRANSPORT**
Benjamin Kellenberger, Diego Marcos, Wageningen University, Netherlands; Nicolas Courty, Université de Bretagne du Sud, France; Devis Tuia, Wageningen University, Netherlands

WE1.R2.5 09:50 **TASK-ADAPTED TARGET RECOGNITION FOR TIME-SENSITIVE SPACE INFORMATION NETWORKS**
Leigang Huo, Guangxi Teachers Education University, China; Yushuang Zhang, Beijing Institute of Applied Physics and Computational Mathematics, China; Chunlei Huo, Institute of Automation, Chinese Academy of Sciences, China; Jiayuan Yu, Yunpeng Jing, Beijing University of Civil Engineering and Architecture, China

Wednesday, July 25 **11:10 - 12:50** **Room 3A**
Session WE2.R2 **Oral**

Bistatic and Digital Beamforming I

Session Chair: Andrei Anghel, University Politehnica of Bucharest

WE2.R2.1 11:10 **REPEAT-PASS SPACEBORNE TRANSMITTER-STATIONARY RECEIVER BISTATIC SAR INTERFEROMETRY - FIRST RESULTS**
Andrei Anghel, Remus Cacoveanu, University Politehnica of Bucharest, Romania; Mihai Datcu, University Politehnica of Bucharest/German Aerospace Center (DLR), Germany

WE2.R2.2 11:30 **A NEW SLOW PRI VARIATION SCHEME FOR MULTICHANNEL SAR HIGH-RESOLUTION WIDE-SWATH IMAGING**
Felipe Queiroz de Almeida, Marwan Younis, Gerhard Krieger, Alberto Moreira, German Aerospace Center (DLR), Germany

WE2.R2.3 11:50 **INVESTIGATIONS ON THE RECONSTRUCTION OF MULTISTATIC LARGE ALONG-TRACK SAR CONSTELLATIONS FOR HRWS IMAGING**
Nida Sakar, Marc Rodriguez-Cassola, Pau Prats-Iraola, Andreas Reigber, Alberto Moreira, German Aerospace Center (DLR), Germany

WE2.R2.4 12:10 **AZIMUTH AMBIGUITY SUPPRESSION FOR MULTICHANNEL GEOSYNCHRONOUS SPACEBORNE-AIRBORNE BISTATIC SAR**
Hongyang An, Junjie Wu, Zhichao Sun, Jianyu Yang, Yulin Huang, Haiguang Yang, University of Electronic Science and Technology of China, China

WE2.R2.5 12:30 **ANALYSIS OF NSRCM IN BIFORSAR IMAGERY**
Wei Pu, University of Electronic Science and Technology of China, China; Yulin Huang, Junjie Wu, Jianyu Yang, Haiguang Yang, UESTC, China

Wednesday, July 25 **14:10 - 15:50** **Room 3A**
Session WE3.R2 **Oral**

SAR Image Formation I

Session Chair: Pasquale Imperatore, National Research Council of Italy

WE3.R2.1 14:10 **CIRCULAR SAR IMAGING OF NOT PLANAR TARGETS. LIMITATIONS OF THE ``HEIGHT FROM FOCUS'' PARADIGM.**
Hubert Cantalloube, ONERA, France

WE3.R2.2 14:30 **AN EFFICIENT IMAGE FORMATION ALGORITHM FOR SPACEBORNE VIDEO SAR**
Jian Liang, Running Zhang, Lixiang Ma, Zheng Lv, Ke Jiao, Dawei Wang, Zhiyun Tan, Beijing Institute of Spacecraft System Engineering, China

WE3.R2.3 14:50 **A DOPPLER CENTROID ESTIMATOR FOR SYNTHETIC APERTURE RADAR BASED ON PHASE CENTER POINT TRACKING**
Jingzeng Wang, Junjie Wu, Wei Pu, Wenchao Li, Jianyu Yang, University of Electronic Science and Technology of China, China

WE3.R2.4 15:10 **AIRBORNE SAR FOCUSING IN TIME DOMAIN: EFFECTS OF EXTERNAL DEM ERRORS**
Antonio Natale, Carmen Esposito, Riccardo Lanari, IREA-CNR, Italy; Stefano Perna, Università degli Studi di Napoli "Parthenope", Italy

Wednesday, July 25 **16:50 - 18:30** **Room 3A**
Session WE4.R2 **Oral**

SAR Image Formation II

Session Chair: Akira Hirose, University of Tokyo

WE4.R2.1 16:50 **SPHERICAL HARMONIC-BASED SPECTRAL PROJECTION MODEL FOR HOLOGRAPHIC SAR IMAGING**
Dayalan Kasilingam, John Summerfield, University of Massachusetts Dartmouth, United States

WE4.R2.2 17:10 **EFFICIENT AUTOFOCUS FOR 3-D SAR SPARSE IMAGING BASED ON JOINT CRITERION OPTIMIZATION**
Shunjun Wei, Min Yan, Bokun Tian, Lin Pu, Xiaoling Zhang, Jun Shi, University of Electronic Science and Technology of China, China

WE4.R2.3 17:30 **SPARSE-CODING ADAPTED TO SAR IMAGES WITH AN APPLICATION TO DESPECKLING**
Sonia Tabti, Université de Caen, France; Luisa Verdoliva, Giovanni Poggi, Università degli Studi di Napoli, Federico II, Italy

WE4.R2.4 17:50 **FOCUSING OF SPACEBORNE BISTATIC SAR DATA BASED ON TIME-DOMAIN PERTURBATION**
Zheng Lu, Yu Zhu, Beijing Institute of Spacecraft System Engineering, China; Yuekun Wang, National Laboratory of Radar Signal Processing, China; Mingming Xu, Tengfei Li, Beijing Institute of Spacecraft System Engineering, China; Zhenfang Li, National Laboratory of Radar Signal Processing, China

WE4.R2.5 18:10 **MULTICHANNEL SLIDING SPOTLIGHT SAR IMAGING BASED ON SPARSE SIGNAL PROCESSING**
Zhilin Xu, Zhonghao Wei, Chenyang Wu, Bingchen Zhang, University of Chinese Academy of Sciences, China

Wednesday, July 25 08:30 - 10:10 Room 1B
Session WE1.R3 Oral

Microwave Algorithms for Soil Moisture II

Session Co-Chairs: Jeffrey Walker, Monash University; Jean-Pierre Wigneron, INRA

WE1.R3.1 08:30 **TOWARDS MULTI-FREQUENCY SOIL MOISTURE RETRIEVAL USING P- AND L-BAND PASSIVE MICROWAVE SENSING TECHNOLOGY**
Nan Ye, Xiaoling Wu, Jeffrey Walker, Nithyapriya Boopathi, Monash University, Australia; Thomas Jackson, USDA-ARS, United States; Yann Kerr, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Edward Kim, NASA, United States; Andrew McGrath, Flinders University, Australia; In-Young Yeo, The University of Newcastle, Australia; Mahta Moghaddam, University of Southern California, United States

WE1.R3.2 08:50 **GLOBAL COMPARISON OF SURFACE SOIL MOISTURE FROM THE ESA CCI COMBINED PRODUCT AND THE ORCHIDEE LAND-SURFACE MODEL**
Nina Raoult, Bertrand Delorme, Vladislav Bastrikov, Catherine Ottlé, Philippe Peylin, Laboratoire des Sciences du Climat et de l'Environnement, France

WE1.R3.3 09:10 **THE ADDED-VALUE OF SATELLITE SOIL MOISTURE OBSERVATIONS OVER IRRIGATED AREAS TO SUPPORT LAND SURFACE MODEL DEVELOPMENTS**
Amen Al-Yaari, Jean-Pierre Wigneron, INRA, France; Fredrique Cheruy, UMR METIS, CNRS/UPMC, Paris, France, France; Wade Crow, Science Systems and Applications, Inc, France; Claire Magand, UMR METIS, CNRS/UPMC, Paris, France, France; Lei Fan, INRA, France; Yann Kerr, CESBIO, France; Agnes Ducharne, CNRS/IPSL/LMD, Université Pierre et Marie Curie, Paris, France, France

WE1.R3.4 09:30 **ASSESSMENT OF SOIL MOISTURE INFORMATION CONTENT IN LEVEL-1 DATA FROM LOW-FREQUENCY ACTIVE AND PASSIVE MICROWAVE SENSORS**
Moritz Link, Matthias Drusch, Klaus Scipal, European Space Agency, Netherlands

WE1.R3.5 09:50 **ACCOUNTING FOR STATIC AND DYNAMIC OPEN WATER IN THE MODELING OF SMAP BRIGHTNESS TEMPERATURES OVER PEATLANDS**
Michel Bechtold, Simon De Cannière, KU Leuven (University of Leuven), Belgium; Rolf Reichle, NASA Goddard Space Flight Center, United States; Gabrielle De Lannoy, KU Leuven (University of Leuven), Belgium

Wednesday, July 25 11:10 - 12:50 Room 1B
Session WE2.R3 Oral

Soil Moisture Scaling and Assessment

Session Chair: Rajat Bindlish, NASA Goddard Space Flight Center

WE2.R3.1 11:10 **COMPARISON OF DIFFERENT HIGH-RESOLUTION SOIL MOISTURE PRODUCTS ACROSS AN AGRICULTURAL LANDSCAPE IN SOUTH-EASTERN AUSTRALIA**
Christoph Rüdiger, Monash University, Australia; Alessandra Monerris, The University of Melbourne, Australia; David McJannet, CSIRO, Australia; Luigi Renzullo, Australian National University, Australia; Mariette Vreugdenhil, Wolfgang Wagner, Vienna University of Technology, Austria

WE2.R3.2 11:30 **SMAP RADIOMETER SOIL MOISTURE DOWNSCALING IN CONUS**
Bin Fang, Venkat Lakshmi, University of South Carolina, United States; Rajat Bindlish, NASA Goddard Space Flight Center, United States; Thomas Jackson, USDA-ARS Hydrology and Remote Sensing Laboratory, United States

WE2.R3.3 11:50 **SEQUENTIAL DOWNSCALING OF THE SMOS SOIL MOISTURE AT 100 M RESOLUTION VIA A VARIABLE INTERMEDIATE SPATIAL RESOLUTION**
Nitu Ojha, Olivier Merlin, Beatriz Molero-Rodenas, Christophe Suere, Luis Olivera, Vincent Rivalland, CESBIO, Université de Toulouse, CNES/CNRS/IRD/UPS, France; Salah Er-Raki, Université Cadi Ayyad, Facultié des Sciences et Techniques, Morocco

WE2.R3.4 12:10 **THE AQUI NETWORK: SOIL MOISTURE SITES IN THE "LES LANDES" FOREST AND GRAVES VINEYARDS (BORDEAUX AQUITAINE REGION, FRANCE)**
Jean-Pierre Wigneron, Sylvia Dayau, Alain Kruszewski, Christelle Aluome, Marie Guillot-Ehret, Amen Al-Yaari, Lei Fan, Serhat Güven, Christophe Chipeaux, Christophe Moisy, Dominique Guyon, Denis Loustau, INRA, France

WE2.R3.5 12:30 **VALIDATION OF SATELLITE MICROWAVE RETRIEVED SOIL MOISTURE WITH GLOBAL GROUND-BASED MEASUREMENTS**
Amen Al-Yaari, INRA, France; Arnaud Mialon, CESBIO, France; Wouter Dorigo, Technische Universität Wien, France; Andreas Colliander, Jet Propulsion Laboratory, France; Lie Fan, INRA, France; Yann Kerr, CESBIO, France; Thierry Pellarin, University of Grenoble Alpes, France; Jean-Pierre Wigneron, INRA, France

Wednesday, July 25 14:10 - 15:50 Room 1B
Session WE3.R3 Oral-Invited

Science Products and Results Based on NASA Soil Moisture Active Passive (SMAP) Satellite Mission I

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

WE3.R3.1 14:10 **SMAP MISSION STATUS, NEW PRODUCTS AND EXTENDED-PHASE GOALS**
Dara Entekhabi, Massachusetts Institute of Technology, United States; Simon Yueh, Jet Propulsion Laboratory, United States; Peggy O'Neill, Goddard Space Flight Center, United States; Jared Entin, Tung-Han You, NASA Headquarters, United States

WE3.R3.2 14:30 **SMAP MICROWAVE RADIOMETER: INSTRUMENT STATUS AND CALIBRATION FOR THE FIRST THREE YEARS OF OPERATION**
Jeffrey Piepmeier, NASA Goddard Space Flight Center, United States; Jinzheng Peng, Universities Space Research Association, United States; Sidharth Misra, Jet Propulsion Laboratory, United States; Emmanuel Dinnat, Chapman University, United States; Simon Yueh, Jet Propulsion Laboratory, United States; Thomas Meissner, Remote Sensing Systems, United States; David Le Vine, NASA Goddard Space Flight Center, United States; Kacie Shelton, Adam Freedman, Scott Dunbar, Steven Chan, Julian Chaubell, Jet Propulsion Laboratory, United States; Rajat Bindlish, Giovanni De Amici, NASA Goddard Space Flight Center, United States; Priscilla Mohammed, Morgan State University, United States; Liang Hong, Science Application International Corporation, United States

WE3.R3.3 14:50 **SMAP MISSION: CHANGES IN THE RFI ENVIRONMENT**
Alexandra Bringer, Matthew Daehn, Joel Johnson, ElectroScience Laboratory, The Ohio State University, United States; Yan Soldo, David Le Vine, Paolo de Matthaeis, Jeffrey Piepmeier, Priscilla Mohammed, NASA Goddard Space Flight Center, United States

WE3.R3.4 15:10 **IMPROVING BRIGTHNESS TEMPERATURE MEASUREMENTS NEAR COASTAL AREAS**
Julian Chaubell, Simon Yueh, Jet Propulsion Laboratory, United States; Jinzheng Peng, Goddard Space Flight Center, Greenbelt, MD, USA, United States; Steven Chan, Scott Dunbar, Jet Propulsion Laboratory, United States; Dara Entekhabi, The Massachusetts Institute of Technology, Cambridge, Massachusetts, USA, United States

WE3.R3.5 15:30 **GLOBAL FREEZE/THAW PRODUCT FROM L-BAND RADIOMETER DATA**
Xiaolan Xu, Jet Propulsion Laboratory, United States; Youngwook Kim, John Kimball, University of Montana, United States; Chris Derksen, Environment Canada, United States; Scott Dunbar, Andreas Colliander, Jet Propulsion Laboratory, United States

Wednesday, July 25 16:50 - 18:30 Room 1B
Session WE4.R3 Oral-Invited

Science Products and Results Based on NASA Soil Moisture Active Passive (SMAP) Satellite Mission II

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

WE4.R3.1 16:50 **LARGE-SCALE HYDROLOGICAL FLUXES AS REVEALED BY DATA FROM THE SOIL MOISTURE ACTIVE-PASSIVE MISSION**
Randal Koster, Rolf Reichle, Global Modeling and Assimilation Office, United States; Sarith Mahanama, Science Systems and Applications, Inc, United States; Wade Crow, United States Department of Agriculture, United States

WE4.R3.2 17:10 **HIGH RESOLUTION SOIL MOISTURE PRODUCT BASED ON SMAP ACTIVE-PASSIVE APPROACH USING COPERNICUS SENTINEL 1 DATA**
Narendra N. Das, Dara Entekhabi, Seungbum Kim, NASA Jet Propulsion Laboratory, United States; Thomas Jaghuber, German Aerospace Center, Microwaves and Radar Institute, Germany; Scott Dunbar, Simon Yueh, NASA Jet Propulsion Laboratory, United States; Pe O'Neill, Goddard Space Flight Center, United States; Andreas Colliander, NASA Jet Propulsion Laboratory, United States; Jeffrey Walker, Monash Univeristy, Australia; Thomas Jackson, USDA-ARS Hydrology and Remote Sensing Laboratory, United States

WE4.R3.3 17:30 **POLARIZATION DECOMPOSITION AND TEMPERATURE BIAS RESOLUTION FOR SMAP PASSIVE SOIL MOISTURE RETRIEVAL USING TIME SERIES BRIGHTNESS TEMPERATURE OBSERVATIONS**
Steven Chan, NASA Jet Propulsion Laboratory, California Institute of Technology, United States; Rajat Bindlish, Peggy O'Neill, NASA Goddard Space Flight Center, United States; Thomas Jackson, USDA-ARS Hydrology and Remote Sensing Laboratory, United States; Andreas Colliander, Simon Yueh, NASA Jet Propulsion Laboratory, California Institute of Technology, United States

WE4.R3.4 17:50 **INTEGRATION OF SMAP AND SMOS OBSERVATIONS**
Rajat Bindlish, NASA Goddard Space Flight Center, United States; Steven Chan, NASA Jet Propulsion Laboratory, United States; Thomas Jackson, USDA-ARS, United States; Andreas Colliander, NASA Jet Propulsion Laboratory, United States; Yann Kerr, CESBIO, France

WE4.R3.5 18:10 **EVALUATION OF SMAP PASSIVE SOIL MOISTURE PRODUCTS USING IN-SITU DATA FROM A DENSE OBSERVATION NETWORK OVER AGRICULTURAL AREA IN NORTHEAST CHINA**
Xingming Zheng, Northeast Institute of Geography Agroecology, Chinese Academy of Sciences, China; Yu Bai, Jilin Unviersity, China; Tao Jiang, Northeast Institute of Geography Agroecology, Chinese Academy of Sciences, China; Xiaowei Zhao, Jilin Unviersity, China; Jianwei Yang, Beijing Normal University, China

Wednesday, July 25 08:30 - 10:10 Room 1C
Session WE1.R4 Oral

Ocean Altimetry I

WE1.R4.1 08:30 **OBSERVING THE OCEAN SURFACE TOPOGRAPHY AT HIGH-RESOLUTION BY THE SWOT (SURFACE WATER AND OCEAN TOPOGRAPHY) MISSION**
Lee-Lueng Fu, Jet Propulsion Laboratory, United States; Rosemary Morrow, LEGOS, France

WE1.R4.2 08:50 **AN IMPROVED GEOMETRIC MODEL FOR SPACE-BASED GNSS-R ALTIMETRY**
Changjiang Hu, Craig Benson, University of New South Wales, Canberra, Australia; Chris Rizos, University of New South Wales, Sydney, Australia; Li Qiao, University of New South Wales, Canberra, Australia

WE1.R4.3 09:10 **CHARACTERIZATION OF THE OCEAN WAVES SIGNATURE TO ASSESS THE SEA STATE BIAS IN WIDE-SWATH INTERFEROMETRIC ALTIMETRY**
Pierre Dubois, Collecte LocalisationSatellite, France; Bertrand Chapron, Institut Francais de Recherche pour l'Exploitation de la Mer, France

WE1.R4.4 09:30 **JASON-3 AND SENTINEL-3A ALTIMETER VALIDATION ALONG THE FRENCH ATLANTIC COAST IN THE SOUTHERN BAY OF BISCAY**
Phuong Lan Vu, Frédéric Frappart, José Darrozes, Guillaume Ramillien, Observatoire Midi-Pyrénées, France; Vincent Marieu, CNRS, France; Fabien Blarel, Observatoire Midi-Pyrénées, France; Pascal Bonnefond, Observatoire de Paris, France

WE1.R4.5 09:50 **ASSESSMENT OF REPROCESSED SSH AND SWH MEASUREMENTS DERIVED FROM HY-2A RADAR ALTIMETER**
Maofei Jiang, Ke Xu, Key Laboratory of Microwave Remote Sensing, National Space Science Center, Chinese Academy of Sciences, China; Yalong Liu, Yantai Marine Environmental Monitoring Center Station, State Oceanic Administration, China

Wednesday, July 25 11:10 - 12:50 Room 1C
Session WE2.R4 Oral

Hyperspectral Techniques for Biophysical Parameter Estimation

Session Chair: Giuseppe Satalino, CNR-ISSIA

WE2.R4.1 11:10 **SIMULATION OF SPACEBORNE HYPERSPECTRAL REMOTE SENSING TO ASSIST CROP NITROGEN CONTENT MONITORING IN AGRICULTURAL CROPS**
Katja Berger, Ludwig-Maximilian University of Munich, Germany; Zhihui Wang, University of Wisconsin–Madison, United States; Martin Danner, Matthias Wocher, Wolfram Mauser, Tobias Hank, Ludwig-Maximilian University of Munich, Germany

WE2.R4.2 11:30 **HYPERSPECTRAL RETRIEVAL OF CANOPY WATER CONTENT THROUGH INVERSION OF THE BEER-LAMBERT LAW**
Matthias Wocher, Katja Berger, Martin Danner, Wolfram Mauser, Tobias Hank, Ludwig-Maximilian University of Munich, Germany

WE2.R4.3 11:50 **DETERMINING UNCERTAINTY PREDICTION MAP OF COPPER CONCENTRATION IN PASTURE FROM HYPERSPECTRAL DATA USING QUNATILE REGRESSION FOREST**
Rajasheker Reddy Pullanagari, Gabor Kereszturi, Ian Yule, Matthew Irwin, Massey University, New Zealand

WE2.R4.4 12:10 **REMOTE ESTIMATION OF CANOPY WATER CONTENT IN DIFFERENT CROP TYPES WITH NEW HYPERSPECTRAL INDICES**
Nieves Pasqualotto, Jesús Delegido, Shari Van Wittenberghe, Jochem Verrelst, University of Valencia, Spain; Juan Pablo Rivera-Caicedo, CONACYT-UAN, Mexico; José Moreno, University of Valencia, Spain

WE2.R4.5 12:30 **WEED CLASSIFICATION IN HYPERSPECTRAL REMOTE SENSING IMAGES VIA DEEP CONVOLUTIONAL NEURAL NETWORK**
Adnan Farooq Awan, Jiankun Hu, Xiuping Jia, University of New South Wales, Australia

Wednesday, July 25 14:10 - 15:50 Room 1C
Session WE3.R4 Oral

Crop Identification and Classification using Remote Sensing I

Session Co-Chairs: Subit Chakrabarti, University of Florida; Alejandro Monsiváis Huertero, Instituto Politécnico Nacional, ESIME Ticoman

WE3.R4.1 14:10 **POTENTIAL OF MULTI-TEMPORAL SENTINEL-1A DUAL POLARIZATION SAR IMAGES FOR VEGETABLE CLASSIFICATION IN INDONESIA**
Mengmeng Li, Wietske Bijker, University of Twente, Netherlands

WE3.R4.2 14:30 **AN HYBRID RECURRENT CONVOLUTIONAL NEURAL NETWORK FOR CROP TYPE RECOGNITION BASED ON MULTITEMPORAL SAR IMAGE SEQUENCES**
Jose Bermudez Castro, Raul Queiroz Feitosa, Patrick Nigri Happ, Pontifical Catholic University of Rio de Janeiro, Brazil

WE3.R4.3 14:50 **SAR SPECKLE FILTERING AND AGRICULTURE FIELD SIZE: DEVELOPMENT OF SAR DATA PROCESSING BEST PRACTICES FOR THE JECAM SAR INTER-COMPARISON EXPERIMENT**
Laura Dingle Robertson, Andrew Davidson, Heather McNairn, Agriculture and Agri-Food Canada, Canada; Mehdi Hosseini, Scott Mitchell, Carleton University, Canada; Diego de Abelleyra, Santiago Verón, Instituto Nacional de Tecnología Agropecuaria (INTA), Argentina; Michael H. Cosh, USDA-ARS, United States

Wednesday, July 25 16:50 - 18:30 Room 1C
Session WE4.R4 Oral

Remote Sensing for Estimation of Biophysical Parameters II

WE4.R4.1 16:50 **ASSESSMENT OF THE SPATIAL VARABILITY OF CWSI WITHIN ALMOND TREE CROWNS AND ITS EFFECTS ON THE RELATIONSHIP WITH STOMATAL CONDUCTANCE**
Carlos Camino, Pablo Jesús Zarco-Tejada, Victoria González-Dugo, Consejo Superior de Investigaciones Cientificas (CSIC), Spain

WE4.R4.2 17:10 **GLOBAL SENSITIVITY ANALYSIS OF POLARIMETRIC DATA TO RETRIEVE BIOPHYSICAL PARAMETERS OF CANOLA AND BARLEY CROPS**
Esra Erten, The Open University, Turkey; Gulsen Taskin, Istanbul Technical University, Turkey; Juan M. Lopez-Sanchez, University of Alicante, Spain

WE4.R4.3 17:30 **LAI RETRIEVAL OF WINTER WHEAT USING SIMULATED COMPACT SAR DATA THROUGH GA-PLS MODELING**
Chang-An Liu, Zhongxin Chen, Pengyu Hao, Key Laboratory of Agricultural Remote Sensing, Ministry of Agriculture/Institute of Agricultural Resources and Regional Planning, Chinese Academy of Agricultural Sciences, China; Kun Li, Xiaochen Wang, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China

WE4.R4.4 17:50 **LANDSAT-8 AND WORLDVIEW-3 DATA FOR ASSESSING CROP RESIDUE COVER**
Craig S.T. Daughtry, USDA-ARS, United States; M.W. Graham, Virginia Tech University, United States; A.J. Stern, USDA-ARS, United States; M. Quemada, Technical University of Madrid, Spain; W.D. Hively, US Geological Survey, United States; A.L. Russ, USDA-ARS, United States

WE4.R4.5 18:10 **CROP MAPPING FOR A FUTURE COPERNICUS AGRICULTURAL SERVICE**
Linda Moser, Gernot Ramminger, Markus Probeck, Christoph Rieke, Benjamin Mack, Cornelia Storch, Carolin Sommer, Christopher Sandow, Regine Richter, Marcus Sindram, Anna Homolka, Hannes Ott, Martin Ickerott, Axel Relin, GAF AG, Germany

Wednesday, July 25 08:30 - 10:10 Room 3F
Session WE1.R5 Oral-Invited

IEEE GRSS Data Fusion Contest

Session Co-Chairs: Naoto Yokoya, RIKEN; Ronnie Haensch, Technische Universität Berlin

WE1.R5.1 08:30 **THE DATA FUSION CONTEST 2018: ADVANCED MULTI-SENSOR OPTICAL REMOTE SENSING FOR URBAN LAND USE AND LAND COVER CLASSIFICATION**
Naoto Yokoya, RIKEN, Japan; Bertrand Le Saux, ONERA, France; Ronny Hänsch, Technische Universität Berlin, Germany; Saurabh Prasad, University of Houston, United States

WE1.R5.2 08:50 **MULTI-SOURCE REMOTE SENSING DATA CLASSIFICATION VIA FULLY CONVOLUTIONAL NETWORKS AND POST-CLASSIFICATION PROCESSING**
Yonghao Xu, Bo Du, Liangpei Zhang, Wuhan University, China

WE1.R5.3 09:10 **COMBINING DEEP AND SHALLOW NEURAL NETWORKS WITH AD HOC DETECTORS FOR THE CLASSIFICATION OF COMPLEX MULTI-MODAL URBAN SCENES**
Daniele Cerra, Miguel Pato, Emiliano Carmona, Seyed Majid Azimi, Jiaojiao Tian, Reza Bahmanyar, Franz Kurz, Eleonora Vig, Ksenia Bittner, Corentin Henry, Pablo d'Angelo, Rupert Müller, Kevin Alonso, Peter Fischer, Peter Reinartz, DLR - German Aerospace Center, Germany

WE1.R5.4 09:30 **A TWO-BRANCH NETWORK WITH SEMI-SUPERVISED LEARNING FOR HYPERSPECTRAL CLASSIFICATION**
Shuai Fang, Dou Quan, Shuang Wang, Lei Zhang, Ligang Zhou, Key Laboratory of Intelligent Perception and Image Understanding of Ministry of Education, School of Artificial Intelligence, Xidian University, China

WE1.R5.5 09:50 **FUSION OF LIDAR, HYPERSPECTRAL AND RGB DATA FOR URBAN LAND USE AND LAND COVER CLASSIFICATION**
Sergey Sukhanov, Dmitrii Budylskii, Ivan Tankoyeu, Roel Heremans, Christian Debes, AGT International, Germany

Wednesday, July 25 11:10 - 12:50 Room 3F
Session WE2.R5 Oral

Clouds and Precipitation I

Session Co-Chairs: David Kunkee, The Aerospace Corporation; Ian Adams, NASA Goddard Space Flight Center

WE2.R5.1 11:10 **PRECIPITATION RETRIEVAL ACCURACIES OF THE TROPICS CONSTELLATION OF PASSIVE MICROWAVE CUBESATS**
Chinnawat Surussavadee, King Mongkut's Institute of Technology Ladkrabang, Thailand; William Blackwell, Dara Entekhabi, Robert Vincent Leslie, Massachusetts Institute of Technology, United States

WE2.R5.2 11:30 **A DATA-DRIVEN APPROACH TO DETECT PRECIPITATION FROM METEOROLOGICAL SENSOR DATA**
Shilpa Manandhar, Nanyang Technological University, Singapore; Soumyabrata Dev, The ADAPT Centre, Trinity College, Ireland; Yee Hui Lee, Nanyang Technological University, Slovakia; Yu Song Meng, National Metrology Centre, Agency for Science, Technology and Research (ASTAR), Slovakia; Stefan Winkler, Advanced Digital Sciences Center (ADSC), Singapore

WE2.R5.3 11:50 **THE EFFECTS OF CLOUD LIQUID WATER ON POLARIZED RADIATIVE TRANSFER CALCULATIONS DURING SNOWFALL AT MICROWAVE BAND**
Xinxin Xie, Shanghai Spaceflight Institute of TT&C and Telecommunication, China; Yaohai Dong, Shanghai Academy of Spaceflight Technology, China; Weimin Yu, Weiliang Liu, Hongxin Xu, Shanghai Spaceflight Institute of TT&C and Telecommunication, China

WE2.R5.4 12:10 **DEVELOPMENT OF 3-D ANALYTIC RADIATIVE TRANSFER MODEL BASED ON THE UMRT MODEL AND HORIZONTAL PERTURBATION SERIES**
Kun Zhang, Albin J. Gasiewski, University of Colorado Boulder, United States

Wednesday, July 25 14:10 - 15:50 Room 3F
Session WE3.R5 Oral

Clouds and Precipitation II

Session Co-Chairs: Ian Adams, NASA Goddard Space Flight Center; David Kunkee, The Aerospace Corporation

WE3.R5.1 14:10 **ADVANCES IN REAL-TIME WEATHER RADAR AND GROUND SENSOR DATA WITH CHORDS**
Ryan Gooch, V. Chandrasekar, Colorado State University, United States

WE3.R5.2 14:30 **PROFILING SUPERCOOLED LIQUID WATER CLOUDS WITH MULTI-FREQUENCY RADAR**
Ian Stuart Adams, Stephen (Joe) Munchak, Lihua Li, Paul Racette, Dong L. Wu, Gerald M. Heymsfield, Adrian M. Loftus, NASA Goddard Space Flight Center, United States

WE3.R5.3 14:50 **CROSS VALIDATION OF GPM AND GROUND-BASED RADAR IN LATIN AMERICA AND THE CARIBBEAN**
Ivan Arias, V. Chandrasekar, Colorado State University, United States

WE3.R5.4 15:10 **DEVELOPMENT OF A RAINFALL ESTIMATION ALGORITHM BASED ON COMBINATION OF THE COMS AND GPM DATASETS**
Jongpil Kim, Eunji Cheon, Dalgeun Lee, Jinyoung Kim, National Disaster Management Research Institute, Republic of Korea; Kyungwon Park, APEC Climate Center, Republic of Korea

Wednesday, July 25 16:50 - 18:30 Room 3F
Session WE4.R5 Oral

Numerical Weather Prediction and Data Assimilation

WE4.R5.1 16:50 **ASSIMILATION OF INSAR-DERIVED PWV MAPS EXHIBIT POTENTIAL FOR ATMOSPHERE CONVECTIVE STORM CHARACTERIZATION**
Pedro Mateus, Instituto Dom Luiz (IDL), Faculdade de Ciências, Universidade Lisboa, Portugal; Giovanni Nico, Consiglio Nazionale delle Ricerche (CNR), Istituto per le Applicazioni del Calcolo, Italy; João Catalao, Pedro Ma Miranda, Instituto Dom Luiz (IDL), Faculdade de Ciências, Universidade Lisboa, Portugal

WE4.R5.2 17:10 **INGESTION OF SENTINEL-DERIVED REMOTE SENSING PRODUCTS IN NUMERICAL WEATHER PREDICTION MODELS: FIRST RESULTS OF THE ESA STEAM PROJECT**
Antonio Parodi, Luca Pulvirenti, CIMA Research Foundation, Italy; Martina Lagasio, CIMA Research foundation, Italy; Nazzareno Pierdicca, Frank S. Marzano, Sapienza Università di Roma, Italy; Carlo Riva, Giovanna Venuti, Politecnico di Milano, Italy; Luca Pilosu, Istituto Superiore Mario Boella, Italy; Eugenio Realini, Geomatics Research & Development srl, Italy; Emanuele Passera, TRE ALTAMIRA SLU, Italy; Björn Rommen, European Space Agency/ESTEC, Netherlands

WE4.R5.3 17:30 **IMPACTS OF MHS DATA ASSIMILATION OF TIBET PLATEAU ON LOWER REACHES RAINFALL FORECASTS**
Ruixia Liu, National Satellite Meteorological Center, China; Jie Liu, China Meteorological Press, China; Zhigang Zhang, Department and Forecasting and Networking, China; Xiaoqing Li, National Satellite Meteorological Center, China

WE4.R5.4 17:50 **DIRECT ASSIMILATION OF HIGH RESOLUTION ABI INFRARED RADIANCES**
Zhengkun Qin, Nanjing University of Information Science and Technology, China; Xiaolei Zou, University of Maryland, United States

Wednesday, July 25 08:30 - 10:10 Room 3G
Session WE1.R6 Oral-Invited

Fluorescence Forthcoming from FLEX I

Session Co-Chairs: Elizabeth Middleton, NASA; Matthias Drusch, European Space Agency

WE1.R6.1 08:30 **THE FLUORESCENCE EXPLORER (FLEX)—ESA'S EARTH EXPLORER 8**
Michael Francois, Matteo Taccola, Matthias Drush, European Space Agency, Netherlands; Annalisa Capanni, Leonardo, Italy

WE1.R6.2 08:50 **ESA'S SENTINEL-3 MISSION - STATUS AND PERFORMANCE**
Susanne Mecklenburg, Steffen Dransfeld, Ferran Gascon, Jens Nieke, Craig Donlon, Matthias Drusch, Dirk Schüttemeyer, Bruno Berruti, European Space Agency, Italy

WE1.R6.3 09:10 **THE FLEX END-TO-END SIMULATOR: FROM CONCEPT PHASE (A/B1) TO GROUND SEGMENT AND OPERATIONS (C/D)**
Jorge Vicent, Rosario Ruiloba, Magellium, France; Antonio Ruiz-Verdú, University of Valencia, Spain; Gwenaël Matot, Magellium, France; Neus Sabater, University of Valencia, Spain; Béatrice Berthelot, Magellium, France; Federico Magnani, University of Bologna, Italy; Sergio Cogliati, Universita degli studi di Milano-Bicocca, Italy; José Moreno, University of Valencia, Spain; Raffaella Franco, Matthias Drusch, European Space Agency/ESTEC, Netherlands; Christine Fernandez-Martin, Magellium, France

WE1.R6.4 09:30 **ESA'S CAMPAIGN ACTIVITIES IN SUPPORT OF THE FLEX MISSION**
Dirk Schuettemeyer, Mareike Burba, Matthias Drusch, Anders Elfving, Susanne Mecklenburg, European Space Agency, Netherlands

Wednesday, July 25 11:10 - 12:50 Room 3G
Session WE2.R6 Oral-Invited

Fluorescence Forthcoming from FLEX II

Session Chair: Matthias Drusch, European Space Agency

WE2.R6.1 11:10 **GROUND-BASED MEASUREMENTS AND VALIDATION PROTOCOLS FOR FLEX**
Elizabeth Middleton, NASA Goddard Space Flight Center, United States; Fred Huemmrich, Petya Campbell, University of Maryland, Baltimore County, United States; Qingyuan Zhang, Universities Space Research Association, United States; David Landis, Global Science & Technology, Inc., United States; Cris Garrish, University of Maryland, Baltimore County, United States; Lawrence Ong, Science Systems and Applications, Inc, United States; Craig S.T. Daughtry, USDA-ARS Hydrology and Remote Sensing Laboratory, United States

WE2.R6.2 11:30 **IMAGING SPECTROMETRY AND FLUOROMETRY IN SUPPORT OF FLEX: WHAT CAN WE LEARN FROM MULTI-SCALE EXPERIMENTS?**
John Gamon, University of Alberta, and University of Nebraska - Lincoln, Canada; Gabriel Hmimina, University of Nebraska - Lincoln, United States; Guofang Miao, Kaiyu Guan, University of Illinois at Urbana-Champaign, United States; Kyle Springer, Ran Wang, University of Alberta, Canada; Rong Yu, Hamed Gholizadeh, Ryan Moore, Elizabeth Walter-Shea, Tim Arkebauer, Andy Suyker, Trenton Franz, Brian Wardlow, David Wedin, University of Nebraska - Lincoln, United States

WE2.R6.3 11:50 **RED AND FAR-RED FLUORESCENCE EMISSION RETRIEVAL FROM AIRBORNE HIGH-RESOLUTION SPECTRA COLLECTED BY THE HYPLANT-FLUO SENSOR**
Sergio Cogliati, Roberto Colombo, Marco Celesti, Giulia Tagliabue, University of Milano Bicocca, Italy; Uwe Rascher, Anke Schickling, Patrick Rademske, Forschungszentrum Juelich GmbH, Germany; Luis Alonso, Neus Sabater, University of Valencia, Spain; Dirk Schuettemeyer, Matthias Drusch, European Space Agency, Netherlands

WE2.R6.4 12:10 **ATMOSPHERIC AND INSTRUMENTAL EFFECTS ON THE FLUORESCENCE REMOTE SENSING RETRIEVAL**
Luis Alonso, Neus Sabater, University of Valencia, Spain; Jorge Vicent, Magellium, France; Laura Mihai, National Institute for Laser, Plasma and Radiation Physics - LMSL, Romania; José Moreno, University of Valencia, Spain

WE2.R6.5 12:30 **CHARACTERIZATION OF FIREFLY, AN IMAGING SPECTROMETER DESIGNED FOR AIRBORNE MEASUREMENTS OF SOLAR-INDUCED FLUORESCENCE**
Bruce Cook, NASA, United States; Lawrence Corp, Science Systems and Applications, Inc., United States; Peter Clemens, Headwall Photonics, Inc., United States; Ian Paynter, Universities Space Research Association, United States; Jyoteshwar Nagol, University of Maryland, United States; Joel McCorkel, NASA, United States

Wednesday, July 25 14:10 - 15:50 Room 3G
Session WE3.R6 Oral

Optical and Infrared Monitoring of Vegetation II

Session Chair: Albert Olioso, INRA

WE3.R6.1 14:10 **THE EFFECT OF TRUNKS ON DIRECTIONAL BRIGHTNESS TEMPERATURES OF A LEAFLESS FOREST USING A GEOMETRIC OPTICAL MODEL**
Zunjian Bian, Biao Cao, Hua Li, Yongming Du, Qing Xiao, Qinhuo Liu, State Key Laboratory of Remote Sensing Science, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China

WE3.R6.2 14:30 **FIRST EVALUATION OF LAND SURFACE EMISSIVITY SPECTRA SIMULATED WITH THE SAIL-THERMIQUE MODEL**
Albert Olioso, INRA, France; Frédéric Jacob, IRD, France; Marie Weiss, INRA, France

WE3.R6.3 14:50 **A SIMPLIFIED 3D RADIATIVE TRANSFER APPROACH FOR THE RETRIEVAL OF CHEMICAL AND STRUCTURAL PROPERTIES OF INDIVIDUAL TREE CROWNS FROM HYPERSPECTRAL DATA**
Matheus Pinheiro Ferreira, National Institute for Space Research - INPE, Brazil; Jean-Baptiste Féret, Eloi Grau, National Research Institute of Science and Technology for Environment and Agriculture, France; Fabien Hubert Wagner, Luiz Eduardo Oliveira e Cruz de Aragão, Yosio Edemir Shimabukuro, National Institute for Space Research - INPE, Brazil; Carlos Roberto de Souza Filho, University of Campinas, Brazil

WE3.R6.4 15:10 **AN IMPROVED KERNEL-DRIVEN BRDF MODEL COUPLED WITH TOPOGRAPHY: KDCT**
Dalei Hao, Jianguang Wen, Qing Xiao, Shengbiao Wu, Juan Cheng, State Key Laboratory of Remote Sensing Science, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China

Wednesday, July 25 16:50 - 18:30 Room 3G
Session WE4.R6 Oral

Optical and Infrared Monitoring of Vegetation III

Session Co-Chairs: Nkeiruka Nneti Onyia, University of Leicester; Changlin Xiao, ETH Zurich

WE4.R6.1 16:50 **DETECTING VEGETATION RESPONSE TO OIL POLLUTION USING HYPERSPECTRAL INDICES**
Nkeiruka Nneti Onyia, Heiko Balzter, Juan Carlos Berrio, University of Leicester, United Kingdom

WE4.R6.2 17:10 **INDIVIDUAL TREE DETECTION FROM MULTI-VIEW SATELLITE IMAGES**
Changlin Xiao, ETH Zurich, Singapore; Rongjun Qin, Xu Huang, The Ohio State University, United States; Jiaqiang Li, ETH Zurich, Singapore

WE4.R6.3 17:30 **NPP ESTIMATION USING TIME-SERIES GF-1 DATA IN SPARSE VEGETATION AREA -A CASE STUDY IN ZHENGLANQI OF INNNER MONGLOLIA, CHINA**
Bin Sun, Zengyuan Li, Zhihai Gao, Wentao Gao, Yuanyuan Zhang, Xiangyuan Ding, Changlong Li, Institute of Forest Resource Information Techniques,Chinese Academy of Forestry, China

WE4.R6.4 17:50 **RECONSTRUCTION OF 3D FOREST MOCK-UPS FROM AIRBORNE LIDAR DATA FOR MULTISPECTRAL IMAGE SIMULATION USING DART MODEL**
Jianbo Qi, Jean-Philippe Gastellu-Etchegorry, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Tiangang Yin, NASA Goddard Space Flight Center and USRA-GESTAR, United States

WE4.R6.5 18:10 **ESTIMATING THE SEVERITY OF DEFOLIATION DUE TO PINE PROCESSIONARY MOTH USING A COMBINATION OF LANDSAT AND UAV IMAGERY**
Kaori Otsu, Centre for Ecological Research and Forestry Applications (CREAF), Spain; Magda Pla, Lluís Brotons, Forest Science Center of Catalonia (CTFC), Spain

Wednesday, July 25 08:30 - 10:10 Room 4C
Session WE1.R7 Oral

Student Paper Competition I

Session Co-Chairs: Xuiping Jia, University of New South Wales at Canberra; David Le Vine, NASA Goddard Space Flight Center

WE1.R7.1 08:30 **MULTI-ATTRIBUTE SUPER-TENSOR MODEL FOR REMOTE SENSING IMAGE CLASSIFICATION WITH HIGH SPATIAL RESOLUTION**
Tianzhu Liu, Yanfeng Gu, Harbin Institute of Technology, China

WE1.R7.2 08:50 **IMPROVED CALIBRATION OF CYGNSS MEASUREMENTS FOR DOWNBURSTS IN THE INTERTROPICAL CONVERGENCE ZONE**
Rajeswari Balasubramaniam, Christopher Ruf, University of Michigan, Ann Arbor, United States

WE1.R7.3 09:10 **ACCURATE BUILDING DETECTION IN VHR REMOTE SENSING IMAGES USING GEOMETRIC SALIENCY**
Jin Huang, Gui-Song Xia, Fan Hu, Liangpei Zhang, Wuhan University, China

WE1.R7.4 09:30 **DETECTION & SEPARATION OF COHERENT REFLECTIONS IN GNSS-R MEASUREMENTS USING CYGNSS DATA**
Eric Loria, Andrew O'Brien, Inder J. Gupta, The Ohio State University, United States

WE1.R7.5 09:50 **FUSION OF MULTITEMPORAL LIDAR DATA FOR INDIVIDUAL TREE CROWN PARAMETER ESTIMATION ON LOW DENSITY POINT CLOUDS**
Daniele Marinelli, Claudia Paris, Lorenzo Bruzzone, University of Trento, Italy

Wednesday, July 25 11:10 - 12:50 Room 4C
Session WE2.R7 Oral

Student Paper Competition II

Session Co-Chairs: David Le Vine, NASA Goddard Space Flight Center; Xuiping Jia, University of New South Wales at Canberra

WE2.R7.1 11:10 **HYPERSPECTRAL IMAGE SUPER-RESOLUTION VIA LOCAL LOW-RANK AND SPARSE REPRESENTATIONS**
Renwei Dian, Shutao Li, Leyuan Fang, Hunan University, China; Jose Bioucas, Instituto Superior Técnico, Portugal

WE2.R7.2 11:30 **OPTIMIZING KERNEL RIDGE REGRESSION FOR REMOTE SENSING PROBLEMS**
Gonzalo Mateo-García, Valero Laparra, Luis Gómez-Chova, Universidad de València, Spain

WE2.R7.3 11:50 **CHARACTERIZATION OF THE TRANSMIT POWER AND ANTENNA PATTERN OF THE GPS CONSTELLATION FOR THE CYGNSS MISSION**
Tianlin Wang, Christopher Ruf, Bruce Block, Darren McKague, University of Michigan, United States

WE2.R7.4 12:10 **HY-DEMOSAICING: HYPERSPECTRAL BLIND RECONSTRUCTION FROM SPECTRAL SUBSAMPLING**
Lina Zhuang, Jose Bioucas-Dias, Instituto de Telecomunicacoes, Instituto Superior Tecnico, Universidade de Lisboa, Portugal

WE2.R7.5 12:30 **MULTIOUTPUT AUTOMATIC EMULATOR FOR RADIATIVE TRANSFER MODELS**
Daniel Heestermans Svendsen, University of Valencia, Spain; Luca Martino, Universidad Carlos III de Madrid, Spain; Jorge Vicent, European Space Agency, Spain; Gustau Camps-Valls, University of Valencia, Spain

Wednesday, July 25 14:10 - 15:50 Room 4C
Session WE3.R7 Oral

Hyperspectral Denoising & Filtering

WE3.R7.1 14:10 **HYPERSPECTRAL IMAGE DENOISING VIA NONNEGATIVE MATRIX FACTORIZATION AND CONVOLUTIONAL NEURAL NETWORKS**
Baihong Lin, Xiaoming Tao, Tsinghua University, China; Xiaowei Qin, University of Science and Technology of China, China; Yiping Duan, Jianhua Lu, Tsinghua University, China

WE3.R7.2 14:30 **HYPERSPECTRAL IMAGE RESTORATION BASED ON SALIENT EDGES**
Mo Zhang, Benoit Vozel, Kacem Chehdi, University of Rennes, France; Mykhail L. Uss, Sergey Abramov, Vladimir V. Lukin, National Aerospace University, Ukraine

WE3.R7.3 14:50 **CLOUD SHADOW REMOVAL BASED ON CLOUD TRANSMITTANCE ESTIMATION**
Madhuri Nagare, Eiji Kaneko, Masato Toda, Hirofumi Aoki, Masato Tsukada, NEC Corporation, Japan

WE3.R7.4 15:10 **ADAPTIVE HYPERSPECTRAL MIXED NOISE REMOVAL**
Tai-Xiang Jiang, University of Electronic Science and Technology of China, China; Lina Zhuang, Instituto Superior Técnico, Universidade de Lisboa, Portugal; Ting-Zhu Huang, University of Electronic Science and Technology of China, China; Jose Bioucas-Dias, Instituto Superior Técnico, Universidade de Lisboa, Portugal

Wednesday, July 25 16:50 - 18:30 Room 4C
Session WE4.R7 Oral

Bio-geophysical Parameter Retrieval

Session Chair: Nazzareno Pierdicca, Sapienza University of Rome

WE4.R7.1 16:50 **GAP FILLING OF BIOPHYSICAL PARAMETER TIME SERIES WITH MULTI-OUTPUT GAUSSIAN PROCESSES**
Anna Mateo-Sanchis, Jordi Muñoz-Marí, Manuel Campos-Taberner, Francisco Javier García-Haro, Gustau Camps-Valls, Universidad de València, Spain

WE4.R7.2 17:10 **POTENTIAL OF LANDSAT-OLI FOR SEAGRASS AND ALGAE SPECIES DETECTION AND DISCRIMINATION IN BAHRAIN NATIONAL WATER USING SPECTRAL REFLECTANCE**
Alanoud Alkhatlan, Abderrazak Bannari, Ali El-Battay, Thamer Al-Dawood, Asma Abahussain, Arabian Gulf University, Bahrain

WE4.R7.3 17:30 **CONSISTENT REGRESSION OF BIOPHYSICAL PARAMETERS WITH KERNEL METHODS**
Emiliano Díaz, Adrián Pérez-Suay, Valero Laparra, Gustau Camps-Valls, Universitat de València, Spain

WE4.R7.4 17:50 **DISENTANGLING DERIVATIVES, UNCERTAINTY AND ERROR IN GAUSSIAN PROCESS MODELS**
Juan Emmanuel Johnson, Valero Laparra, Gustau Camps-Valls, Universitat de València, Spain

WE4.R7.5 18:10 **ON THE EFFECT OF NUMBER AND DISTRIBUTION OF ACQUISITIONS IN L-BAND SAR TOMOGRAPHY FOR FOREST STRUCTURE ESTIMATION**
Victor Cazcarra-Bes, Marivi Tello-Alonso, Matteo Pardini, Konstantinos Papathanassiou, German Aerospace Center (DLR), Germany

Wednesday, July 25 08:30 - 10:10 Room 4F
Session WE1.R8 Oral

Close Range Remote Sensing II

WE1.R8.1 08:30 **A NEW RADAR FOR DETECTION OF OIL-SPILLS ON QUIET SEAS**
Richard Norland, ISPAS AS, Norway

WE1.R8.2 08:50 **A PHENOMENOLOGICAL STUDY OF RADAR BACKSCATTER RESPONSE OF VEHICLES FOR THE NEXT GENERATION AUTOMOTIVE RADARS**
Abdulrahman Alaqeel, Amr Ibrahim, Adib Nashashibi, The university of Michigan, Ann Arbor, United States; Hussein Shaman, King Abdulaziz City for Science and Technology, Saudi Arabia; Kamal Sarabandi, The university of Michigan, Ann Arbor, United States

WE1.R8.3 09:10 **INTERIM REPORT OF SUPER LOW ALTITUDE SATELLITE OPERATION**
Haruo Kawasaki, Kazuya Konoue, Hirokazu Hoshino, Yutaka Kaneko, Masanori Sasaki, Japan Aerospace Exploration Agency, Japan

WE1.R8.4 09:30 **EXTRACTION OF STRUCTURAL AND MINERALOGICAL FEATURES FROM HYPERSPECTRAL DRILL-CORE SCANS**
Laura Tusa, Louis Andreani, Helmholtz-Zentrum Dresden-Rossendorf, Helmholtz Institute Freiberg for Resource Technology, Germany; Eric Pohl, LSCE/IPSL, CEA-CNRS-UVSQ, Université Paris-Saclay, Gif-sur-Yvette, France, France; Cecilia Contreras, Mahdi Khodadadzadeh, Richard Gloaguen, Jens Gutzmer, Helmholtz-Zentrum Dresden-Rossendorf, Helmholtz Institute Freiberg for Resource Technology, Germany

Wednesday, July 25 11:10 - 12:50 Room 4F
Session WE2.R8 Oral

New Remote Sensing Techniques and Methods IV

Session Chair: José A. Sobrino, University of Valencia

WE2.R8.1 11:10 **THE INDIAN-FRENCH TRISHNA MISSION : EARTH OBSERVATION IN THE THERMAL INFRARED WITH HIGH SPATIO-TEMPORAL RESOLUTION**
Jean-Pierre Lagouarde, INRA, France; B.K. Bhattacharya, ISRO, India; Philippe Crébassol, Philippe Gamet, CNES, France; S.S. Babu, ISRO, India; G. Boulet, IRD, France; Xavier Briottet, ONERA, France; K.M. Buddhiraju, ISRO, India; S. Cherchali, CNES, France; I. Dadou, LEGOS, France; Gérard Dedieu, CESBIO, France; M. Gouhier, OPGC, France; Olivier Hagolle, CESBIO, France; M. Irvine, INRA, France; F. Jacob, IRD, France; Anil Kumar, K.K. Kumar, ISRO, India; Benoit Laignel, Université de Rouen, France; K. Mallick, LIST, Luxembourg; C.S. Murthy, ISRO, India; Albert Olioso, INRA, France; C. Ottlé, LSCE, France; M.R. Pandya, P.V. Raju, ISRO, India; Jean-Louis Roujean, CESBIO, France; M. Sekhar, Indian Institute of Science, India; M.V. Shukla, S. K. Singh, ISRO, India; José Antonio Sobrino, Universitat de València, Spain; R. Ramakrishnan, ISRO, India

WE2.R8.2 11:30 **A THERMAL IMAGING INSTRUMENT WITH UNCOOLED DETECTORS**
Alicia Joseph, Emily Barrentine, Ari Brown, NASA Goddard Space Flight Center, United States

WE2.R8.3 11:50 **A NOVEL FINE REGISTRATION TECHNIQUE FOR VERY HIGH RESOLUTION REMOTE SENSING IMAGES**
Xianzhang Zhu, Yongjun Zhang, Hui Cao, Wuhan University, China; Kai Tan, HUAWEI Technology Co., Ltd, China; Xiao Ling, Wuhan University, China

WE2.R8.4 12:10 **A NEW OPTIMIZED DENOISING METHOD APPLIED TO THE SPOT WORLD HERITAGE INITIATIVE AND ITS SPOT 5 SUPERMODE IMAGES**
Antoine Masse, French Spatial Agency (CNES), France; Sébastien Lefèvre, Université Bretagne Sud, France; Christophe Latry, Julien Nosavan, Simon Baillarin, French Spatial Agency (CNES), France

WE2.R8.5 12:30 **COLOR: CYCLING OFFLINE LEARNING AND ONLINE REPRESENTING FOR REMOTE SENSING DATAFLOW**
Zhuo Zheng, Yanfei Zhong, Wuhan University, China

Wednesday, July 25 14:10 - 15:50 Room 4F
Session WE3.R8 Oral

New Remote Sensing Techniques and Methods V

Session Co-Chairs: Scott Hensley, NASA Jet Propulsion Laboratory, California Institute of Technology; Salvatore Stramondo, Istituto Nazionale di Geofisica e Vulcanologia

WE3.R8.1 14:10 **SATELLITE OBSERVATIONS OF SURFACE AIR PRESSURE USING ACTIVE MICROWAVE REMOTE SENSING TECHNIQUE FOR SEVERE WEATHER FORECAST IMPROVEMENTS**
Bing Lin, NASA Langley Research Center, United States; Qilong Min, University at Albany, State University of New York, United States; Steven Harrah, Yongxiang Hu, NASA Langley Research Center, United States; Roland Lawrence, National Institute of Aerospace, United States

WE3.R8.2 14:30 **HIGH-SPEED RAILWAY BRIDGE VIBRATION MEASUREMENT AND ANALYSIS BASED ON RADAR INTERFEROMETRY**
Zelong Shao, Xiangkun Zhang, Jiawei Ren, Yingsong Li, Chinese Academy of Sciences, China

WE3.R8.3 14:50 **ATMOSPHERIC SLANT DELAY FROM SAR INTERFEROMETRY, GNSS AND NUMERICAL WEATHER PREDICTION MODEL: A COMPARISON STUDY IN VIEW OF A GEOSYNCHRONOUS SAR MISSION**
Nazzareno Pierdicca, Ida Maiello, Federica Murgia, Sapienza Università di Roma, Italy; Giovanna Venuti, Polytechnic of Milan, Italy; Eugenio Sansosti, Simona Verde, CNR-IREA, Italy; Andrea Gatti, Polytechnic of Milan, Italy; Christian Bignami, INGV, Italy; Rossella Ferretti, CETEMPS, Italy; Eugenio Realini, GReD srl, Italy; Stefano Barindelli, Andrea Monti-Guarnieri, Politecnico di Milano, Italy

WE3.R8.4 15:10 **WAVE SPECTROMETER TILT MODULATION TRANSFERT FUNCTION USING NEAR-NADIR KU- AND KA-BAND GPM RADAR MEASUREMENTS**
Victor Gressani, CNES / CLS, France; Fréderic Nouguier, Alexis Mouche, LOPS Ifremer (SIAM), France

Wednesday, July 25 16:50 - 18:30 Room 4F
Session WE4.R8 Oral

New Remote Sensing Techniques and Methods VI

Session Chair: José A. Sobrino, University of Valencia

WE4.R8.1 16:50 **SOLAR RADIO OBSERVATIONS FROM SOIL MOISTURE AND OCEAN SALINITY (SMOS) MISSION**
Raffaele Crapolicchio, European Space Agency/ESRIN, Italy; Daniele Casella, Serco Italia S.p.A., Italy; Christophe Marqué, Royal Observatory of Belgium, Italy

WE4.R8.2 17:10 **USING DMSP/OLS NIGHTTIME LIGHT TO ESTIMATE ELECTRIC POWER CONSUMPTION: PERSPECTIVE FROM TRANSFERABILITY ACROSS YEARS**
Kun Qi, Yi'na Hu, Peking University, China; Tao Hu, Huazhong Agricultural University, China

WE4.R8.3 17:30 **STATE-OF-THE-ART AND GAPS FOR DEEP LEARNING ON LIMITED TRAINING DATA IN REMOTE SENSING**
John Ball, Mississippi State Univeristy, United States; Derek Anderson, The University of MIssouri, United States; Pan Wei, Mississippi State Univeristy, United States

WE4.R8.4 17:50 **OPTIMAL SAMPLING OF BRDF'S OF VARYING COMPLEXITY**
Katarina Doctor, Jeff Byers, U.S. Naval Research Laboratory, United States

WE4.R8.5 18:10 **DOPPLER SPECTRUM OF MICROWAVES AT FORWARD SCATTERING FROM THE SEA SURFACE**
Yuriy Titchenko, Vladimir Karaev, Institute of Applied Physics, Russian Academy of Science, Russian Federation

Wednesday, July 25 **08:30 - 10:10** **Room 4D**
Session WE1.R9 **Oral-Invited**

Advances in Radar Sounder Science and Engineering I

Session Co-Chairs: Dustin Schroeder, Stanford University; Lorenzo Bruzzone, University of Trento

WE1.R9.1 08:30 **DESIGN AND PERFORMANCE OF THE ICEPOD LC-130 DEEP AND SHALLOW RADAR SOUNDERS**
Nick Frearson, Tej Dhakal, Lamont-Doherty Earth Observatory of Columbia University in New York City, United States

WE1.R9.2 08:50 **L-BAND RADAR SOUNDER FOR MEASUING ICE BASAL CONDITIONS AND ICE-SHELF MELT RATE**
Jie-Bang Yan, Prasad Gogineni, Charles R. O'Neill, University of Alabama, United States

WE1.R9.3 09:10 **A CUBESAT TRAIN FOR RADAR SOUNDING AND IMAGING OF ANTARCTIC ICE SHEET**
Prasad Gogineni, Christopher R. Simpson, Jie-Bang Yan, Charles R. O'Neill, Rohan Sood, Sevgi Z. Gurbuz, Ali C. Gurbuz, The University of Alabama, United States

WE1.R9.4 09:30 **SOUNDING THE ANTARCTIC ICE SHEET FROM SPACE: A FEASIBILITY STUDY BASED ON AIRBORNE P-BAND RADAR DATA**
Jørgen Dall, Technical University of Denmark, Denmark; Hugh Corr, British Antarctic Survey, United Kingdom; Nick Walker, eOsphere Limited, United Kingdom; Björn Rommen, Chung-Chi Lin, European Space Agency, Netherlands

Wednesday, July 25 **11:10 - 12:50** **Room 4D**
Session WE2.R9 **Oral-Invited**

Advances in Radar Sounder Science and Engineering II

Session Co-Chairs: Lorenzo Bruzzone, University of Trento; Dustin Schroeder, Stanford University

WE2.R9.1 11:10 **REFRACTION ANGLE CALCULATION IN MULTILAYERED ICE FOR WIDE-BEAM AIRBORNE RADAR**
Alvaro Arenas-Pingarron, Paul Brennan, University College London, United Kingdom; Hugh Corr, British Antarctic Survey, United Kingdom

WE2.R9.2 11:30 **UNFOCUSED SAR PROCESSING FOR ENGLACIAL LAYER SLOPE ESTIMATION USING RADAR SOUNDER DATA**
Davide Castelletti, Dustin M. Schroeder, Elisa Mantelli, Andrew Hilger, Stanford University, United States

WE2.R9.3 11:50 **FIRST IN-SITU DEMONSTRATION OF PASSIVE RADIO SOUNDING USING THE SUN AS A SOURCE FOR ECHO DETECTION**
Sean Peters, Dustin M. Schroeder, Davide Castelletti, Stanford University, United States; Mark Haynes, Andrew Romero-Wolf, Jet Propulsion Laboratory, California Institute of Technology, United States

WE2.R9.4 12:10 **NOISE CHARACTER CONSTRAINTS ON PASSIVE RADIO SOUNDING OF JUPITER'S ICY MOONS USING JOVIAN DECAMETRIC RADIATION**
Leonardo Carrer, University of Trento, Italy; Dustin M. Schroeder, Stanford University, United States; Andrew Romero-Wolf, Paul A Ries, Jet Propulsion Laboratory, California Institute of Technology, United States; Lorenzo Bruzzone, University of Trento, Italy

WE2.R9.5 12:30 **AUTOMATED TRACKING OF 2D AND 3D ICE RADAR IMAGERY USING VITERBI AND TRW-S**
Victor Berger, University of Kansas, United States; Mingze Xu, Intelligent Systems Engineering, United States; Shane Chu, University of Kansas, United States; David Crandall, Intelligent Systems Engineering, United States; John Paden, University of Kansas, United States; Geoffrey Fox, Intelligent Systems Engineering, United States

Wednesday, July 25 **14:10 - 15:50** **Room 4D**
Session WE3.R9 **Oral-Invited**

ALOS-2/ALOS-4 I

Session Co-Chairs: Masanobu Shimada, Tokyo Denki University / JAXA; Manabu Watanabe, Tokyo Denki University

WE3.R9.1 14:10 **ALOS-2 MISSION STATUS UPDATES**
Masato Ohki, Takeshi Motooka, Takahiro Abe, Hiroto Nagai, Takeo Tadono, Yukihiro Kankaku, Japan Aerospace Exploration Agency, Japan; Masanobu Shimada, Tokyo Denki University, Japan

WE3.R9.2 14:30 **RESULTS OF ALOS-2 PALSAR-2 CALIBRATION AND VALIDATION AFTER 3 YEARS OF OPERATION**
Takeshi Motohka, Japan Aerospace Exploration Agency, Japan; Osamu Isoguchi, Masanori Sakashita, Remote Sensing Technology Center of Japan, Japan; Masanobu Shimada, Tokyo Denki University, Japan

WE3.R9.3 14:50 **ASSESSMENT OF PALSAR-2 COMPACT CALIBRATION**
Ridha Touzi, Canada Centre for Remote Sensing, Canada; Masanobu Shimada, Tokyo Denki University, Canada; Takeshi Motohka, Japan Aerospace Exploration Agency, Japan; S. Nedelcu, CCRS, Canada

WE3.R9.4 15:10 **HARDWARE PERFORMANCE OF PALSAR-3 ONBOARD ALOS-4**
Yu Okada, Yuya Yokota, Akira Karasawa, Makoto Matsuki, Motofumi Arii, Shohei Nakamura, Mitsubishi Electric Corporation, Japan

Wednesday, July 25 **16:50 - 18:30** **Room 4D**
Session WE4.R9 **Oral-Invited**

ALOS-2/ALOS-4 II

Session Co-Chairs: Masanobu Shimada, Tokyo Denki University / JAXA; Manabu Watanabe, Tokyo Denki University

WE4.R9.1 16:50 **SEMI-AUTOMATIC DEFORESTATION DETECTION ALGORITHM WITH PALSAR-2/SCANSAR HH/HV POLARIZATIONS**
Manabu Watanabe, Christian Koyama, Tokyo Denki University, Japan; Masato Hayashi, Izumi Nagatani, Takeo Tadono, Japan Aerospace Exploration Agency, Japan; Masanobu Shimada, Tokyo Denki University, Japan

WE4.R9.2 17:10 **FOREST EARLY WARNING SYSTEM USING ALOS-2/PALSAR-2 SCANSAR DATA (JJ-FAST)**
Izumi Nagatani, Masato Hayashi, Japan Aerospace Exploration Agency, Japan; Manabu Watanabe, Tokyo Denki University, Japan; Takeo Tadano, Tomohiro Watanabe, Japan Aerospace Exploration Agency, Japan; Christian Koyama, Masanobu Shimada, Tokyo Denki University, Japan

WE4.R9.3 17:30 **COMPARISON OF MIMP SAR DATA FROM RICE PADDY AT X- AND L-BANDS**
Motofumi Arii, Mitsubishi Electric Corporation, Japan; Hiroyoshi Yamada, Niigata University, Japan; Shoichiro Kojima, National Institute of Information and Communications Technology, Japan; Masato Ohki, Japan Aerospace Exploration Agency, Japan; Yu Okada, Mitsubishi Electric Corporation, Japan

WE4.R9.4 17:50 **EFFECT OF FARADAY ROTATION ON L-BAND NRCS AND WIND SPEED DETECTION**
Osamu Isoguchi, Kenta Ishizuka, RESTEC, Japan; Takeo Tadono, Takeshi Motohka, Japan Aerospace Exploration Agency, Japan; Masanobu Shimada, Tokyo Denki University/JAXA, Japan

WE4.R9.5 18:10 **MONITORING OF AURORAL ACTIVITIES OVER FAIRBANKS, ALASKA, USING SAR, PFISR AND KEOGRAMS**
Jun-Su Kim, Konstantinos Papathanassiou, German Aerospace Center (DLR), Germany; Franz J Meyer, Donald Hampton, University of Alaska Fairbanks, United States

Wednesday, July 25 **08:30 - 10:10** **Room 2G-2H**
Session WE1.R10 **Oral**

Multi-temporal Analysis of SAR Images

Session Chair: Caitlin Kontgis, Descartes Labs

WE1.R10.1 08:30 **RABASAR: A FAST RATIO BASED MULTI-TEMPORAL SAR DESPECKLING**
Weiying Zhao, Télécom ParisTech, France; Charles-Alban Deledalle, University of Bordeaux, France; Loic Denis, University of Lyon, France; Henri Maitre, Jean-Marie Nicolas, Florence Tupin, Télécom ParisTech, France

WE1.R10.2 08:50 **A CIRCULAR APPROACH TO MULTI-CLASS CHANGE DETECTION IN MULTITEMPORAL SENTINEL-1 SAR IMAGE TIME SERIES**
Manuel Bertoluzza, Lorenzo Bruzzone, University of Trento, Italy; Francesca Bovolo, Fondazione Bruno Kessler, Italy

WE1.R10.3 09:10 **SPATIAL AND TEMPORAL STATISTICAL ANALYSIS OF STACK OF SAR IMAGES : THE CONTRIBUTION OF THE VARIOGRAM**
David Schwartz, Béatrice Pinel-Puysségur, CEA, France

WE1.R10.4 09:30 **FINDING COMPLEMENTARY AND RELIABLE PATTERNS IN DISPLACEMENT FIELD TIME SERIES OF ALPINE GLACIERS**
Tuan Nguyen, Nicolas Méger, University of Savoie Mont Blanc, France; Christophe Rigotti, Catherine Pothier, Univ Lyon, France; Emmanuel Trouvé, Jean-Louis Mugnier, University of Savoie Mont Blanc, France

WE1.R10.5 09:50 **POTENTIALS OF TANDEM-X FOREST/NON-FOREST MAP FOR CHANGE DETECTION**
José Luis Bueso Bello, Paola Rizzoli, Michele Martone, Carolina Gonzalez, German Aerospace Center (DLR), Germany

Wednesday, July 25 **11:10 - 12:50** **Room 2G-2H**
Session WE2.R10 **Oral**

Spectral Unmixing Techniques II

Session Chair: Jose Bioucas Dias, Universidade de Lisboa

WE2.R10.1 11:10 **SPECTRAL VARIABILITY IN A MULTILINEAR MIXING MODEL**
Thorvald Dox, Rob Heylen, Paul Scheunders, University of Antwerp, Belgium

WE2.R10.2 11:30 **CONSTRAINED NONNEGATIVE MATRIX FACTORIZATION FOR ROBUST HYPERSPECTRAL UNMIXING**
Fan Feng, Chenwei Deng, Wenzheng Wang, Jiahui Dai, Zhenzhen Li, Baojun Zhao, Beijing Institute of Technology, China

WE2.R10.3 11:50 **BLIND NONLINEAR HYPERSPECTRAL UNMIXING USING AN LQ REGULARIZER**
Jakob Sigurdsson, Magnus Orn Ulfarsson, Johannes Sveinsson, University Of Iceland, Iceland

WE2.R10.4 12:10 **BLIND SPECTRAL UNMIXING CONSIDERING THE ADJACENT EFFECT**
Xinyu Wang, Yanfei Zhong, Liangpei Zhang, Yanyan Xu, Wuhan University, China

WE2.R10.5 12:30 **A NEURAL NETWORK METHOD FOR NONLINEAR HYPERSPECTRAL UNMIXING**
Bikram Koirala, Rob Heylen, Paul Scheunders, University of Antwerp, Belgium

Wednesday, July 25 **14:10 - 15:50** **Room 2G-2H**
Session WE3.R10 **Oral**

Target Detection III

Session Co-Chairs: Emmett Ientilucci, Rochester Institute of Technology; Bo Du, Wuhan University

WE3.R10.1 14:10 **RANDOMIZED RX FOR TARGET DETECTION**
Fatih Nar, Konya Food and Agriculture University, Turkey; Adrián Pérez-Suay, Jose Antonio Padron, Gustau Camps-Valls, University of Valencia, Spain

WE3.R10.2 14:30 **HYBRID PARAMETRIC - NONPARAMETRIC TARGET DETECTOR FOR HYPERSPECTRAL IMAGES**
Stefania Matteoli, National Research Council of Italy (CNR), Italy; Marco Diani, Italian Naval Academy, Italy; Giovanni Corsini, University of Pisa, Italy

WE3.R10.3 14:50 **STATIONARY COVARIANCE MATRICES FOR HYPERSPECTRAL POINT TARGET DETECTION**
Yoram Furth, Adi Falik, Stanley Rotman, Ben-Gurion University of the Negev, Israel

WE3.R10.4 15:10 **PROCESSING A NEW HYPERSPECTRAL DATA SET FOR TARGET DETECTION AND ATMOSPHERIC COMPENSATION ALGORITHM ASSESSMENT: THE RIT2017 DATA SET**
Emmett Ientilucci, Rochester Institute of Technology, United States

WE3.R10.5 15:30 **SPECTRAL DETECTION ON A MANIFOLD FOR FINDING UNDERSEA OBJECTS**
Alan Schaum, U.S. Naval Research Laboratory, United States

Wednesday, July 25 **16:50 - 18:30** **Room 2G-2H**
Session WE4.R10 **Oral**

Spectral Unmixing Techniques III

Session Co-Chairs: Jocelyn Chanussot, Grenoble Institute of Technology; Jun Li, Sun Yat-Sen University

WE4.R10.1 16:50 **HYPERSPECTRAL UNMIXING USING SECANT FUNCTION OPTIMIZATION**
Elnaz Sharifi, Azam Karami, Shahid Bahonar University of Kerman, Iran

WE4.R10.2 17:10 **BUILDING A HYPERSPECTRAL LIBRARY AND ITS INCORPORATION INTO SPARSE UNMIXING FOR MINERAL IDENTIFICATION**
Thanh Bui, Beate Orberger, Simon B. Blancher, Eramet Research, Eramet Group, France; Ali Mohammad-Djafari, L2S, CNRS, Centrale Supélec, Université Paris-Saclay, France; Henry Pilliere, ThermoFisher Scientific, France; Anne Salaun, Eramet Research, Eramet Group, France; Xavier Bourrat, Nicolas Maubec, Caractérisation minérale, physico-chimique et texturale, BRGM, France; Thomas Lefevre, ThermoFisher Scientific, France; Celine Rodriguez, Eramet Research, France; Antanas Vaitkus, Saulius Grazulis, Vilnius University Institute of Biotechnology, Lithuania; Cedric Duée, Caractérisation minérale, physico-chimique et texturale, BRGM, France; Dominique Harang, ThermoFisher Scientific, France; Thomas Wallmach, Eramet Research, France; Yassine El Mendili, Daniel Chateigner, CRISMAT-CNRS, Normandie Université, France; Mike Buxton, Faculty of Civil Engineering and Geosciences, Delft University of Technology, Netherlands; Monique Le Guen, Eramet Nickel Division, Eramet Group, France

WE4.R10.3 17:30 **HYPERSPECTRAL ENDMEMBER EXTRACTION PREPROCESSING USING COMBINATION OF EUCLIDEAN AND GEODESIC DISTANCES**
Fatemeh Kowkabi, College of Engineering, Marvdasht Branch, Islamic Azad University, Iran; Ahmad Keshavarz, Electrical Engineering Department, Scholar Engineering, Persian Gulf University, Iran

WE4.R10.4 17:50 **A FAST ALGORITHM TO FIND ALL PATHS FOR HYPERSPECTRAL UNMIXING**
Yang Liu, CAST-Xi'an Institute of Space Radio Technology, China; Guo Yi, Western Sydney University, Australia; Feng Li, Lei Xin, Qian Xuesen Laboratory of Space Technology, China; Puming Huang, CAST-Xi'an Institute of Space Radio Technology, China

WE4.R10.5 18:10 **ROLLING GUIDANCE BASED SCALED-AWARE SPATIAL SPARSE UNMIXING FOR HYPERSPECTRAL REMOTE SENSING IMAGERY**
Ruyi Feng, Tian Tian, Xianju Li, Kun Sun, China University of Geosciences, China

Wednesday, July 25 08:30 - 10:10 Room 2E
Session WE1.R11 Oral

GNSS-R V: Missions and Applications

Session Co-Chairs: Carmela Galdi, Università del Sannio; Cinzia Zuffada, NASA Jet Propulsion Laboratory, California Institute of Technology

WE1.R11.1 08:30 **COMPARISON OF WIDE BANDWIDTH CONVENTIONAL AND INTERFEROMETRIC GNSS-R TECHNIQUES FOR POSSIBLE CYGNSS FOLLOW-ON MISSION**
Rachel Norris, Christopher Ruf, University of Michigan, United States; Eric Loria, Andrew O'Brien, The Ohio State University, United States

WE1.R11.2 08:50 **AN ALGORITHM FOR WIND SPEED RETRIEVAL FROM CYGNSS SPACE OBSERVATORIES**
Pia Addabbo, Università degli Studi Giustino Fortunato, Italy; Maurizio di Bisceglie, Carmela Galdi, Generoso Giangregorio, Università degli Studi del Sannio, Italy

WE1.R11.3 09:10 **CYGNSS OBSERVATIONS OF OCEAN WINDS AND WAVES**
Paul Chang, NOAA/NESDIS, United States; Zorana Jelenak, NOAA/NESDIS-UCAR, United States; Faozi Said, NOAA/NESDIS-GST, United States; Seubson Soisuvarn, NOAA/NESDIS-UCAR, United States

WE1.R11.4 09:30 **A COMPARISON OF WAVEFORM MODEL RE-TRACKING METHODS USING DATA FROM CYGNSS**
Jake Mashburn, University of Colorado, United States; Andrew O'Brien, The Ohio State University, United States; Penina Axelrad, University of Colorado, United States; Cinzia Zuffada, Stephen Lowe, Rashmi Shah, Jet Propulsion Laboratory, United States; Alexander Voronovich, Valery Zavorotny, National Oceanic and Atmospheric Administration, United States

Wednesday, July 25 11:10 - 12:50 Room 2E
Session WE2.R11 Oral

Lidar Technology and Applications

Session Co-Chairs: John Kerekes, Rochester Institute of Technology; K. Olaf Niemann, University of Victoria

WE2.R11.1 11:10 **A HYPERSPECTRAL LIDAR WITH EIGHT CHANNELS COVERING FROM VIS TO SWIR**
Zhen Wang, Key Laboratory of Quantitative Remote Sensing Information Technology, Chinese Academy of Sciences, China; Yuwei Chen, Finnish Geospatial Research Institute, Finland; Chuanrong Li, Mi Tian, Mei Zhou, Wenjing He, Haohao Wu, Huijing Zhang, Lingli Tang, Key Laboratory of Quantitative Remote Sensing Information Technology, Chinese Academy of Sciences, China; Yiwu Wang, Hui Zhou, Eetu Puttonen, Juha Hyyppä, Finnish Geospatial Research Institute, Finland

WE2.R11.2 11:30 **A SOLVER FOR ESTIMATING RANGE-RESOLVED BEAM ATTENUATION COEFFICIENT FROM IN-WATER LIDAR WAVEFORMS**
Martin Montes-Hugo, Florida Atlantic University, United States; Anni K. Vuorenkoski, Bing Ouyang, Fraser R. Dalgleish, Ocean Visibility and Optics Laboratory, Harbor Branch Oceanographic Institute, Florida Atlantic University, United States

WE2.R11.3 11:50 **GAUSSIAN DECOMPOSITION OF LIDAR WAVEFORM DATA SIMULATED BY DART**
Tiangang Yin, NASA Goddard Space Flight Center / ESSIC, University of Maryland, United States; Jianbo Qi, Jean-Philippe Gastellu-Etchegorry, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Shanshan Wei, Singapore-MIT Alliance for Research and Technology, Singapore; Bruce Cook, Douglas C. Morton, NASA Goddard Space Flight Center, United States

WE2.R11.4 12:10 **EXTRACTION OF BUILDING WINDOWS FROM MOBILE LASER SCANNING POINT CLOUDS**
Menglan Zhou, Lingfei Ma, Ying Li, Jonathan Li, University of Waterloo, Canada

WE2.R11.5 12:30 **INDIVIDUAL TREE LEVEL FOREST FIRE ASSESSMENT USING BI-TEMPORAL LIDAR DATA**
Qin Ma, University of California, Merced, United States; Tianyu Hu, Yanjun Su, Qinghua Guo, Chinese Academy of Sciences, China; John J. Battles, Maggi Kelly, University of California, Berkeley, United States

WEDNESDAY ORAL

Wednesday, July 25 14:10 - 15:50 Room 2E
Session WE3.R11 Oral

Sensor Calibration I

Session Chair: José A. Sobrino, University of Valencia

WE3.R11.1 14:10 **VICARIOUS CALIBRATION OF LANDSAT-8 THERMAL DATA COLLECTIONS AND ITS INFLUENCE ON SPLIT-WINDOW ALGORITHM VALIDATION**
Drazen Skokovic, José Antonio Sobrino, Juan Carlos Jimenez, Soria Guillem, Yves Julien, José Gomis-Cebolla, Susana García-Monteiro, University of Valencia, Spain

WE3.R11.2 14:30 **ANOMALOUS PIXEL REPLACEMENT AND SPECTRAL QUALITY ALGORITHM FOR LONGWAVE INFRARED HYPERSPECTRAL IMAGERY**
Blake Rankin, Joshua Broadwater, The Johns Hopkins University Applied Physics Laboratory, United States; Milton Smith, Lawrence Livermore National Laboratory, United States

WE3.R11.3 14:50 **VENpS COMMISSIONING PHASE: SPECIFICITIES OF RADIOMETRIC CALIBRATION**
Arthur Dick, Philippe Gamet, Sébastien Marcq, CNES, France; Gérard Dedieu, Olivier Hagolle, CESBIO, France; Philippe Crébassol, Jean-Louis Raynaud, CNES, France; Emmanuel Hillairet, Silvia Juglea Enache, Magellium, France

WE3.R11.4 15:10 **REDUCING UNCERTAINTIES OF MOLECULAR LINE INTENSITIES VIA CAVITY RING-DOWN SPECTROSCOPY MEASUREMENTS AND AB INITIO CALCULATIONS**
Zachary Reed, David Long, National Institute of Standards and Technology, United States; Aleksandra Kyuberis, Russian Academy of Science, Russian Federation; Oleg Polyansky, University College of London, United Kingdom; Joseph Hodges, National Institute of Standards and Technology, United States

WE3.R11.5 15:30 **REPROCESSING OF S-NPP ENVIRONMENTAL DATA RECORDS USING ENTERPRISE ALGORITHMS: PLANS AND PREPARATIONS**
Murty Divakarla, IM Systems Group, Inc, United States; Lihang Zhou, Center for Satellite Applications and Research, United States; Xingpin Liu, IM Systems Group, Inc, United States; Satya Kalluri, Center for Satellite Applications and Research, United States

Wednesday, July 25 16:50 - 18:30 Room 2E
Session WE4.R11 Oral

Sensor Calibration II

Session Chair: Cindy Ong, CSIRO

WE4.R11.1 16:50 **CROSS-CALIBRATION OF AQUA-MODIS AND NPP-VIIRS REFLECTIVE SOLAR BANDS FOR A SEAMLESS RECORD OF CERES CLOUD AND FLUX PROPERTIES**
Rajendra Bhatt, SSAI/NASA LaRC, United States; David Doelling, NASA Langley Research Center, United States; Benjamin Scarino, Conor Haney, Arun Gopalan, SSAI (Contractor to NASA LaRC), United States

WE4.R11.2 17:10 **INTERCOMPARISON OF EARTH-OBSERVING SENSORS USING THE RADIOMETRIC CALIBRATION TEST SITE (RADCATS)**
Jeffrey Czapla-Myers, Nikolaus Anderson, University of Arizona, United States

WE4.R11.3 17:30 **NOAA-20 OMPS SENSOR DATA RECORD FROM EARLY ORBIT OPERATION**
Chunhui Pan, University of Maryland, United States; Lihang Zhou, Changyong Cao, Trevor Beck, Larry Flynn, NOAA, United States; Eric Beach, I M Systems Group Inc, United States

WE4.R11.4 17:50 **NOAA-20 VIIRS DAY/NIGHT BAND UNIQUE FEATURE AND PRELIMINARY VERIFICATION ON-ORBIT**
Wenhui Wang, ERT@NOAA/NESDIS/STAR, United States; Changyong Cao, NOAA/NESDIS/STAR, United States; Lin Lin, University of Maryland, United States

WE4.R11.5 18:10 **SENTINEL-2 LEVEL-1 CALIBRATION AND VALIDATION STATUS FROM THE MISSION PERFORMANCE CENTRE**
Catherine Bouzinac, Bruno Lafrance, Laetitia Pessiot, CSSI, France; Dimitra Touli, Mathieu Jung, Airbus, France; Stephane Massera, IGN, France; Marion Neveu-VanMalle, Aude Espesset, Benjamin Francesconi, Thales Alenia Space, France; Sebastien Clerc, ACRI-ST, France; Jan Jackson, Bahjat Alhammoud, ARGANS, United Kingdom; Francoise Viallefont, ONERA, France; Enrico G. Cadau, Rosario Iannone, ESRIN, Italy; Ferran Gascon, European Space Agency/ESRIN, Italy

Wednesday, July 25 **08:30 - 10:10** **Room 2F**
Session WE1.R12 **Oral-Invited**

Deep Learning in Remote Sensing I

Session Co-Chairs: Ronny Hänsch, Technische Universität Berlin; Friedrich Frauendorfer, Graz University of Technology

WE1.R12.1 08:30 **A DEEP NETWORK APPROACH TO MULTITEMPORAL CLOUD DETECTION**
Devis Tuia, Benjamin Kellenberger, Wageningen University, Netherlands; Adrián Pérez-Suay, Gustau Camps-Valls, Universidad de València, Spain

WE1.R12.2 08:50 **HIERARCHICAL REGION BASED CONVOLUTION NEURAL NETWORK FOR MULTISCALE OBJECT DETECTION IN REMOTE SENSING IMAGES**
Qingpeng Li, Beihang University, China; Lichao Mou, Technical University of Munich (TUM), Germany; Kaiyu Jiang, Qingjie Liu, Yunhong Wang, Beihang University, China; Xiao Xiang Zhu, Technical University of Munich (TUM), Germany

WE1.R12.3 09:10 **GENERATIVE ADVERSARIAL NETWORKS FOR REALISTIC SYNTHESIS OF HYPERSPECTRAL SAMPLES**
Nicolas Audebert, ONERA - IRISA, France; Bertrand Le Saux, ONERA, France; Sébastien Lefèvre, IRISA, France

WE1.R12.4 09:30 **A RECURRENT CONVOLUTIONAL NEURAL NETWORK FOR LAND COVER CHANGE DETECTION IN MULTISPECTRAL IMAGES**
Lichao Mou, Xiao Xiang Zhu, German Aerospace Center (DLR) / Technical University of Munich (TUM), Germany

WE1.R12.5 09:50 **EXTRACTION OF BUILDINGS IN VHR SAR IMAGES USING FULLY CONVOLUTION NEURAL NETWORKS**
Muhammad Shahzad, National University of Sciences and Technology (NUST), Pakistan; Michael Maurer, Friedrich Fraundorfer, Technical University of Graz (TU Graz), Austria; Yuanyuan Wang, Xiao Xiang Zhu, Technical University of Munich (TUM), Germany

Wednesday, July 25 **11:10 - 12:50** **Room 2F**
Session WE2.R12 **Oral-Invited**

Deep Learning in Remote Sensing II

Session Co-Chairs: Friedrich Frauendorfer, Graz University of Technology; Ronny Hänsch, Technische Universität Berlin

WE2.R12.1 11:10 **RECENT ADVANCES AND OPPORTUNITIES IN SCENE CLASSIFICATION OF AERIAL IMAGES WITH DEEP MODELS**
Fan Hu, Gui-Song Xia, Wen Yang, Liangpei Zhang, Wuhan University, China

WE2.R12.2 11:30 **WHAT GOES WHERE: PREDICTING OBJECT DISTRIBUTIONS FROM ABOVE**
Connor Greenwell, Scott Workman, Nathan Jacobs, University of Kentucky, United States

WE2.R12.3 11:50 **SELF-SUPERVISED LEARNING FOR STEREO RECONSTRUCTION ON AERIAL IMAGES**
Patrick Knöbelreiter, Christoph Vogel, Thomas Pock, Graz University of Technology, Austria

WE2.R12.4 12:10 **RECONSTRUCTION OF FULL-POL SAR DATA FROM PARTIAL-POL DATA USING DEEP NEURAL NETWORKS**
Qian Song, Feng Xu, Ya-Qiu Jin, Fudan University, China

Wednesday, July 25 **14:10 - 15:50** **Room 2F**
Session WE3.R12 **Oral-Invited**

Deep Learning Theories and Applications in the Remote Sensing I

Session Co-Chairs: Feng Xu, Fudan University; Mihai Datcu, German Aerospace Center (DLR)

WE3.R12.1 14:10 **INTELLIGENT SHIP RECONGNITION FROM SYNTHETIC APERTURE RADAR IMAGES**
Feng Xu, Haipeng Wang, Qian Song, Wei Ao, Yanqing Shi, Yutong Qian, Fudan University, China

WE3.R12.2 14:30 **GENERATIVE ADVERSARIAL NETWORKS FOR HARD NEGATIVE MINING IN CNN-BASED SAR-OPTICAL IMAGE MATCHING**
Lloyd H. Hughes, Michael Schmitt, Xiao Xiang Zhu, Technical University of Munich (TUM), Germany

WE3.R12.3 14:50 **TRANSFER LEARNING FOR MULTI-FREQUENCY SYNTHETIC APERTURE RADAR APPLICATIONS**
Colin Schwegmann, Waldo Kleynhans, Council For Scientific and Industrial Research, South Africa; Brian Salmon, University of Tasmania, Australia; Lizwe Mdakane, Rory Meyer, Council For Scientific and Industrial Research, South Africa; Juergan Janoth, Parivash Lumsdon, Airbus Defence and Space GmbH, Germany

WE3.R12.4 15:10 **SHADOW TRACKING OF MOVING TARGET BASED ON CNN FOR VIDEO SAR SYSTEM**
Yun Zhang, Shiyu Yang, Hongbo Li, Zhenhua Xu, Harbin Institute of Technology, China

Wednesday, July 25 **16:50 - 18:30** **Room 2F**
Session WE4.R12 **Oral-Invited**

Deep Learning Theories and Applications in the Remote Sensing II

Session Co-Chairs: Feng Xu, Fudan University; Mihai Datcu, German Aerospace Center (DLR)

WE4.R12.1 16:50 **DEEP NEURAL NETWORKS BASED SEMANTIC SEGMENTATION FOR OPTICAL TIME SERIES**
Wei Yao, Mihai Datcu, German Aerospace Center (DLR), Germany

WE4.R12.2 17:10 **POLSAR TARGET CLASSIFICATION USING POLARIMETRIC-FEATURE-DRIVEN DEEP CONVOLUTIONAL NEURAL NETWORK**
Si-Wei Chen, Chen-Song Tao, Xue-Song Wang, Shun-Ping Xiao, National University of Defense Technology, China

WE4.R12.3 17:30 **SAR TARGET CLASSIFICATION WITH CYCLEGAN TRANSFERRED SIMULATED SAMPLES**
Lei Liu, Zongxu Pan, Xiaolan Qiu, Lingxiao Peng, Institute of Electronics, Chinese Academy of Sciences, China

WE4.R12.4 17:50 **LAND COVER GENERATION FROM OPTICAL IMAGE**
Haipeng Wang, Feng Xu, Fudan University, China

WE4.R12.5 18:10 **A PARAMETERIZATION SCHEME FOR TYPHOON-OCEAN INTERACTION BASED ON A DEEP LEARNING NEURAL NETWORK**
Guoqing Jiang, Jun Wei, Peking University, China

Thursday, July 26 08:30 - 10:10 **Room 1D**
Session TH1.R1 **Oral**

Hyperspectral Image Classification II

Session Chair: Nick Younan, Mississippi State University

TH1.R1.1 08:30 **MULTI-SCALE STRUCTURE EXTRACTION FOR HYPERSPECTRAL IMAGE CLASSIFICATION**
Puhong Duan, Xudong Kang, Shutao Li, Hunan University, China; Jon Atli Benediktsson, University of Iceland, Iceland

TH1.R1.2 08:50 **A GA-BASED HYBRID VIEW GENERATION METHOD TO ENHANCE MULTI-VIEW ACTIVE LEARNING FOR HYPERSPECTRAL DATA**
Nasehe Jamshidpour, University of Tehran, Iran; Saeid Homayouni, University of Ottawa, Canada; Abdolreza Safari, University of Tehran, Iran

TH1.R1.3 09:10 **THE EFFECT OF GROUND TRUTH ON ACCURACY INDEXES IN HYPERSPECTRAL IMAGE CLASSIFICATION**
Qiaobo Hao, Shutao Li, Xudong Kang, Hunan University, China

TH1.R1.4 09:30 **COLLABORATIVE SPARSE PRIORS FOR INFRARED IMAGE MULTI-VIEW ATR**
Xuelu Li, Vishal Monga, The Pennsylvania State University - University Park, United States

TH1.R1.5 09:50 **SUBSPACE MULTINOMIAL LOGISTIC REGRESSION ENSEMBLE FOR CLASSIFICATION OF HYPERSPECTRAL IMAGES**
Mahdi Khodadadzadeh, Helmholtz-Zentrum Dresden-Rossendorf, Helmholtz Institute Freiberg for Resource Technology, Germany; Pedram Ghamisi, German Aerospace Center (DLR), Germany; Cecilia Contreras, Richard Gloaguen, Helmholtz-Zentrum Dresden-Rossendorf, Helmholtz Institute Freiberg for Resource Technology, Germany

Thursday, July 26 11:10 - 12:50 **Room 1D**
Session TH2.R1 **Oral**

Hyperspectral Data Processing III

Session Chair: Saurabh Prasad, University of Hosuton

TH2.R1.1 11:10 **SPECTRAL-SPATIAL HYPERSPECTRAL IMAGE CLASSIFICATION VIA LOCALITY AND STRUCTURE CONSTRAINED LOW-RANK REPRESENTATION**
Xiang He, Qi Wang, Northwestern Polytechnical University, China; Xuelong Li, Chinese Academy of Sciences, China

TH2.R1.2 11:30 **A NOVEL ANT COLONY OPTIMIZATION BASED TRAINING SUBSET SELECTION ALGORITHM FOR HYPERSPECTRAL IMAGE CLASSIFICATION**
Shakti Sharma, Krishna Mohan Buddhiraju, Indian Inst of Technology Bombay, India

TH2.R1.3 11:50 **CAN WE GENERATE GOOD SAMPLES FOR HYPERSPECTRAL CLASSIFICATION? —A GENERATIVE ADVERSARIAL NETWORK BASED METHOD**
Yonghao Xu, Bo Du, Liangpei Zhang, Wuhan University, China

TH2.R1.4 12:10 **SEMI-SUPERVISED CLASSIFICATION OF HYPERSPECTRAL DATA BASED ON GENERATIVE ADVERSARIAL NETWORKS AND NEIGHBORHOOD MAJORITY VOTING**
Ying Zhan, Kang Wu, Wei Liu, Jin Qin, Zhaoying Yang, Yasmine Medjadba, Guian Wang, Xianchuan Yu, Beijing Normal University, China

TH2.R1.5 12:30 **ROBUST SPARSE HYPERSPECTRAL UNMIXING BASED ON MULTI-OBJECTIVE OPTIMIZATION**
Xia Xu, Beihang University, China; Liming Wang, Institute of Information Engineering Chinese Academy of Sciences, China; Bin Pan, Zhenwei Shi, Beihang University, China

THURSDAY ORAL

Thursday, July 26 14:10 - 15:50 **Room 1D**
Session TH3.R1 **Oral**

Data Analysis Methods III

Session Chair: Laurent Ferro-Famil, University of Rennes 1

TH3.R1.1 14:10 **EVALUATION OF HYPERSPECTRAL CLASSIFICATION MAPS IN HETEROGENEOUS ECOSYSTEM**
Edurne Ibarrola-Ulzurrun, Javier Marcello, Universidad de Las Palmas de Gran Canaria, ULPGC, Spain; Consuelo Gonzalo-Martín, Universidad Politécnica de Madrid, Spain; Jocelyn Chanussot, University of Grenoble Alpes, CNRS, France

TH3.R1.2 14:30 **TEMPORAL DIMENSIONALITY REDUCTION FOR LAND COVER MAP PRODUCTION USING HIGH RESOLUTION IMAGE TIME SERIES**
Jordi Inglada, Cédric Traizet, CNES/CESBIO, France

TH3.R1.3 14:50 **FULLY SUPERVISED NON-NEGATIVE MATRIX FACTORIZATION FOR FEATURE EXTRACTION**
Woody Austin, UT Austin, United States; Dylan Anderson, Sandia National Laboratories, United States; Joydeep Ghosh, UT Austin, United States

TH3.R1.4 15:10 **USE OF GUIDED REGULARIZED RANDOM FOREST FOR BIOPHYSICAL PARAMETER RETRIEVAL**
Emma Izquierdo-Verdiguier, Universitat de València, Spain; Raúl Zurita-Milla, University of Twente, Netherlands

TH3.R1.5 15:30 **NONLINEAR COMPLEX PCA FOR SPATIO-TEMPORAL ANALYSIS OF GLOBAL SOIL MOISTURE**
Diego Bueso, María Piles, Gustau Camps-Valls, Universitat de València, Spain

Thursday, July 26 16:50 - 18:30 **Room 1D**
Session TH4.R1 **Oral**

Processing of SAR/POLSAR Data

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

TH4.R1.1 16:50 **NORMALIZED COMPRESSION DISTANCE FOR SAR IMAGE CHANGE DETECTION**
Mihai Coca, Military Tehnical Academy, Romania; Andrei Anghel, University Politehnica of Bucharest, Romania; Mihai Datcu, German Aerospace Center (DLR), Romania

TH4.R1.2 17:10 **TWO-DIMENSIONAL LOCAL SAMPLE DIRECTIONAL DISCRIMINANT PROJECTION FOR SAR AUTOMATIC TARGET RECOGNITION**
Xian Liu, Yulin Huang, Junjie Wu, Jianyu Yang, University of Electronic Science and Technology of China, China

TH4.R1.3 17:30 **ADAPTIVE WEIGHTED MULTI-TASK SPARSE REPRESENTATION CLASSIFICATION IN SAR IMAGE RECOGNITION**
Zhi Zhou, Zongjie Cao, Yiming Pi, Ting Jiang, University of Electronic Science and Technology of China, China

TH4.R1.4 17:50 **LOCAL EDGINESS MEASURES IN POLSAR IMAGERY BY USING STOCHASTIC DISTANCES**
Luis Gomez, Luis Alvarez, CTIM/University of Las Palmas de Gran Canaria, Spain; Alejandro C. Frery, Laboratório de Computacao Científica e Análise Numérica (LaCCAN)/ Universidade Federal de Alagoas, Brazil

TH4.R1.5 18:10 **OIL SPILL CANDIDATE DETECTION FROM SAR IMAGERY USING THREASHOLDING-GUIDED MAXIMALLY STABLE EXTREMAL REGIONS ALGORITHM**
Qian Zhang, Yunlin Huang, Weibo Huo, Qin Gu, Jifang Pei, Jianyu Yang, University of Electronic Science and Technology of China, China

Thursday, July 26 08:30 - 10:10 Room 3A
Session TH1.R2 Oral

SAR Interferometry / GMTI

TH1.R2.1 08:30 **TOWARDS THE RETRIEVAL OF 2-D VESSEL VELOCITIES WITH SINGLE-PLATFORM SPACEBORNE SAR: EXPERIMENTAL RESULTS WITH THE TERRASAR-X 2-LOOKS TOPS MODE**
Nestor Yague-Martinez, Pau Prats-Iraola, Wollstadt Steffen, Marc Rodriguez-Cassola, Maria J. Sanjuan-Ferrer, DLR - German Aerospace Center, Germany

TH1.R2.2 08:50 **FIRST GMTI RESULTS OF THE MIRANDA-35 SENSOR**
Emiliano Casalini, Daniel Henke, University of Zürich, Switzerland

TH1.R2.3 09:10 **TOWARDS ON-BOARD ELEVATION MEASUREMENT USING INTERFEROMETRY AND RADARGRAMMETRY FROM SINGLE-PASS SAR IMAGES**
Koichi Ito, Shota Hishinuma, Takafumi Aoki, Tohoku University, Japan; Jyunpei Uemoto, Seiho Uratsuka, National Institude of Information and Communications Technology, Japan

TH1.R2.4 09:30 **MULOG: A GENERIC VARIANCE-STABILIZATION APPROACH FOR SPECKLE REDUCTION IN SAR INTERFEROMETRY AND SAR POLARIMETRY**
Charles-Alban Deledalle, CNRS, France; Loïc Denis, Univ Lyon, France; Florence Tupin, Télécom ParisTech, France

TH1.R2.5 09:50 **SAR IMAGE RESTORATION VIA A NL APPROACH BASED ON THE KS TEST**
Giampaolo Ferraioli, Bilel Kanoun, Vito Pascazio, Gilda Schirnzi, Università di Napoli Parthenope, Italy

THURSDAY ORAL

Thursday, July 26 11:10 - 12:50 Room 3A
Session TH2.R2 Oral

SAR Classification

Session Co-Chairs: Florence Tupin, Télécom ParisTech; Maria Sanjuan-Ferrer, German Aerospace Center (DLR)

TH2.R2.1 11:10 **LAND USE ANALYSIS USING A COMPACT PARAMETRIZATION OF MULTI-TEMPORAL SAR DATA**
Francesco Asaro, Claudio M. Prati, Barbara Belletti, Simone Bizzi, Politecnico di Milano, Italy; Patrice Carbonneau, Durham University, United Kingdom

TH2.R2.2 11:30 **SAR CROSS-SPECTRAL ANALYSIS OF RADIAL INTERMEDIATE WAVES: DIRECTIONAL PROPERTIES**
Huimin Li, Bertrand Chapron, Alexis Mouche, University of Brest, CNRS, IRD, Ifremer, Laboratoire d'Oceanographie Physique et Spatiale (LOPS), IUEM, France

TH2.R2.3 11:50 **OPERATIONAL AGRICULTURAL FLOOD MONITORING WITH SENTINEL-1 SYNTHETIC APERTURE RADAR**
Claire Boryan, Zhengwei Yang, Avery Sandborn, Patrick Willis, National Agricultural Statistics Service, United States; Barry Haack, George Mason University, United States

TH2.R2.4 12:10 **SUB-APERTURE MOTION COMPENSATION FOR SLIDING SPOTLIGHT SAR**
Ning Li, Shilin Niu, Zhengwei Guo, Henan University, China

Thursday, July 26 14:10 - 15:50 Room 3A
Session TH3.R2 Oral

SAR Simulations / Systems

TH3.R2.1 14:10 **FULLY ADAPTIVE REMOTE SENSING OBSERVING SYSTEM SIMULATION EXPERIMENTS**
Graeme Smith, Adam Mitchell, Christopher Ball, Andrew O'Brien, Joel Johnson, The Ohio State University, United States

TH3.R2.2 14:30 **TOPOLOGY DESIGN FOR GEO SPACEBORNE-AIRBORNE MULTISTATIC SAR USING MULTIOBJECTIVE OPTIMIZATION ALGORITHMS**
Hongyang An, Junjie Wu, Zhichao Sun, Jianyu Yang, Yulin Huang, Haiguang Yang, University of Electronic Science and Technology of China, China

TH3.R2.3 14:50 **QUADRATURE COMPRESSIVE SAMPLING SAR IMAGING**
Huizhang Yang, Shengyao Chen, Feng Xi, Zhong Liu, Nanjing University of Science and Technology, China

TH3.R2.4 15:10 **A NEW IMAGING METHOD FOR GEOSTATIONARY SAR CONSTELLATION USING DOPPLER FILTERING**
Yukun Guo, Ze Yu, Shusen Wang, Jingwen Li, Beihang University, China

TH3.R2.5 15:30 **MACHINE LEARNING FRAMEWORK FOR MAPPING OF MISSISSIPPI RIVER LEVEES AND DAMAGE ASSESSMENT USING TERRASAR–X DATA**
Lalitha Dabbiru, James V. Aanstoos, John Ball, Nicolas H. Younan, Mississippi State Univeristy, United States

Thursday, July 26 16:50 - 18:30 Room 3A
Session TH4.R2 Oral

Advanced Polarimetric SAR Methods

Session Co-Chairs: Ridha Touzi, CCRS; Jong-Sen Lee, NRL

TH4.R2.1 16:50 **INDEPENDENT COMPONENT ANALYSIS BASED INCOHERENT TARGET DECOMPOSITIONS FOR POLARIMETRIC SAR DATA - PRACTICAL ASPECTS**
Gabriel Vasile, National Center for Scientific Research (CNRS), France

TH4.R2.2 17:10 **A STUDY ON PHYSICAL MEANINGS OF A UNITARY TRANSFORMATION USED IN POLARIMETRIC DECOMPOSITION**
Wentao An, Mingsen Lin, Juhong Zou, National Satellite Ocean Application Service, China

TH4.R2.3 17:30 **A NEW MODEL FOR P-BAND POL-INSAR BASED ON GAMMA DISTRIBUTION**
Xiaofan Sun, Liangjiang Zhou, Chinese Academy of Sciences/University of Chinese Academy of Sciences, China; Bingnan Wang, Chinese Academy of Sciences, China; Wenmei Li, Nanjing University of Posts and Telecommunications, China; Maosheng Xiang, Chinese Academy of Sciences\University of Chinese Academy of Sciences, China; Shuai Jiang, Chinese Academy of Sciences/University of Chinese Academy of Sciences, China

TH4.R2.4 17:50 **EVALUATION OF COHERENT SCATTERERS IN HIGH-RESOLUTION POLARIMETRIC SAR IMAGERY**
Yanting Wang, Thomas Ainsworth, Jong-Sen Lee, Naval Research Laboratory, United States

TH4.R2.5 18:10 **THE EFFECT OF FOREST FOLIAGE ON L-BAND POLARIMETRIC SAR DATA**
Hiroshi Kimura, Gifu University, Japan

Thursday, July 26 08:30 - 10:10 Room 1B
Session TH1.R3 Oral

Forest Monitoring using Microwave Instruments

TH1.R3.1 08:30 **OPEN-SOURCING OF A SOOP SIMULATOR WITH BISTATIC VEGETATION SCATTERING MODEL**
Orhan Eroglu, Dylan Boyd, Mehmet Kurum, Mississippi State University, United States

TH1.R3.2 08:50 **EVALUATION OF THE VEGETATION OPTICAL DEPTH INDEX ON MONITORING FIRE RISK IN THE MEDITERRANEAN REGION**
Lei Fan, Jean-Pierre Wigneron, Amen Al-Yaari, Nicolas Martin-StPaul, Jean-Luc Dupuy, François Pimont, Institut National de la Recherche Agronomique, France; Yann Kerr, CESBIO, CNES/CNRS/IRD/UPS, France

TH1.R3.3 09:10 **ESTIMATING LIVE FUEL MOISTURE IN SOUTHERN CALIFORNIA USING REMOTE SENSING VEGETATION WATER CONTENT PROXIES**
Shenyue Jia, Seung Hee Kim, Chapman University, United States; Son V. Nghiem, Jet Propulsion Laboratory, United States; Wonhee Cho, Korea Soongsil Cyber University, Republic of Korea; Menas Kafatos, Chapman University, United States

TH1.R3.4 09:30 **SMOS VEGETATION OPTICAL DEPTH AND ECOSYSTEM FUNCTIONAL PROPERTIES: EXPLORING THEIR RELATIONSHIPS IN TROPICAL FORESTS**
Gaia Vaglio Laurin, Tuscia University, Italy; Cristina Vittucci, Tor Vergata University, Italy; Gianluca Tramontana, Tuscia University, Italy; Paul Bodesheim, Max Planck Institute, Germany; Paolo Ferrazzoli, Leila Guerriero, Tor Vergata University, Italy; Martin Jung, Miguel Mahecha, Max Planck Institute, Germany; Dario Papale, Tuscia University, Italy

Thursday, July 26 11:10 - 12:50 Room 1B
Session TH2.R3 Oral

Forest Monitoring using LIDAR II

Session Chair: Sassan Saatchi, NASA Jet Propulsion Laboratory, California Institute of Technology

TH2.R3.1 11:10 **INFLUENCE OF LIDAR FULL-WAVEFORM DENSITY AND VOXEL SIZE ON FOREST STAND ESTIMATES**
Pablo Crespo-Peremarch, Luis Ángel Ruiz, Geo-Environmental Cartography and Remote Sensing Group (CGAT), Spain

TH2.R3.2 11:30 **ESTIMATION OF TERRESTRIAL VS AIRBORNE LIDAR-DERIVED CROWN ATTRIBUTES IN LONGLEAF PINE FOREST AT EGLIN AIR FORCE BASE, FLORIDA, USA**
Carlos Alberto Silva, University of Idaho, United States; Andrew Thomas Hudak, Carine Klauberg, US Forest Service (USDA), United States; Eric Rowell, University of Montana, United States

THURSDAY ORAL

Thursday, July 26 14:10 - 15:50 Room 1B
Session TH3.R3 Oral

Vegetation Monitoring using MODIS

Session Co-Chairs: Sergio Bernardes, University of Georgia; Marta Yebra, Australian National University

TH3.R3.1 14:10 **MAPPING LIVE FUEL MOISTURE CONTENT AND FLAMMABILITY FOR CONTINENTAL AUSTRALIA USING OPTICAL REMOTE SENSING**
Marta Yebra, Australian National University, Australia; Xingwen Quan, University of Electronic Science and Technology of China, China; David Riaño, University of California, Davis, United States; Pablo Rozas Larraondo, Albert van Dijk, Geoff Cary, Australian National University, Australia

TH3.R3.2 14:30 **DROUGHT DYNAMICS AND IMPACTS ON CHINA SHRUBLADNS VEGETATION ACTIVITIES**
Yalin Wang, Yi Ding, Yan Hu, Jing Chen, Wenwu Fan, Chongqing Geomatics Center, China

TH3.R3.3 14:50 **FOREST VERTICAL STRUCTURE FROM MODIS BRDF SHAPE INDICATORS**
Lei Cui, Ziti Jiao, Yadong Dong, Xiaoning Zhang, Mei Sun, Siyang Yin, Yaxuan Chang, Dandan He, Anxing Ding, Beijing Normal University, China

TH3.R3.4 15:10 **A MODIS-DERIVED PRIMARY PRODUCTIVITY DATASET FOR NORTH AMERICA BASED ON TOPOGRAPHICALLY-AWARE WEATHER DATA AND LIGHT-USE EFFICIENCY**
Sergio Bernardes, University of Georgia, United States

TH3.R3.5 15:30 **APPLICATION OF PHOTON RECOLLISION PROBABILITY THEORY FOR COMPATIBILITY CHECK BETWEEN FOLIAGE CLUMPING AND LEAF AREA INDEX PRODUCTS OBTAINED FROM EARTH OBSERVATION DATA**
Jan Pisek, Tartu Observatory, Estonia; Henning Buddenbaum, Trier University, Germany; Fernando Camacho, EOLAB, Spain; Joachim Hill, Trier University, Germany; Jennifer Jensen, Texas State University, United States; Holger Lange, Norwegian Institute of Bioeconomy Research, Norway; Zhili Liu, Northeast Forestry University, China; Arndt Piayda, Thünen Institute of Climate-Smart Agriculture, Germany; Yonghua Qu, Beijing Normal University, China; Olivier Roupsard, CIRAD-Persyst, France; Shawn Serbin, Brookhaven National Laboratory, United States; Svein Solberg, Norwegian Institute of Bioeconomy Research, Norway; Oliver Sonnentag, Université de Montréal, Canada; Anne Thimonier, WSL-Swiss Federal Institute for Forest, Snow and Landscape Research, Switzerland; Francesco Vuolo, Institute of Surveying, Remote Sensing and Land Information, Austria

Thursday, July 26 16:50 - 18:30 Room 1B
Session TH4.R3 Oral

Optical and Infrared Monitoring of Vegetation I

Session Chair: Christoph Rüdiger, Monash University

TH4.R3.1 16:50 **USING MULTISPECTRAL REMOTE SENSING TO ASSESS THE ECOLOGICAL QUALITY OF REGENERATING FORESTS IN THE AMAZON**
Juliana Silveira dos Santos, Catarina Conte Jakovac, André Braga Junqueira, International Institute for Sustainability, Brazil; Rita C. G. Mesquita, National Institute of Amazon Research, Brazil; Bernardo Strassburg, International Institute for Sustainability, Brazil

TH4.R3.2 17:10 **SENTINEL 2 AND 3 FOR TEMPERATURE MONITORING OVER THE AMAZON**
Juan Carlos Jimenez, José Gomis-Cebolla, José Antonio Sobrino, Guillem Sòria, Drazen Skokovic, Yves Julien, Susana García-Monteiro, University of Valencia, Spain; Cristian Mattar, Universidad de Aysén, Chile; Andrés Santamaría-Artigas, University of Maryland, United States; José Jesús Pasapera-Gonzales, CONIDA, Peru

TH4.R3.3 17:30 **THE VEGETATION STRUCTURE PERPENDICULAR INDEX FOR WILDFIRE SEVERITY AND FOREST RECOVERY MONITORING**
Andrea Massetti, Christoph Rüdiger, Monash University, Australia; Marta Yebra, Australian National University, Australia; James Hilton, CSIRO, Australia

Thursday, July 26 | 08:30 - 10:10 | Room 1C
Session TH1.R4 | Oral

Remote Sensing for Agricultural Monitoring

Session Chair: Subit Chakrabarti, University of Florida

TH1.R4.1 08:30 **ESA'S SMOS MISSION – SUPPORTING AGRICULTURAL APPLICATIONS**
Susanne Mecklenburg, Matthias Drusch, European Space Agency, Italy; Yann Kerr, Ahmad Albitar, Nemesio Rodríguez-Fernández, CESBIO, France; Maria Jose Escorihuela, isardSAT, Spain; María Piles, Universitat de València, Spain; Roberto Sabia, European Space Agency, Italy

TH1.R4.2 08:50 **REMOTE SENSING TO UAV-BASED DIGITAL FARMLAND**
Nicola Falco, Haruko Wainwright, Craig Ulrich, Baptiste Dafflon, Susan Hubbard, Lawrence Berkeley National Laboratory, United States; Malcolm Williamson, Jackson Cothren, Richard Ham, University of Arkansas, United States; Jay McEntire, McClain McEntire, M2 Capital Partners LLC, United States

TH1.R4.3 09:10 **INTER-COMPARISON OF ATMOSPHERIC CORRECTION METHODS ON SENTINEL-2 IMAGES APPLIED TO CROPLANDS**
Ion Sola, Jesús Álvarez-Mozos, María González-Audícana, Public University of Navarre, Spain

TH1.R4.4 09:30 **RELATIONSHIPS OF PHENOLOGICAL AND INTER-ANNUAL LANDSCAPE DYNAMICS WITH BIODIVERSITY IN FARMLANDS**
Niloofar Alavi, Doug King, Carleton University, Canada

Thursday, July 26 | 14:10 - 15:50 | Room 1C
Session TH3.R4 | Oral-Invited

Linking Chlorophyll Fluorescence Measurements and Radiative Transfer Modelling I: STATE OF THE ART

Session Co-Chairs: Maria Pilar Cendrero, University of Valencia; Zbynek Malenovsky, University of Tasmania

TH3.R4.1 14:10 **MODELLING REFLECTANCE, FLUORESCENCE AND PHOTOSYNTHESIS: DEVELOPMENT OF THE SCOPE MODEL**
Christiaan Van der Tol, Nastassia Vilfan, Peiqi Yang, Bagher Bayat, Wouter Verhoef, University of Twente, Netherlands

TH3.R4.2 14:30 **ON THE CONTROLS OF SOLAR-INDUCED FLUORESCENCE ACROSS SCALES: PHYSICAL VS BIOLOGICAL FACTORS**
Albert Porcar-Castell, University of Helsinki, Finland; Weiwei Liu, Institute of Geographic Sciences and Natural Resources Research, China; Paulina Rajewicz, Jon Atherton, Anu Riikonen, University of Helsinki, Finland; Markku Åkerblom, Tampere University of Technology, Finland; Ryad Bendoula, IRTSEA, France; Andreas Burkart, JB Hyperspectral Devices, Germany; Beatriz Fernandez-Marin, University of the Basque Country, Spain; Jean-Baptiste Féret, IRTSEA, France; Christian Frankenberg, Jet Propulsion Laboratory, United States; Jose Ignacio Garcia-Plazaola, University of the Basque Country, Spain; Jean-Philippe Gastellu-Etchegorry, University of Toulouse, France; Teemu Hakala, Eija Honkavaara, National Land Survey of Finland, Finland; Tommaso Julitta, University of Milano Bicocca, Italy; Pasi Kolari, University of helsinki, Finland; Alasdair MacArthur, University of Edinburgh, United Kingdom; Troy Magney, Jet Propulsion Laboratory, United States; Zbyněk Malenovský, University of Tazmania, Australia; Kadmiel Maseyk, The Open University, United Kingdom; Raisa Mäkipää, LUKE, Finland; Matti Mõttus, VTT, Finland; Esko Oksa, LUKE, Finland; Uwe Rascher, Forschungszentrum Juelich GmbH, Germany; Pasi Raumonen, Tampere University of Technology, Finland; Iain Robinson, Rutherford Appleton Laboratory, United Kingdom

TH3.R4.3 14:50 **ASSESSING THE USE OF MULTIPLE CONSTRAINTS AND ANCILLARY DATA TO SUPPORT SCOPE MODEL INVERSION IN A EXPERIMENTAL GRASSLAND**
Javier Pacheco-Labrador, Nuno Carvalhais, Oscar Perez-Priego, Tarek S. El-Madany, Max Planck Institute for Biogeochemistry, Germany; Micol Rossini, Tommaso Julitta, University of Milano Bicocca, Italy; Gerardo Moreno, Universidad de Extremadura, Spain; Rosario González-Cascón, Spanish National Institute for Agricultural and Food Research and Technology (INIA), Spain; Maria Pilar Martín, Spanish National Research Institute (CSIC), Spain; Markus Reichstein, Max Planck Institute for Biogeochemistry, Germany; Arnaud Carrara, Fundación Centro de Estudios Ambientales del Mediterráneo (CEAM), Spain; Luis Guanter, Helmholtz Centre Potsdam, Germany; Mirco Migliavacca, Max Planck Institute for Biogeochemistry, Germany

TH3.R4.4 15:10 **PHOTOSYNTHESIS-SUN INDUCED FLUORESCENCE RELATIONSHIP IN A MEDITERRANEAN GRASSLAND**
David Martini, Javier Pacheco-Labrador, Oscar Perez-Priego, Max Planck Institute for Biogeochemistry, Germany; Christiaan van der Tol, University of Twente, Netherlands; Tarek S. El-Madany, Max Planck Institute for Biogeochemistry, Germany; Tommaso Julitta, JB Hyperspectral Devices, Germany; Micol Rossini, University of Milano Bicocca, Italy; Anatoly Gitelson, University of Nebraska - Lincoln, United States; Markus Reichstein, Mirco Migliavacca, Max Planck Institute for Biogeochemistry, Germany

TH3.R4.5 15:30 **TOWARDS ADVANCED RETRIEVALS OF PLANT TRANSPIRATION USING SUN-INDUCED CHLOROPHYLL FLUORESCENCE: FIRST CONSIDERATIONS**
Alexander Damm, Sebastian Roethlin, Liv Fritsche, University of Zürich, Switzerland

Thursday, July 26 | 11:10 - 12:50 | Room 1C
Session TH2.R4 | Oral

Remote Sensing for Estimation of Biophysical Parameters IV

Session Co-Chairs: Maria Piles, Universitat de València; Vanessa Paredes Gómez, ITACYL, Agrotechnological Institute of Castile and León

TH2.R4.1 11:10 **LEAF WATER STATUS FROM LAB ESTIMATES OF VIS-NIR REFLECTANCE AND TRANSMITTANCE**
Vern Vanderbilt, NASA, United States; Craig S.T. Daughtry, United States Department of Agriculture, United States; Robert Dahlgren, CSUMB / NASA Ames Research Center, United States

TH2.R4.2 11:30 **COMBINATION OF OPTICAL AND SAR SENSORS FOR MONITORING BIOMASS OVER CORN FIELDS**
Mehdi Hosseini, Carleton University, Canada; Heather McNairn, Agriculture and Agri-Food Canada, Canada; Scott Mitchell, Carleton University, Canada; Andrew Davidson, Laura Dingle Robertson, Agriculture and Agri-Food Canada, Canada

TH2.R4.3 11:50 **A NONLINEAR HIERARCHICAL MODEL FOR FORECASTING CROP GROWTH IN THE US CORN BELT**
Colin Lewis-Beck, Petruta Caragea, Jarad Niemi, Brian K. Hornbuckle, Victoria Walker, Iowa State University, United States

TH2.R4.4 12:10 **DERIVATION OF HIGH SPATIO-TEMPORAL RESOLUTION LEAF AREA INDEX AND UNCERTAINTY MAPS BY COMBINING LAINET, CACAO AND GPR**
Gaofei Yin, Ainong Li, Institute of Mountain Hazards and Environment, Chinese Academy of Sciences, China

TH2.R4.5 12:30 **WINTER WHEAT YIELD ASSESSMENT USING LANDSAT 8 AND SENTINEL-2 DATA**
Sergii Skakun, Belen Franch, University of Maryland, United States; Eric Vermote, NASA, United States; Jean-Claude Roger, Christopher Justice, University of Maryland, United States; Jeffrey Masek, NASA, United States; Emilie Murphy, University of Maryland, United States

Thursday, July 26 | 16:50 - 18:30 | Room 1C
Session TH4.R4 | Oral-Invited

Linking Chlorophyll Fluorescence Measurements and Radiative Transfer Modelling II: NEW PROSPECTS

Session Co-Chairs: Zbynek Malenovsky, University of Tasmania; Maria Pilar Cendrero, University of Valencia

TH4.R4.1 16:50 **PHOTOPROTECTION DYNAMICS OBSERVED AT LEAF LEVEL FROM FAST TEMPORAL REFLECTANCE CHANGES**
Shari Van Wittenberghe, Luis Alonso, University of Valencia, Spain; Zbyněk Malenovský, University of Tasmania, Australia; José Moreno, University of Valencia, Spain

TH4.R4.2 17:10 **RETRIEVING PHOTOSYNTHETIC CAPACITY PARAMETER FROM LEAF PHOTOCHEMICAL REFLECTANCE AND CHLOROPHYLL FLUORESCENCE**
Nastassia Vilfan, Christiaan van der Tol, Peiqi Yang, Wouter Verhoef, ITC, University of Twente, 7500AE Enschede, The Netherlands, Netherlands

TH4.R4.3 17:30 **SIMULATION OF CHLOROPHYLL FLUORESCENCE FOR SUN- AND SHADE-ADAPTED LEAVES OF 3D CANOPIES WITH THE DART MODEL**
Jean-Philippe Gastellu-Etchegorry, University of Toulouse, France; Zbyněk Malenovský, University of Tasmania, Australia; Nuria Duran-Gomez, Jean Meynier, Nicolas Lauret, University of Toulouse, France; Tiangang Yin, NASA, United States; Jianbo Qi, Jordan Guilleux, Eric Chavanon, University of Toulouse, France; Bruce Cook, Douglas C. Morton, NASA, United States

TH4.R4.4 17:50 **MONITORING FOREST HEALTH WITH SUN-INDUCED CHLOROPHYLL FLUORESCENCE OBSERVATIONS AND 3-D RADIATIVE TRANSFER MODELING**
Rocío Hernández-Clemente, Peter North, Alberto Hornero, Swansea University, United Kingdom; Pablo Jesús Zarco-Tejada, European Commission, Joint Research Centre (JRC), Italy

TH4.R4.5 18:10 **A MODEL TO SIMULATE THE RADIATIVE TRANSFER OF SOLAR-INDUCED FLUORESCENCE FOR THREE-DIMENSIONAL CANOPIES**
Feng Zhao, Rong Li, Beihang University, China; Wenhan Qin, Science Systems and Applications, Inc, United States; Wenjuan Ding, Beihang University, China

Thursday, July 26 08:30 - 10:10 Room 3F
Session TH1.R5 Oral

Microwave Atmospheric Sounding

Session Chair: William Blackwell, MIT Lincoln Laboratory

TH1.R5.1 08:30 **THE COMBINED USAGE OF PASSIVE MICROWAVE AND INFRARED/MICROWAVE RETRIEVALS FROM THE SNPP AND NOAA-20 SATELLITES TO IMPROVE THE SHORT-TERM WEATHER FORECASTING**
Flavio Iturbide-Sanchez, I.M. Systems Group, United States; Silvia R. Santos da Silva, University of Maryland, United States; Antonia Gambacorta, Science and Technology Corporation, United States; Lihang Zhou, NOAA, United States; Changyi Tan, Michael Pettey, Nicholas R. Nalli, Michael Wilson, I.M. Systems Group, United States

TH1.R5.2 08:50 **END TO END SIMULATION STUDY OF GEOSTAIONARY PASSIVE MICROWAVE ATMOSPHERIC SOUNDING**
Ke Chen, Huazhong University of Science and Technology, China; Albin J. Gasiewski, Kun Zhang, University of Colorado Boulder, United States; Liang Lang, Liangqi Gui, Qingxia Li, Ye He, Huazhong University of Science and Technology, China

TH1.R5.3 09:10 **RETRIEVAL OF TEMPERATURE AND WATER VAPOR VERTICAL PROFILE FROM ATMS MEASUREMENTS WITH RANDOM FORESTS TECHNIQUE**
Francesco Di Paola, Angela Cersosimo, Institute of Methodologies for Environmental Analysis - National Research Council, Italy; Domenico Cimini, Institute of Methodologies for Environmental Analysis - National Research Council / Centro di Eccellenza per l'integrazione di Tecniche di di Telerilevamento e Modellistica Numerica per la Previsione di Eventi Meteorologici Severi, Department of Physics, University of L'Aquila, Italy; Donatello Gallucci, Institute of Methodologies for Environmental Analysis - National Research Council, Italy; Sabrina Gentile, Institute of Methodologies for Environmental Analysis - National Research Council / Centro di Eccellenza per l'integrazione di Tecniche di di Telerilevamento e Modellistica Numerica per la Previsione di Eventi Meteorologici Severi, Department of Physics, University of L'Aquila, Italy; Edoardo Geraldi, Institute of Methodologies for Environmental Analysis - National Research Council, Italy; Saverio Teodosio Nilo, Institute of Methodologies for Environmental Analysis - National Research Council / School of Engineering, University of Basilicata, Italy; Elisabetta Ricciardelli, Filomena Romano, Mariassunta Viggiano, Institute of Methodologies for Environmental Analysis - National Research Council, Italy

TH1.R5.4 09:30 **ESTIMATING THE TROPOSPHERIC WATER VAPOR CONTENT ALONG A TRANSMITTER-RECEIVER LINK: THE SWAMM PROJECT**
Luca Facheris, University of Florence, Italy; Fabrizio Cuccoli, RaSS CNIT laboratory, Pisa, Italy; Ugo Cortesi, Samuele Del Bianco, Gianluca Di Natale, Giovanni Macelloni, CNR-IFAC, Italy; Samantha Melani, Alberto Ortolani, Luca Rovai, CNR - IBIMET, Italy

Thursday, July 26 11:10 - 12:50 Room 3F
Session TH2.R5 Oral

Aerosol and Particulate Sensing

TH2.R5.1 11:10 **MAPPING SPECIATED AMBIENT PARTICULATE MATTER CONCENTRATIONS WITH THE MULTI-ANGLE IMAGER FOR AEROSOLS (MAIA)**
David Diner, Kevin Burke, John Pearson, Feng Xu, Michael Garay, Olga Kalashnikova, Abigail Nastan, Jet Propulsion Laboratory, California Institute of Technology, United States; Yang Liu, Emory University, United States; Randall Martin, Dalhousie University, Canada; Jun Wang, University of Iowa, United States; Bart Ostro, University of California, United States; Sina Hasheminassab, South Coast Air Quality Management District, United States

TH2.R5.2 11:30 **AEROSOL RETRIEVALS FROM DSCOVR MEASUREMENTS**
Vijay Natraj, Jonathan Jiang, Jet Propulsion Laboratory, United States; Pushkar Kopparla, Yuk Yung, California Institute of Technology, United States; Adrian Doicu, Diego Loyola, German Aerospace Center (DLR), Germany

TH2.R5.3 11:50 **AEROSOL PLUME CHARACTERISATION FROM MULTI-TEMPORAL HYPERSPECTRAL ANALYSIS**
Pierre-Yves Foucher, Philippe Déliot, Laurent Poutier, ONERA, France; Olivier Duclaux, TOTAL/LQA, France; Valentin Raffort, Yelva Roustan, CEREA ENPC, France

TH2.R5.4 12:10 **A 1-D RADIATIVE TRANSFER STUDY OF MINERAL DUST DURING CHARMEX/ADRIMED 2013 CAMPAIGN**
María José Granados Muñoz, Michaël Sicard, Universitat Politècnica de Catalunya, Spain; Roberto Román, University of Valladolid, Spain; José Antonio Benavent-Oltra, University of Granada, Spain; Rubén Barragán, Universitat Politècnica de Catalunya, Spain; Gérard Brogniez, University of Lille, France; Cyrielle Denjean, CNRM, Centre National de la Recherche Météorologique, France; Lucas Alados-Arboledas, University of Granada, Spain; Constantino Muñoz Porcar, Alejandro Rodríguez Gómez, Adolfo Comerón, Universitat Politècnica de Catalunya, Spain

TH2.R5.5 12:30 **FIRST FORECASTS OF AIRBORNE PLATANUS AND PINUS POLLEN IN CATALONIA, NE SPAIN: USE OF A GROUND-BASED LIDAR TO ESTIMATE THE MODEL SCORE**
Michaël Sicard, Universitat Politècnica de Catalunya, Spain; Oriol Jorba, Barcelona Supercomputing Center, Spain; Rebeca Izquierdo, Marta Alarcón, Universitat Politècnica de Catalunya, Spain; Jordina Belmonte, Universitat Autònoma de Barcelona, Spain; Adolfo Comerón, Universitat Politècnica de Catalunya, Spain; Concepción De Linares, Universitat Autònoma de Barcelona, Spain; Jose Maria Baldasano, Universitat Politècnica de Catalunya, Spain

THURSDAY ORAL

Thursday, July 26 14:10 - 15:50 Room 3F
Session TH3.R5 Oral-Invited

New Remote Sensing Techniques and Methods for Extreme Weather and Ocean Events Monitoring I

Session Co-Chairs: Ferdinando Nunziata, Universita di Napoli Parthenope; Xiaofeng Yang, Chinese Academy of Sciences

TH3.R5.1 14:10 **ON THE USE OF SAR IN STUDIES OF UPWELLING**
Werner Alpers, University of Hamburg, Germany

TH3.R5.2 14:30 **A STUDY OF BOUNDARY LAYER ROLLS UNDER VARIOUS STORM CONDITIONS**
Lanqing Huang, Shanghai Jiao Tong University, Shanghai Key Laboratory of Intelligent Sensing and Recognition, China; Xiaofeng Li, GST, National Oceanic and Atmospheric Administration/Satellite and Information Service, United States; Bin Liu, Shanghai Jiao Tong University, Shanghai Key Laboratory of Intelligent Sensing and Recognition, China; Jun A Zhang, National Oceanic and Atmospheric Administration/Atlantic Oceanographic and Meteorological Laboratory, Hurricane Research Division, Cooperative Institute for Marine and Atmospheric Studies, University of Miami, United States; Dongliang Shen, Shanghai Ocean University, China; Zenghui Zhang, Wenxian Yu, Shanghai Jiao Tong University, Shanghai Key Laboratory of Intelligent Sensing and Recognition, China

TH3.R5.3 14:50 **DEVELOPMENT AND VALIDATION OF EMPIRICAL WAVE RETRIEVAL ALGORITHMS FOR SENTINEL-1 SYNTHETIC APERTURE RADAR IN HH-POLARIZATION**
Weizeng Shao, Zhejiang Ocean University, China; Xiaofeng Li, National Oceanic and Atmospheric Administration (NOAA), United States; Zhanfeng Sun, Juncheng Zuo, Zhejiang Ocean University, China

TH3.R5.4 15:10 **ON THE EFFECTS OF ACQUISITION PARAMETERS AND SURFACE PROPERTIES IN SEA OIL SEEP OBSERVATION BY MEANS OF HIGH–RESOLUTION SAR**
Ferdinando Nunziata, Carina R. De Macedo, Andrea Buono, Università di Napoli Parthenope, Italy; Domenico Velotto, DLR - German Aerospace Center, Germany; Maurizio Migliaccio, Università di Napoli Parthenope, Italy

Thursday, July 26 16:50 - 18:30 Room 3F
Session TH4.R5 Oral-Invited

New Remote Sensing Techniques and Methods for Extreme Weather and Ocean Events Monitoring II

Session Chair: Xiaofeng Yang, Chinese Academy of Sciences

TH4.R5.1 16:50 **A NEW AZIMUTH CUT-OFF PROCEDURE TO RETRIEVE SIGNIFICANT WAVE HEIGHT UNDER HIGH WIND REGIMES**
Valeria Corcione, Università degli Studi di Napoli Parthenope, Italy; Giuseppe Grieco, Koninklijk Nederlands Meteorologisch Instituut (KNMI), Netherlands; Marcos Portabella, Institut de Ciències del Mar (ICM-CSIC), Spain; Ferdinando Nunziata, Maurizio Migliaccio, Università degli Studi di Napoli Parthenope, Netherlands

TH4.R5.2 17:10 **ASSIMILATION OF SAR-DERIVED SEA SURFACE WINDS INTO TYPHOON FORECAST MODEL**
Xiaofeng Yang, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China; Valeria Corcione, Ferdinando Nunziata, Università degli Studi di Napoli Parthenope, Italy; Marcos Portabella, The institute of Marine Sciences, Spain; Maurizio Migliaccio, Università degli Studi di Napoli Parthenope, Italy

TH4.R5.3 17:30 **UPPER OCEAN RESPONSE TO SUPER TYPHOON SOUDELOR REVEALED BY DIFFERENT SST PRODUCTS**
Jue Ning, Qing Xu, Tao Wang, Shuangshang Zhang, Hohai University, China

TH4.R5.4 17:50 **ICEBERG DETECTION WITH L-BAND ALOS-2 DATA USING THE DUAL-POL RATIO ANOMALY DETECTOR**
Armando Marino, The University of Stirling, United Kingdom

TH4.R5.5 18:10 **PERFORMANCE ANALYSIS OF TIME-FREQUENCY TECHNIQUE FOR THE DETECTION OF SMALL SHIPS IN SAR IMAGERY AT LARGE GRAZING ANGLE AND MODERATE METOCEAN CONDITIONS**
Domenico Velotto, Björn Tings, German Aerospace Center (DLR), Germany

Thursday, July 26 | 08:30 - 10:10 | Room 3G
Session TH1.R6 | Oral-Invited

Monitoring Urban Areas with SAR: New Applications I

Session Co-Chairs: Giampaolo Ferraioli, Università di Napoli Parthenope; Diego Reale, IREA CNR, Napoli

TH1.R6.1 08:30 **INTRODUCTION TALK: STATISTICS, INFORMATION THEORY AND INFORMATION GEOMETRY FOR SAR DATA ANALYSIS**
Alejandro C. Frery, Universidade Federal de Alagoas, Brazil

TH1.R6.2 08:50 **A SCATTERING POWER FACTORIZATION FRAMEWORK USING A GEODESIC DISTANCE IN RADAR POLARIMETRY**
Debanshu Ratha, Avik Bhattacharya, Indian Institute of Technology Bombay, India; Alejandro C. Frery, Universidade Federal de Alagoas, Maceio, Brazil, Brazil

TH1.R6.3 09:10 **POSSIBILITIES AND LIMITS OF URBAN CHANGE DETECTION USING POLARIMETRIC SAR DATA**
Meiqin Che, Paolo Gamba, University of Pavia, Italy

TH1.R6.4 09:30 **URBAN FOOTPRINT FROM VHR SAR IMAGES: TOWARD A FULLY OPERATIONAL PROCEDURE**
Andrea Garzelli, Claudia Zoppetti, University of Siena, Italy

TH1.R6.5 09:50 **FULL 3D DEM GENERATION IN URBAN AREA BY IMPROVING ESTIMATION FROM SAR TOMOGRAPHY**
Hossein Aghababaee, Alessandra Budillon, Giampaolo Ferraioli, Vito Pascazio, Gilda Schirinzi, Università di Napoli Parthenope, Italy

THURSDAY ORAL

Thursday, July 26 | 11:10 - 12:50 | Room 3G
Session TH2.R6 | Oral-Invited

Monitoring Urban Areas with SAR: New Applications II

Session Chair: Diego Reale, IREA CNR, Napoli

TH2.R6.1 11:10 **SAR TOMOGRAPHY USING NON-LOCAL SPARSE RECONSTRUCTION**
Yilei Shi, Technical University of Munich (TUM), Germany; Xiao Xiang Zhu, Richard Bamler, Technical University of Munich (TUM) / German Aerospace Center (DLR), Germany

TH2.R6.2 11:30 **SAR TOMOGRAPHY OF URBAN AREAS: 3D REGULARIZED INVERSION IN THE SCENE GEOMETRY**
Clément Rambour, Télécom ParisTech, France; Loïc Denis, UJM-Telecom Saint Etienne, CNRS, Institut d'Optique Graduate School, Laboratoire Hubert Curien UMR 5516, France; Florence Tupin, Jean-Marie Nicolas, Télécom ParisTech, France; Hélène Oriot, ONERA, France

TH2.R6.3 11:50 **SAR TOMOGRAPHY FOR SPATIO-TEMPORAL INVERSION OF COHERENT SCATTERERS IN VILLAGES OF ALPINE REGIONS**
Muhammad Adnan Siddique, ETH Zurich, Switzerland; Tazio Strozzi, GAMMA Remote Sensing AG, Switzerland; Irena Hajnsek, ETH Zurich / German Aerospace Center - DLR, Oberpfaffenhofen, Switzerland; Othmar Frey, ETH Zurich / Gamma Remote Sensing AG, Switzerland

TH2.R6.4 12:10 **DEFORMATION MONITORING USING PERSISTENT SCATTERER INTERFEROMETRY AND SENTINEL-1 DATA IN URBAN AREAS**
Nuria Devanthery, Michele Crosetto, Oriol Monserrat, Maria Cuevas-Gonzalez, Centre Tecnològic de Telecomunicacions de Catalunya, Spain; Bruno Crippa, University of Milan, Italy

TH2.R6.5 12:30 **DINSAR DATA INTEGRATION IN VULNERABILITY ANALYSES OF BUILDINGS EXPOSED TO SLOW-MOVING LANDSLIDES**
Gianfranco Nicodemo, Dario Peduto, Settimio Ferlisi, University of Salerno, Italy; Giovanni Gullà, National Research Council of Italy (CNR) - IRPI, Italy; Diego Reale, Gianfranco Fornaro, National Research Council of Italy (CNR) - IREA, Italy

Thursday, July 26 | 14:10 - 15:50 | Room 3G
Session TH3.R6 | Oral-Invited

Field Scale Soil Moisture Retrieval I

Session Co-Chairs: Francesco Mattia, CNR-ISSIA; Heather McNairn, Agriculture and Agri-Food Canada

TH3.R6.1 14:10 **FIELD-SCALE ASSESSMENT OF MULTI-SENSOR SOIL MOISTURE RETRIEVAL UNDER GRASSLAND**
Thomas Jagdhuber, German Aerospace Center (DLR), Germany; Benjamin Fersch, Karlsruhe Institute of Technology, Germany; Martin Schrön, Helmholtz Centre of Environmental Research GmbH - UFZ, Germany; Marc Jäger, German Aerospace Center (DLR), Germany; Kaupo Voormansik, Tartu Observatory, Estonia; Carlos López-Martínez, Luxembourg Institute of Science and Technology, Luxembourg

TH3.R6.2 14:30 **INVERSION OF PHYSICAL MODELS USING L-BAND AIRBORNE SAR DATA FOR SOIL MOISTURE ESTIMATES AT FIELD SCALE**
Seungbum Kim, Jet Propulsion Laboratory, United States; Huanting Huang, Univ Michigan, United States; Tienhao Liao, California Institute of Technology, United States

TH3.R6.3 14:50 **SOIL SURFACE MOISTURE ESTIMATION USING THE SYNERGY S1/S2 DATA**
Mehrez Zribi, CNRS, France; Nicolas Baghdadi, IRSTEA, France; Safa Bousbih, IRD/INAT, France; Mohammad El Hajj, IRSTEA, France; Qi Gao, CESBIO/ISARDSAT, France; Maria Jose Escorihuela, isardSAT, Spain; Sekhar Muddu, Indian Institute of Science, India

TH3.R6.4 15:10 **CROSS-COMPARISON OF THREE SAR SOIL MOISTURE RETRIEVAL ALGORITHMS USING SYNTHETIC AND EXPERIMENTAL DATA**
Anna Balenzano, Giuseppe Satalino, Francesco Paolo Lovergine, Francesco Mattia, Consiglio Nazionale delle Ricerche (CNR), Italy; Oliver Cartus, GAMMA Remote Sensing Research and Consulting AG, Switzerland; Malcolm J. M. Davidson, European Space Agency/ESTEC, Netherlands; Mohammad Al-Khaldi, Joel Johnson, The Ohio State University, Dept. of Elec. & Comp. Eng, United States

TH3.R6.5 15:30 **CONTRIBUTIONS OF GEOPHYSICAL AND C-BAND SAR DATA FOR ESTIMATION OF FIELD SCALE SOIL MOISTURE**
Aaron Berg, Mitchell Krafczek, University of Guelph, Canada; Daniel Clewley, Plymouth Marine Laboratory, United Kingdom; Jane Whitcomb, University of Southern California, United States; Ruzbeh Akbar, Massachusetts Institute of Technology, United States; Mahta Moghaddam, University of Southern California, United States; Heather McNarin, Agriculture and Agri-Food Canada, Canada

Thursday, July 26 | 16:50 - 18:30 | Room 3G
Session TH4.R6 | Oral-Invited

Field Scale Soil Moisture Retrieval II

Session Co-Chairs: Seungbum Kim, NASA Jet Propulsion Laboratory, California Institute of Technology; Nicolas Baghdadi, IRSTEA

TH4.R6.1 16:50 **FIELD OBSERVATIONS OF TEMPORAL VARIATIONS OF SURFACE SOIL MOISTURE: COMPARISON WITH INSAR SENTINEL-1 DATA**
Vasco Conde, João Catalao, University of Lisbon, Portugal; Giovanni Nico, Consiglio Nazionale delle Ricerche (CNR), Italy

TH4.R6.2 17:10 **RETRIEVAL OF FIELD-SCALE SOIL MOISTURE USING COMPACT POLARIMETRY: PREPARING FOR THE RADARSAT-CONSTELLATION**
Heather McNairn, Amine Merzouki, Agriculture and Agri-Food Canada, Canada; Yifeng Li, George Lampropoulos, A.U.G. Signals Ltd., Canada; Weikai Tan, AUG Signals Ltd., Canada; Jarrett Powers, Matthew Friesen, Agriculture and Agri-Food Canada, Canada

TH4.R6.3 17:30 **SOIL MOISTURE RETRIEVAL OVER AGRICULTURAL FIELDS FROM TIME SERIES MULTI-ANGULAR L-BAND RADAR DATA**
Liujun Zhu, Jeffrey Walker, Monash University, Australia; Leung Tsang, Huanting Huang, The University of Michigan, United States; Nan Ye, Christoph Rüdiger, Monash University, Australia

TH4.R6.4 17:50 **SENTINEL-1 & SENTINEL-2 FOR SOIL MOISTURE RETRIEVAL AT FIELD SCALE**
Francesco Mattia, Anna Balenzano, Giuseppe Satalino, Francesco Paolo Lovergine, Consiglio Nazionale delle Ricerche (CNR), Italy; Jian Peng, Ludwig-Maximilian University of Munich, Germany; Urs Wegmuller, Oliver Cartus, GAMMA Remote Sensing, Switzerland; Malcolm J. M. Davidson, European Space Agency, Netherlands; Seungbum Kim, Jet Propulsion Laboratory, California Institute of Technology, United States; Joel Johnson, The Ohio State University, United States; Jeffrey Walker, Xiaoling Wu, Valentijn R. N. Pauwels, Monash University, Australia; Heather McNairn, Agriculture and Agri-Food Canada, Canada; Todd Caldwell, The University of Texas at Austin, United States; Michael H. Cosh, Tom Jackson, USDA-ARS, United States

TH4.R6.5 18:10 **PARAMETRIZATION OF A DIELECTRIC MIXTURE MODEL TO RETRIEVE SOIL MOISTURE AT FIELD SCALE USING SENTINEL-1 DATA AND IN SITU SOIL MOISTURE MEASUREMENTS**
Chiara Pratola, Victor Diego Navarro-Sanchez, Camille Pelloquin, Starlab, Spain

Thursday, July 26 08:30 - 10:10 Room 4C
Session TH1.R7 Oral

Estimation and Regression in Hyperspectral Data II

Session Chair: Roberto Luciani, Università di Roma 'La Sapienza'

TH1.R7.1 08:30 **INTRODUCING A FRAMEWORK OF SELF-ORGANIZING MAPS FOR REGRESSION OF SOIL MOISTURE WITH HYPERSPECTRAL DATA**
Felix M. Riese, Sina Keller, Karlsruhe Institute of Technology, Germany

TH1.R7.2 08:50 **LINEAR SPECTRAL UNMIXING VIA MATRIX FACTORIZATION: IDENTIFIABILITY CRITERIA FOR SPARSE ABUNDANCES**
Chia-Hsiang Lin, Jose Bioucas-Dias, University of Lisbon, Taiwan

TH1.R7.3 09:10 **FAST SAMPLE GENERATION WITH VARIATIONAL BAYESIAN FOR LIMITED DATA HYPERSPECTRAL IMAGE CLASSIFICATION**
AmirAbbas Davari, Hasan Can Özkan, Andreas Maier, Christian Riess, Friedrich-Alexander University, Germany

TH1.R7.4 09:30 **PATCH-BASED RESIDUAL NETWORKS FOR COMPRESSIVELY SENSED HYPERSPECTRAL IMAGES RESTRUCTION**
Xiaowei Hu, Yang Xu, Zhihui Wei, Hongyi Liu, Ling Qian, Nanjing University of Science and Technology, China

Thursday, July 26 11:10 - 12:50 Room 4C
Session TH2.R7 Oral

Estimation and Regression Methods

Session Chair: Jordi Inglada, CESBIO

TH2.R7.1 11:10 **A NOVEL APPROACH FOR ABUNDANCE ESTIMATION USING DISCONTINUITY PRESERVING PRIOR**
Jignesh Patel, Manjunath Joshi, Dhirubhai Ambani Institute of Information and Communication Technology, India; Jignesh Bhatt, Indian Institute of Information Technology Vadodara, India

TH2.R7.2 11:30 **A VARIATIONAL MODE DECOMPOSITION BASED NOVEL PREPROCESSING METHOD FOR RESERVOIR CHARACTERIZATION USING SUPPORT VECTOR REGRESSION**
Soumi Chaki, Aurobinda Routray, William K. Mohanty, Indian Institute of Technology Kharagpur, India

TH2.R7.3 11:50 **DEEP GAUSSIAN PROCESSES FOR GEOPHYSICAL PARAMETER RETRIEVAL**
Daniel Heestermans Svendsen, University of Valencia, Spain; Pablo Morales-Álvarez, Rafael Molina, University of Granada, Spain; Gustau Camps-Valls, University of Valencia, Spain

TH2.R7.4 12:10 **A SIMULATION BASED APPROACH TO ESTIMATING THE THREE DIMENSIONAL STRUCTURE OF THE HARVARD FOREST WITH MULTI-MODAL REMOTE SENSING**
Michael Benson, Leland Pierce, Kamal Sarabandi, University of Michigan, United States

TH2.R7.5 12:30 **A FAST PARAMETRIC MODEL OF ESTIMATING ATMOSPHERIC PARAMETERS FOR LANDSAT 8 THERMAL INFRARED SENSOR**
Hua Wu, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, China; Li Ni, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China; Zhao-Liang Li, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, China

Thursday, July 26 14:10 - 15:50 Room 4C
Session TH3.R7 Oral

Segmentation

Session Chair: Francesca Bovolo, Fondazione Bruno Kessler

TH3.R7.1 14:10 **SEMANTIC SEGMENTATION FOR URBAN PLANNING MAPS BASED ON U-NET**
Zhiling Guo, Hiroaki Shengoku, Guangming Wu, Qi Chen, Wei Yuan, Xiaodan Shi, Xiaowei Shao, Yongwei Xu, Ryosuke Shibasaki, University of Tokyo, Japan

TH3.R7.2 14:30 **SEGMENTATION OF IMBALANCED CLASSES IN SATELLITE IMAGERY USING ADAPTIVE UNCERTAINTY WEIGHTED CLASS LOSS**
Benjamin Bischke, Patrick Helber, Damian Borth, Andreas Dengel, German Research Center for Artificial Intelligence, Germany

TH3.R7.3 14:50 **SUPERPIXEL SEGMENTATION WITH BOUNDARY CONSTRAINTS FOR POLARIMETRIC SAR IMAGES**
Huiping Lin, Junliang Bao, Tsinghua University, China; Junjun Yin, University of Science and Technology Beijing, China; Jian Yang, Tsinghua University, China

TH3.R7.4 15:10 **SUPERPIXEL CONTEXT DESCRIPTION BASED ON VISUAL WORDS CO-OCCURRENCE MATRIX**
Tiago M. H. C. Santana, Universidade Federal de Minas Gerais, Brazil; Ricardo da S. Torres, Universy of Campinas, Brazil; Jefersson Alex dos Santos, Universidade Federal de Minas Gerais, Brazil

TH3.R7.5 15:30 **CLASS SELECTION METHODS FOR LAND COVER MAPPING WITHOUT REFERENCE DATA OF THE CORRESPONDING PERIOD**
Benjamin Tardy, Jordi Inglada, CESBIO, France; Julien Michel, CNES, France

Thursday, July 26 16:50 - 18:30 Room 4C
Session TH4.R7 Oral

Data Fusion and Multimodality II

Session Co-Chairs: Jocelyn Chanussot, Grenoble Institute of Technology; Yanfeng Gu, Harbin Institute of Technology

TH4.R7.1 16:50 **INTEGRATION OF WORLDVIEW-2 AND LIDAR DATA TO MAP A SUBTROPICAL FOREST AREA: COMPARISON OF MACHINE LEARNING ALGORITHMS**
Camile Sothe, Cláudia Maria de Almeida, National Institute for Space Research - INPE, Brazil; Marcos Benedito Schimalski, Veraldo Liesenberg, Santa Catarina State University, Brazil

TH4.R7.2 17:10 **CLASSIFICATION OF ACTIVE MICROWAVE AND PASSIVE OPTICAL DATA BASED ON BAYESIAN THEORY AND MRF**
Yongmin Xu, National Quality Inspection and Testing Center for Surveying and Mapping Products, China; Fan Yu, Chinese Academy of Surveying and Mapping, China; Yousong Zhao, Yu Dang, National Quality Inspection and Testing Center for Surveying and Mapping Products, China

TH4.R7.3 17:30 **DEEP GENERATIVE MATCHING NETWORK FOR OPTICAL AND SAR IMAGE REGISTRATION**
Dou Quan, Shuang Wang, Xuefeng Liang, Ruojing Wang, Shuai Fang, Biao Hou, Licheng Jiao, Key Laboratory of Intelligent Perception and Image Understanding of Ministry of Education, School of Artificial Intelligence, Xidian University, China

TH4.R7.4 17:50 **DEEP SEMANTIC SEGMENTATION OF AERIAL IMAGERY BASED ON MULTI-MODAL DATA**
Kaiqiang Chen, Kun Fu, Xian Sun, Chinese Academy of Sciences, China; Michael Weinmann, University of Bonn, Germany; Stefan Hinz, Boris Jutzi, Martin Weinmann, Karlsruhe Institute of Technology, Germany

TH4.R7.5 18:10 **COUPLING MULTI-TEMPORAL INSAR IMAGERY AND SOCIAL MEDIA DATA TO EXTRACT URBAN SETTLEMENT**
Zelang Miao, Central South University, China; Mi Jiang, Hohai University, China; Lixin Wu, Central South University, China

Thursday, July 26 08:30 - 10:10 **Room 4F**
Session TH1.R8 **Oral-Invited**

Monitoring and Understanding Cryosphere Dynamics at Different Scales I

Session Co-Chairs: Kari Luojus, Finnish Meteorological Institute; Claudia Notarnicola, EURAC Research

TH1.R8.1 08:30 **SNOW COVER MONITORING IN HARDANGERVIDDA AND SIERRA NEVADA PROTECTED AREAS BY USING SENTINEL-1 TIME SERIES**
Chiara Pratola, Victor Diego Navarro-Sanchez, Starlab, Spain

TH1.R8.2 08:50 **COSMO SKYMED IMAGES FOR THE MONITORING OF CRYOSPHERE IN ALPINE AREAS**
Simone Pettinato, Simonetta Paloscia, Emanuele Santi, IFAC-CNR, Italy; Claudia Notarnicola, Mattia Callegari, Carlo Marin, EURAC, Italy

TH1.R8.3 09:10 **COMBINING REMOTE SENSING AND TERRESTRIAL PHOTOGRAPHY IN A SNOWMELT MODELING FRAMEWORK TO RETRIEVE SNOW EVOLUTION IN A SEMI- ARID REGION**
María José Polo, Javier Herrero, University of Cordoba, Spain; Rafael Pimentel, Swedish Meteorology and Hydrology Institute, Sweden; María José Pérez-Palazón, Ana Gilabert, Pedro Torralbo, University of Cordoba, Spain

TH1.R8.4 09:30 **INTEGRATION OF REMOTE SENSING WITH A HYDROCLIMATOLOGICAL MODEL FOR AN IMPROVED MONITORING OF ALPINE GLACIERS**
Mattia Callegari, Carlo Marin, EURAC Research, Italy; Daniel Günther, University of Innsbruck, Austria; Philipp Rastner, University of Zürich, Switzerland; Lorenzo Bruzzone, Begum Demir, University of Trento, Italy; Thomas Marke, Ulrich Strasser, University of Innsbruck, Austria; Marc Zebisch, Claudia Notarnicola, EURAC Research, Italy

TH1.R8.5 09:50 **TERRESTRIAL RADAR INTERFEROMETRY TO MONITOR GLACIERS WITH COMPLEX ATMOSPHERIC SCREEN**
Guido Luzi, Centre Tecnològic de Telecomunicacions de Catalunya, Spain; Niccolò Dematteis, Research Institute for Hydro-Geological Protection, National Council of Research of Italy, Italy; Francesco Zucca, University of Pavia, Italy; Oriol Monserrat, Centre Tecnològic de Telecomunicacions de Catalunya, Spain; Daniele Giordan, Research Institute for Hydro-Geological Protection, National Council of Research of Italy, Italy; Juan Ignacio Lopez Moreno, Consejo Superior de Investigaciones Cientificas (CSIC), Spain

Thursday, July 26 14:10 - 15:50 **Room 4F**
Session TH3.R8 **Oral-Invited**

Seasonal Snow Ground-Based Remote Sensing I

Session Co-Chairs: Ludovic Brucker, NASA GSFC / USRA; Juha Lemmetyinen, Finnish Meteorological Institute

TH3.R8.1 14:10 **SEASON -LENGTH OBSERVATIONS OF ACTIVE AND PASSIVE MICROWAVE SIGNATURES OF SNOW COVER IN A BOREAL FOREST ENVIRONMENT**
Juha Lemmetyinen, Anna Kontu, Leena Leppänen, Juho Vehviläinen, Risto Vehmas, Finnish Meteorological Institute, Finland; Qinghuan Li, University of Waterloo, Canada; Kimmo Rautiainen, Jouni Pulliainen, Finnish Meteorological Institute, Finland

TH3.R8.2 14:30 **NASA SNOWEX'17 IN SITU MEASUREMENTS AND GROUND-BASED REMOTE SENSING**
Ludovic Brucker, NASA Goddard Space Flight Center, United States; Christopher Hiemstra, Army Corps of Engineers, Engineering Research and Development Center (ERDC), United States; Hans-Peter Marshall, Boise Sate University, Department of Geosciences, United States; Kelly Elder, US Forest Service (USDA), United States; Roger De Roo, Mohammad Mousavis, University of Michigan, United States; Larry Bliven, NASA Wallops Flight Facility, United States; Walter Peterson, NASA Marshall Space Flight Center, United States; Jeffrey Deems, NSIDC, United States; Peter Gadomski, Army Corps of Engineers, Engineering Research and Development Center (ERDC), United States; Arthur Gelvin, CRREL, United States; Lucas Spaete, Boise Sate University, United States; Theodore Barnhart, University of Colorado, United States; Ty Brandt, University of California, Santa Barbara, United States; John Burkhart, University of Oslo, Norway; Christopher Crawford, USGS, United States; Tri Datta, Columbia University, United States; Havard Erikstrod, University of Oslo, Norway; Nancy Glenn, Boise Sate University, United States; Katherine Hale, University of Colorado, United States; Brent Holben, NASA Goddard Space Flight Center, United States; Paul Houser, George Mason University, United States; Keith Jennings, University of Colorado, United States; Richard Kelly, University of Waterloo, Canada; Jason Kraft, NASA Goddard Space Flight Center, United States; Alexandre Langlois, University of Sherbrooke, Canada; Dan McGrath, Colorado State University, United States; Chelsea Merriman, Boise Sate University, United States; Noah Molotch, University of Colorado, United States; Anne Nolin, Oregon State Uni., United States; Chris Polashenski, Dartmouth College, United States; Mark Raleigh, Karl Rittger, University of Colorado, United States; Chago Rodriguez, Boise Sate University, United States; Alexandre Roy, University of Sherbrooke, Canada; S. McKenzie Skiles, Utah State Uni., United States; Eric Small, University of Colorado, United States; Marco Tedesco, Columbia University, United States; Christopher Tennant, Berckley, United States; Aaron Thompson, University of Waterloo, Canada; Zach Uhlmann, Boise Sate University, United States; Ryan Webb, University of Colorado, United States; Matt Wingo, NASA Marshall Space Flight Center, United States

TH3.R8.3 14:50 **MULTI-FREQUENCY TOMOGRAPHY RADAR OBSERVATIONS OF SNOW STRATIGRAPHY AT FRASER DURING SNOWEX**
Xiaolan Xu, Chad Baldi, Jan-Willem De Bleser, Yang Lei, Simon Yueh, Daniel Esteban-Fernandez, Jet Propulsion Laboratory, United States

TH3.R8.4 15:10 **SNOWEX 2017 IN-SITU PASSIVE MICROWAVE MEASUREMENTS: ANALYSIS OF WET SNOW MICROWAVE EMISSION**
Alexandre Roy, Université de Montréal, Canada; Alexandre Langlois, Caroline Dolant, Université de Sherbrooke, Canada; Ludovic Brucker, NASA Goddard Space Flight Center, United States; Alain Royer, Université de Sherbrooke, Canada

TH3.R8.5 15:30 **A NEW ACTIVE/PASSIVE MICROWAVE RADIATIVE TRANSFER MODEL FOR SNOW (SMRT) TO FOSTER INTER-COMPARISONS OF MODEL COMPONENTS**
Ghislain Picard, Université Grenoble Alpes, France; Melody Sandells, CORES Science and Engineering Limited, United Kingdom; Henning Löwe, WSL Institute for Snow and Avalanche Research SLF, Switzerland

Thursday, July 26 11:10 - 12:50 **Room 4F**
Session TH2.R8 **Oral-Invited**

Monitoring and Understanding Cryosphere Dynamics at Different Scales II

Session Co-Chairs: Claudia Notarnicola, EURAC Research; Kari Luojus, Finnish Meteorological Institute

TH2.R8.1 11:10 **A NOVEL DATA FUSION TECHNIQUE FOR SNOW PARAMETER RETRIEVAL**
Ludovica De Gregorio, Mattia Callegari, Carlo Marin, Marc Zebisch, EURAC Research, Italy; Lorenzo Bruzzone, Begum Demir, University of Trento, Italy; Ulrich Strasser, Daniel Günther, Thomas Marke, University of Innsbruck, Italy; Claudia Notarnicola, EURAC Research, Italy

TH2.R8.2 11:30 **THE PAN-EUROPEAN YEARLY SNOW MELT-OFF DAY DERIVED FROM OPTICAL AND MICROWAVE RADIOMETER DATA**
Sari Metsämäki, Kristin Böttcher, Finnish Environment Institute, Finland; Jouni Pulliainen, Kari Luojus, Juval Cohen, Matias Takala, Finnish Meteorological Institute, Finland; Olli-Pekka Mattila, Finnish Environment Institute, Finland; Gabriele Schwaizer, ENVEO Environmental Earth Observation IT GmbH, Austria; Chris Derksen, Environment and Climate Change Canada, Canada; Sampsa Koponen, Finnish Environment Institute, Finland

TH2.R8.3 11:50 **ASSESSMENT OF SEASONAL SNOW COVER MASS IN NORTHERN HEMISPHERE DURING THE SATELLITE-ERA**
Kari Luojus, Juval Cohen, Jaakko Ikonen, Jouni Pulliainen, Matias Takala, Katriina Veijola, Juha Lemmetyinen, Finnish Meteorological Institute, Finland; Thomas Nagler, ENVEO IT GmbH, Austria; Chris Derksen, Ross Brown, Environment and Climate Change Canada, Canada

TH2.R8.4 12:10 **KU AND X-BAND SCATTEROMETER OBSERVATIONS OF DEEP SNOW AT SNOWEX 2017: POLARIMETRIC RESPONSES TO MICROSTRUCTURE CONTROLS**
Richard Kelly, Aaron Thompson, University of Waterloo, Canada

Thursday, July 26 16:50 - 18:30 **Room 4F**
Session TH4.R8 **Oral-Invited**

Seasonal Snow Ground-Based Remote Sensing II

Session Co-Chairs: Ludovic Brucker, NASA GSFC / USRA; Juha Lemmetyinen, Finnish Meteorological Institute

TH4.R8.1 16:50 **EXPERIMENTAL RESULTS OF SNOW MEASUREMENT USING P-BAND SIGNALS OF OPPORTUNITY**
Rashmi Shah, Simon Yueh, Xiaolan Xu, Jet Propulsion Laboratory, California Institute of Technology, United States; Kelly Elder, USDA Forest Service, United States; Huanting Huang, Leung Tsang, University of Michigan, United States

TH4.R8.2 17:10 **RESOLVING THE INFLUENCE OF FOREST-CANOPY STRUCTURE ON SNOW DEPTH DISTRIBUTIONS WITH TERRESTRIAL LASER SCANNING**
Zach Uhlmann, Nancy Glenn, Lucas Spaete, Boise Sate University, United States; Christopher Hiemstra, US Army Corps of Engineers, United States; Christopher Tennant, University of California, Berkeley, United States; James McNamara, Boise Sate University, United States

TH4.R8.3 17:30 **GROUND VALIDATION OF AIRBORNE SNOW OBSERVATORY SPECTRAL AND BROADBAND SNOW ALBEDO DURING SNOWEX '17**
S. McKenzie Skiles, Jewell Lund, University of Utah, United States; Thomas H. Painter, NASA Jet Propulsion Laboratory, United States

TH4.R8.4 17:50 **SNOW-COVERED AREA USING MACHINE LEARNING TECHNIQUES**
Charles Gatebe, USRA & NASA GSFC, United States; Wei Li, Nan Chen, Yongzhen Fan, Stevens Institute of Technology, United States; Rajesh Poudyal, SSAI & NASA/GSFC, United States; Ludovic Brucker, USRA & NASA GSFC, United States; Knut Stamnes, Stevens Institute of Technology, United States

TH4.R8.5 18:10 **SNOW ESTIMATION UNDER A VEGETATION GRADIENT USING SATELLITE REMOTE SENSING DATA AND LAND SURFACE MODELING DURING SNOWEX 2017**
Gabrielle De Lannoy, Anouck Vanrykel, Hans Lievens, KU Leuven (University of Leuven), Belgium; Edward Kim, Ludovic Brucker, NASA, United States

Thursday, July 26 | 08:30 - 10:10 | Room 4D
Session TH1.R9 | Oral-Invited

Instrument Technologies to Enable Small Satellite Remote Sensing Missions I

Session Co-Chairs: Charles Norton, NASA Jet Propulsion Laboratory, California Institute of Technology; Pamela Millar, NASA ESTO

TH1.R9.1 08:30 **THE RADAR-IN-A-CUBESAT (RAINCUBE) AND MEASUREMENT RESULTS.**
Eva Peral, Shannon Statham, Eastwood Im, Simone Tanelli, Travis Imken, Douglas Price, Jonathan Sauder, Nacer Chahat, Jet Propulsion Laboratory, United States; Austin Williams, Tyvak Nano-Satellite Systems, Inc, United States

TH1.R9.2 08:50 **AN EARTH VENTURE IN-SPACE TECHNOLOGY DEMONSTRATION MISSION FOR TEMPORAL EXPERIMENT FOR STORMS AND TROPICAL SYSTEMS (TEMPEST)**
Steven C. Reising, Colorado State University, United States; Todd C. Gaier, Sharmila Padmanabhan, Boon H. Lim, Cate Heneghan, California Institute of Technology, United States; Christian D. Kummerow, Wesley Berg, V. Chandrasekar, C. Radhakrishnan, Colorado State University, United States; Shannon Brown, California Institute of Technology, United States; John Carvo, Matthew Pallas, Blue Canyon Technologies, United States

TH1.R9.3 09:10 **THE HARP HYPERANGULAR IMAGING POLARIMETER AND THE NEED FOR SMALL SATELLITE PAYLOADS WITH HIGH SCIENCE PAYOFF FOR EARTH SCIENCE REMOTE SENSING**
J. Vanderlei Martins, Roberto Fernandez-Borda, Brent McBride, Lorraine Remer, University of Maryland, Baltimore County, United States; Henrique Barbosa, University of Maryland, Baltimore County and University of Sao Paulo, United States

TH1.R9.4 09:30 **CUBESAT RADIOMETER RADIO FREQUENCY INTERFERENCE TECHNOLOGY (CUBERRT) VALIDATION MISSION: ENABLING FUTURE RESOURCE-CONSTRAINED SCIENCE MISSIONS**
Sidharth Misra, Shannon Brown, Robert Jarnot, Carl Felten, Rudi Bendig, Jet Propulsion Laboratory, California Institute of Technology, United States; Jonathan Kocz, California Institute of Technology, United States; Christa McKelvey, Christopher Ball, Chi-Chih Chen, Andrew O'Brien, Graeme Smith, Mark Andrews, J. Landon Garry, Joel Johnson, Ohio State University, United States; Priscilla Mohammed, Jared Lucey, Kevin Horgan, Quenton Bonds, Carlos Duran-Aviles, Michael Solly, Jinzheng Peng, Jeffrey Piepmeier, NASA Goddard Space Flight Center, United States; Doug Laczkowski, Matthew Pallas, Ervin Krauss, Blue Canyon Technologies, United States

TH1.R9.5 09:50 **DEVELOPMENT OF THE MULTI-ANGLE STRATOSPHERIC AEROSOL RADIOMETER (MASTAR)**
Matthew DeLand, Science Systems and Applications, Inc., United States; Peter Colarco, NASA Goddard Space Flight Center, United States; Matthew Kowalewski, Universities Space Research Association, United States; Nick Gorkavyi, Science Systems and Applications, Inc, United States; Luis Ramos-Izquierdo, NASA Goddard Space Flight Center, United States

Thursday, July 26 | 11:10 - 12:50 | Room 4D
Session TH2.R9 | Oral-Invited

Instrument Technologies to Enable Small Satellite Remote Sensing Missions II

Session Co-Chairs: Sachidananda Babu, NASA ESTO; Michael Seablom, NASA HQ

TH2.R9.1 11:10 **PRELAUNCH PERFORMANCE OF THE 118.75 GHZ POLARCUBE 3U CUBESAT TEMPERATURE SOUNDING RADIOMETER**
Lavanya Periasamy, Albin J. Gasiewski, University of Colorado Boulder, United States

TH2.R9.2 11:30 **NANOSATELLITE HIGH-PRECISION MAGNETIC MISSIONS ENABLED BY ADVANCES IN A STAND-ALONE SCALAR/VECTOR ABSOLUTE MAGNETOMETER**
Gauthier Hulot, Institut de Physique du Globe de Paris, Sorbonne Paris Cité, Université Paris Diderot, France; Jean-Michel Léger, CEA, France; Pierre Vigneron, Institut de Physique du Globe de Paris, Sorbonne Paris Cité, Université Paris Diderot, France; Thomas Jager, François Bertrand, CEA, France; Pierdavide Coïsson, Pierre Deram, Institut de Physique du Globe de Paris, Sorbonne Paris Cité, Université Paris Diderot, France; Axel Boness, CEA, France; Linda Tomasini, Benoit Faure, Centre National d'Etudes Spatiales, France

TH2.R9.3 11:50 **DEVELOPMENTS BY TNO FOR SMALL ATMOSPHERIC CHEMISTRY SPACE INSTRUMENTS: CURRENT STATUS AND FUTURE PROSPECTS**
Andrew Court, Bryan de Goeij, Oana van der Togt, Ad Verlaan, TNO, Netherlands

TH2.R9.4 12:10 **HYPERSPECTRAL DATA PROCESSING: AN OPPORTUNITY FOR END-TO-END PROCESSING**
Marge Cole, SGT, Inc., United States; Dr. Anne Wilson, LASP, United States; Michael Little, NASA Earth Science Technology Office, United States

THURSDAY ORAL

Thursday, July 26 | 14:10 - 15:50 | Room 4D
Session TH3.R9 | Oral-Invited

Innovative Technologies to Enable Land Imaging from Small Satellites

Session Co-Chairs: Parminder Ghuman, NASA ESTO; Nibir Dhar, U.S. Army

TH3.R9.1 14:10 **REMOTE SENSING USING VNIR/SWIR DISPERSIVE IMAGING SPECTROMETERS: HISTORICAL DEVELOPMENT, CURRENT STATE-OF-THE-ART, AND FURTURE TRENDS**
Ronald Lockwood, Michael Chrisp, Lalitha Parameswaran, MIT Lincoln Laboratory, United States; Kurtis Thome, Sachidananda Babu, NASA Goddard Space Flight Center, United States

TH3.R9.2 14:30 **LANDSAT MISSIONS TO SUSTAINABLE LAND IMAGING TECHNOLOGY PROGRAM**
Nahal Kardan, Prime Science & Technology, Inc., United States; Philip Dabney, NASA, United States; Sachidananda Babu, NASA ESTO, United States

TH3.R9.3 14:50 **DEVELOPMENT OF HIGH PERFORMANCE DETECTOR TECHNOLOGY FOR UV AND NEAR IR APPLICATIONS**
Ashok Sood, John Zeller, Magnolia Optical Technologies Inc., United States; Parminder Ghuman, Sachidananda Babu, NASA Earth Science Technology Office, United States; Nibir Dhar, U.S. Army Night Vision and Electronic Sensors Directorate, Fort Belvoir, VA 22060, United States

TH3.R9.4 15:10 **HIGH DYNAMIC RANGE INFRARED SENSORS FOR REMOTE SENSING APPLICATIONS**
Sarath Gunapala, David Ting, Alexander Soibel, Arezou Khoshakhlagh, Sam Keo, Sir Rafol, Cory Hill, Anita Fisher, Edward Luong, John Liu, Jason Mumolo, Brian Pepper, NASA Jet Propulsion Laboratory, United States; Kwong-Kit Choi, Army Research Laboratory, United States; Arvind D'souza, Christopher Masterjohn, DRS Network & Imaging Systems, Inc., United States

TH3.R9.5 15:30 **ADVANCED TECHNOLOGY LAND IMAGING SPECTRORADIOMETER (ATLIS)**
Jeffery Puschell, Raytheon Space and Airborne Systems, United States

Thursday, July 26 | 16:50 - 18:30 | Room 4D
Session TH4.R9 | Oral

SAR Calibration

Session Co-Chairs: Marwan Younis, German Aerospace Center (DLR); Carlos Lopez-Martinez, LIST

TH4.R9.1 16:50 **POLARIMETRIC SAR DISTORTIONS INDUCED BY TOPOGRAPHY: AN ANALYTICAL FORMULATION FOR COMPENSATION IN THE IMAGING DOMAIN**
Pasquale Imperatore, Antonio Pepe, Riccardo Lanari, National Research Council of Italy (CNR), Italy

TH4.R9.2 17:10 **ON POLINSAR SYSTEM REQUIREMENTS FOR FOREST HEIGHT MAPPING**
Xiao Wang, Feng Xu, Ya-Qiu Jin, Fudan University, China

TH4.R9.3 17:30 **RECENT FINDINGS ON THE SENTINEL-1 GEOLOCATION ACCURACY USING THE AUSTRALIAN CORNER REFLECTOR ARRAY**
Christoph Gisinger, Ulrich Balss, Helko Breit, German Aerospace Center (DLR), Germany; Adrian Schubert, University of Zürich (UZH), Switzerland; Matthew Garthwaite, Geoscience Australia, Australia; David Small, University of Zürich (UZH), Switzerland; Thomas Gruber, Technical University of Munich (TUM), Germany; Michael Eineder, Thomas Fritz, German Aerospace Center (DLR), Germany; Nuno Miranda, European Space Agency/ESRIN, Germany

TH4.R9.4 17:50 **SENTINEL-1 RADIOMETRIC ACCURACY ENHANCEMENT EXPLOITING ANTENNA MODEL REFINEMENT TECHNIQUE**
Andrea Recchia, Davide Giudici, Riccardo Piantanida, Aresys s.r.l., Italy; Nuno Miranda, European Space Agency, Italy; Andrea Monti-Guarnieri, Politecnico di Milano, Italy

TH4.R9.5 18:10 **AN EXPERIMENTAL CAR-BORNE SAR SYSTEM: MEASUREMENT SETUP AND POSITIONING ERROR ANALYSIS**
Roberto Coscione, Irena Hajnsek, Othmar Frey, Swiss Federal Institute of Technology ETHZ, Switzerland

Thursday, July 26 | 08:30 - 10:10 | Room 2G-2H
Session TH1.R10 | Oral

Target Detection IV

Session Chair: Shutao Li, Hunan University

TH1.R10.1 08:30 **ANOMALY PRESERVING CONTENT-AWARE HYPERSPECTRAL IMAGE SIZE REDUCTION**
Alp Ertürk, Sarp Ertürk, Kocaeli University, Turkey

TH1.R10.2 08:50 **HYPERSPECTRAL ANOMALY DETECTION USING COMPRESSED COLUMNWISE ROBUST PRINCIPAL COMPONENT ANALYSIS**
Weiwei Sun, Gang Yang, Jialin Li, Dianfa Zhang, Ningbo University, China

TH1.R10.4 09:30 **SENSE-THROUGH-FOLIAGE TARGET DETECTION BASED ON SPARSE REPRESENTATION AND GAUSSIAN MIXTURE MODELS**
Wenling Xue, Ting Jiang, Beijing University of Posts and Telecommunications, China

TH1.R10.5 09:50 **HYPER-LAPLACIAN REGULARIZED LOW-RANK TENSOR DECOMPOSITION FOR HYPERSPECTRAL ANOMALY DETECTION**
Xiaoxiao Ma, Xiangrong Zhang, Ning Huyan, Xu Tang, Biao Hou, Licheng Jiao, Xidian University, China

Thursday, July 26 | 11:10 - 12:50 | Room 2G-2H
Session TH2.R10 | Oral

Spectral Unmixing Techniques IV

TH2.R10.1 11:10 **SUPERPIXEL-BASED HYPERSPECTRAL UNMIXING WITH REGIONAL SEGMENTATION**
Mohammed Alkhatib, Abu Dhabi Polytechnic, United Arab Emirates; Miguel Velez-Reyes, University of Texas at El Paso, United States

TH2.R10.2 11:30 **UNSUPERVISED HYPERSPECTRAL UNMIXING VIA KERNELIZED CORRELATIONS**
Kazi Tanzeem Shahid, Ioannis Dimitrios Schizas, The University of Texas at Arlington, United States

TH2.R10.3 11:50 **SUPERPIXEL-BASED NONNEGATIVE TENSOR FACTORIZATION FOR HYPERSPECTRAL UNMIXING**
Fengchao Xiong, Jingzhou Chen, Zhejiang University, China; Jun Zhou, Griffith University, Australia; Yuntao Qian, Zhejiang University, China

TH2.R10.4 12:10 **HYPERSPECTRAL UNMIXING BASED ON CLUSTERED MULTITASK NETWORKS**
Sara Khoshsokhan, Roozbeh Rajabi, Hadi Zayyani, Qom university of technology, Iran

TH2.R10.5 12:30 **DEEP AUTO-ENCODER NETWORK FOR HYPERSPECTRAL IMAGE UNMIXING**
Yuanchao Su, Jun Li, Sun Yat-sen University, China; Antonio Plaza, University of Extremadura, Spain; Andrea Marinoni, Paolo Gamba, Universit ` a degli Studi di Pavia, Italy; Yuancheng Huang, College of Geomatics, China

THURSDAY ORAL

Thursday, July 26 | 14:10 - 15:50 | Room 2G-2H
Session TH3.R10 | Oral

Geographic Information Science IV

Session Co-Chairs: Xiaoxiang Zhu, German Aerospace Center (DLR) and Technische Universitaet Muenchen (TUM); Yuliya Tarabalka, Inria Sophia Antipolis-Méditerranée

TH3.R10.1 14:10 **POLYGONIZATION OF BINARY CLASSIFICATION MAPS USING MESH APPROXIMATION WITH RIGHT ANGLE REGULARITY**
Onur Tasar, Emmanuel Maggiori, Pierre Alliez, Yuliya Tarabalka, INRIA, France

TH3.R10.2 14:30 **CLASSIFICATION OF SETTLEMENT TYPES FROM TWEETS USING LDA AND LSTM**
Rong Huang, Technical University of Munich (TUM) / German Aerospace Center (DLR), Germany; Hannes Taubenböck, German Aerospace Center (DLR), Germany; Lichao Mou, Xiao Xiang Zhu, Technical University of Munich (TUM) / German Aerospace Center (DLR), Germany

TH3.R10.3 14:50 **A COMPARISON OF MACHINE LEARNING TECHNIQUES TO EXTRACT HUMAN SETTLEMENTS FROM HIGH RESOLUTION IMAGERY**
Jeanette Weaver, Brian Moore, Andrew Reith, Jacob McKee, Dalton Lunga, Oak Ridge National Laboratory, United States

TH3.R10.4 15:10 **VIRTUALOT - A FRAMEWORK ENABLING REAL-TIME COORDINATE TRANSFORMATION & OCCLUSION SENSITIVE TRACKING USING UAS PRODUCTS, DEEP LEARNING OBJECT DETECTION & TRADITIONAL OBJECT TRACKING TECHNIQUES**
Bradley J. Koskowich, Maryam Rahnemoonfar, Michael Starek, Texas A&M University-Corpus Christi, United States

TH3.R10.5 15:30 **CLASSIFYING TERRESTRIAL BASED FOREST PHOTOGRAPHY WITH GEOGRAPHIC INFORMATION SYSTEMS TO MODEL SIGNAL LOSS**
William Wright, United States Military Academy, United States; Benjamin Wilkinson, Wendell Cropper, University of Florida, United States; Christopher Oxendine, United States Military Academy, United States

Thursday, July 26 | 16:50 - 18:30 | Room 2G-2H
Session TH4.R10 | Oral

Geographic Information Science V

Session Chair: Jun Li, Sun Yat-Sen University

TH4.R10.1 16:50 **MULTI-OBSERVATION BLOCK ADJUSTMENT BY RATIONAL FUNCTION MODEL WITHOUT GROUND CONTROL POINTS**
Xinghui Yao, Feng Wang, Hongjian You, University of Chinese Academy of Sciences, China

TH4.R10.2 17:10 **A GRID-BASED IDENTIFICATION CODE FOR BUILDINGS: PERSPECTIVE FROM SPATIAL FAULT TOLERANCE**
Kun Qi, Weixin Zhai, Yi'na Hu, Peking University, China; Tao Hu, Huazhong Agricultural University, China; Mengke Yang, Chengqi Cheng, Peking University, China

TH4.R10.3 17:30 **GEOVIDEO SEMANTIC DESCRIPTION MODEL BASED ON ONTOLOGY**
Yan Zhou, Ronggui Jiang, Zhe Wang, University of Electronic Science and Technology of China, China; Xiaoxia Yang, Chengdu University of Technology, China

TH4.R10.4 17:50 **IMPROVING SEVIRI BASED HOT SPOTS DETECTION BY USING MULTIPLE SIMULTANEOUS OBSERVATIONS**
Giovanni Laneve, Sapienza Università di Roma, Italy; Giancarlo Santilli, Universidade de Brasília, Brazil; Roberto Luciani, Sapienza Università di Roma, Italy

TH4.R10.5 18:10 **ANALYSIS OF SPATIO-TEMPORAL PATTERN EVOLUTION OF SSH IN ZHOUSHAN SEA AREA**
Jiaoqi Fu, Chao Chen, Xu Lu, Zhejiang Ocean University, China

Thursday, July 26 08:30 - 10:10 **Room 2E**
Session TH1.R11 **Oral**

Radiometric and Geometric Calibration

Session Co-Chairs: Cindy Ong, CSIRO; Jeff Czapla-Myers, Uinviersity of Arizona

TH1.R11.1 08:30 **NEW RADCALNET SITE AT GOBABEB, NAMIBIA: INSTALLATION OF THE INSTRUMENTATION AND FIRST SATELLITE CALIBRATION RESULTS**
Sébastien Marcq, Aimé Meygret, CNES, France; Marc Bouvet, European Space Agency, Netherlands; Nigel Fox, Claire Greenwell, Barry Scott, NPL, United Kingdom; Béatrice Berthelot, Magellium, France; Bruno Besson, CNES, France; Nicolas Guilleminot, Thales Services, France; Bahaiddin Damiri, CIMEL, France

TH1.R11.2 08:50 **ASSESSMENT OF VIIRS GEOLOCATION AT SUBPIXEL LEVEL USING MODIS IMAGERY**
Alexander Trishchenko, Canada Centre for Remote Sensing, Canada

TH1.R11.3 09:10 **SPECTRALLY ADJUSTED SURFACE REFLECTANCE AND ITS DEPENDENCE WITH NDVI FOR PASSIVE OPTICAL SENSORS**
Jose Luis Villaescusa Nadal, Belen Franch, Jean-Claude Roger, Sergii Skakun, University of Maryland, United States; Eric Vermote, NASA, United States; Christopher Justice, University of Maryland, United States

TH1.R11.4 09:30 **THE DEVELOPMENT OF A STANDARDISED VALIDATION APPROACH FOR SURFACE REFLECTANCE DATA**
Cindy Ong, Timothy Malthus, Ian Lau, CSIRO, Australia; Medhavy Thankappan, Guy Byrne, Geoscience Australia, Australia

TH1.R11.5 09:50 **A SECOND VERSION OF THE RADIOMETRIC UNCERTAINTY TOOL FOR THE SENTINEL-2 MISSION**
Javier Gorroño, National Physical Laboratory, United Kingdom; Marco Peters, Norman Fomferra, Brockmann Consult, Germany; Nigel Fox, National Physical Laboratory, United Kingdom; Ferran Gascon, European Space Agency, Italy

Thursday, July 26 11:10 - 12:50 **Room 2E**
Session TH2.R11 **Oral**

UAV & Multi/Hyperspectral Sensors

Session Chair: Upendra Singh, NASA Langley Research Center

TH2.R11.1 11:10 **BRDF EFFECT ON THE ESTIMATION OF CANOPY CHLOROPHYLL CONTENT IN PADDY RICE FROM UAV-BASED HYPERSPECTRAL IMAGERY**
Dong Li, Hengbiao Zheng, Xiaoqing Xu, Ning Lu, Xia Yao, Jiale Jiang, Xue Wang, Yongchao Tian, Yan Zhu, Weixing Cao, Tao Cheng, Nanjing Agricultural University, China

TH2.R11.2 11:30 **REFINING THE GEOMETRIC CALIBRATION OF A HIPERSPECTRAL FRAME CAMERA WITH PRELIMINARY BANDS COREGISTRATION**
Antonio Tommaselli, Lucas Santos, São Paulo State University - Unesp, Brazil; Raquel Oliveira, Eija Honkavaara, National Land Survey of Finland, Finnish Geospatial Research Institute (FGI), Finland

TH2.R11.3 11:50 **TOWARDS FAST 3D RECONSTRUCTION OF URBAN AREAS FROM AERIAL NADIR IMAGES FOR A NEAR REAL-TIME REMOTE SENSING SYSTEM**
Nayeli Espinosa, Andreas Lenz, Wolfgang Gross, Wolfgang Middelmann, Fraunhofer Institute of Optronics, System Technologies and Image Exploitation (IOSB), Germany

TH2.R11.4 12:10 **TEXTURE CLASSIFICATION OF VERY HIGH RESOLUTION UAS IMAGERY USING A GRAPHICS PROCESSING UNIT**
Sathishkumar Samiappan, Mississippi State University, United States; Luan Casagrande, Gustavo Machado, Universidade Federal de Santa Catarina, Araranguá, SC, Brazil; Gray Turnage, Lee Hathcock, Robert Moorhead, John Ball, Mississippi State University, United States

TH2.R11.5 12:30 **CONTROL SYSTEM FOR A LIGHT AND SMALL PAN-TILT BASED ON MULTIROTOR UAV FOR AERIAL REMOTE SENSING APPLICATIONS**
Yating Li, XiangYang Zhou, Beihang University, China; Ruifang Yu, Institute of Geophysics, China Earthquake Administration, China

Thursday, July 26 14:10 - 15:50 **Room 2E**
Session TH3.R11 **Oral**

UAV & Airborne Microwave Sensors

Session Chair: Gordon Farqharson, Capella Space

TH3.R11.1 14:10 **FORWARD-LOOKING ANGULAR SUPER-RESOLUTION FOR MOVING RADAR PLATFORM WITH COMPLEX DECONVOLUTION**
Yang Wu, Yin Zhang, Deqing Mao, Yulin Huang, Jianyu Yang, University of Electronic Science and Technology of China, China

TH3.R11.2 14:30 **HINOTORI-X1 MISSION : X BAND WALR-SAR ONBOARD BOEING 737-200 AIRCRAFT**
Josaphat Tetuko Sri Sumantyo, Chiba University, Japan; K. Tsushima, R. Katoh, T. Kobori, Japan Radio Company, Japan; F.D. Sri Sumantyo, Universitas Bhayangkara Jakarta Raya, Indonesia; S. Gao, University of Kent, United Kingdom; E.T. Rahardjo, G. Wibisono, Universitas Indonesia, Indonesia; K. Sasmita, A. Mardianto, P. Edi, Tentara Nasional Indonesia Angkatan Udara, Indonesia; K. Ito, Chiba University, Japan

TH3.R11.3 14:50 **AIRSHIP BASED MIMO RADAR: ANALYSIS OF IMAGING AND INTERFEROMETRIC PERFORMANCES**
Weike Feng, Tohoku University, Japan; Giovanni Nico, Consiglio Nazionale delle Ricerche (CNR), Italy; Olimpia Masci, DIAN srl, Italy; Motoyuki Sato, Tohoku University, Japan

TH3.R11.4 15:10 **HIGH SPATIAL SOIL MOISTURE MAPPING USING SMALL UNMANNED AERIAL SYSTEM**
Eryan Dai, Aravind Venkitasubramony, Albin J. Gasiewski, University of Colorado Boulder, United States; Maciej Stachura, Jack Elston, Black Swift Technology, United States

Thursday, July 26 16:50 - 18:30 **Room 2E**
Session TH4.R11 **Oral**

Ground Based Systems II

TH4.R11.1 16:50 **FULLY POLARIMETRIC L-BAND BRIGHTNESS TEMPERATURE SIGNATURES OF AZIMUTHAL PERMITTIVITY PATTERNS – MEASUREMENTS AND MODEL SIMULATIONS**
Sten Schmidl Søbjærg, Technical University of Denmark, Denmark; Moritz Link, Thomas Jagdhuber, German Aerospace Center (DLR), Germany; Carsten Montzka, François Jonard, Forschungszentrum Jülich, Germany; Stephan Dill, Markus Peichl, German Aerospace Center (DLR), Germany; Thomas Meyer, Forschungszentrum Jülich, Germany

TH4.R11.2 17:10 **GEOSTATISTICAL ANALYSIS AND MITIGATION OF ATMOSPHERIC PHASE SCREENS IN KU-BAND TERRESTRIAL RADAR INTERFEROMETRY**
Simone Baffelli, ETH Zurich, Switzerland; Othmar Frey, ETH Zurich / Gamma Remote Sensing AG, Switzerland; Irena Hajnsek, ETH Zurich / German Aerospace Center - DLR, Oberpfaffenhofen, Switzerland

TH4.R11.3 17:30 **A CAR-BORNE SAR SYSTEM FOR INTERFEROMETRIC MEASUREMENTS: DEVELOPMENT STATUS AND SYSTEM ENHANCEMENTS**
Othmar Frey, GAMMA Remote Sensing / ETH Zurich, Switzerland; Charles Werner, GAMMA Remote Sensing, Switzerland; Irena Hajnsek, Roberto Coscione, ETH Zurich, Switzerland

TH4.R11.4 17:50 **TOMOGRAPHIC PROFILING WITH SNOWSCAT WITHIN THE ESA SNOWLAB CAMPAIGN: TIME SERIES OF SNOW PROFILES OVER THREE SNOW SEASONS**
Othmar Frey, GAMMA Remote Sensing /ETH Zurich, Switzerland; Charles Werner, Rafael Caduff, Andreas Wiesmann, GAMMA Remote Sensing, Switzerland

Thursday, July 26 08:30 - 10:10 **Room 2F**
Session TH1.R12 **Oral**

Data Management and Systems

Session Co-Chairs: Leland Pierce, University of Michigan; Tobias Storch, German Aerospace Center (DLR)

TH1.R12.1 08:30 **A COMPREHENSIVE INFORMATION MODEL FOR SAR DATA**
Leland Pierce, The University of Michigan, United States; Betty Evans, Digital Globe, Inc, United States; Siri Jodha Khalsa, National Snow and Ice Data Center, United States

TH1.R12.2 08:50 **CODE-DE - THE GERMAN OPERATIONAL ENVIRONMENT FOR ACCESSING AND PROCESSING COPERNICUS SENTINEL PRODUCTS**
Tobias Storch, Christoph Reck, Stefanie Holzwarth, Vanessa Keuck, DLR - German Aerospace Center, Germany

TH1.R12.3 09:10 **HIGH THROUGHPUT IMAGE CODEC FOR HIGH-RESOLUTION SATELLITE IMAGES**
Carlos de Cea Dominguez, Universitat Autonoma de Barcelona, Spain; Pablo Enfedaque, Lawrence Berkeley National Laboratory, Spain; Juan Carlos Moure Lopez, Joan Bartrina Rapesta, Francesc Auli Llinas, Universitat Autonoma de Barcelona, Spain

TH1.R12.4 09:30 **ASSESSING A CENTRAL SATELLITE DATA REPOSITORY AND ITS USAGE STATISTICS**
Weiguo Han, University Corporation for Atmospheric Research, United States; Matthew Jochum, National Oceanic and Atmospheric Administration, United States

TH1.R12.5 09:50 **A BIG EARTH DATA PLATFORM EXPLOITING TRANSPARENT MULTIMODAL PARALLELIZATION**
Kwo-Sen Kuo, Bayesics, LLC, United States; Yu Pan, Feiyu Zhu, Jin Wang, University of Nebraska - Lincoln, United States; Michael Rilee, Rilee Systems Technologies, LLC, United States; Hongfeng Yu, University of Nebraska - Lincoln, United States

Thursday, July 26 11:10 - 12:50 **Room 2F**
Session TH2.R12 **Oral**

Remote Sensing Data and Policy Decisions I

Session Chair: Jill Smyth, Canadian Space Agency

TH2.R12.1 11:10 **RADARSAT CONSTELLATION MISSION DATA POLICY**
Jill Smyth, Guennadi Kroupnik, Steve Iris, Magdalena Wierus, Canadian Space Agency, Canada

TH2.R12.2 11:30 **DLR'S CONTRIBUTIONS TO EMERGENCY RESPONSE WITHIN THE INTERNATIONAL CHARTER 'SPACE AND MAJOR DISASTERS'**
Sandro Martinis, André Twele, Simon Plank, Jens Danzeglocke, Hendrik Zwenzner, Günter Strunz, Hans-Peter Lüttenberg, Stefan Dech, German Aerospace Center (DLR), Germany

TH2.R12.3 11:50 **SPATIOTEMPORAL VARIATIONS OF THE CORRELATION BETWEEN THE ARCTIC ATMOSPHERIC OZONE AND TEMPERATURE**
Fuxiang Huang, Suling Ren, Shuangshuang Han, National Satellite Meteorological Center, China; Xiangdong Zheng, Chinese Academy of Meteorological Sciences, China; Xuejiao Deng, Guangzhou Tropical Marine Meteorological Institute of China Meteorological Administration, China

TH2.R12.4 12:10 **ADDRESSING MANGROVE PROTECTION IN AUSTRALIA: THE CONTRIBUTION OF EARTH OBSERVATION TECHNOLOGIES**
Graciela Isabel Metternicht, University of New South Wales, Australia; Richard Lucas, Peter Bunting, Aberystwyth University, United Kingdom; Alex Held, CSIRO, Australia; Leo Lymburner, Geoscience Australia, Australia; Catherine Ticehurst, CSIRO, Australia

TH2.R12.5 12:30 **URBANIZATION AND ITS IMPACT ON STORMWATER RUNOFF POTENTIAL USING GEOSPATIAL TOOLS**
Shray Pathak, Chandra Shekhar Prasad Ojha, Rahul Dev Garg, Indian Institute of Technology Roorkee, India; Venkat Lakshmi, University of South Carolina, United States

Thursday, July 26 14:10 - 15:50 **Room 2F**
Session TH3.R12 **Oral**

Education and Remote Sensing

Session Chair: Josée Lévesque, Valcartier Research Center

TH3.R12.1 14:10 **SATELLITE-BORNE AND ISS-BORNE REMOTE SENSING IN SCHOOL LESSONS: LESSONS LEARNED AND NEW MEDIATION WAYS**
Andreas Rienow, Henryk Hodam, Claudia Lindner, Annette Ortwein, Johannes Schultz, Fabian Selg, Ruhr-University Bochum, Germany

TH3.R12.2 14:30 **A REMOTE SENSING UNDERGRADUATE RESEARCH INTERNSHIP IN A GEOSCIENCE WORKFORCE PROGRAM FOR UNDERREPRESENTED STEM STUDENTS**
Reginald Blake, Janet Liou-Mark, Hamid Norouzi, Laura Yuen-Lau, New York City College of Technology, United States

TH3.R12.3 14:50 **EVER-EST: THE PLATFORM ALLOWING SCIENTISTS TO CROSS-FERTILIZE AND CROSS-VALIDATE DATA**
Mirko Albani, Rosemarie Leone, European Space Agency, Italy; Federica Foglini, Francesco De Leo, CNR, Italy; Fulvio Marelli, Terradue, Italy; Iolanda Maggio, European Space Agency, Italy

TH3.R12.4 15:10 **POLSARPRO-BIO: AN ESA EDUCATIONAL TOOLBOX USED FOR SELF-EDUCATION IN THE FIELD OF POLSAR, POL-INSAR AND POL-TOMOSAR DATA ANALYSIS**
Eric Pottier, Laurent Ferro-Famil, IETR - UMR 6164, University of Rennes 1, France; Magdalena Fitrzyk, RSAC c/o ESA-ESRIN, Italy; Yves-Louis Desnos, European Space Agency/ESRIN, Italy

TH3.R12.5 15:30 **SPATIO-TEMPORAL ASSESSMENT OF FIRE SEVERITY IN A PROTECTED AND MOUNTAINOUS ECOSYSTEM**
Efosa Adagbasa, Samuel Adelabu, Tom Okello, University of the Free State, South Africa

Thursday, July 26 16:50 - 18:30 **Room 2F**
Session TH4.R12 **Oral-Invited**

Advanced Flood Monitoring and Prediction for Global Disaster Risk Reduction I

Session Chair: Ramona-Maria Pelich, Luxembourg Institute of Science and Technology

TH4.R12.1 16:50 **AN AUTOMATIC FLOOD MONITORING SERVICE FROM SENTINEL-1 SAR: PRODUCTS, DELIVERY PIPELINES, AND PERFORMANCE ASSESSMENT**
Franz J Meyer, Olaniyi Ajadi, University of Alaska Fairbanks, United States; Lori Schultz, Jordan Bell, University of Alabama Huntsville, United States; Kenneth Arnoult, Rudiger Gens, Jeremy Nicoll, University of Alaska Fairbanks, United States

TH4.R12.2 17:10 **BLENDING MODIS AND AMSR2 TO PREDICT DAILY GLOBAL INUNDATION MAP IN 1KM RESOLUTION**
Wataru Takeuchi, The University of Tokyo, Japan; Young-Joo Kwak, ICHARM-UNESCO, Japan

TH4.R12.3 17:30 **A SENTINEL-1 TIMES SERIES-BASED EXCLUSION LAYER FOR IMPROVED FLOOD MAPPING IN ARID AREAS**
Sandro Martinis, German Aerospace Center (DLR), Germany

TH4.R12.4 17:50 **MONITORING OF INUNDATION DYNAMICS IN THE NORTH-AMERICAN PRAIRIE POTHOLE REGION USING SENTINEL-1 TIME SERIES**
Stefan Schlaffer, American University of Armenia, Armenia; Marco Chini, Luxembourg Institute of Science and Technology, Luxembourg; Ronald Pöppl, University of Vienna, Austria; Renaud Hostache, Patrick Matgen, Luxembourg Institute of Science and Technology, Luxembourg

TH4.R12.5 18:10 **L-BAND SAR INTERFEROMETRIC ANALYSIS FOR FLOOD DETECTION IN URBAN AREA – A CASE STUDY IN 2015 JOSO FLOOD, JAPAN**
Ryo Natsuaki, Akira Hirose, The University of Tokyo, Japan

Thursday, July 26 08:30 - 10:10 Room 1A
Session TH1.R13 Oral

Biodiversity and Remote Sensing I

Session Chair: Richard Lucas, University of New South Wales

TH1.R13.1 08:30 **CAPABILITIES OF LIDAR- AND SATELLITE DATA IN ASSESSING THE DRIVERS OF AVIAN DIVERSITY IN A FRAGMENTED LANDSCAPE**
Markus Melin, Bournemouth University, United Kingdom; Shelley Hinsley, Richard Broughton, Centre for Ecology and Hydrology, United Kingdom; Paul Bellamy, The Royal Society for the Protection of Birds (RSPB), United Kingdom; Ross Hill, Bournemouth University, United Kingdom

TH1.R13.2 08:50 **LANDSCAPE STRUCTURE ESTIMATION USING FOURIER-BASED TEXTURAL ORDINATION OF HIGH RESOLUTION AIRBORNE OPTICAL IMAGE**
Marc Lang, Samuel Alleaume, Sandra Luque, Nicolas Baghdadi, Jean-Baptiste Féret, IRSTEA, France

TH1.R13.3 09:10 **SATELLITE REMOTE SENSING OF ECOSYSTEM FUNCTIONS: OPPORTUNITIES AND CHALLENGES FOR REPORTING OBLIGATIONS OF THE EU HABITAT DIRECTIVE**
Javier Cabello, University of Almería, Spain; Paola Mairota, University of Bari, Italy; Domingo Alcaraz-Segura, University of Granada, Spain; Salvador Arenas-Castro, University of Porto, Portugal; Paula Escribano, University of Almería, Spain; Pedro Leitão, Technische Universität Braunschweig, Germany; Javier Martínez-López, BC3–Basque Centre for Climate Change, Spain; Adrián Regos, University of Porto, Portugal; Juan M Requena-Mullor, University of Almería, Spain

TH1.R13.4 09:30 **LIVING WALES – NATIONAL LEVEL MAPPING AND MONITORING THOUGH EARTH OBSERVATIONS, GROUND DATA AND MODELS**
Richard Lucas, Peter Bunting, Aberystwyth University, United Kingdom; Claire Horton, Welsh Government, United Kingdom

Thursday, July 26 11:10 - 12:50 Room 1A
Session TH2.R13 Oral

Computational Methods and Applications for Agriculture using SAR I

Session Co-Chairs: Juan M. Lopez-Sanchez, University of Alicante; Esra Erten, Istanbul Technical University

TH2.R13.1 11:10 **CROP BIOPHYSICAL PARAMETERS ESTIMATION WITH A MULTI-TARGET INVERSION SCHEME USING THE SENTINEL-1 SAR DATA**
Dipankar Mandal, Vineet Kumar, Avik Bhattacharya, Y. S. Rao, Indian Institute of Technology Bombay, India; Heather McNairn, Agriculture and Agri-Food Canada, Canada

TH2.R13.2 11:30 **OBSERVING CROP GROWTH AND VITALITY WITH THE COPERNICUS MISSION**
Onur Yuzugullu, AgriCircle AG, Switzerland; Frank Liebisch, ETH Zurich, Switzerland

TH2.R13.3 11:50 **MONITORING AGRICULTURAL FIELDS USING AN OPTIMISATION OF THE DIFFERENCE OF COVARIANCE MATRICES FOR POLSAR**
Cristian Silva, The Open University, United Kingdom; Armando Marino, The University of Stirling, United Kingdom; Juan M. Lopez-Sanchez, The University of Alicante, Spain; Iain Cameron, Environment Systems,

TH2.R13.4 12:10 **CROP TYPE MAPPING BASED ON SENTINEL-1 BACKSCATTER TIME SERIES**
María Arias, Miguel Ángel Campo-Bescós, Jesús Álvarez-Mozos, Public University of Navarre, Spain

TH2.R13.5 12:30 **SENTINEL-1 & SENTINEL-2 DATA FOR SOIL TILLAGE CHANGE DETECTION**
Giuseppe Satalino, Francesco Mattia, Anna Balenzano, Francesco Paolo Lovergine, Consiglio Nazionale delle Ricerche (CNR), Italy; Michele Rinaldi, Angelo Pio Desantis, Sergio Ruggieri, Consiglio per la Ricerca in Agricoltura e l'Analisi dell'Economia Agraria (CREA), Italy; David Alfonso Nafría García, Vanessa Paredes Gómez, Instituto Tecnológico Agrario de Castilla y León, Spain; Eric Ceschia, Milena Planells, Thuy Le Toan, Université Paul Sabatier – Centre d'Etudes Spatiales de la BIOsphère, France; Antonio Ruiz, José Moreno, University of Valencia, Spain

THURSDAY ORAL

Thursday, July 26 14:10 - 15:50 Room 1A
Session TH3.R13 Oral

Computational Methods and Applications for Agriculture using SAR II

Session Co-Chairs: Juan M. Lopez-Sanchez, University of Alicante; Esra Erten, Istanbul Technical University

TH3.R13.1 14:10 **SINCOHMAP: LAND-COVER AND VEGETATION MAPPING USING MULTI-TEMPORAL SENTINEL-1 INTERFEROMETRIC COHERENCE**
Fernando Vicente-Guijalba, Dares Technology, Spain; Alexander Jacob, EURAC Research, Italy; Juan M. Lopez-Sanchez, University of Alicante, Spain; Carlos López-Martínez, LIST, Luxembourg; Javier Duro, Dares Technology, Spain; Claudia Notarnicola, EURAC Research, Italy; Dariusz Ziolkowski, Institute of Geodesy and Cartography, Poland; Alejandro Mestre-Quereda, University of Alicante, United States; Eric Pottier, University of Rennes 1, France; Jordi J. Mallorqui, Universitat Politècnica de Catalunya, Spain; Marco Lavalle, Jet Propulsion Laboratory, California Institute of Technology, United States; Marcus Engdahl, European Space Agency, Italy

TH3.R13.2 14:30 **FULLY CONVOLUTIONAL NETWORKS FOR MULTI-TEMPORAL SAR IMAGE CLASSIFICATION**
Adugna Mullissa, Claudio Persello, Valentyn Tolpekin, University of Twente, Netherlands

TH3.R13.3 14:50 **MONITORING KEY AGRICULTURAL CROPS IN THE NETHERLANDS USING SENTINEL-1**
Susan Steele-Dunne, Saeed Khabbazan, Paul Vermunt, Lexy Ratering Arntz, Caterina Marinetti, Lorenzo Iannini, Delft University of Technology, Netherlands; Kees Westerdijk, Aeres Hogeschool, Netherlands; Corne Van der Sande, NEO bv, Netherlands

TH3.R13.4 15:10 **FUSION OF SENTINEL-1 AND SENTINEL-2 IMAGES FOR CLASSIFICATION OF AGRICULTURAL AREAS USING A NOVEL CLASSIFICATION APPROACH**
Pouya Hedayati, Damian Bargiel, Technische Universität Darmstadt, Germany

Thursday, July 26 16:50 - 18:30 Room 1A
Session TH4.R13 Oral

GCOM status

Session Chair: Haruhisa Shimoda, Tokai University

TH4.R13.1 16:50 **GCOM SCIENCE OVERVIEW AND THE INITIAL RESULTS OF GCOM-C**
Haruhisa Shimoda, Tokai University, Japan

TH4.R13.2 17:10 **PRE-LAUNCH CHARACTERISATION AND IN-ORBIT CALIBRATION OF GCOM-C/SGLI**
Yoshihiko Okamura, Taichiro Hashiguchi, Tomoyuki Urabe, Kazuhiro Tanaka, Japan Aerospace Exploration Agency, Japan; Jun Yoshida, Takashi Sakashita, Takahiro Amano, NEC Corporation, Japan

TH4.R13.3 17:30 **STUDY ON ABOVE GROUND BIOMASS PRODUCTS FROM GCOM-C / SGLI**
Yoshiaki Honda, Koji Kajiwara, Chiba University, Japan

TH4.R13.4 17:50 **EVALUATION OF ALL-WEATHER SEA SURFACE WIND SPEED PRODUCT FROM GCOM-W/AMSR2 MICROWAVE RADIOMETER**
Naoto Ebuchi, Hokkaido University, Japan

TH4.R13.5 18:10 **PRECIPITABLE WATER VAPOR RETRIEVAL OVER LAND FROM GCOM-W/AMSR2 AND ITS APPLICATION TO NUMERICAL WEATHER PREDICTION**
Masahiro Kazumori, Japan Meteorological Agency, Japan

Friday, July 27 **08:30 - 10:10** **Room 1D**
Session FR1.R1 **Oral**

Pansharpening and Superresolution III

Session Chair: Andrea Garzelli, Università di Siena

FR1.R1.1 08:30 **A NEW PANSHARPENING METHOD WITH MULTI-SCALE STRUCTURE PERCEPTION**
Yu Pan, Xu Li, Ang Gao, Lixin Li, Shaohui Mei, Northwestern Polytechnical University, China; Shigang Yue, University of Lincoln, United Kingdom

FR1.R1.2 08:50 **ROBUST SUPER-RESOLUTION IMAGE RECONSTRUCTION METHOD FOR GEOMETRICALLY DEFORMED REMOTE SENSING IMAGES**
Jing Qin, Montana State University, United States; Igor Yanovsky, California Institute of Technology, United States

FR1.R1.3 09:10 **BLOCK-BASED AND SEGMENTATION-BASED APPROACHES FOR COMPONENT SUBSTITUTION BASED HYPERSPECTRAL PANSHARPENING**
Sevcan Kahraman, Gozdenur Yesİlyurt, Alp Ertürk, Sarp Ertürk, Kocaeli University, Turkey

FR1.R1.4 09:30 **SPATIAL RESOLUTION ENHANCEMENT OF OPTICAL IMAGES BASED ON TENSOR DECOMPOSITION**
Kuniaki Uto, Tokyo Institute of Technology, Japan; Mauro Dalla Mura, Jocelyn Chanussot, Grenoble Institute of Technology, France

FR1.R1.5 09:50 **FEATURE-LEVEL LOSS FOR MULTISPECTRAL PAN-SHARPENING WITH MACHINE LEARNING**
Xun Liu, Chenwei Deng, Baojun Zhao, Beijing Institute of Technology, China; Jocelyn Chanussot, University of Grenoble Alpes, China

Friday, July 27 **11:10 - 12:50** **Room 1D**
Session FR2.R1 **Oral**

Data Fusion Techniques I

Session Co-Chairs: Devis Tuia, Wageningen; Alexandre Boulch, ONERA

FR2.R1.1 11:10 **MRF-BASED DECISION FUSION FOR HYPERSPECTRAL IMAGE CLASSIFICATION**
Vera Andrejchenko, Rob Heylen, University of Antwerp, Belgium; Wenzhi Liao, Wilfried Philips, University of Gent, Belgium; Paul Scheunders, University of Antwerp, Belgium

FR2.R1.2 11:30 **HYPERSPECTRAL AND MULTISPECTRAL IMAGE FUSION BASED ON SPECTRAL MATCHING IN THE SHEARLET DOMAIN**
Hossein Rezaei, Azam Karami, Shahid Bahonar University of Kerman, Iran; Paul Scheunders, University of Antwerp, Belgium

FR2.R1.4 12:10 **THE PROGRESS ON THE RECONSTRUCTION OF GLOBAL SEAMLESS DEM WITH MULTI-SOURCE DATA FUSION**
Linwei Yue, China University of Geosciences, China; Huanfeng Shen, Lu Liu, Liangpei Zhang, Wuhan University, China

FR2.R1.5 12:30 **WEIGHTS BASED DECISION LEVEL DATA FUSION OF LANDSAT-8 AND SENTINEL-1 FOR SOIL MOISTURE CONTENT ESTIMATION**
Oualid Yahia, Raffaella Guida, Pasquale Iervolino, University of Surrey, United Kingdom

Friday, July 27 | 08:30 - 10:10 | Room 3A
Session FR1.R2 | Oral

Polarimetry and PolinSAR

Session Co-Chairs: Jong-Sen Lee, NRL; Yoshio Yamaguchi, Niagata University

FR1.R2.1 08:30 **ASSESSMENT OF THE GROUND POLARIMETRY IN CROPS ESTIMATED USING MB SAR INTERFEROMETRY AT C-BAND**
Hannah Joerg, Matteo Pardini, Alberto Alonso-Gonzalez, Kostas Papathanassiou, German Aerospace Center (DLR), Germany; Irena Hajnsek, ETH Zurich, Switzerland

FR1.R2.2 08:50 **SNOW COVER MAPPING WITH POINCARÉ SPHERE PARAMETERS FROM POLSAR IMAGES USING AN AUTO-ENCODER NETWORK**
Shaunak De, Arnab Muhuri, Indian Institute of Technology Bombay, India; Surendar Manickam, Friedrich-Alexander-Universitat Erlangen-Nurnberg, Germany; Avik Bhattacharya, Indian Institute of Technology Bombay, India

FR1.R2.3 09:10 **FOREST STRUCTURE PARAMETER ESTIMATION BY MEANS OF MULTI-BASELINE POL-INSAR TECHNIQUES: STATUS AND CHALLENGES**
Konstantinos Papathanassiou, Matteo Pardini, Jun-Su Kim, Marivi Tello-Alonso, Victor Cazcarra-Bes, German Aerospace Center (DLR), Germany

FR1.R2.4 09:30 **POLARIMETRIC ANGLE UTILIZATION FOR GRASPING STATE OF DAMAGED BRIDGE**
Ryoichi Sato, Toshiya Nebu, Takanori Ishikuro, Yoshio Yamaguchi, Hiroyoshi Yamada, Niigata University, Japan

FR1.R2.5 09:50 **OIL SLICK DETECTION IN THE OFFSHORE DOMAIN: EVALUATION OF POLARIZATION-DEPENDENT SAR PARAMETERS**
Sébastien Angelliaume, Pascale Dubois-Fernandez, ONERA, France; Cathleen Jones, Benjamin Holt, NASA Jet Propulsion Laboratory, United States; Brent Minchew, British Antarctic Survey, United Kingdom; Emna Amri, ONERA, France; Véronique Miegebielle, TOTAL, France

Friday, July 27 | 11:10 - 12:50 | Room 3A
Session FR2.R2 | Oral

Topics on POLSAR Applications and Analysis

Session Co-Chairs: Tom Ainsworth, NRL; Ridha Touzi, CCRS

FR2.R2.1 11:10 **CROP PHENOLOGY EVALUATION BY THE DEGREE OF POLARIZATION SIGNATURE**
Elahe Cheraghi, Yasser Maghsoudi, Maryam Salehi, Faculty of Geodesy and Geomatics Engineering, K.N. Toosi University of Technology, Iran

FR2.R2.2 11:30 **POLARIMETRIC SAR URBAN DAMAGE LEVEL MAPPING USING CO-POLARIZATION COHERENCE PATTERN**
Si-Wei Chen, Da-Hai Dai, Xue-Song Wang, Shun-Ping Xiao, National University of Defense Technology, China

FR2.R2.3 11:50 **MACHINE-LEARNING FUSION OF POLSAR AND LIDAR DATA FOR TROPICAL FOREST CANOPY HEIGHT ESTIMATION**
Maryam Pourshamsi, University of Leicester, United Kingdom; Mariano Garcia, University of Alcala, Spain; Marco Lavalle, NASA Jet Propulsion Laboratory, United States; Eric Pottier, University de Rennes 1, France; Heiko Balzter, University of Leicester, United Kingdom

FR2.R2.4 12:10 **COMPARISON OF GAOFEN-3 AND RADARSAT-2 DATA FOR POLARIMETRIC SAR IMAGE CLASSIFICATION**
Junjun Yin, University of Science and Technology Beijing, China; Jian Yang, Tsinghua University, China

FR2.R2.5 12:30 **EFFECT OF ANISOTROPY ON IONOSPHERIC SCINTILLATIONS OBSERVED BY SYNTHETIC APERTURE RADAR (SAR)**
Shradha Mohanty, Indian Institute of Technology Bombay, India; Charles Carrano, Boston College, United States; Gulab Singh, Indian Institute of Technology Bombay, India

Friday, July 27 | 14:10 - 15:50 | Room 3A
Session FR3.R2 | Oral

Tomography and 3D Mapping III

Session Chair: Scott Hensley, NASA Jet Propulsion Laboratory, California Institute of Technology

FR3.R2.1 14:10 **TANDEM-L: PROJECT STATUS AND MAIN FINDINGS OF THE PHASE B1 STUDY**
Alberto Moreira, Markus Bachmann, Wolfgang Balzer, Daniela Borla Tridon, Erhard Diedrich, Thomas Fritz, Christo Grigorov, Ralph Kahle, Gerhard Krieger, Irena Hajnsek, Sigurd Huber, Hannah Jörg, Patrick Klenk, Marie Lachaise, Martin Maier, Edith Maurer, Kostas Papathanassiou, Alessandro Parizzi, Pau Prats-Iraola, Jens Reimann, Marc Rodriguez, Birgit Schättler, Maximilian Schwinger, Daniel Schulze, Ulrich Steinbrecher, Michelangelo Villano, Marwan Younis, Francesco De Zan, Manfred Zink, Mariantonietta Zonno, German Aerospace Center (DLR), Germany

FR3.R2.2 14:30 **LINKING SAR TOMOGRAPHY AND POLARIZATION COHERENCE TOMOGRAPHY IN FOREST SCENARIOS**
Matteo Pardini, Konstantinos Papathanassiou, German Aerospace Center (DLR), Germany

FR3.R2.3 14:50 **AFRISAR-TROPISAR: FOREST BIOMASS RETRIEVAL BY P-BAND SAR TOMOGRAPHY**
Yen-Nhi Ngo, Dinh Ho Tong Minh, Ibrahim Moussawi, IRSTEA, France; Ludovic Villard, CESBIO, France; Laurent Ferro-Famil, University of Rennes 1, France; Mauro Mariotti D'Alessandro, Stefano Tebaldini, POLIMI, Italy; Clement Albinet, ESRIN, Italy; Klaus Scipal, ESTEC, Netherlands; Thuy Le Toan, CESBIO, France

FR3.R2.4 15:10 **UAVSAR L-BAND AND P-BAND TOMOGRAPHIC EXPERIMENTS IN BOREAL FORESTS**
Scott Hensley, Bruce Chapman, Marco Lavalle, Brian Hawkins, Bryan Riel, Thierry Michel, Ronald Muellerschoen, Yunling Lou, Marc Simard, Jet Propulsion Laboratory, United States

FR3.R2.5 15:30 **MULTI-BASELINE INSAR EXPERIMENTS IN NATURAL SCENARIOS WITH TANDEM-X STARING SPOTLIGHT DATA**
Maria J. Sanjuan-Ferrer, Marc Rodriguez-Cassola, Pau Prats-Iraola, DLR - German Aerospace Center, Germany

Friday, July 27 | 16:20 - 18:00 | Room 3A
Session FR4.R2 | Oral

Tomography and 3D Mapping IV

FR4.R2.1 16:20 **FEATURE ENHANCED SAR TOMOGRAPHY RECONSTRUCTION THROUGH ADAPTIVE NONPARAMETRIC ARRAY PROCESSING**
Gustavo Daniel Martín del Campo Becerra, Andreas Reigber, Matteo Nannini, German Aerospace Center (DLR), Germany

FR4.R2.2 16:40 **MULTIPLE SCATTERERS DETECTION BASED ON SIGNAL CORRELATION EPLOITATION IN URBAN SAR TOMOGRAPHY**
Hossein Aghababaee, Alessandra Budillon, Giampaolo Ferraioli, Angel Caroline Johnsy, Vito Pascazio, Gilda Schirinzi, University of Naples Parthenope, Italy

FR4.R2.3 17:00 **CROSS SENSOR SIMULATION OF TOMOGRAPHIC SAR DATA**
Mauro Mariotti d'Alessandro, Stefano Tebaldini, Politecnico di Milano, Italy

FR4.R2.4 17:20 **3D WET REFRACTIVITY MONITORING USING GNSS TOMOGRAPHY TECHNIQUE CONSTRAINED WITH AIRS DATA**
Pedro Benevides, João Catalao, Instituto Dom Luiz (IDL), Faculdade de Ciências, Universidade Lisboa, Portugal; Giovanni Nico, Consiglio Nazionale delle Ricerche (CNR), Istituto per le Applicazioni del Calcolo, Italy; Pedro Ma Miranda, Instituto Dom Luiz (IDL), Faculdade de Ciências, Universidade Lisboa, Portugal

FR4.R2.5 17:40 **MULTI-PASS SAR INTERFEROMETRY FOR 3D RECONSTRUCTION OF COMPLEX MOUNTAINOUS AREAS BASED ON ROBUST LOW RANK TENSOR DECOMPOSITION**
Jian Kang, Yuanyuan Wang, Technical University of Munich (TUM), Germany; Xiao Xiang Zhu, German Aerospace Center (DLR), Germany

Friday, July 27 | 08:30 - 10:10 | Room 1B
Session FR1.R3 | Oral-Invited

Land Physical Processes Monitoring with Solar and Thermal Sensors Supporting GEOGLAM I

Session Co-Chairs: Jean-Claude Roger, University of Maryland; Belen Franch, University of Maryland

FR1.R3.1 08:30 **GEOGLAM: A GEO INITIATIVE ON GLOBAL AGRICULTURAL MONITORING**
Inbal Becker-Reshef, Christopher Justice, Alyssa Whitcraft, University of Maryland, United States; Ian Jarvis, GEO Secretariat, Switzerland

FR1.R3.2 08:50 **SATELLITE MAPPING OF LAND DEGRADATION IN SENEGAL, UGANDA, KENYA, AND TANZANIA**
Compton Jim Tucker, Jorge Pinzon, NASA Goddard Space Flight Center, United States

FR1.R3.3 09:10 **HIGH SPATIO-TEMPORAL RESOLUTION LAND SURFACE TEMPERATURE MISSION – A COPERNICUS CANDIDATE MISSION IN SUPPORT OF AGRICULTURAL MONITORING**
Benjamin Koetz, European Space Agency, Italy; Wim Bastiaanssen, UNESCO IHE Delft, Netherlands; Michael Berger, European Space Agency, Netherlands; Pierre Defourney, Université Catholique de Louvain, Belgium; Umberto Del Bello, Matthias Drusch, Mark Drinkwater, Ricardo Duca, Valerie Fernandez, European Space Agency, Netherlands; Darren Ghent, University of Leicester, Netherlands; Radoslaw Guzinski, European Space Agency, Italy; Jippe Hoogeveen, UN Food and Agriculture Organization, Italy; Simon Hook, Jet Propulsion Laboratory, United States; Jean-Pierre Lagouarde, INRA, UMR 1391 ISPA, France; Guido Lemoine, European Commission, Italy; Ilias Manolis, Philippe Martimort, European Space Agency, Netherlands; Jeffrey Masek, NASA, United States; Michel Massart, European Commission, Belgium; Claudia Notarnicola, EURAC, Italy; José Antonio Sobrino, University of Valencia, Spain; Thomas Udelhoven, University of Trier, Germany

FR1.R3.4 09:30 **HARMONIZED LANDSAT/SENTINEL-2 PRODUCTS FOR LAND MONITORING**
Jeffrey Masek, NASA Goddard Space Flight Center, United States; Junchang Ju, Jean-Claude Roger, Sergii Skakun, University of Maryland, United States; Martin Claverie, UC Louvain, France; Jennifer Dungan, NASA ARC, France

FR1.R3.5 09:50 **SENTINEL-2 FOR AGRICULTURAL MONITORING**
Ferran Gascon, European Space Agency, Italy

Friday, July 27 | 11:10 - 12:50 | Room 1B
Session FR2.R3 | Oral-Invited

Land Physical Processes Monitoring with Solar and Thermal Sensors Supporting GEOGLAM II

Session Co-Chairs: Jean-Claude Roger, University of Maryland; Belen Franch, University of Maryland

FR2.R3.1 11:10 **A SURFACE ALBEDO PRODUCT AT HIGH SPATIAL RESOLUTION FROM A COMBINATION OF SENTINEL-2 AND LANDSAT-8 OBSERVATIONS**
Jean-Louis Roujean, CNRS, France; Albert Olioso, INRA, France; Eric Ceschia, University Paul Sabatier Toulouse III, France; Olivier Hagolle, CNES, France; Marie Weiss, INRA, France

FR2.R3.2 11:30 **LASRC (LAND SURFACE REFLECTANCE CODE): OVERVIEW, APPLICATION AND VALIDATION USING MODIS, VIIRS, LANDSAT AND SENTINEL 2 DATA'S**
Eric Vermote, NASA Goddard Space Flight Center, United States; Jean-Claude Roger, Belen Franch, Sergii Skakun, UMCP and NASA/GSFC, United States

FR2.R3.3 11:50 **ENHANCING REMOTE SENSING BASED YIELD FORECASTING: APPLICATION TO WINTER WHEAT IN UNITED STATES**
Belen Franch, University of Maryland / NASA Goddard Space Flight Center, United States; Eric Vermote, NASA Goddard Space Flight Center, United States; Sergii Skakun, Jean-Claude Roger, University of Maryland / NASA Goddard Space Flight Center, United States; Inbal Becker-Reshef, Chris Justice, University of Maryland, United States

FR2.R3.4 12:10 **CLOUD BASED CROPWATCHGLOBAL REMOTE SENSING MONITORING ONLINE SYSTEM**
Bingfang Wu, Miao Zhang, Nana Yan, Qiang Xing, Weiwei Zhu, Xin Zhang, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China

FR2.R3.5 12:30 **GEOGLAM BEST AVAILABLE CROP-SPECIFIC GLOBAL MAPS: STRENGTHS AND LIMITATIONS**
Patricia Oliva, Universidad Mayor, Chile; Brian Barker, Inbal Becker-Reshef, University of Maryland, United States

FRIDAY ORAL

Friday, July 27 | 14:10 - 15:50 | Room 1B
Session FR3.R3 | Oral-Invited

Essential Urban Variables from Satellite Observations I

Session Co-Chairs: Paolo Gamba, University of Pavia; George Xian, U.S. Geological Survey

FR3.R3.1 14:10 **ESSENTIAL URBAN VARIABLES FROM SATELLITE OBSERVATIONS: AN INTRODUCTION**
Qihao Weng, Xiamen University; Indiana State University, China

FR3.R3.2 14:30 **ANALYSIS OF DIFFERENT SENSOR PERFORMANCES IN IMPERVIOUS SURFACE MAPPING**
George Xian, U.S. Geological Survey Earth Resources Observation and Science Center, United States; Hua Shi, ASRC Federal InuTeq/USGS EROS, United States; Jon Dewitz, USGS Earth Resources Observation and Science Center, United States; Zhuoting Wu, USGS Flagstaff Science Campus, United States

FR3.R3.3 14:50 **NEW PROSPECTS IN ANALYSING BIG DATA FROM SPACE - THE URBAN THEMATIC EXPLOITATION PLATFORM**
Thomas Esch, Hubert Asamer, Felix Bachofer, German Aerospace Center (DLR), Germany; Jakub Balhar, GISAT s.r.o., Czech Republic; Martin Boettcher, Brockmann Consult GmbH, Germany; Enguerran Boissier, Terradue Srl, Italy; Andreas Hirner, German Aerospace Center (DLR), Germany; Emmanuel Mathot, Terradue Srl, Italy; Mattia Marconcini, Annekatrin Metz-Marconcini, German Aerospace Center (DLR), Germany; Hans Permana, Brockmann Consult GmbH, Germany; Tomas Soukup, GISAT s.r.o., Czech Republic; Vaclav Svaton, IT4Innovations, VSB-Technical University of Ostrava, Czech Republic; Soner Uereyen, Julian Zeidler, German Aerospace Center (DLR), Germany

FR3.R3.4 15:10 **NASA'S BLACK MARBLE PRODUCT SUITE: VALIDATION STRATEGY**
Zhuosen Wang, Miguel Román, Qingsong Sun, Virginia Kalb, NASA Goddard Space Flight Center, United States; Kytt MacManus, CIESIN, Earth Institute at Columbia University, United States; Robert Ryan, Mary Pagnutti, Innovative Imaging & Research, United States; Dennis Helder, South Dakota State University, United States

Friday, July 27 | 16:20 - 18:00 | Room 1B
Session FR4.R3 | Oral-Invited

Essential Urban Variables from Satellite Observations II

Session Co-Chairs: George Xian, U.S. Geological Survey; Paolo Gamba, University of Pavia

FR4.R3.1 16:20 **BUILDING AREA EXTRACTION FROM HIGH-RESOLUTON SATELLITE IMAGERY BASED ON MORPHOLOGICAL BUILDING INDEX**
Chun Liu, Xin Huang, Huijun Chen, Jiansi Yang, Jianya Gong, Wuhan University, China

FR4.R3.2 16:40 **ANALYSIS OF THE SPATIO-TEMPORAL DYNAMIC OF POLYCENTRIC CITY USING NIGHT-TIME LIGHT REMOTE SENSING IMAGERY**
Qiming Zheng, Ke Wang, Zhejiang University, China

FR4.R3.3 17:00 **JOINTLY EXPLOITING SENTINEL-1 AND SENTINEL-2 FOR URBAN MAPPING**
Gianni Cristian Iannelli, Ticinum Aerospace, Italy; Paolo Gamba, University of Pavia, Italy

FR4.R3.4 17:20 **DEEP DOMAIN ADAPTATION FOR SINGLE-SHOT VEHICLE DETECTOR IN SATELLITE IMAGES**
Yohei Koga, Hiroyuki Miyazaki, Ryosuke Shibasaki, The University of Tokyo, Japan

FR4.R3.5 17:40 **A COMPARISON OF SENTINEL-2A AND SENTINEL-2B WITH PRELIMINARY RESULTS**
Feng Chen, Ming Cheng, Jonathan Li, Cheng Wang, Xiamen University, China; Martin Claverie, University of Maryland, United States

Friday, July 27 | 08:30 - 10:10 | Room 2G
Session FR1.R4 | Oral

Remote Sensing for Crop and Soil Parameters I

FR1.R4.1 08:30 **TESTING MULTI-SENSORS TIME SERIES OF LAI ESTIMATES TO MONITOR RICE PHENOLOGY: PRELIMINARY RESULTS**
Mirco Boschetti, Lorenzo Busetto, Luigi Ranghetti, Italian National Research Council, Italy; Francisco Javier García-Haro, Manuel Campos-Taberner, Universitat de València, Spain; Roberto Confalonieri, Università degli Studi di Milano, Italy

FR1.R4.2 08:50 **L-BAND VEGETATION OPTICAL DEPTH FOR CROP PHENOLOGY MONITORING AND CROP YIELD ASSESSMENT**
David Chaparro, Universitat Politècnica de Catalunya, Spain; María Piles, Universitat de València, Spain; Mercè Vall-llossera, Adriano Camps, Universitat Politècnica de Catalunya, Spain; Alexandra G. Konings, Stanford University, United States; Dara Entekhabi, Massachusetts Institute of Technology, United States; Thomas Jagdhuber, German Aerospace Center (DLR), Germany

FR1.R4.3 09:10 **MODELLING LEAF CHLOROPHYLL CONTENT IN COFFEE (COFFEA ARABICA) PLANTATIONS USING SENTINEL 2 MSI DATA**
Abel Chemura, Onisimo Mutanga, John Odindi, University of KwaZulu-Natal, South Africa

FR1.R4.4 09:30 **SPATIAL ENHANCEMENT OF MODIS LEAF AREA INDEX USING REGRESSION ANALYSIS WITH LANDSAT VEGETATION INDEX**
Georgios Ovakoglou, Thomas Alexandridis, Aristotle University of Thessaloniki, Greece; Jan G. P. W. Clevers, Wageningen University & Research, Netherlands; Ines Cherif, Dimitrios Kasampalis, Ioannis Navrozidis, Charalampos Iordanidis, Dimitrios Moshou, Aristotle University of Thessaloniki, Greece; Giovanni Laneve, Sapienza Università di Roma, Italy; Juan Suarez Beltran, GMV Aerospace and Defence S.A.U., Spain

FR1.R4.5 09:50 **A STUDY ON THE INFLUENCE OF OIL PALM BIOPHYSICAL PARAMETERS ON BACKSCATTERING RETURNS WITH ALOS-PALSAR2 IMAGE**
Chia Ming Toh, Hong Tat Ewe, Universiti Tunku Abdul Rahman, Malaysia; Seng Heng Tey, Applied Agricultural Resources Shd. Bhd, Malaysia; Yong Haur Tay, Universiti Tunku Abdul Rahman, Malaysia

Friday, July 27 | 11:10 - 12:50 | Room 2G
Session FR2.R4 | Oral-Invited

Plant Phenotyping – Platforms, Sensors and Processing

Session Co-Chairs: Shawn C. Kefauver, University of Barcelona; Jose Antonio Jiménez Berni, Instituto de Agricultura Sostenible (IAS) Consejo Superior de Investigaciones Científicas (CSIC)

FR2.R4.1 11:10 **CHALLENGES AND BOTTLENECKS IN UAV PHENOTYPING**
Shawn C. Kefauver, Isaac Araus-Serret, Omar Vergara-Díaz, Jordi Bort, University of Barcelona, Spain; Georges El-Haddad, Postlight, United States; Maria Teresa Nieto-Taladriz, National Institute for Agricultural and Food Research and Technology (INIA), Spain; Nieves Aparicio, Technological and Agricultural Institute of Castilla y León (ITACyL), Spain; José Luís Araus, University of Barcelona, Spain

FR2.R4.2 11:30 **DETERMINING CROP GROWTH DYNAMICS IN SORGHUM BREEDING TRIALS THROUGH REMOTE AND PROXIMAL SENSING TECHNOLOGIES**
Andries Potgieter, James Watson, Mark Eldridge, Kenneth Laws, Barbara George-Jaeggli, Colleen Hunt, Andrew Borrell, University of Queensland, Australia; Emma Mace, Agri-Science Queensland, Australia; Scott Chapman, David Jordan, Graeme Hammer, University of Queensland, Australia

FR2.R4.3 11:50 **SUN INDUCED FLUORESCENCE CALIBRATION AND VALIDATION FOR FIELD PHENOTYPING**
MaPi Cendrero-Mateo, University of Valencia, Spain; Simon Bennertz, Institute of Bio- and Geosciences, Plant Science, Germany; Andreas Burkart, Tommaso Julitta, JB Hyperspectral Devices, Germany; Sergio Cogliati, University of Milano Bicocca, Italy; Hanno Scharr, Patrick Rademske, Institute of Bio- and Geosciences, Plant Science, Germany; Luis Alonso, University of Valencia, Spain; Francisco Pinto, International Maize and Wheat Improvement Center (CIMMYT), Mexico; Uwe Rascher, Institute of Bio- and Geosciences, Plant Science, Germany

FR2.R4.4 12:10 **FIELD PHENOTYPING AND AN EXAMPLE OF PROXIMAL SENSING OF PHOTOSYNTHESIS UNDER ELEVATED CO2**
Onno Muller, Beat Keller, Lars Zimmermann, Christoph Jedmowski, Forschungszentrum Jülich, Germany; Einhard Kleist, Forschungszentrum Juelich GmbH, Germany; Vikas Pingle, Kelvin Acebron, Nicolas Zendonadi dos Santos, Angelina Steier, Laura Freiwald, Ines Munoz-Fernandez, Norman Wilke, Forschungszentrum Jülich, Germany; Thorsten Kraska, Campus Klein-Altendorf, Bonn University, Germany; Roland Pieruschka, Uli Schurr, Uwe Rascher, Forschungszentrum Jülich, Germany

Friday, July 27 | 14:10 - 15:50 | Room 2G
Session FR3.R4 | Oral

Soil Parameters from Microwave and other Frequencies III

Session Chair: Susan Steele-Dunne, Delft University of Technology

FR3.R4.1 14:10 **INFLUENCES OF SOIL LINE PARAMETERS ON SOIL BRIGHTNESS ESTIMATION WITH SOIL ISOLINE EQUATIONS IN RED-NIR REFLECTANCE SUBSPACE**
Kenta Taniguchi, Yusuke Adachi, Aichi Prefectural University, Japan; Kenta Obata, National Institute of Advanced Industrial Science and Technology, Japan; Hiroki Yoshioka, Aichi Prefectural University, Japan

FR3.R4.2 14:30 **GLOBAL ESTIMATION OF SOIL MOISTURE PERSISTENCE WITH L AND C-BAND MICROWAVE SENSORS**
María Piles, Universitat de València, Spain; Robin van der Schalie, VanderSat B.V, Netherlands; Alexander Gruber, KU Leuven (University of Leuven), Belgium; Jordi Muñoz-Marí, Gustau Camps-Valls, Anna Mateo-Sanchis, Universitat de València, Spain; Wouter Dorigo, Vienna University of Technology, Austria; Richard de Jeu, VanderSat B.V, Netherlands

FR3.R4.3 14:50 **USING VIS-NIR SPECTROSCOPY TO ESTIMATE SOIL ORGANIC CONTENT**
Tao Hu, Huazhong Agricultural University, China; Kun Qi, Yi'na Hu, Peking University, China

FR3.R4.4 15:10 **TIMING IS EVERYTHING – DROUGHT CLASSIFICATION FOR RISK ASSESSMENT**
Valerie Graw, Gohar Ghazaryan, Jonas Schreier, Javier Gonzalez, Ayman Abdel-Hamid, University of Bonn, Germany; Yvonne Walz, Karen Dall, United Nations University, Germany; Joachim Post, German Aerospace Center (DLR), Germany; Andries Jordaan, University of the Free State, South Africa; Olena Dubovyk, University of Bonn, Germany

Friday, July 27 | 16:20 - 18:00 | Room 2G
Session FR4.R4 | Oral

Land Use Applications II

Session Chair: Claudia Notarnicola, EURAC Research

FR4.R4.1 16:20 **IDENTIFICATION OF WINTER LAND USE IN TEMPERATE AGRICULTURAL LANDSCAPES BASED ON SENTINEL-1 AND 2 TIMES-SERIES.**
Julien Denize, IETR UMR CNRS 6164 and University of Rennes, France; Laurence Hubert-Moy, Samuel Corgne, LETG UMR CNRS 6554 and University of Rennes, France; Julie Betbeder, CIRAD, France; Eric Pottier, IETR UMR CNRS 6164 and University of Rennes, France

FR4.R4.2 16:40 **SMOS BASED HIGH RESOLUTION SOIL MOISTURE ESTIMATES FOR DESERT LOCUST PREVENTIVE MANAGEMENT**
Maria Jose Escorihuela, isardSAT, Spain; Olivier Merlin, CESBIO, France; Vivien Georgiana Stefan, Gianfranco Indrio, isardSAT, Spain; Cyril Piou, CBGP/CIRAD, France

FR4.R4.3 17:00 **EVALUATION OF ABOVE STUDY REGION SITES FOR FUTURE CALIBRATION AND VALIDATION OF NISAR SCIENCE REQUIREMENTS**
Bruce Chapman, California Institute of Technology, United States; Eric Kasischke, University of Maryland, United States

FR4.R4.4 17:20 **ONSHORE HYDROCARBON REMOTE SENSING**
Dominique Dubucq, TOTAL, France; Véronique Achard, ONERA, France

Friday, July 27 | 08:30 - 10:10 | Room 3F
Session FR1.R5 | Oral-Invited

Advances in Reflectometry with GNSS and Signals of Opportunity (GNSS+R) I

Session Co-Chairs: Estel Cardellach, Institut de Ciencies de l'Espai (CSIC-IEEC); Rashmi Shah, NASA Jet Propulsion Laboratory, California Institute of Technology

FR1.R5.1 08:30 **FSSCAT, THE 2017 COPERNICUS MASTERS' "ESA SENTINEL SMALL SATELLITE CHALLENGE" WINNER: A FEDERATED POLAR AND SOIL MOISTURE TANDEM MISSION BASED ON 6U CUBESATS**
Adriano Camps, Universitat Politècnica de Catalunya-BarcelonaTech & IEEC/CTE-UPC, Spain; Alessandro Golkar, Skolkovo Institute of Science and Technology & Universitat Politecnica de Catalunya-BarcelonaTech, Russian Federation; Antonio Gutierrez, Deimos Engenharia S.A, Portugal; Joan Adria Ruiz-de-Azúa, Juan Francisco Munoz-Martin, Universitat Politècnica de Catalunya-BarcelonaTech & IEEC/CTE-UPC, Spain; Lara Fernandez, Carlos Diez, Andrea Aguilella, Universitat Politècnica de Catalunya - BarcelonaTech, Spain; Simone Briatore, Rustam Akhtyamov, Nicola Garzaniti, Skolkovo Institute of Science and Technology & 5Golbriak Space Oü, Russian Federation

FR1.R5.2 08:50 **MODELING OF SEA STATE CONDITIONS FOR IMPROVEMENT OF CYGNSS L2 WIND SPEED RETRIEVALS**
Tianlin Wang, University of Michigan, United States; Valery Zavorotny, NOAA Earth System Research Laboratory, United States; Joel Johnson, Ohio State University, United States; Christopher Ruf, University of Michigan, United States; Yuchan Yi, Ohio State University, United States

FR1.R5.3 09:10 **ASSESSING THE ALTIMETRIC MEASUREMENT FROM CYGNSS DATA**
Cinzia Zuffada, Bruce Haines, George Hajj, Zhijin Li, Stephen Lowe, Rashmi Shah, Jet Propulsion Laboratory, California Institute of Technology, United States; Jake Mashburn, Penina Axelrad, University of Colorado Boulder, United States; Andrew O'Brien, Ohio State University, United States; Paolo Cipollini, University of Colorado Boulder, United States; Valery Zavorotny, Alexander Voronovich, NOAA, United States

FR1.R5.4 09:30 **ALTIMETRY OVER SEA ICE USING COHERENT GNSS REFLECTIONS**
Weiqiang Li, Estel Cardellach, Fran Fabra, Serni Ribó, Antonio Rius, Institute of Space Sciences (ICE, CSIC), Spain; Manuel Martín-Neira, European Space Research and Technology Centre, European Space Agency, Netherlands

Friday, July 27 | 11:10 - 12:50 | Room 3F
Session FR2.R5 | Oral-Invited

Advances in Reflectometry with GNSS and Signals of Opportunity (GNSS+R) II

Session Co-Chairs: Estel Cardellach, Institut de Ciencies de l'Espai (CSIC-IEEC); Rashmi Shah, NASA Jet Propulsion Laboratory, California Institute of Technology

FR2.R5.1 11:10 **CONSIDERATIONS ON GNSS-R CARRIER PHASE ALTIMETRY**
Manuel Martín-Neira, European Space Agency, Netherlands

FR2.R5.2 11:30 **BI-STATIC REFLECTOMETRY USING SOOP FOR ATMOSPHERIC APPLICATIONS**
Serni Ribó, Victor Moreno, Estel Cardellach, Fran Fabra, Weiqiang Li, Antonio Rius, Institute of Space Sciences (ICE, CSIC). Institut d'Estudis Espacials de Catalunya (IEEC), Spain

FR2.R5.3 11:50 **REMOTE SENSING OF ROOT-ZONE SOIL MOISTURE USING I- AND P-BAND SIGNALS OF OPPORTUNITY: INSTRUMENT VALIDATION STUDIES**
James Garrison, Purdue University, United States; Mehmet Kurum, Mississippi State University, United States; Benjamin Nold, Purdue University, United States; Jeffrey Piepmeier, Manuel A. Vega, Rajat Bindlish, NASA Goddard Space Flight Center, United States; Garett Pignotti, Purdue University, United States

FR2.R5.4 12:10 **MONITORING LAND SURFACE HYDROLOGY USING CYGNSS**
Clara Chew, University Corporation for Atmospheric Research, United States; Eric Small, University of Colorado Boulder, United States; Erika Podest, Jet Propulsion Laboratory, United States

FR2.R5.5 12:30 **INVESTIGATION OF SPACEBORNE POLARIMETRIC GNSS-R OVER LAND USING THE SMAP RADAR RECEIVER**
Matthew Buchanan, Andrew O'Brien, Joel Johnson, The Ohio State University, United States

FRIDAY ORAL

Friday, July 27 | 14:10 - 15:50 | Room 3F
Session FR3.R5 | Oral-Invited

Global Precipitation Measurement Instruments and Algorithms II

Session Co-Chairs: Chandra V Chandrasekar, Colorado State University; Gail Skofronik Jackson, NASA

FR3.R5.1 14:10 **THE GLOBAL PRECIPITATION MEASUREMENT (GPM) MISSION STATUS: EMPHASIS ON FALLING SNOW RETRIEVALS**
Gail Skofronick-Jackson, Stephen (Joe) Munchak, NASA Goddard Space Flight Center, United States; Mark Kulie, Lisa Milani, Michigan Technological University, United States; Norm Wood, University of Wisconsin-Madison, United States; George Huffman, NASA Goddard Space Flight Center, United States

FR3.R5.2 14:30 **RECENT PROGRESS ON THE GSMAP MULTI-SATELLITE ALGORITHM**
Tomoo Ushio, Tomoaki Mega, Tokyo Metropolitan University, Japan

FR3.R5.3 14:50 **RESULTS OF THE KA-KU MATCHED BEAM EXPERIMENT**
Toshio Iguchi, National Institute of Information and Communications Technology, Japan; Kinji Furukawa, Takuji Kubota, Kosuke Yamamoto, Japan Aerospace Exploration Agency, Japan; Takeshi Masaki, Naofumi Yoshida, Remote Sensing Technology Center of Japan, Japan

FR3.R5.4 15:10 **HYBRID ESTIMATES OF PATH ATTENUATION FOR THE DPR**
Robert Meneghini, NASA Goddard Space Flight Center, United States; Liang Liao, Morgan State University, United States; Toshio Iguchi, National Institute of Information and Communications Technology, Japan; Hyokyung Kim, Morgan State University, United States

FR3.R5.5 15:30 **SCAN PATTERN CHANGE TEST OPERATIONS OF THE DUAL-FREQUENCY PRECIPITATION RADAR ON THE GLOBAL PRECIPITATION MEASUREMENT CORE SPACECRAFT**
Kinji Furukawa, Kosuke Yamamoto, Takuji Kubota, Riko Oki, Japan Aerospace Exploration Agency, Japan; Toshio Iguchi, National Institute of Information and Communications Technology, Japan

Friday, July 27 | 16:20 - 18:00 | Room 3F
Session FR4.R5 | Oral-Invited

Global Precipitation Measurement Instruments and Algorithms III

Session Co-Chairs: Chandra V Chandrasekar, Colorado State University; Gail Skofronik Jackson, NASA

FR4.R5.1 16:20 **CROSS VALIDATION OF RAINDROP SIZE DISTRIBUTION RETRIEVALS FROM GPM DUAL-FREQUENCY PRECIPITATION RADAR USING GROUND-BASED POLARIMETRIC RADAR**
V. Chandrasekar, Sounak Biswas, Minda Le, Haonan Chen, Colorado State University, United States

FR4.R5.2 16:40 **A MODIFIED DUAL-WAVELENGTH TECHNIQUE FOR KU- AND KA-BAND RADAR RAIN RETRIEVAL**
Liang Liao, Morgan State University, United States; Robert Meneghini, NASA Goddard Space Flight Center, United States

FR4.R5.3 17:00 **LATENT HEATING FROM TRMM AND GPM MEASUREMENT**
Wei-Kuo Tao, NASA, United States; Stephen Lang, Science Systems and Applications, Inc, United States; Takamichi Iguchi, University of Maryland, United States

FR4.R5.4 17:20 **DEVELOPMENT OF A STATISTICAL METHOD FOR REDUCING SIDELOBE CLUTTER IN HIGH SENSITIVITY MODE OF GPM/KAPR**
Takuji Kubota, Japan Aerospace Exploration Agency, Japan; Toshio Iguchi, NICT, Japan; Takeshi Masaki, Naofumi Yoshida, Remote Sensing Technology Center of Japan, Japan; Riko Oki, Japan Aerospace Exploration Agency, Japan

FR4.R5.5 17:40 **DEPLOYMENT AND PERFORMANCE OF THE NASA D3R DURING THE ICE-POP 2018 FIELD CAMPAIGN IN SOUTH KOREA**
V. Chandrasekar, Colorado State University, United States; Manuel A. Vega, NASA Goddard Space Flight Center, United States; Shashank Joshil, Mohit Kumar, Colorado State University, United States; David Wolff, NASA Wallops Flight Facility, United States; Walter Petersen, NASA Marshall Space Flight Center, United States

Friday, July 27 | 08:30 - 10:10 | Room 3G
Session FR1.R6 | Oral-Invited

Sensor and Product Developments: From Regional Mapping to Global Earth Science I

Session Co-Chairs: Robert Hewson, University of Twente; Carlos de Souza Filho, State University of Campinas

FR1.R6.1 08:30 **MAPPING MINERAL FOOTPRINTS THROUGH COVER USING SURFACE AND SUBSURFACE MINERALOGY AND GEOCHEMISTRY**
Carsten Laukamp, Alistair White, Andrew Rodger, CSIRO Mineral Resources Australia, Australia; Justin Gum, Southern Gold Ltd, Australia; Vasek Metelka, CSIRO Mineral Resources, Australia; Ian Lau, CSIRO Mineral Resources Australia, Australia; Georgina Gordon, Geological Survey of South Australia, Australia; Lionel Fonteneau, Corescan Pty Ltd, Australia

FR1.R6.2 08:50 **BAND PARAMETERIZATION FOR IMAGING SPECTROMETER SYSTEMS: LESSONS LEARNED FROM CRISM AT MARS**
Wendy Calvin, University of Nevada, Reno, United States

FR1.R6.3 09:10 **USE WHAT IS THERE: WHAT CAN SENTINEL-2 DO FOR GEOLOGICAL REMOTE SENSING?**
Harald van der Werff, Robert Hewson, Freek van der Meer, ITC, University of Twente, Netherlands

FR1.R6.4 09:30 **MULTISCALE – MULTISENSOR – MULTITEMPORAL APPROACH FOR A REGIONAL TO GLOBAL INVENTORY OF POTENTIAL MINERAL RESOURCES AND THEIR EXPLOITATION IMPACTS: A PROSPECTIVE VIEW**
Stephane Chevrel, MinPol GmbH, Austria; Robert Hewson, University of Twente, Netherlands

Friday, July 27 | 11:10 - 12:50 | Room 3G
Session FR2.R6 | Oral-Invited

Sensor and Product Developments: From Regional Mapping to Global Earth Science II

Session Chair: Carlos de Souza Filho, State University of Campinas

FR2.R6.1 11:10 **MULTI-SCALE INVESTIGATION OF HYDROCARBON PLAYS: AN ASSESSMENT BASED ON ORBITAL MULTISPECTRAL, AIRBORNE AND CLOSE-RANGE HYPERSPECTRAL DATA**
Carlos Souza Filho, Saeid Asadzade, University of Campinas, Brazil

FR2.R6.2 11:30 **ENGEOMAP AND ENSOMAP: SOFTWARE INTERFACES FOR MINERAL AND SOIL MAPPING UNDER DEVELOPMENT IN THE FRAME OF THE ENMAP MISSION**
Christian Mielke, Sabine Chabrillat, Christian Rogass, Nina Kristine Boesche, Stéphane Guillaso, Saskia Foerster, Karl Segl, Luis Guanter, GFZ Potsdam, Germany

FR2.R6.3 11:50 **SUPPLEMENTING GEOLOGICAL MAPPING WITH ASTER IN EAST AFRICA**
Robert Hewson, Harald van der Werff, University of Twente, Netherlands; Elisante Mshiu, University of Dar es Salaam, United Republic of Tanzania; Dinand Alkema, Freek van der Meer, University of Twente, Netherlands

FR2.R6.4 12:10 **HIERARCHICAL BAND SELECTION USING THE N-DIMENSIONAL SOLID SPECTRAL ANGLE METHOD TO ADDRESS INTER- AND INTRA- CLASS SPECTRAL VARIABILITY**
Yaqian Long, Benoit Rivard, University of Alberta, Canada

Friday, July 27 | 14:10 - 15:50 | Room 3G
Session FR3.R6 | Oral

Remote Sensing of Wetlands II

Session Chair: Manuela Grippa, Géosciences Environnement Toulouse

FR3.R6.1 14:10 **MAPPING PLANT COMMUNITIES IN THE INTERTIDAL ZONES USING SENTINEL-2 AND SENTINEL-1 DATA**
Tiejun Wang, Yansha Luo, Yiwen Sun, University of Twente, Netherlands; Xinhui Liu, Beijing Normal University, China

FR3.R6.2 14:30 **OPTIMAL FEATURES SELECTION FOR WETLANDS CLASSIFICATION USING LANDSAT TIME SERIES**
Liwei Xing, Huabin Wang, Wenfeng Fan, Chen Chen, Tao Li, Guanghui Wang, Haoran Zhai, Satellite Surveying and Mapping Application Center, National Administration of Surveying, Mapping and Geoinformation, China

FR3.R6.3 14:50 **SWAF-HR: A HIGH SPATIAL AND TEMPORAL RESOLUTION WATER SURFACE EXTENT PRODUCT OVER THE AMAZON BASIN**
Marie Parrens, CESBIO CNRS, E.I. Purpan, France; Yann Kerr, Ahmad Al Bitar, CESBIO CNRS, France

FR3.R6.4 15:10 **POTENTIAL OF SWOT FOR MONITORING WATER VOLUMES IN SAHELIAN PONDS AND LAKES**
Manuela Grippa, Cyprien Rouzies, Géosciences Environnement Toulouse, France; Sylvain Biancamaria, Denis Blumstein, Jean-François Cretaux, Laboratoire d'études en géophysique et océanographie spatiales, France; Laetitia Gal, Laboratoire d'étude des Interactions entre Sol-Agrosystème-Hydrosystème, France; Marielle Gosset, Laurent Kergoat, Géosciences Environnement Toulouse, France

Friday, July 27 | 16:20 - 18:00 | Room 3G
Session FR4.R6 | Oral

Remote Sensing of Inland Waters II

Session Chair: Tom Farr, NASA Jet Propulsion Laboratory, California Institute of Technology

FR4.R6.1 16:20 **RAINWATER HARVESTING IN INDIA: USING RADAR REMOTE SENSING OBSERVATIONS TO MONITOR WATER STORAGE**
Vicky Vanthof, Richard Kelly, University of Waterloo, Canada

FR4.R6.2 16:40 **INSAR MEASUREMENTS OF SUBSIDENCE AND REBOUND IN CALIFORNIA**
Tom Farr, Jet Propulsion Laboratory, United States

FR4.R6.3 17:00 **A COMPARISON OF RAPID DTM BASED APPROACHES FOR ON-DEMAND FLOOD INUNDATION MAPPING**
Heather Mcgrath, Geological Survey of Canada, Canada; Jean-Samuel Proulx-Bourque, Jean-François Bourgon, Canada Center for Mapping and Earth Observation, Canada; Miroslav Nastev, Ahmed Abo El Ezz, Geological Survey of Canada, Canada

FR4.R6.4 17:20 **COMPARISON OF WATER LEVEL CHANGES IN THE MEKONG RIVER USING GNSS REFLECTOMETRY, SATELLITE ALTIMETRY AND IN-SITU TIDE/RIVER GAUGES**
Phuong Lan Vu, Frédéric Frappart, José Darrozes, Minh-Cuong Ha, Observatoire Midi-Pyrénées, France; Thi-Bao-Hoa Dinh, Vietnam National University, Hanoi, Viet Nam; Guillaume Ramillien, Observatoire Midi-Pyrénées, France

FR4.R6.5 17:40 **REMOTE ESTIMATION OF WATER STORAGE VARIATION OF LAKES IN TIBETAN PLATEAU OVER THE PAST 20 YEARS**
Hongyuan Zhang, Liaocheng University, China; Yanhong Wu, Liping Lei, Linan Guo, Institute of Remote Sensing & Digital Earth, Chinese Academy of Sciences, China

Friday, July 27 | 08:30 - 10:10 | Room 4C
Session FR1.R7 | Oral

Subsurface Sensing and Ground Penetrating Radar III

Session Chair: Motoyuki Sato, Tohoku University

FR1.R7.1 08:30 **MOTION INDUCED ERROR IN CONTINUOUS-WAVE ELECTROMAGNETIC INDUCTION SENSORS**
Waymond Scott, Georgia Institute of Technology, United States

FR1.R7.2 08:50 **A MULTICOPTER-BASED FOCUSING METHOD FOR GROUND PENETRATING SYNTHETIC APERTURE RADARS**
Markus Schartel, Krishnendhu Prakasan, Philipp Hügler, Ulm University, Germany; Ralf Burr, Ulm University of Applied Sciences, Germany; Winfried Mayer, Endress+Hauser GmbH+Co. KG, Germany; Christian Waldschmidt, Ulm University, Germany

FR1.R7.3 09:10 **AN APPROACH TO LAVA TUBE DETECTION IN RADAR SOUNDER DATA OF THE MOON**
Elena Donini, Francesca Bovolo, Fondazione Bruno Kessler, Italy; Christopher Gerekos, Leonardo Carrer, Lorenzo Bruzzone, University of Trento, Italy

FR1.R7.4 09:30 **DUAL SENSOR "ALIS "FOR HUMANITARIAN DEMINING**
Motoyuki Sato, Kazutaka Kikuta, Tohoku University, Japan

FR1.R7.5 09:50 **FEASIBILITY OF A MICROWAVE METER FOR WATER-CUT MEASUREMENTS AND PERMITTIVITY PROFILE**
Jose Oliverio Alvarez, Aramco Services Company - Aramco Research Center - Houston, United States

Friday, July 27 | 11:10 - 12:50 | Room 4C
Session FR2.R7 | Oral

Classification of SAR/POLSAR Data II

FR2.R7.1 11:10 **POLARIMETRIC INFORMATION FOR MULTI–FREQUENCY SAR CLASSIFICATION OF HETEROGENEOUS COASTAL REGIONS**
Andrea Buono, Ferdinando Nunziata, Maurizio Migliaccio, Università di Napoli Parthenope, Italy; Xiaofeng Yang, Chinese Academy of Sciences, China; Xiaofeng Li, National Oceanic and Atmospheric Administration/National Environmental Satellite, Data, and Information Service, United States

FR2.R7.2 11:30 **A COMPARATIVE EVALUATION OF POLARIMETRIC DISTANCE MEASURES WITHIN THE RANDOM FOREST FRAMEWORK FOR THE CLASSIFICATION OF POLSAR IMAGES**
Ronny Hänsch, Olaf Hellwich, Technische Universität Berlin, Germany

FR2.R7.3 11:50 **SHIP DISCRIMINATION WITH DEEP CONVOLUTIONAL NEURAL NETWORKS IN SAR IMAGES**
Yuanyuan Wang, Chao Wang, Hong Zhang, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China

FR2.R7.4 12:10 **POLSAR IMAGE CLASSIFICATION BASED ON DBN AND TENSOR DIMENSIONALITY REDUCTION**
Biao Hou, Xianpeng Guo, Weidan Hou, Shuang Wang, Xiangrong Zhang, Licheng Jiao, Key Laboratory of Intelligent Perception and Image Understanding of Ministry of Education of China, Xidian University, China

FR2.R7.5 12:30 **EXPLORING CONVOLUTIONAL LSTM FOR POLSAR IMAGE CLASSIFICATION**
Lei Wang, Xin Xu, Hao Dong, Rong Gui, Rui Yang, Fangling Pu, Wuhan University, China

FRIDAY ORAL

Friday, July 27 | 14:10 - 15:50 | Room 4C
Session FR3.R7 | Oral

Advanced Processing of SAR Data

FR3.R7.1 14:10 **SUPER-RESOLUTION RECONSTRUCTION OF MULTI-POLARIZATION SAR IMAGES BASED ON PROJECTIONS ONTO CONVEX SETS ALGORITHM**
Jin Huang, Bo Gao, Yan Chen, Yunping Chen, Ling Tong, School of Automation Engineering, University of Electronic Science and Technology of China, China

FR3.R7.2 14:30 **DISCRIMINANT NEIGHBORHOOD PRESERVING PROJECTIONS USING L1-NORM MAXIMIZATION FOR SAR TARGET RECOGNITION**
Haohao Ren, Xuelian Yu, Xuegang Wang, University of Electronic Science and Technology of China, China

FR3.R7.3 14:50 **A LINE SEGMENT DETECTOR FOR SAR IMAGES WITH CONTROLLED FALSE ALARM RATE**
Chenguang Liu, Télécom ParisTech, France; Rémy Abergel, Université Paris Descartes, France; Yann Gousseau, Florence Tupin, Télécom ParisTech, France

FR3.R7.4 15:10 **A GROUND SLOW MOVING TARGET DETECTION METHOD FOR HIGH-SPEED MANEUVERING SAR VIA BIDIRECTIONAL IMAGING MODE**
Xinxin Tang, Xiaoling Zhang, Jun Shi, Shunjun Wei, University of Electronic Science and Technology of China, China

Friday, July 27 | 16:20 - 18:00 | Room 4C
Session FR4.R7 | Oral

Spatial-spectral Approaches for Hyperspectral Remote Sensing

Session Chair: Gemine Vivone, University of Salerno

FR4.R7.1 16:20 **SPATIAL-SPECTRAL GRAPH-BASED NONLINEAR EMBEDDING DIMENSIONALITY REDUCTION FOR HYPERSPECTRAL IMAGE CLASSIFICAITON**
Xiangrong Zhang, Yaru Han, Ning Huyan, Xidian University, China; Chen Li, Xi'an Jiaotong University, China; Jie Feng, Xidian University, China; Li Gao, Research Center on Surveying And Mapping, China; Xiaoxiao Ma, Xidian University, China

FR4.R7.2 16:40 **A SUBPIXEL SPATIAL-SPECTRAL FEATURE MINING FOR HYPERSPECTRAL IMAGE CLASSIFICATION**
Xiang Xu, Jun Li, the Guangdong Provincial Key Laboratory of Urbanization and Geosimulation, Center of Integrated Geographic Information Analysis, School of Geography and Planning, Sun Yat-sen University, China; Yanning Zhang, ShaanXi Provincial Key Laboratory of Speech and Image Information Processing, School of Computer Science, Northwestern Polytechnical University, Xi'an 710072, China, China; Shutao Li, College of Electrical and Information Engineering, Hunan University, China

FR4.R7.3 17:00 **DISCRIMINANT SPATIAL-SPECTRAL HYPERGRAPH LEARNING FOR HYPERSPECTRAL IMAGE CLASSIFICATION**
Fulin Luo, Liangpei Zhang, State Key Laboratory of Information Engineering in Surveying, Mapping and Remote Sensing, Wuhan University, China; Bo Du, Lefei Zhang, School of Computer, Wuhan University, China; Yanni Dong, Institute of Geophysics and Geomatics, China University of Geosciences, China

FR4.R7.4 17:20 **AN ADAPTIVE SPATIAL AND SPECTRAL NEIGHBORHOOD FOR THE RX ANOMALY DETECTOR**
Manel Ben Salem, Research Unit: Sciences and Technologies of Image and Telecommunications, Tunisia; Karim Saheb Ettabaa, IMT Atlantique, Tunisia; Med Salim Bouhlel, Research Unit: Sciences and Technologies of Image and Telecommunications, Tunisia

FR4.R7.5 17:40 **SPATIAL-SPECTRAL BASED MULTI-VIEW LOW-RANK SPARSE SUBSPACE CLUSTERING FOR HYPERSPECTRAL IMAGERY**
Long Tian, Qian Du, Mississippi State University, United States; Ivica Kopriva, Rudjer Boskovic Institute, Croatia; Nicolas H. Younan, Mississippi State University, United States

Friday, July 27 | 08:30 - 10:10 | Room 4F
Session FR1.R8 | Oral

Snow Cover

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

FR1.R8.1 08:30 **ASSESSMENT OF UNCERTAINTIES IN THE COLLECTION-6 AND 6.1 MODIS STANDARD CRYOSPHERE PRODUCTS**
Dorothy Hall, University of Maryland, United States; George Riggs, Nicolo DiGirolamo, SSAI, United States

FR1.R8.2 08:50 **THE DETECTION OF MELTING SNOW AND ANALYSIS OF MELTING-REFREEZING CYCLES USING MICROWAVE RADIOMETRY**
Simonetta Paloscia, Paolo Pampaloni, Simone Pettinato, Emanuele Santi, Leandro Cara, CNR-IFAC, Italy

FR1.R8.3 09:10 **WET SNOW DEPTH FROM TANDEM-X SINGLE-PASS INSAR DEM DIFFERENCING**
Silvan Leinss, ETH Zurich, Switzerland; Oleg Antropov, Aalto University, Finland; Juho Vehviläinen, Juha Lemmetyinen, Finnish Meteorological Institute, Finland; Irena Hajnsek, German Aerospace Center (DLR), Germany; Jaan Praks, Aalto University, Finland

FR1.R8.4 09:30 **COMPARISON OF EXPERIMENTAL BRIGHTNESS TEMPERATURES FOR SNOW ON LAKE ICE WITH THOSE FOR SNOW ON TERRAIN**
Martti Hallikainen, Matti Vaaja, Jaakko Seppänen, Jaan Praks, Aalto University, Finland

FR1.R8.5 09:50 **MODEL INVESTIGATION OF TIME-SERIES GROUND BASED SAR AND MICROWAVE RADIOMETER EXPERIMENTAL DATA OF SNOW-COVERED SOIL**
Chuan Xiong, Jiancheng Shi, Jinmei Pan, Haokui Xu, Tianjie Zhao, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China; Tao Che, The Northwest Institute of Eco-Environment and Resources (NIEER), CAS, China; Lu Hu, Xiang Ji, Wang Zhou, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China

Friday, July 27 | 11:10 - 12:50 | Room 4F
Session FR2.R8 | Oral

Ice Sheets and Glaciers II

Session Chair: Joel Johnson, Ohio State University

FR2.R8.1 11:10 **TANDEM-X DEM DERIVED ELEVATION CHANGES OF THE GREENLAND ICE SHEET**
Christian Wohlfart, Birgit Wessel, Martin Huber, German Aerospace Center (DLR), Germany; Tobias Leichtle, Company for Remote Sensing and Environmental Research (SLU), Germany; Sahra Abdullahi, Silke Kerkhoff, Achim Roth, German Aerospace Center (DLR), Germany

FR2.R8.2 11:30 **COSMO-SKYMED TANDEM-X SYNERGISTIC APPROACH FOR STUDYING ANTARCTIC GLACIER EVOLUTION**
Pietro Milillo, Jet Propulsion Laboratory, California Institute of Technology, United States; Eric Rignot, University of California, Irvine, United States; Paola Rizzoli, German Aerospace Center (DLR), Germany; Jeremie Mouginot, Bernd Scheuchl, University of California, Irvine, United States; Jose Luis Bueso Bello, Pau Prats-Iraola, German Aerospace Center (DLR), Germany

FR2.R8.3 11:50 **FIRST ASSESSMENT OF HY-2A ALTIMETER DATA OVER ANTARCTICA AND GREENLAND USING CROSSOVER ANALYSIS**
Maofei Jiang, Ke Xu, Yujing Xiong, Key Laboratory of Microwave Remote Sensing, National Space Science Center, Chinese Academy of Sciences, China

FR2.R8.4 12:10 **MASS BALANCE ESTIMATION USING SAR DATA IN CENTRAL HIMALAYA**
Debmita Bandyopadhyay, Gulab Singh, Indian Institute of Technology Bombay, India

FR2.R8.5 12:30 **MEASUREMENTS OF 0.5-2 GHZ THERMAL EMISSION SPECTRA FROM THE GREENLAND ICE SHEET, SEA ICE, AND PERMAFROST: RESULTS FROM SEPTEMBER 2017 CAMPAIGN**
Joel Johnson, Kenneth Jezek, Mark Andrews, Hongkun Li, Alexandra Bringer, Caglar Yardim, Domenic Belgiovane, Julie Miller, Michael Durand, Yuna Duan, The Ohio State University, United States; Giovanni Macelloni, Marco Brogioni, CNR-IFAC, Italy; Lars Kaleschke, University of Hamburg, Germany; Shurun Tan, Leung Tsang, University of Michigan, United States

FRIDAY ORAL

Friday, July 27 | 14:10 - 15:50 | Room 4F
Session FR3.R8 | Oral

Sea Ice III

Session Chair: Siri Jodha Khalsa, University of Colorado

FR3.R8.1 14:10 **RIGOROUS ASSESSMENT OF MISSION IMPACT ON SEA ICE FORECAST QUALITY**
Thomas Kaminski, The Inversion Lab, Germany; Frank Kauker, Ocean Atmosphere Systems, Germany; Leif Toudal Pedersen, eolab.dk, Denmark; Michael Voßbeck, The Inversion Lab, Germany; Helmuth Haak, Laura Niederdrenk, Max Planck Institute for Meteorology, Germany; Stefan Hendricks, Robert Ricker, Alfred Wegener Institute, Germany; Michael Karcher, Ocean Atmosphere Systems, Germany; Hajo Eicken, University of Alaska Fairbanks, United States; Ola Gråbak, European Space Agency, Italy

FR3.R8.2 14:30 **REMOTE SENSING OF ANTARCTIC SEA ICE WITH COORDINATED AIRCRAFT AND SATELLITE DATA ACQUISITIONS**
Son V. Nghiem, Jet Propulsion Laboratory, United States; Thomas Busche, Thomas Kraus, Markus Bachmann, German Aerospace Center (DLR), Germany; Nathan Kurtz, John Sonntag, John Woods, NASA Goddard Space Flight Center, United States; Stephen Ackley, Hongjie Xie, University of Texas at San Antonio, United States; Ted Maksym, Woods Hole Oceanographic Institution, United States; Kirsteen Tinto, Columbia University, United States; Wolfgang Rack, University of Canterbury, New Zealand; Pat Langhorne, University of Otago, New Zealand; Christian Haas, York University (also at Alfred Wegener Institute, Bremerhaven, Germany), Canada; Caryn Panowicz, NOAA/U.S. National Ice Center, United States; Ignatius Rigor, University of Washington, United States; Paul Morin, University of Minnesota, United States; Lisa Nguyen, Gregory Neumann, Jet Propulsion Laboratory, California Institute of Technology, United States

FR3.R8.3 14:50 **MEASURING ICE THICKNESS WITH CYGNSS ALTIMETRY**
David Mayers, Christopher Ruf, University of Michigan, United States

FR3.R8.4 15:10 **ESTIMATES OF MELT POND FRACTIONS ON FIRST YEAR SEA ICE USING COMPACT POLARIZATION SAR**
Haiyan Li, University of Chinese Academy of Sciences Bedford Institute of Oceanography, China; William Perrie, Bedford Institute of Oceanography, Canada; Qun Li, Polar Research Institute of China, China; Yijun Hou, Institute of Oceanology, Chinese Academy of Sciences, China

FR3.R8.5 15:30 **INCORPORATING INCIDENCE ANGLE VARIATION INTO SAR IMAGE SEGMENTATION**
Anthony Paul Doulgeris, Anca Cristea, UiT The Arctic University of Norway, Norway

Friday, July 27 | 16:20 - 18:00 | Room 4F
Session FR4.R8 | Oral

Permafrost II

Session Chair: Tianjie Zhao, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences

FR4.R8.1 16:20 **EMISSIVITY OF FROZEN REGIONS RETRIEVED FROM AQUARIUS MEASUREMENTS**
Yan Soldo, NASA Goddard Space Flight Center / USRA, United States; David Le Vine, NASA Goddard Space Flight Center, United States; Emmanuel Dinnat, NASA Goddard Space Flight Center / Chapman University, United States; Liang Hong, NASA Goddard Space Flight Center / SAIC, United States

FR4.R8.2 16:40 **CLASSIFICATION OF TUNDRA REGIONS WITH POLARIMETRIC TERRASAR-X DATA**
Barbara Widhalm, Annett Bartsch, ZAMG - Zentralanstalt für Meteorologie und Geodynamik, Austria; Achim Roth, Deutsches Zentrum für Luft- und Raumfahrt (DLR), Germany; Marina Leibman, Earth Cryosphere Institute, Tyumen Scientific Center, Russian Academy of Sciences, Siberian Branch, Russian Federation

FR4.R8.3 17:00 **HIGH RESOLUTION FREEZE/THAW STATES DETECTION USING COMBINATION OF PASSIVE MICROWAVE AND THERMAL INFRARED OBSERVATIONS**
Tianjie Zhao, Jiancheng Shi, Tongxi Hu, Tianxing Wang, Dabin Ji, Rui Li, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China

FR4.R8.4 17:20 **ANALYSIS OF PERMAFROST ACTIVE LAYER SOIL HETEROGENEITY IN SUPPORT OF RADAR RETRIEVALS**
Richard Chen, Alireza Tabatabaeenejad, Mahta Moghaddam, University of Southern California, United States

Friday, July 27 | **08:30 - 10:10** | **Room 4D**
Session FR1.R9 | **Oral-Invited**

Biomass I

Session Co-Chairs: Thuy Letoan, CESBIO; Klaus Scipal, European Space Agency

FR1.R9.1 08:30 **THE BIOMASS MISSION: OBJECTIVES AND REQUIREMENTS**
Thuy Le Toan, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Jerome Chave, Laboratoire EDB, France; Jørgen Dall, Technical University of Denmark, Denmark; Kostas Papathanassiou, German Aerospace Center (DLR), Germany; Philippe Paillou, Universite de Bordeaux, France; Shaun Quegan, Centre for Terrestrial Carbon Dynamics, United Kingdom; Markus Reichstein, Max Planck Institute for Biogeochemistry, Germany; Sassan Saatchi, Jet Propulsion Laboratory, United States; Klaus Scipal, European Space Agency, Netherlands; Hank Shugart, University of Virginia, United States; Stefano Tebaldini, Politecnico di Milano, Italy; Lars M. H. Ulander, Chalmers University of Technology, Sweden; Mathew Williams, University of Edinburgh, United Kingdom

FR1.R9.2 08:50 **OVERVIEW OF THE BIOMASS SATELLITE**
Carl Warren, Chris Lloyd, Airbus Defence and Space Ltd, United Kingdom; Michael Fehringer, European Space Agency, Netherlands

FR1.R9.3 09:10 **THE BIOMASS SAR INSTRUMENT: DEVELOPMENT STATUS AND PERFORMANCE OVERVIEW**
Thomas Fügen, Eckhardt Sperlich, Christoph Heer, S. Riegger, Airbus Defence and Space GmbH, Germany; Carl Warren, Airbus Defence and Space Ltd, United Kingdom; Adriano Carbone, RHEA for ESA, Netherlands; Florence Hélière, European Space Agency/ESTEC, Netherlands

FR1.R9.4 09:30 **CALIBRATION CHALLENGES FOR THE BIOMASS P-BAND SAR INSTRUMENT**
Shaun Quegan, Mark Lomas, University of Sheffield, United Kingdom; Kostas Papathanassiou, Jun-Su Kim, DLR - German Aerospace Center, Germany; Stefano Tebaldini, POLIMI, Italy; Davide Giudici, Michele Scagliola, Aresys s.r.l, Italy; Pietro Guccione, Politecnico di Bari, Italy; Jørgen Dall, Technical University of Denmark, Denmark; Pascale Dubois-Fernandez, ONERA, France; Philippe Paillou, University of Bordeaux, France

FR1.R9.5 09:50 **IONOSPHERE CORRECTION OF POLARIMETRIC INTERFEROMETRIC BIOMASS SAR DATA**
Konstantinos Papathanassiou, Jun-Su Kim, German Aerospace Center (DLR), Germany

Friday, July 27 | **11:10 - 12:50** | **Room 4D**
Session FR2.R9 | **Oral-Invited**

Biomass II

Session Co-Chairs: Thuy Letoan, CESBIO; Klaus Scipal, European Space Agency

FR2.R9.1 11:10 **THE RETRIEVAL CONCEPT OF THE BIOMASS FOREST BIOMASS PROTOTYPE PROCESSOR**
Francesco Banda, Davide Giudici, Aresys s.r.l, Italy; Shaun Quegan, University of Sheffield, United Kingdom; Klaus Scipal, European Space Agency/ESTEC, Netherlands

FR2.R9.2 11:30 **POLINSAR AND TOMOGRAPHIC RESULTS OVER THE GABONESE FOREST**
Valentine Wasik, Pascale Dubois-Fernandez, Office National d'Études et de Recherches Aérospatiales, France; Cédric Taillandier, TOTAL, France; Sassan Saatchi, Jet Propulsion Laboratory, United States

FR2.R9.3 11:50 **IMPROVED CHARACTERIZATION OF A TROPICAL FOREST USING POLARIMETRIC TOMOGRAPHIC SAR DATA ACQUIRED AT P BAND**
Laurent Ferro-Famil, Bassam El Hajj Chehade, Ray Abdo, University of Rennes 1, France; Dinh Ho Tong Minh, IRSTEA, France; Stefano Tebaldini, Politecnico di Milano, Italy; Thuy Le Toan, CESBIO, France

FR2.R9.4 12:10 **LONG-TERM P-BAND TOMOSAR OBSERVATIONS FROM THE BOREALSCAT TOWER EXPERIMENT**
Albert Monteith, Lars M. H. Ulander, Chalmers University of Technology, Sweden

FR2.R9.5 12:30 **RETRIEVAL OF TERRAIN TOPOGRAPHY IN TROPICAL FORESTS USING P-BAND SAR TOMOGRAPHY**
Mauro Mariotti d'Alessandro, Stefano Tebaldini, Politecnico di Milano, Italy

FRIDAY ORAL

Friday, July 27 | **14:10 - 15:50** | **Room 4D**
Session FR3.R9 | **Oral**

Optical Satellite Calibration

FR3.R9.1 14:10 **THE FIRST YEAR OF ADVANCED BASELINE IMAGER**
Satya Kalluri, Jaime Daniels, NOAA/NESDIS/STAR, United States; Mathew Gunshor, CIMSS, University of Wisconsin at Madison, United States; Daniel Lindsey, Timothy Schmit, Xiangqian Wu, NOAA/NESDIS/STAR, United States

FR3.R9.2 14:30 **FLEX: A PARAMETRIC STUDY OF ITS TANDEM FORMATION WITH SENTINEL-3**
David Arnas, Centro Universitario de la Defensa at ESA/ESTEC, Spain; Pedro Jurado, MOLTEK C/O ESA/ESTEC, Netherlands; Itziar Barat, DEIMOS Space C/O ESA/ESTEC, Netherlands; Berthyl Duesmann, Ralf Bock, European Space Agency/ESTEC, Netherlands

FR3.R9.3 14:50 **FIREBIRD – SMALL SATELLITES FOR WILD FIRE ASSESSMENT**
Winfried Halle, Sarah Asam, Erik Borg, Christian Fischer, Olaf Frauenberger, Eckehard Lorenz, Doris Klein, Michael Nolde, Carsten Paproth, Simon Plank, Rudolf Richter, Thomas Saeuberlich, Agnieszka Soszynska, Christian Strobl, German Aerospace Center (DLR), Germany

Friday, July 27 | **16:20 - 18:00** | **Room 4D**
Session FR4.R9 | **Oral**

Radar Missions

Session Chair: Marielle Chabot, MDA

FR4.R9.1 16:20 **10 YEARS OF RADARSAT-2 FLIGHT OPERATIONS**
Marielle Chabot, Neil Gibb, Casey Lambert, Chris Patterson, Philippe Rolland, MDA, Canada

FR4.R9.2 16:40 **MODEL-BASED ESTIMATION OF TROPICAL FOREST BIOMASS FROM NOTCH-FILTERED P-BAND SAR BACKSCATTER**
Maciej Soja, Horizon Geoscience Consulting, Australia; Mauro d'Alessandro, Politecnico di Milano, Italy; Shaun Quegan, University of Sheffield, United Kingdom; Stefano Tebaldini, Politecnico di Milano, Italy; Lars M. H. Ulander, Chalmers University of Technology, Sweden

FR4.R9.3 17:00 **GEOSYNCHRONOUS CONTINENTAL LAND-ATMOSPHERE SENSING SYSTEM (G-CLASS): PERSISTENT RADAR IMAGING FOR EARTH SCIENCE**
Stephen Hobbs, Cranfield University, United Kingdom; Andrea Monti-Guarnieri, Politecnico di Milano, Italy

FR4.R9.4 17:20 **SWOT MISSION PERFORMANCE AND ERROR BUDGET**
Eva Peral, Daniel Esteban-Fernandez, Jet Propulsion Laboratory, United States

Friday, July 27 **08:30 - 10:10** **Room 2H**
Session FR1.R10 **Oral-Invited**

Open Data Cube I

Session Chair: Brian Killough, NASA

FR1.R10.1 08:30 **OVERVIEW OF THE OPEN DATA CUBE INITIATIVE**
Brian Killough, NASA, United States

FR1.R10.2 08:50 **DIGITAL EARTH AUSTRALIA - FROM SATELLITE DATA TO BETTER DECISIONS**
David Gavin, Trevor Dhu, Stephen Sagar, Norman Mueller, Bex Dunn, Adam Lewis, Leo Lymburner, Stuart Minchin, Simon Oliver, Jonathon Ross, Medhavy Thankappan, Geoscience Australia, Australia

FR1.R10.3 09:10 **ACCELERATING INDUSTRY INNOVATION USING THE OPEN DATA CUBE IN AUSTRALIA**
Robert Woodcock, Matt Paget, Peter Wang, Alex Held, CSIRO, Australia

FR1.R10.4 09:30 **THE CEOS DATA CUBE PORTAL: A USER-FRIENDLY, OPEN SOURCE SOFTWARE SOLUTION FOR THE DISTRIBUTION, EXPLORATION, ANALYSIS, AND VISUALIZATION OF ANALYSIS READY DATA**
Syed R Rizvi, Analytical Mechanics Associates, United States; Brian Killough, NASA Langley Research Center, United States; Andrew Cherry, Sanjay Gowda, Analytical Mechanics Associates, United States

FR1.R10.5 09:50 **LESSONS LEARNED AND COST ANALYSIS OF HOSTING A FULL STACK OPEN DATA CUBE (ODC) APPLICATION ON THE AMAZON WEB SERVICES (AWS)**
Syed R Rizvi, Analytical Mechanics Associates, United States; Brian Killough, NASA Langley Research Center, United States; Andrew Cherry, Sanjay Gowda, Analytical Mechanics Associates, United States

Friday, July 27 **11:10 - 12:50** **Room 2H**
Session FR2.R10 **Oral-Invited**

Open Data Cube II

Session Chair: Brian Killough, NASA

FR2.R10.1 11:10 **OPEN DATA CUBE PRODUCTS USING HIGH-DIMENSIONAL STATISTICS OF TIME SERIES**
Dale Roberts, Australian National University, Australia; Bex Dunn, Norman Mueller, Geoscience Australia, Australia

FR2.R10.2 11:30 **RANDOM FOREST DATA CUBE BASED ALGORITHM FOR LAND COVER CLASSIFICATION: A COLOMBIAN CASE**
Indira Pachón, Salomón Ramírez, Diana Fonseca, Pilar Lozano-Rivera, IDEAM, Colombia; Christian Ariza, María Paula Mancipe, Mario Villamizar, Harold Castro, Los Andes University, Colombia; Edersson Cabrera, María Teresa Becerra, IDEAM, Colombia

FR2.R10.3 11:50 **TESTING THE INTEROPERABILITY OF SENTINEL 1 ANALYSIS READY DATA OVER THE UNITED KINGDOM**
Daniel Wicks, Thomas Jones, Cristian Rossi, Satellite Applications Catapult, United Kingdom

FR2.R10.4 12:10 **TOWARDS SENTINEL-2 ANALYSIS READY DATA: A SWISS DATA CUBE PERSPECTIVE**
Gregory Giuliani, Bruno Chatenoux, Erica Honeck, Jean-Philippe Richard, University of Geneva, Switzerland

FR2.R10.5 12:30 **SNOW OBSERVATIONS FROM SPACE: AN APPROACH TO MAP SNOW COVER FROM THREE DECADES OF LANDSAT IMAGERY ACROSS SWITZERLAND**
Lorenzo Frau, University of Geneva, Institute for Environmental Sciences, GRID-Geneva, Switzerland; Syed R Rizvi, Analytical Mechanics Associates, Switzerland; Bruno Chatenoux, Charlotte Poussin, Jean-Philippe Richard, Gregory Giuliani, University of Geneva, Institute for Environmental Sciences, GRID-Geneva, Switzerland

Friday, July 27 **14:10 - 15:50** **Room 2H**
Session FR3.R10 **Oral-Invited**

SAR Polarimetry: Theory and Applications I in memoriam of Wolfgang Martin Boerner

Session Co-Chairs: Tom Ainsworth, NRL; Carlos Lopez-Martinez, LIST; Eric Pottier, Universite de Rennes 1

FR3.R10.1 14:10 **A TRIBUTE TO WOLFGANG MARTIN BOERNER**
Eric Pottier, Universite de Rennes 1, France

FR3.R10.2 14:30 **MODEL-BASED POLSAR DECOMPOSITIONS: VIRTUES AND VICES**
Thomas Ainsworth, Naval Research Laboratory, United States; Jong-Sen Lee, Computational Physics, Inc., United States; Yanting Wang, Naval Research Laboratory, United States

FR3.R10.3 14:50 **ANALYSIS OF POLARIMETRIC FEATURE COMBINATION BASED ON POLSAR IMAGE CLASSIFICATION PERFORMANCE WITH MACHINE LEARNING APPROACH**
Qiang Yin, Beijing University of Chemical Technology, China; Wen Hong, Institute of Electronics, Chinese Academy of Sciences, China; Fan Zhang, Beijing University of Chemical Technology, China; Eric Pottier, University of Rennes 1, France

FR3.R10.4 15:10 **POLARIMETRIC COHERENCE OPTIMIZATION AS A MULTIDIMENSIONAL POLARIMETRIC SAR SIGNAL PROCESSING TOOL**
Laurent Ferro-Famil, Yue Huang, University of Rennes 1, France

FR3.R10.5 15:30 **POLARIMETRIC AND MULTITEMPORAL INFORMATION EXTRACTED FROM SENTINEL-1 SAR DATA TO MAP BUILDINGS**
Marco Chini, Ramona Pelich, Renaud Hostache, Patrick Matgen, Carlos López-Martínez, Luxembourg Institute of Science and Technology, Luxembourg

Friday, July 27 **16:20 - 18:00** **Room 2H**
Session FR4.R10 **Oral-Invited**

SAR Polarimetry: Theory and Applications II in memoriam of Wolfgang Martin Boerner

Session Co-Chairs: Tom Ainsworth, NRL; Carlos Lopez-Martinez, LIST; Eric Pottier, Universite de Rennes 1

FR4.R10.1 16:20 **POLARIMETRIC RESPONSE FROM CONIFER AND BROAD-LEAF TREE AT KU-BAND IN ANECHOIC CHAMBER**
Yoshio Yamaguchi, Yuto Minetani, Hiroyoshi Yamada, Niigata University, Japan

FR4.R10.2 16:40 **POLARIZATION ORIENTATION ANGLE AND SCATTERING CHARACTERISTICS OF STEEP TERRAIN**
Jong-Sen Lee, Thomas Ainsworth, Yanting Wang, Naval Research Laboratory, United States

FR4.R10.3 17:00 **ANALYSIS OF THE RADAR VEGETATION INDEX AND ASSESSMENT OF POTENTIAL FOR IMPROVEMENT**
Christoph Szigarski, University of Jena, Germany; Thomas Jagdhuber, German Aerospace Center (DLR), Germany; Martin Baur, University of Bayreuth, Germany; Christian Thiel, Mikhail Urbazaev, University of Jena, Germany; Marie Parrens, CESBIO, France; Jean-Pierre Wigneron, INRA, France; María Piles, University of Valencia, Spain; Kaighin A. McColl, University of Harvard, United States; Dara Entekhabi, Massachusetts Institute of Technology, United States

FR4.R10.4 17:20 **TEMPORAL VARIABILITY OF SOIL AND VEGETATION BACKSCATTERING OBSERVED IN DENSE L-BAND TIME-SERIES**
Marco Lavalle, Gustavo H.X. Shiroma, Paul A. Rosen, Scott Hensley, NASA Jet Propulsion Laboratory, United States

FR4.R10.5 17:40 **OPTIMUM POLARIMETRIC PALSAR INFORMATION EXTRACTION FOR PEATLAND CLASSIFICATION AND FIRE DAMAGE ASSESSMENT**
Ridha Touzi, Khalid Omari, Canada Centre for Remote Sensing, Canada; Bob Sleep, Alberta Environment and Sustainable Resource Development, Canada

Friday, July 27 | 08:30 - 10:10 | Room 2E
Session FR1.R11 | Oral-Invited

Sentinel-3: Applications of OLCI and SLSTR Data over Land in Synergy with other Sensors I

Session Co-Chairs: Valentina Boccia, European Space Agency; Steffen Dransfeld, European Space Agency

FR1.R11.1 08:30 **EXTENDING THE SPOT/VEGETATION – PROBA-V ARCHIVE WITH SENTINEL-3: A PRELIMINARY EVALUATION**
Carolien Toté, Else Swinnen, VITO, Belgium

FR1.R11.2 08:50 **VALIDATION OF FINE RESOLUTION LAND-SURFACE ENERGY FLUXES DERIVED WITH COMBINED SENTINEL-2 AND SENTINEL-3 OBSERVATIONS**
Radoslaw Guzinski, European Space Agency, Italy; Héctor Nieto, Research & Technology, Food and Agriculture IRTA, Spain; Tarek S. El-Madany, Mirco Migliavacca, Max Planck Institute for Biogeochemistry, Germany; Arnaud Carrara, Centro de Estudios Ambientales del Mediterrneo (CEAM), Germany

FR1.R11.3 09:10 **LAND SURFACE PROCESSES ANALYSIS USING SENTINEL-3 OLCI AND MODIS DATA**
Jose Gómez-Dans, NCEO & University College London, United Kingdom; Gerardo Lopez-Saldana, Assimila Ltd, United Kingdom; Philip Lewis, NCEO & University College London, United Kingdom; Jonathan Styles, Assimila Ltd, United Kingdom; Pierre-Philippe Mathieu, European Space Agency, Italy

FR1.R11.4 09:30 **VALIDATION OF THE SENTINEL-3 OCEAN AND LAND COLOUR INSTRUMENT (OLCI) TERRESTRIAL CHLOROPHYLL INDEX (OTCI): SYNERGETIC EXPLOITATION OF THE SENTINEL-2 MISSIONS**
Luke Brown, Jadunandan Dash, University of Southampton, United Kingdom; Antonio Lidón, Universitat Politècnica de València, Spain; Ernesto Lopez-Baeza, University of Valencia, Spain; Steffen Dransfeld, European Space Agency, Italy

FR1.R11.5 09:50 **OLCI/SLSTR SYN L2 ALGORITHM AND PRODUCTS OVERVIEW**
Claire Henocq, ACRI-ST, France; Peter North, Andreas Heckel, Swansea University, United Kingdom; Stéphane Ferron, Nicolas Lamquin, ACRI-ST, France; Steffen Dransfeld, European Space Agency/ESRIN, Italy; Ludovic Bourg, ACRI-ST, France; Carolien Toté, VITO, Belgium; Didier Ramon, HYGEOS, France

Friday, July 27 | 11:10 - 12:50 | Room 2E
Session FR2.R11 | Oral-Invited

Sentinel-3: Applications of OLCI and SLSTR Data over Land in Synergy with other Sensors II

Session Co-Chairs: Valentina Boccia, ESA; Steffen Dransfeld, ESA

FR2.R11.1 11:10 **SNOW COVER MONITORING BY SYNERGISTIC USE OF SENTINEL-3 SLSTR AND SENTINEL-1 SAR DATA**
Thomas Nagler, Helmut Rott, Joanna Ossowska, Gabriele Schwaizer, ENVEO Environmental Earth Observation IT GmbH, Austria; David Small, University of Zürich, Switzerland; Eirik Malnes, NORUT, Norway; Kari Luojus, Finnish Meteorological Institute, Finland; Sari Metsämäki, Finnish Environment Institute, Finland; Simon Pinnock, European Space Agency, United Kingdom

FR2.R11.2 11:30 **SYNERGIES BETWWEN SMOS AND SENTINEL-3**
Yann Kerr, CNES, France; Jean-Pierre Wigneron, INRA, France; Beatriz Molero-Rodenas, Nemesio Rodríguez-Fernández, Ahmad Al Bitar, Christophe Suere, CESBIO, France; Susanne Mecklenburg, European Space Agency, Italy

FR2.R11.3 11:50 **TERRA-P: A NEW GLOBAL MONITORING SYSTEM FOR PRIMARY PRODUCTION**
Iain Colin Prentice, Rebecca Thursa Thomas, Imperial College London, United Kingdom

FRIDAY ORAL

Friday, July 27 | 14:10 - 15:50 | Room 2E
Session FR3.R11 | Oral-Invited

Single Photon to Hyperspectral: Enhanced Airborne Mapping LiDAR Technologies and their Applications I

Session Co-Chairs: Juan Carlos Fernandez Diaz, University of Houston; Sanna Kaasalainen, Finnish Geospatial Research Institute; Preston Hartzell, University of Houston

FR3.R11.1 14:10 **MULTISPECTRAL TERRESTRIAL LASER SCANNING: NEW DEVELOPMENTS AND APPLICATIONS**
Sanna Kaasalainen, Tuomo Malkamäki, Julian Ilinca, Laura Ruotsalainen, Finnish Geospatial Research Institute, Finland

FR3.R11.2 14:30 **MULTIVARIATE GAUSSIAN DECOMPOSITION FOR MULTISPECTRAL AIRBORNE LIDAR DATA CLASSIFICATION**
Salem Morsy, Ahmed Shaker, Ahmed El-Rabbany, Ryerson University, Canada

FR3.R11.3 14:50 **INVESTIGATING MULTI-SPECTRAL LIDAR RADIOMETRY: AN OVERVIEW OF THE EXPERIMENTAL FRAMEWORK**
Maxim Okhrimenko, Craig Coburn, Chris Hopkinson, University of Lethbridge, Canada

FR3.R11.4 15:10 **TOWARDS A GENERALIZED METHOD FOR TREE SPECIES CLASSIFICATION USING MULTISPECTRAL AIRBORNE LASER SCANNING IN ONTARIO, CANADA**
Parvez Rana, University of Quebec at Montreal, Canada; Jean-François Prieur, University of Sherbrooke, Canada; Brindusa Cristina Budei, Benoît St-Onge, University of Quebec at Montreal, Canada

Friday, July 27 | 16:20 - 18:00 | Room 2E
Session FR4.R11 | Oral-Invited

Single Photon to Hyperspectral: Enhanced Airborne Mapping LiDAR Technologies and their Applications II

Session Co-Chairs: Juan Carlos Fernandez Diaz, University of Houston; Sanna Kaasalainen, Finnish Geospatial Research Institute; Preston Hartzell, University of Houston

FR4.R11.1 16:20 **PERFORMANCE ANALYSIS OF SIMULATED SPACEBORNE SINGLE PHOTON LIDAR DATA FOR CANOPY HEIGHT RETRIEVAL IN TEMPERATE FORESTS**
Hao Tang, University of Maryland, College Park, United States; David Harding, NASA Goddard Space Flight Center, United States; Ralph Dubayah, University of Maryland, College Park, United States

FR4.R11.2 16:40 **THE INTEGRATION OF UAV AND BACKPACK LIDAR SYSTEMS FOR FOREST INVENTORY**
Yanjun Su, Hongcan Guan, Tianyu Hu, Qinghua Guo, Institute of Botany, Chinese Academy of Sciences, China

FR4.R11.3 17:00 **IMPLEMENTATION OF UAV-BASED LIDAR FOR HIGH THROUGHPUT PHENOTYPING**
Radhika Ravi, Yun-Jou Lin, Tamer Shamseldin, Magdy Elbahnasawy, Melba Crawford, Ayman Habib, Purdue University, United States

FR4.R11.4 17:20 **EVALUATION OF A SURVEY-GRADE, LONG-RANGE UAS LIDAR SYSTEM: A CASE STUDY IN SOUTH TEXAS, USA**
Michael Starek, Tianxing Chu, David Bridges, Texas A&M University-Corpus Christi, United States

FR4.R11.5 17:40 **BIAS IMPACT ANALYSIS AND CALIBRATION OF UAV-BASED MOBILE LIDAR SYSTEM**
Tamer Shamseldin, Radhika Ravi, Magdy Elbahnasawy, Yun-Jou Lin, Ayman Habib, Purdue University, United States

Friday, July 27 | 08:30 - 10:10 | Room 2F
Session FR1.R12 | Oral-Invited

Advanced Flood Monitoring and Prediction for Global Disaster Risk Reduction II

Session Chair: Ramona-Maria Pelich, Luxembourg Institute of Science and Technology

FR1.R12.1 08:30 **AN OPEN-SOURCE TOOL FOR THE INTEGRATION OF REMOTELY SENSED INFORMATION AND HYDRO-GEOMORPHIC PARAMETERS FOR PRECISE MONITORING OF INUNDATIONS**
Alberto Refice, Annarita D'Addabbo, Guido Pasquariello, Francesco Paolo Lovergine, ISSIA-CNR, Italy

FR1.R12.2 08:50 **FLOOD-AREA DETECTION USING PALSAR-2 DATA FOR HEAVY RAINFALL DISASTERS IN JAPAN**
Masato Ohki, Japan Aerospace Exploration Agency, Japan; Masanobu Shimada, Tokyo Denki University, Japan

FR1.R12.3 09:10 **NEAR REAL-TIME MODIS-DETECTED FLOOD MONITORING COUPLING WITH COMPOSITE WHITE-OBJECT INDEX**
Jonggeol Park, Tokyo University of Information Sciences, Japan; Young-Joo Kwak, PWRI-ICHARM-UNESCO, Japan

FR1.R12.4 09:30 **MONITORING URBAN FLOODS USING SAR INTERFEROMETRIC OBSERVATIONS**
Marco Chini, Luxembourg Institute of Science and Technology, Luxembourg; Luca Pulvirenti, CIMA Research Foundation, Italy; Ramona Pelich, Luxembourg Institute of Science and Technology, Luxembourg; Nazzareno Pierdicca, Sapienza Università di Roma, Italy; Renaud Hostache, Patrick Matgen, Luxembourg Institute of Science and Technology, Luxembourg

Friday, July 27 | 11:10 - 12:50 | Room 2F
Session FR2.R12 | Oral

Forest Parameters Estimation: Techniques and Applications

Session Co-Chairs: Dario Domingo, University of Zaragoza; Antonio Ferraz, NASA Jet Propulsion Laboratory, California Institute of Technology

FR2.R12.1 11:10 **IMPROVING CARBON ESTIMATION OF LARGE TROPICAL TREES BY LINKING AIRBORNE LIDAR CROWN SIZE TO FIELD INVENTORY**
Antonio Ferraz, Sassan Saatchi, NASA Jet Propulsion Laboratory, United States; James Kellner, Brown University, United States; David Clark, University of Missouri-St. Louis, United States

FR2.R12.2 11:30 **ASSESSMENT OF THE MAPPING OF ABOVEGROUND BIOMASS AND ITS UNCERTAINTIES USING FIELD MEASUREMENTS, AIRBORNE LIDAR AND SATELLITE DATA IN MEXICO**
Mikhail Urbazaev, Christian Thiel, Felix Cremer, Christiane Schmullius, Friedrich-Schiller University Jena, Germany

FR2.R12.3 11:50 **INTERFEROMETRIC GROUND NOTCHING OF SAR IMAGES FOR ESTIMATING FOREST ABOVE GROUND BIOMASS**
Mauro Mariotti d'Alessandro, Stefano Tebaldini, Politecnico di Milano, Italy; Shaun Quegan, University of Sheffield, United Kingdom; Maciej Soja, University of Tasmania, Australia; Lars M. H. Ulander, Chalmers University of Technology, Sweden

FR2.R12.4 12:10 **ESTIMATION OF FOREST PARAMETERS COMBINING MULTISENSOR HIGH RESOLUTION REMOTE SENSING DATA**
David Morin, Milena Planells, CESBIO, Université de Toulouse, CNES/CNRS/IRD/UT3, UMR 5126, France; Dominique Guyon, INRA, UMR ISPA, France; Ludovic Villard, Gérard Dedieu, CESBIO, Université de Toulouse, CNES/CNRS/IRD/UT3, UMR 5126, France

FR2.R12.5 12:30 **FOREST HEIGHT ESTIMATION FROM TANDEM-X IMAGES WITH SEMI-EMPIRICAL COHERENCE MODELS**
Jaan Praks, Oleg Antropov, Aalto University, Finland; Aire Olesk, Kaupo Voormansik, University of Tartu, Estonia

FRIDAY ORAL

Friday, July 27 | 14:10 - 15:50 | Room 2F
Session FR3.R12 | Oral-Invited

UAV Quantitative Remote Sensing for Ecosystem Science I

Session Co-Chairs: Alasdair Mac Arthur, University of Edinburgh; Helge Aasen, ETH Zurich

FR3.R12.1 14:10 **UAV SPECTROSCOPY: CURRENT SENSORS, PROCESSING TECHNIQUES AND THEORETICAL CONCEPTS FOR DATA INTERPRETATION**
Helge Aasen, Federal Institute of Technology Zürich (ETHZ), Switzerland

FR3.R12.2 14:30 **INVERSION OF THE PROSAIL MODEL FROM UAV DATA**
Enrico Tomelleri, Free University of Bozen/Bolzano, Italy; Abraham Meija Aguilar, EURAC Research, Italy

FR3.R12.3 14:50 **ESTIMATION OF SUGARCANE YIELD BY ASSIMILATING UAV AND GROUND MEASUREMENTS VIA ENSEMBLE KALMAN FILTER**
Liangsheng Shi, Shun Hu, Yuanyuan Zha, Wuhan University, China

FR3.R12.4 15:10 **UAV-BASED APPROACHES FOR CROP PARAMETER RETRIEVALS**
Andrew Revill, University of Edinburgh, United Kingdom; Anna Florence, Steve Hoad, Robert M Rees, Scotland's Rural University College, United Kingdom; Alasdair MacArthur, Mathew Williams, University of Edinburgh, United Kingdom

Friday, July 27 | 16:20 - 18:00 | Room 2F
Session FR4.R12 | Oral-Invited

UAV Quantitative Remote Sensing for Ecosystem Science II

Session Chair: Helge Aasen, ETH Zurich

FR4.R12.1 16:20 **INFLUENCE OF COSINE CORRECTOR AND UAS PLATFORM DYNAMICS ON AIRBORNE SPECTRAL IRRADIANCE MEASUREMENTS**
Juliane Bendig, Deepak Gautam, Zbyněk Malenovský, Arko Lucieer, University of Tasmania, Australia

FR4.R12.2 16:40 **THE USE OF A QUADCOPTER-MOUNTED HYPER-SPECTRAL SPECTROMETER FOR EXAMINING REFLECTANCE IN SCOTTISH COASTAL WATERS.**
Rebecca Weeks, Philip Anderson, Keith Davidson, The Scottish Association for Marine Science (SAMS), United Kingdom; David McKee, University of Strathclyde, United Kingdom

FR4.R12.3 17:00 **INVESTIGATING FOREST PHOTOSYNTHETIC RESPONSE TO ELEVATED CO2 USING UAV-BASED MEASUREMENTS OF SOLAR INDUCED FLUORESCENCE**
Kadmiel Maseyk, The Open University, United Kingdom; Jon Atherton, University of Helsinki, Finland; Rick Thomas, University of Birmingham, United Kingdom; Kieran Wood, University of Bristol, United Kingdom; Sabine Tausz-Posch, University of Birmingham, United Kingdom; Alasdair MacArthur, University of Edinburgh, United Kingdom; Albert Porcar-Castell, University of Helsinki, Finland; Michael Tausz, University of Birmingham, United Kingdom

FR4.R12.4 17:20 **DRONE MEASUREMENTS OF SOLAR-INDUCED CHLOROPHYLL FLUORESCENCE ACQUIRED WITH A LOW-WEIGHT DFOV SPECTROMETER SYSTEM**
Jon Atherton, University of Helsinki, Finland; Alasdair MacArthur, University of Edinburgh, United Kingdom; Teemu Hakala, Finnish Geodetic Institute, Finland; Kadmiel Maseyk, Open University, United Kingdom; Iain Robinson, Rutherford Appleton Laboratory, United Kingdom; Weiwei Liu, Institute of Geographic Sciences and Natural Resources Research, China; Eija Honkavaara, Finnish Geodetic Institute, Finland; Albert Porcar-Castell, University of Helsinki, Finland

FR4.R12.5 17:40 **DERIVING HYPER SPECTRAL REFLECTANCE SPECTRA FROM UAV DATA COLLECTED IN CHANGEABLE ILLUMINATION CONDITIONS TO ASSESS VEGETATION CONDITION**
France Gerard, Charles George, Centre for Ecology and Hydrology, United Kingdom; Jakob Iglhaut, University of Swansea, United Kingdom; Richard Broughton, Centre for Ecology and Hydrology, United Kingdom; Cecilia Chavana-Bryant, Lawrence Berkeley National Laboratory, United States; Kevin White, University of Reading, United Kingdom; Karsten Schonrogge, Centre for Ecology and Hydrology, United Kingdom

Friday, July 27 **08:30 - 10:10** **Room 1A**
Session FR1.R13 **Oral**

Landsat 9

Session Chair: Joel McCorkel, NASA

FR1.R13.1 08:30 **LANDSAT 9 THERMAL INFRARED SENSOR 2 ARCHITECTURE AND DESIGN**
Jason H. Hair, Dennis Reuter, Synthia L. Tonn, Joel McCorkel, Amy A. Simon, NASA Goddard Space Flight Center, United States; Melody Djam, Bay Engineering Innovations, Inc., United States; David Alexander, ASRC Federal Space and Defense, United States; Kevin Ballou, Richard Barclay, Phillip Coulter, NASA Goddard Space Flight Center, United States; Michael Edick, Florez Engineering, LLC, United States; Boryana Efremova, GeoThinkTank, LLC, United States; Paul Finneran, Jackson and Tull, Inc., United States; Jose Florez, Florez Engineering, LLC, United States; Steven Graham, NASA Goddard Space Flight Center, United States; Kenneth Harbert, Florez Engineering, LLC, United States; Dennis Hewitt, Bay Engineering Innovations, Inc., United States; Michael Hickey, Samantha Hicks, NASA Goddard Space Flight Center, United States; William Hoge, Florez Engineering, LLC, United States; Murzy Jhabvala, NASA Goddard Space Flight Center, United States; Carol Lilly, Alcyon Technical Services, LLC, United States; Allen Lunsford, Catholic University of America, United States; Laurie Mann, NASA Goddard Space Flight Center, United States; Candace Masters, General Dynamics C4 Systems, Inc., United States; Matthew Montanaro, Rochester Institute of Technology, United States; Theodore Muench, Veronica Otero, Fil Parong, NASA Goddard Space Flight Center, United States; Aaron Pearlman, GeoThinkTank, LLC, United States; Jonathan Penn, Stinger Ghaffarian Technologies, Inc., United States; Danielle Vigneau, NASA Goddard Space Flight Center, United States; Brian Wenny, Science Systems and Applications, Inc., United States

FR1.R13.2 08:50 **LANDSAT 9 THERMAL INFRARED SENSOR 2 CHARACTERIZATION PLAN OVERVIEW**
Joel McCorkel, NASA Goddard Space Flight Center, United States; Matthew Montanaro, Rochester Institute of Technology, United States; Boryana Efremova, Aaron Pearlman, GeoThinkTank LLC, United States; Brian Wenny, SSAI, Inc., United States; Allen Lunsford, Catholic University of America, United States; Amy A. Simon, Jason Hair, Dennis Reuter, NASA Goddard Space Flight Center, United States

FR1.R13.3 09:10 **LANDSAT 9 THERMAL INFRARED SENSOR 2 SUBSYSTEM-LEVEL SPECTRAL TEST RESULTS**
Boryana Efremova, Aaron Pearlman, GeoThinkTank LCC / NASA GSFC, United States; Joel McCorkel, NASA Goddard Space Flight Center, United States; Matthew Montanaro, Rochester Institute of Technology / NASA GSFC, United States; Michael Hickey, NASA Goddard Space Flight Center, United States; Allen Lunsford, Catholic University of America / NASA GSFC, United States; Dennis Reuter, NASA Goddard Space Flight Center, United States

FR1.R13.4 09:30 **LANDSAT 9 THERMAL INFRARED SENSOR 2 PRELIMINARY STRAY LIGHT ASSESSMENT**
Matthew Montanaro, Rochester Institute of Technology, United States; Joel McCorkel, June Tveekrem, NASA Goddard Space Flight Center, United States; John Stauder, Utah State University, United States; Allen Lunsford, Catholic University of America, United States; Eric Mentzell, Jason Hair, Dennis Reuter, NASA Goddard Space Flight Center, United States

FRIDAY ORAL

Friday, July 27 **14:10 - 15:50** **Room 1A**
Session FR3.R13 **Oral**

Data Fusion Techniques II

Session Co-Chairs: Ronny Hänsch, Technische Universität Berlin; Alexandre Boulch, ONERA

FR3.R13.1 14:10 **A LOW-RANK METHOD FOR SENTINEL-2 SHARPENING USING CYCLIC DESCENT**
Magnus Orn Ulfarsson, University of Iceland, Iceland; Mauro Dalla Mura, Grenoble Institute of Technology, France

FR3.R13.2 14:30 **URBAN IMPERVIOUS SURFACE EXTRACTION BASED ON THE INTEGRATION OF REMOTE SENSING IMAGES AND SOCIAL MEDIA DATA**
Yan Yu, Sun Yat-sen University, China; Wei Wei, Northwestern Polytechnical University, China; Jun Li, Sun Yat-sen University, China; Yanning Zhang, Northwestern Polytechnical University, China

FR3.R13.3 14:50 **PYSICALLY BASED DATA FUSION BETWEEN AIRBORNE LIDAR AND HYPERSPECTRAL DATA: GEOMETRIC AND RADIOMETRIC SYNERGIES**
Maximilian Brell, Luis Guanter, Karl Segl, GFZ Potsdam, Germany

FR3.R13.4 15:10 **URBAN LAND USE/LAND COVER CLASSIFICATION BASED ON FEATURE FUSION FUSING HYPERSPECTRAL IMAGE AND LIDAR DATA**
Qiong Cao, Yanfei Zhong, Ailong Ma, Liangpei Zhang, Wuhan University, China

FR3.R13.5 15:30 **FUSION OF HYPERSPECTRAL AND LIDAR IMAGES USING NON-SUBSAMPLED SHEARLET TRANSFORM**
Mohammad Reza Soleimanzadeh, Azam Karami, Shahid Bahonar University of Kerman, Iran; Paul Scheunders, University of Antwerp, Belgium

Friday, July 27 **16:20 - 18:00** **Room 1A**
Session FR4.R13 **Oral**

Data Fusion: Coregistration and Super-resolution

Session Chair: Nick Younan, Mississippi State University

FR4.R13.1 16:20 **AUTOMATIC COREGISTRATION OF SAR AND OPTICAL IMAGES EXPLOITING COMPLEMENTARY GEOMETRY AND MUTUAL INFORMATION**
Mario Costantini, Massimo Zavagli, e-GEOS - an Italian Space Agency and Telespazio company, Italy; Javier Martin, Anabella Medina, INTA, Spain; Aureliana Barghini, B-Open Solutions, Italy; Jorge Naya, Indra, Spain; Carlos Hernando, Telespazio Iberica, Spain; Flavia Macina, e-GEOS - an Italian Space Agency and Telespazio company, Italy; Inés Ruiz, Telespazio Iberica, Spain; Enrique Nicolas, Severino Fernández, INTA, Spain

FR4.R13.2 16:40 **COMBINED USE OF MULTIMODAL SIMILARITY MEASURES FOR VISUAL TO RADAR IMAGE REGISTRATION**
Mykhail L. Uss, National Aerospace University, Ukraine; Benoit Vozel, University of Rennes, France; Vladimir V. Lukin, National Aerospace University, Ukraine; Kacem Chehdi, University of Rennes, France

FR4.R13.3 17:00 **REGISTRATION OF SAR AND OPTICAL IMAGES BY WEIGHTED SIFT BASED ON PHASE CONGRUENCY**
Shuai Jiang, Bingnan Wang, Institute of Electronics, Chinese Academy of Sciences, China; Xiangyu Zhu, China Samsung Research, China; Maosheng Xiang, Xikai Fu, Xiaofan Sun, Institute of Electronics, Chinese Academy of Sciences, China

FR4.R13.4 17:20 **HIGH QUALITY REMOTE SENSING IMAGE SUPER-RESOLUTION USING DEEP MEMORY CONNECTED NETWORK**
Wenjia Xu, Institute of Electronics, Chinese Academy of Sciences; University of Chinese Academic of Sciences, China; Guangluan Xu, Yang Wang, Xian Sun, Institute of Electronics, Chinese Academy of Sciences, China; Daoyu Lin, Yirong Wu, Institute of Electronics, Chinese Academy of Sciences;University of Chinese Academic of Sciences, China

FR4.R13.5 17:40 **RADAR FORWARD-LOOKING SUPERRESOLUTION IMAGING FOR SEA-SURFACE TARGETS USING BAYESIAN METHOD**
Haiguang Yang, Changlin Li, Yin Zhang, Yulin Huang, Jianyu Yang, University of Electronic Science and Technology of China, China

Monday, July 23 15:50 - 16:50 Poster Area A
Session MOP2.PA Poster

Microwave Models for Natural Media

Session Chair: Lorenzo Bruzzone, University of Trento

MOP2.PA.1 Board PA.1 **THE DISTRIBUTION OF RADAR SEA CLUTTER: A PHYSICAL APPROACH**
Floriane Madeleine Schreiber, Sébastien Angelliaume, ONERA, France; Charles-Antoine Guérin, University of Toulon, France

MOP2.PA.2 Board PA.2 **NUMERICAL SIMULATION OF SHORT GRAVITATIONAL-CAPILLARY WAVES IN THE CONTEXT OF REMOTE SENSING OF THE OCEAN**
Dmitry Ivonin, Shirshov Institute of Oceanology RAS, Russian Federation

MOP2.PA.3 Board PA.3 **A GPS-REFLECTOMETRY SIMULATOR FOR TARGET DETECTION OVER OCEANS**
Maria Paola Clarizia, Deimos Space UK Ltd, United Kingdom; Nicholas Chotiros, Office of Naval Research Global London, United Kingdom; Michael Vaccaro, Office of Naval Research, United States

MOP2.PA.4 Board PA.4 **ELECTROMAGNETIC MODELING OF SHIPS IN MARITIME SCENARIOS: GEOMETRICAL OPTICS APPROXIMATION**
Walter Fuscaldo, Sapienza Università di Roma, Italy; Alessio Di Simone, University of Naples Federico II, Italy; Leonardo Millefiori, NATO Science and Technology Organization Centre for Maritime Research and Experimentation, Italy; Daniele Riccio, Giuseppe Ruello, University of Naples Federico II, Italy; Paolo Braca, NATO Science and Technology Organization Centre for Maritime Research and Experimentation, Italy; Peter Willett, University of Connecticut, United States

MOP2.PA.5 Board PA.5 **ELECTROMAGNETIC FIELDS INDUCED BY THE WAKE OF A MOVING SLENDER BODY IN THE OCEAN OF FINITE DEPTH**
Zhihua Xu, Changping Du, Mingyao Xia, Peking University, China

MOP2.PA.6 Board PA.6 **A NEW TECHNIQUE FOR SIMULATING RADAR ECHOES FROM LAYERED SUBSURFACE TARGETS**
Christopher Gerekos, Alessandro Tamponi, Leonardo Carrer, Davide Castelletti, Massimo Santoni, Lorenzo Bruzzone, University of Trento, Italy

MOP2.PA.7 Board PA.7 **IMPROVED FARADAY ROTATION ESTIMATOR IN LINEARLY POLARIZED SAR DATA**
Jinhui Li, Yifei Ji, Yongsheng Zhang, Qilei Zhang, Haifeng Huang, Zhen Dong, National University of Defense Technology, China

MOP2.PA.8 Board PA.8 **CALCULATION OF LONG-TERM TROPOSPHERIC ATTENUATION STATISTICS USING WEATHER CUBES**
Bertus Shelters, Brannon Elmore, James Ethridge, Jaclyn Schmidt, Jarred Burley, Steven Fiorino, Joseph Sugrue, Andrew Terzuoli, IEEE, United States

MOP2.PA.9 Board PA.9 **FULL-WAVE SCATTERING COMPUTATION FOR SNOWPACKS USING SSWAP-SD METHOD WITH THE DISCRETE-DIPOLE APPROXIMATION**
Mostafa Zaky, Kamal Sarabandi, University of Michigan, United States

MOP2.PA.10 Board PA.10 **EFFECTIVE PERMITTIVITY AND SCATTERING OF BICONTINUOUS RANDOM MEDIUM WITH STRONG PERMITTIVITY FLUCTUATION THEORY**
Jiyue Zhu, Shurun Tan, Leung Tsang, University of Michigan, United States

Monday, July 23 15:50 - 16:50 Poster Area B
Session MOP2.PB Poster

Differential SAR Interferometry IV

Session Co-Chairs: Nico Adam, German Aerospace Center (DLR); Michael Fourmelis, BGRM

MOP2.PB.1 Board PB.1 **MONITORING THREE DIMENSIONAL DISPLACEMENTS OF THE SHUPING LANDSLIDE, THREE GORGES AREA WITH MULTI-TEMPORAL TERRASAR-X SAR IMAGES**
Xuguo Shi, China University of Geosciences Wuhan, China; Lu Zhang, Mingsheng Liao, Shuo Shi, Wuhan University, China

MOP2.PB.2 Board PB.2 **ZHENGZHOU CITY SUBSIDENCE MONITORING IN 2014-2016 USING TIME-SERIES INSAR**
Zhengjia Zhang, China University of Geosciences, China; Chao Wang, the Key Laboratory of Digital Earth Science, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, Beijing 100094, China, China; Xiuguo Liu, Mengmeng Wang, China University of Geosciences, China

MOP2.PB.3 Board PB.3 **COSMO-SKYMED AND SENTINEL-1 DINSAR PROCESSING FOR GROUND INSTABILITY MONITORING IN INDONESIA**
Fabio Bovenga, Alberto Refice, Antonella Belmonte, National Research Council of Italy (CNR), Italy; Raffaele Nutricato, Davide Oscar Nitti, GAP srl, Italy; Maria Teresa Chiaradia, University of Bari, Italy; Sotirios Valkaniotis, Sofia Gkioni, Chrysanthi Kosma, Athanassis Ganas, National Observatory of Athens, Greece; Paolo Manunta, Collaborative Space Ltd, Ireland; Elizar Elizar, Darusman Darusman, Syiah Kuala University, Indonesia; Philippe Bally, European Space Agency, Italy

MOP2.PB.4 Board PB.4 **MAPPING VULNERABLE TOURISM INFRASTRUCTURE IN KARST ENVIRONMENT WITH AN INTEGRATED REMOTE SENSING APPROACH. THE DEAD SEA, JORDAN, CASE STUDY.**
Simone Fiaschi, University College Dublin, Ireland; Damien Closson, GIM - Geographic Information Management NV, Belgium; Killian Paenen, Brussels Free University, Belgium; Najib Abou Karaki, The University of Jordan, Jordan

MOP2.PB.5 Board PB.5 **REGULARIZED DIFFERENTIATION FOR INSAR PHASE UNWRAPPING**
Rick Chartrand, Descartes Labs, United States

MOP2.PB.7 Board PB.7 **LAND SUBSIDENCE MONITORING BY INTEGRATING PSI AND GEODETIC DEFORMATION MEASUREMENTS**
Hiroki Ito, Junichi Susaki, Kyoto University, Japan

MOP2.PB.8 Board PB.8 **A NEW AUTOMATIC SELECTION OF OPTIMUM INTERFEROMETRIC IMAGE PAIRS IN TIME SERIES SAR INTERFEROMETRY**
Hong'an Wu, Yonghong Zhang, Yonghui Kang, Chinese Academy of Surveying and Mapping, China

MOP2.PB.9 Board PB.9 **LANDSLIDE OBSERVATION FROM ALOS-2/PALSAR-2 DATA (IMAGE CORRELATION TECHNIQUES AND SAR INTERFEROMETRY). APPLICATION TO SALAZIE CIRCLE LANDSLIDES (LA RÉUNION ISLAND)**
Daniel Raucoules, BRGM, France; Fabrizio Tomaro, University of Salerno, Italy; Michael Foumelis, Caterina Negulescu, Marcello de Michele, Bertrand Aunay, BRGM, France

Monday, July 23 15:50 - 16:50 Poster Area C
Session MOP2.PC Poster

Differential SAR Interferometry VII

Session Co-Chairs: Jordi Mallorqui, Universitat Politècnica de Catalunya; Ramon Hanssen, University of Delft

MOP2.PC.1 Board PC.1 **LAND SUBSIDENCE IN BEIJING FROM 2015-2016 REVEALED BY SENTINEL-1 TOPS TIME SERIES INTERFEROMETRY**
Keren Dai, Chengdu University of Technology, China; Zhenhong Li, Newcastle University, United Kingdom; Leyin Hu, Beijing Earthquake Agency, China; Ronghao Yang, Xiaoxia Yang, Jisong Gou, Peilian Ran, Chengdu University of Technology, China

MOP2.PC.2 Board PC.2 **DEFORMATION OF BHUJ EARTHQUAKE AREA OBTAINED WITH PERSISTENT SCATTERER INTERFEROMETRIC ANALYSIS OF ALOS L-BAND SAR DATA**
Divya Sekhar Vaka, Y. S. Rao, Indian Institute of Technology Bombay, India

MOP2.PC.3 Board PC.3 **AN ASYMMETRIC SPLIT-SPECTRUM METHOD FOR ESTIMATING THE IONOSPHERIC ARTIFACTS IN INSAR DATA**
Bochen Zhang, Xiaoli Ding, The Hong Kong Polytechnic University, Hong Kong SAR of China; Wu Zhu, Chang'an University, China

MOP2.PC.4 Board PC.4 **POST-FLOOD SOIL DEFORMATION MONITORING USING MULTI-TEMPORAL SENTINEL1 DATA**
Chayma Chaabani, Riadh Abdelfattah, University of Carthage, Higher School of Communications of Tunis COSIM Lab, Tunisia

MOP2.PC.5 Board PC.5 **LAND SUBSIDENCE MONITORING IN THE KATHMANDU BASIN, BEFORE AND AFTER MW 7.8 GORKHA EARTHQUAKE, NEPAL BY SBAS-DINSAR TECHNIQUE**
Suresh Krishnan P.V., Duk-jin Kim, Jungkyo Jung, Seoul National University, Republic of Korea

MOP2.PC.7 Board PC.7 **ASSESSMENT OF THE ACCURACY AMONG THE COMMON PERSISTENT SCATTERER AND DISTRIBUTED SCATTERER**
Zheyuan Du, Linlin Ge, The University of New South Wales, Australia; Alex Hay-Man Ng, University of New South Wales, Australia

MOP2.PC.8 Board PC.8 **MOUNTAIN TOPOGRAPHIC DEFORMATION EXTRACATION BASED ON PS-INSAR**
Li Tang, Yuxia Li, Yan Chen, Yunping Chen, Ling Tong, University of Electronic Science and Technology of China, China

MOP2.PC.9 Board PC.9 **SURFACE DEFORMATION OF THE SHANGHAI COASTAL AREA REVEALED BY A MULTI-SATELLITE DINSAR INVESTIGATION**
Qing Zhao, Yu Lei, Guanyu Ma, East China Normal University, China; Antonio Pepe, Diego Reale, Institute for Electromagnetic Sensing of the Environment (IREA), Italian National Research Council, Italy; Julia Kubanek, Earth & Planetary Sciences Department, McGill University, Canada; Min Liu, East China Normal University, Canada; Tianliang Yang, Key Laboratory of Land Subsidence Monitoring and Prevention, Ministry of Land and Resources, Canada

MOP2.PC.10 Board PC.10 **USING MULTI-FREQUENCY INSAR DATA TO CONSTRAIN GROUND DEFORMATION OF ISCHIA EARTHQUAKE**
Antonio Montuori, Matteo Albano, Marco Polcari, Simone Atzori, Christian Bignami, Cristiano Tolomei, Giuseppe Pezzo, Marco Moro, Istituto Nazionale di Geofisica e Vulcanologia, Italy; Michele Saroli, Università degli Studi di Cassino e del Lazio Meridionale, Italy; Salvatore Stramondo, Stefano Salvi, Istituto Nazionale di Geofisica e Vulcanologia, Italy

Monday, July 23 15:50 - 16:50 Poster Area D
Session MOP2.PD Poster

Bistatic & Other SAR Systems

Session Co-Chairs: Marwan Younis, German Aerospace Center (DLR); Alberto Moreira, German Aerospace Center (DLR)

MOP2.PD.1 Board PD.1 **NON-STOP-AND-GO ECHO MODEL FOR HYPERSONIC-VEHICLE-BORNE BISTATIC FORWARD-LOOKING SAR**
Qianghui Zhang, Junjie Wu, Jianyu Yang, Yulin Huang, Haiguang Yang, Xiaobo Yang, University of Electronic Science and Technology of China, China

MOP2.PD.2 Board PD.2 **THE MULTI-STRIP CIRCULAR-SCANNING MODE FOR SAR SPACEBORNE IMAGING**
Zhiwei Xu, Ye Jiang, Daiyin Zhu, Nanjing University of Aeronautics and Astronautics, China

MOP2.PD.3 Board PD.3 **A GPU BASED PARALLEL SCHEME FOR HIGH-RESOLUTION MINIATURE UAV SAR**
Zhiwei Xu, Wei Li, Daiyin Zhu, Nanjing University of Aeronautics and Astronautics, China

MOP2.PD.4 Board PD.4 **STUDY OF THE EFFECTS OF NON-SQUARE RESOLUTIONS OF BISTATIC SAR ON TEMPLATE MATCHING PERFORMANCE**
Qianghui Zhang, Junjie Wu, Chuyang Li, Jianyu Yang, Yulin Huang, Haiguang Yang, Xiaobo Yang, University of Electronic Science and Technology of China, China

MOP2.PD.5 Board PD.5 **EFFICIENT RAW DATA GENERATION FOR BISTATIC SAR BASED ON 2-D INVERSE WAVENUMBER MAPPING**
Yuxuan Miao, Junjie Wu, Jianyu Yang, University of Electronic Science and Technology of China, China

MOP2.PD.6 Board PD.6 **ANNULAR ARRAY 3-D SAR: RESOLUTION ANALYSIS AND DATA PROCESSING**
Ling Pu, Xiaoling Zhang, Jun Shi, Shunjun Wei, University of Electronic Science and Technology of China, China

MOP2.PD.7 Board PD.7 **DOWN-LOOKING SPARSE LINEAR ARRAY 3-D SAR IMAGING BASED ON MOTION COMPENSATION**
Qi-yong Liu, Kai-ming Li, Air Force Engineering University, Institute of Information and Navigation, China; Wen-jun Huo, Xijing University, China; Zhi-qiang Ma, Air Force Engineering University, Institute of Information and Navigation, China; Fu-fei Gu, China Satellite Maritime Tracking and Control Department, China

MOP2.PD.8 Board PD.8 **A NOVEL HIGH-ORDER IMAGE FORMATION ALGORITHM FOR GNSS-BASED BISTATIC SAR**
Xinkai Zhou, Pengbo Wang, Kai-Qi Hu, Hong-Cheng Zeng, Yue Fang, Jie Chen, School of Electronics and Information Engineering, Beihang University, China

MOP2.PD.9 Board PD.9 **A NOVEL IMAGING FORMATION OF ELECTROMAGNETIC VORTEX SAR WITH TIME-VARIANT ORBITAL-ANGULAR-MOMENTUM**
Yue Fang, Jie Chen, Pengbo Wang, Zhirong Men, Xinkai Zhou, Kaiqi Hu, Beihang University, China

MONDAY POSTER

Monday, July 23 15:50 - 16:50 Poster Area E
Session MOP2.PE Poster

SAR Image Corrections and Jamming

MOP2.PE.1 Board PE.1 **COMPARISON OF SAR IMAGE GEOMETRIC CORRECTION BASED ON MULTI-RESOLUTION DEMS**
Kaili Han, Qiming Zeng, Hui Wang, Jian Jiao, Peking University, China

MOP2.PE.2 Board PE.2 **SPACE VARIANT-BASED MAXIMUM A POSTERIORI ANGULAR SUPER-RESOLUTION ALGORITHM FOR REAL-BEAM SCANNING RADAR**
Ke Tan, Wenchao Li, Yongchao Zhang, Yulin Huang, Jianyu Yang, Xiaobo Yang, University of Electronic Science and Technology of China, China

MOP2.PE.3 Board PE.3 **A FAST DOPPLER PARAMETERS ESTIMATION METHOD FOR MOVING TARGET IMAGING BASED ON 2D-FFT**
Yi Lan, Zhongyu Li, Jingyi Qu, Junjie Wu, Jianyu Yang, University of Electronic Science and Technology of China, China

MOP2.PE.4 Board PE.4 **ENHANCED AZIMUTH RESOLUTION FOR SPACEBORNE INTERRUPTED FMCW SAR THROUGH SPECTRAL ANALYSIS**
Naveed Ahmed, Bing Sun, Jie Chen, Beihang University, China

MOP2.PE.5 Board PE.5 **IMAGING OF MOVING TARGET FOR COOPERATIVE SAR BETWEEN HIGH-ORBIT AND LOW-ORBIT SATELLITES**
Huihui Ding, Shunsheng Zhang, Fukang Gong, Wen-Qin Wang, Haoyu Tian, University of Electronic Science and Technology of China, China

MOP2.PE.7 Board PE.7 **FAST DECEPTIVE JAMMING AGAINST TOPSAR**
Tian Tian, Feng Zhou, xidian University, China; Bo Zhao, Shenzhen University, China

MOP2.PE.8 Board PE.8 **DECEPTIVE JAMMING ON SPACE-BORNE SAR USING FREQUENCY DIVERSE ARRAY**
Yu Zhu, Beijing Institute of Spacecraft System Engineering, China; Hui Wang, Shunsheng Zhang, Zhi Zheng, Wen-Qin Wang, University of Electronic Science and Technology of China, China

MOP2.PE.9 Board PE.9 **MICRO-DOPPLER DECEPTION JAMMING FOR TRACKED VEHICLES**
Xiaoran Shi, Feng Zhou, Lei Liu, Xidian University, China

MOP2.PE.10 Board PE.10 **PR-BASED SAR RECONSTRUCTION AUTOFOCUS ALGORITHM FOR PERSISTENT SURVEILLANCE CHANGE DETECTION**
Yue Yang, Qing Zhang, Xuejing Zhang, University of Electronic Science and Technology of China, China; Keyu Long, The Second Research Institute of CAAC, China; Xunchao Cong, The 10th Research Institute of CETC, China; Qun Wan, University of Electronic Science and Technology of China, China

Monday, July 23 15:50 - 16:50 Poster Area F
Session MOP2.PF Poster

PolSAR Filtering & Image Analysis

MOP2.PF.1 Board PF.1 **A COMPARISON OF STATISTICAL MODELS FOR POLARIMETRIC SAR DATA**
Xinping Deng, Jinsong Chen, Shenzhen Institute of Advanced Technology, China; Carlos López-Martínez, Luxembourg Institute of Science and Technology, Luxembourg

MOP2.PF.2 Board PF.2 **FULLY CONVOLUTIONAL SEMI-SUPERVISED GAN FOR POLSAR CLASSIFICATION**
Mengchen Liu, Yue Hu, Shuang Wang, Yanhe Guo, Biao Hou, Licheng Jiao, Xiaojin Hou, Xidian University, China

MOP2.PF.3 Board PF.3 **SPECKLE NOISE REDUCTION OF TIME SERIES SAR IMAGES BASED ON WAVELET TRANSFORM AND KALMAN FILTER**
Amir Aghabalaei, Yazdan Amerian, Hamid Ebadi, Yasser Maghsoudi, K. N. Toosi University of Technology, Iran

MOP2.PF.4 Board PF.4 **A WEIGHTED ACCELERATION ALGORITHM BASED ON NON-LOCAL FILTER FOR SAR IMAGES WITH THE POLARIZATION SIMILARITY**
Chongjing Ran, Yan Chen, Yunping Chen, Ling Tong, University of Electronic Science and Technology of China, China

MOP2.PF.5 Board PF.5 **POLSAR DESPECKLING BASED ON 3D PATCHES MATCHING AND LINEAR MINIMUM MEAN SQUARE ERROR ESTIMATOR**
Xiaoshuang Ma, Penghai Wu, School of Resources and Environmental Engineering, Anhui University, China

MOP2.PF.6 Board PF.6 **POLSAR SPECKLE FILTERING USING ITERATIVE MMSE**
Tej Albaha Alhamrouni, Higher School of Communications of Tunis, Tunisia; Mohamed Yahia, National School of Engineers of Tunis, Tunisia; Riadh Abdelfattah, Higher School of Communications of Tunis, Tunisia

MOP2.PF.7 Board PF.7 **FOREST HEIGHT ESTIMATION USING ADAPTIVE DECOMPOSITION METHOD OF POLINSAR DATA**
Houda Latrache, Boularbah Souissi, Mounira Ouarzeddine, University of Sciences and Technology Houari Boumediene, Algeria

MOP2.PF.8 Board PF.8 **EDGE DETECTION OF POLSAR IMAGES USING STATISTICAL DISTANCE BETWEEN AUTOMATICALLY REFINED SAMPLES**
Xianxiang Qin, Tao Hu, Information and Navigation College, Air Force Engineering University, China; Huanxin Zou, College of Electronic Science, National University of Defense Technology, China; Wangsheng Yu, Peng Wang, Jun Li, Information and Navigation College, Air Force Engineering University, China

MOP2.PF.9 Board PF.9 **HEIGHT MONITORING WITH EIGEN DECOMPOSITION OF POLINSAR DATA**
Maryam Salehi, Yasser Maghsoudi, Ali Mohammadzadeh, Faculty of Geodesy and Geomatics Engineering, K.N. Toosi University of Technology, Iran

MOP2.PF.10 Board PF.10 **ADDED VALUE OF MULTITEMPORAL POLARIMETRIC UAVSAR DATA FOR PERMANENT SCATTERERS DETECTION**
Tina Nikaein, University of Tehran, Iran; Vahid Akbari, UiT The Arctic University of Norway, Norway; Hossein Arefi, University of Tehran, Iran

Monday, July 23 15:50 - 16:50 Poster Area G
Session MOP2.PG Poster

Applications of Deep Learning

Session Co-Chairs: Emanuele Santi, CNR-IFAC; Xuiping Jia, University of New South Wales at Canberra

MOP2.PG.1 Board PG.1 **OIL-PALM TREE DETECTION IN AERIAL IMAGES COMBINING DEEP LEARNING CLASSIFIERS**
Maciel Zortea, Marcelo Nery, Bernardo Ruga, IBM Research, Brazil; Lara Bispo Carvalho, Adriano Chaves Bastos, Agropalma, Brazil

MOP2.PG.2 Board PG.2 **SPECTRAL-SPATIAL TOPOGRAPHIC SHADOW DETECTION FROM SENTINEL-2A MSI IMAGERY VIA CONVOLUTIONAL NEURAL NETWORKS**
Hui Huang, Genyun Sun, China University of Petroleum (East China), China; Jinchang Ren, University of Strathclyde, United Kingdom; Jun Rong, Aizhu Zhang, Yanling Hao, China University of Petroleum (East China), China

MOP2.PG.3 Board PG.3 **AGGREGATING DEEP CONVOLUTIONAL NEURAL NETWORK SCANS OF BROAD-AREA HIGH-RESOLUTION REMOTE SENSING IMAGERY**
Grant Scott, Alex Hurt, Richard Marcum, Derek Anderson, Curt Davis, University of Missouri, United States

MOP2.PG.4 Board PG.4 **AN ADAPTATION OF CNN FOR SMALL TARGET DETECTION IN THE INFRARED**
Dong Zhao, Huixin Zhou, Shenghui Rong, Xidian University, China; Xiuping Jia, University of New South Wales, Australia

MOP2.PG.5 Board PG.5 **ROTATED REGION BASED FULLY CONVOLUTIONAL NETWORK FOR SHIP DETECTION**
Mingjie Li, Weiwei Guo, Zenghui Zhang, Wenxian Yu, Tao Zhang, Shanghai Jiao Tong University, China

MOP2.PG.6 Board PG.6 **A TRANSLATIONAL INVARIANT SAR-ATR METHOD BASED ON CONVOLUTIONAL NEURAL NETWORKS**
Zongyong Cui, Sifei Wang, Sihang Dang, Zongjie Cao, University of Electronic Science and Technology of China, China

MOP2.PG.7 Board PG.7 **SHIP DETECTION BASED ON DEEP CONVOLUTIONAL NEURAL NETWORKS FOR POLSAR IMAGES**
Feng Zhou, Weiwei Fan, Qiangqiang Sheng, Xidian University, China; Mingliang Tao, Northwestern Polytechnical University, China

MOP2.PG.8 Board PG.8 **NARROW ROAD EXTRACTION FROM REMOTE SENSING IMAGES BASED ON SUPER-RESOLUTION CONVOLUTIONAL NEURAL NETWORK**
Xinyu Zhou, Harbin Institute of Technology, China; Xi Chen, Key Laboratory of Geographic Information Science (Ministry of Education), China; Ye Zhang, Harbin Institute of Technology, China

MOP2.PG.9 Board PG.9 **DATA AUGMENTATION WITH GABOR FILTER IN DEEP CONVOLUTIONAL NEURAL NETWORKS FOR SAR TARGET RECOGNITION**
Ting Jiang, Zongyong Cui, Zhi Zhou, Zongjie Cao, University of Electronic Science and Technology of China, China

MOP2.PG.10 Board PG.10 **INSHORE SHIP DETECTION BASED ON MASK R-CNN**
Shanlan Nie, Zhiguo Jiang, Haopeng Zhang, Bowen Cai, Yuan Yao, Beihang University, China

Monday, July 23 15:50 - 16:50 Poster Area H
Session MOP2.PH Poster

Ship Detection

Session Chair: Emmanuel Dinnat, Chapman University & NASA/GSFC

MOP2.PH.1 Board PH.1 **A LOCAL CFAR DETECTOR BASED ON GRAY INTENSITY CORRELATION IN SAR IMAGERY**
Jiaqiu Ai, Hefei University of Technology, China; Xuezhi Yang, Hefei Univeristy of Technology, China; He Yan, Nanjing University of Aeronautics and Astronautics, China

MOP2.PH.2 Board PH.2 **A PRIORI-KNOWLEDGE BASED SHIP CFAR DETECTION AND DETERMINATION ALGORITHM IN SAR IMAGERY**
Jiaqiu Ai, Xuezhi Yang, Hefei University of Technology, China; Zhihuo Xu, Nantong Univeristy, China; Ruitian Tian, Hefei Univeristy of Technology, China

MOP2.PH.3 Board PH.3 **A NEW SCATTERING SIMILARITY BASED METRIC FOR SHIP DETECTION IN POL-SAR IMAGE**
Yunhong Tao, Haitao Lang, Hongji Shi, Beijing University of Chemical Technology, China

MOP2.PH.4 Board PH.4 **A SHIP DETECTOR BASED ON THE IMPROVED POLARIMETRIC COVARIANCE DIFFERENCE MATRIX**
Tao Zhang, Shanghai Jiao Tong University, KTH Royal Institute of Technology, China; Yifang Ban, KTH Royal Institute of Technology, Sweden; Huilin Xiong, Wenxian Yu, Shanghai Jiao Tong University, China

MOP2.PH.5 Board PH.5 **LAND MASKING METHOD FOR SAR-BASED SHIP DETECTION IN COASTAL WATERS OF MANY ISLANDS**
Chan-Su Yang, Ju-Han Park, Ahmed Harun-Al-Rashid, Korea Institute of Ocean Science and Technology, Republic of Korea

MOP2.PH.6 Board PH.6 **SHIP DETECTION WITHOUT SEA-LAND SEGMENTATION FOR LARGE-SCALE HIGH-RESOLUTION OPTICAL SATELLITE IMAGES**
Yiqun He, University of Chinese Academy of Sciences, China; Xu Sun, Lianru Gao, Bing Zhang, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China

MOP2.PH.7 Board PH.7 **A NEW SAR IMAGE SIMULATION METHOD FOR SEA-SHIP SCENE**
Weibo Huo, Yulin Huang, Jifang Pei, Yin Zhang, Jianyu Yang, University of Electronic Science and Technology of China, China

MOP2.PH.8 Board PH.8 **SYNTHETIC APERTURE RADAR SHIP DETECTION USING CAPSULE NETWORKS**
Colin Schwegmann, Waldo Kleynhans, Council For Scientific and Industrial Research, South Africa; Brian Salmon, University of Tasmania, Australia; Lizwe Mdakane, Rory Meyer, Council For Scientific and Industrial Research, South Africa

MOP2.PH.9 Board PH.9 **SAR IMAGE SHIP DETECTION BASED ON YOLOV2 DEEP LEARNING FRAMEWORK**
Yang-Lang Chang, Chih-Yu Hsiao, Wei-Hong Lee, Amare Anagaw Ayele, National Taipei University of Technology, Taiwan; Lena Chang, National Taiwan Ocean University, Taiwan

MOP2.PH.10 Board PH.10 **COMPREHENSIVE STRUCTURE VOTING DOCKED SHIP DETECTION FROM HIGH-RESOLUTION OPTICAL SATELLITE IMAGES BASED ON COMBINED MULTI-ORIENTATION SPARSE REPRESENTATION**
Yin Zhuang, He Chen, Haotian Zhou, Liang Chen, Beijing Institute of Technology, China; Fukun Bi, North China University of Technology, China

MONDAY POSTER

Monday, July 23 15:50 - 16:50 Poster Area I
Session MOP2.PI Poster

Geographic Information Science I

Session Co-Chairs: Pedram Ghamisi, German Aerospace Center (DLR) and Technical University of Munich (TUM); Leyuan Fang, Hunan University

MOP2.PI.1 Board PI.1 **LANDSLIDE MONITORING BY SPACE-BASED SATELLITE IN THE HIMALAYAN REGION, INDIA**
S.K. Sharma, Carman Residential and Day School, India

MOP2.PI.2 Board PI.2 **SHAPE SIMILARITY MEASURE METHOD BASED ON PRINCIPAL CURVATURE ENHANCEMENT DISTANCE TRANSFORMATION**
Feng Wang, YuMing Xiang, Xinghui Yao, JiaYin Liu, Institute of Electronics, Chinese Academy of Sciences, China

MOP2.PI.3 Board PI.3 **ANALYZING THE CONTRIBUTION OF HIGH RESOLUTION WATER RANGE IN DIVIDING CATCHMENT BASED ON D8 ALGORITHM**
Hongping Zhang, Xinwen Cheng, Dong Zhao, China University of Geosciences, China; Hairong Ma, Wuhan University of Engineering Science, China

MOP2.PI.4 Board PI.4 **STUDY ON THEORETICAL RESERVES OF WATER ENERGY AND ITS DISTRIBUTION BASED ON HYDRO30 DIGITAL DRAINAGE NETWORK**
Shuxu Gao, Binbin He, Yuwei Guan, Yan Yan, University of Electronic Science and Technology of China, China; Shujun Song, Chengdu Engineering Corporation Limited, China; Xiaofang Liu, Sichuan University of Science and Engineering, China

MOP2.PI.5 Board PI.5 **AN IMPROVED ROAM ALGORITHM AND ITS APPLICATION IN TERRAIN MODELING**
Chaokui Li, Ning Wang, Jun Fang, Baiyan Wu, Wentao Yang, Hunan University of Science and Technology, China

MOP2.PI.6 Board PI.6 **MAXIMIZING RUN-OF-THE-RIVER HYDROPOWER POTENTIAL USING DIGITAL ELEVATION MODEL AND GIS**
Arjumand Zaidi, Mehran University of Engineering and Technology, Pakistan; Majid Khan, Institute of Space Technology, Pakistan

MOP2.PI.7 Board PI.7 **CALIBRATION METHOD OF LINEAR-ARRAY CCD WITH ASYNCHRONOUS IMAGE FOR OPTICAL SATELLITE**
Yuanyuan Ma, Tao Sun, Bin Lei, Institute of Electronics, Chinese Academy of Sciences, China

MOP2.PI.8 Board PI.8 **RESEARCH AND IMPLEMENTATION OF OBLIQUE PHOTOGRAPHY PRODUCTIONS ON THE WEB3D VISUALIZATION OF DIGTAL EARTH**
Long He, Long He, Xiaoming Zeng, Chenglei Wang, Yi Lian, Tiejun Cui, Tianjin Normal University, China

MOP2.PI.9 Board PI.9 **TERRESTRIAL WATER STORAGE (TWS) PATTERNS MONITORING IN THE AMAZON BASIN USING GRACE OBSERVED: ITS TRENDS AND CHARACTERISTICS**
Stephen Dankwa, Wenfeng Zheng, Bin Gao, Xiaolu Li, University of Electronic Science and Technology of China, China

MOP2.PI.10 Board PI.10 **GEOSPATIAL TOOLS FOR TSUNAMI HAZARD MAPPING: A CASE STUDY OF GWADAR PORT**
Uzma Jabeen, Vengus Panhwar, Salman Mohsin, Arjumand Zaidi, Mehran University of Engineering and Technology, Pakistan

Monday, July 23 15:50 - 16:50 Poster Area J
Session MOP2.PJ Poster

Data Management and Education

Session Chair: Josée Lévesque, Valcartier Research Center

MOP2.PJ.1 Board PJ.1 **USING MSG-SEVIRI DATA TO MONITOR THE PLANET IN NEAR REAL TIME**
Yves Julien, José Antonio Sobrino, Juan-Carlos Jiménez-Muñoz, Guillem Sòria, Drazen Skokovic, José Gomis-Cebolla, Susana García-Monteiro, Global Change Unit, Spain

MOP2.PJ.2 Board PJ.2 **APPLICATION OF 3D MODEL FROM UAV PHOTOGRAMMETRY IN VIRTUAL FIELD EDUCATION**
Xuejia Sang, Linfu Xue, Jilin University, China

MOP2.PJ.3 Board PJ.3 **DEVELOPING A SANDBOX ENVIRONMENT FOR PROSAIL, SUITABLE FOR EDUCATION AND RESEARCH**
Martin Danner, Matthias Wocher, Katja Berger, Wolfram Mauser, Tobias Hank, Ludwig-Maximilian University of Munich, Germany

MOP2.PJ.4 Board PJ.4 **THE COASTAL WATERS RESEARCH SYNERGY FRAMEWORK, FOR UNLOCKING OUR POTENTIAL FOR COASTAL INNOVATION GROWTH**
Miguel Homem, Nuno Grosso, Nuno Catarino, Elecnor Deimos, Portugal; Rory Scarrott, Eirini Politi, Abigail Cronin, University College Cork, Ireland

MOP2.PJ.5 Board PJ.5 **ESTIMATION OF ANNUAL AVERAGED EVAPOTRANSPIRATION BY USING PASSIVE MICROWAVE OBSERVATIONS**
Meng Liu, Ronglin Tang, Zhao-Liang Li, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, China; Huarui Mao, Chongqing Municipal Bureau of Land, Resources and Housing, China; Fangcheng Zhou, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, China; Guangjian Yan, Beijing Normal University, China

MOP2.PJ.6 Board PJ.6 **LEARNING PEDAGOGY IN GEOINFORMATICS**
Anjana Vyas, CEPT University, India

Monday, July 23 15:50 - 16:50 Poster Area K
Session MOP2.PK Poster

Land Cover Dynamics II

MOP2.PK.1 Board PK.1 **IMPROVING THE DETECTION AND PREDICTION OF LAND USE/COVER CHANGE BASED ON SPATIAL-TEMPORAL FUSION OF REMOTE SENSED DATA**
Penghai Wu, Yuting Lu, Xianfei Zhu, Xiaoshuang Ma, Anhui University, China; Xinghua Li, Wuhan University, China; Biao Wang, Yanlan Wu, Anhui University, China

MOP2.PK.2 Board PK.2 **STUDY ON LAND USE CHANGE IN THE WATER SUPPLYING CORE AREA OF MIDDLE ROUTE OF SOUTH-TO-NORTH WATER TRANSFER PROJECT**
Ke Liu, Yuhang Gan, Tao Zhang, Zhengyu Luo, Jingjing Wang, Satellite Surveying and Mapping Application Center, NASG, China; Xiaoming Gao, Qingxing Yue, Satellite Surveying and Mapping Application Center, National Administration of Surveying, Mapping and Geoinformation, China

MOP2.PK.3 Board PK.3 **INTRODUCTION OF THE GERMAN LANDSCAPE CHANGE DETECTION SERVICE**
Patrick Knoefel, Michael Hovenbitzer, Federal Agency for Cartography and Geodesy, Germany

MOP2.PK.4 Board PK.4 **EVALUATION OF HETEROGENEOUS LANDSCAPE ENVIRONMENTS BASED ON INFORMATION CAPACITY**
Zhenyu Yang, Peking University, China; Fei Li, Xiuwan Chen, Xinlong Zhang, Institute of Remote Sensing and GIS, Peking University, China

MOP2.PK.5 Board PK.5 **DYNAMICS OF BUILT-UP AREAS OVER THE PAST 30 YEARS ACCORDING TO REMOTE SENSING DATA IN THE CITY OF VALDIVIA, CHILE**
Konstantin Verichev, Austral University of Chile, Chile; Polina Mikhaylyukova, Lomonosov Moscow State University, Russian Federation; Cristian Salazar, Austral University of Chile, Chile; Manuel Carpio, Pontificia Universidad Católica de Chile, Chile

MOP2.PK.6 Board PK.6 **NEAR REAL TIME MULTISENSOR ALGORITHM FOR DEFORESTATION ALERT OVER THE DRY CHACO FOREST**
Esteban Roitberg, Verónica Barraza, Francisco Grings, Mercedes Salvia, Pablo Perna, Matias Barber, University of Buenos Aires - CONICET, Argentina

MOP2.PK.7 Board PK.7 **DEVELOPMENT OF AN AUTOMATIC DYNAMIC GLOBAL WATER MASK USING LANDSAT-8 IMAGES**
Vinayaraj Poliyapram, Oishi Yu, Ryosuke Nakamura, National Institute of Advanced Industrial Science and Technology, Japan

MOP2.PK.8 Board PK.8 **TEXTURE AND INTENSITY BASED LAND COVER CLASSIFICATION IN GERMANY FROM MULTI-ORBIT & MULTI-TEMPORAL SENTINEL-1 IMAGES**
Gopika Suresh, Michael Hovenbitzer, Federal Agency for Cartography and Geodesy, Germany

MOP2.PK.9 Board PK.9 **USE OF LAND COVER MAPS AS INDICATORS FOR ACHIEVING SUSTAINABLE DEVELOPMENT GOALS**
Leonid Shumilo, Andrii Kolotii, Mykola Lavreniuk, Bohdan Yailymov, Space Research Institute NASU-SSAU, Ukraine

MOP2.PK.10 Board PK.10 **SPATIAL-TEMPORAL VARIATION OF LUCC IN ZHOUSHAN FROM 1985 TO 2015 USING REMOTE SENSING IMAGES**
Xu Lu, Chao Chen, Jiaoqi Fu, Zhejiang Ocean University, China

Monday, July 23 15:50 - 16:50 Poster Area L
Session MOP2.PL Poster

Urban and Built Environment I

Session Co-Chairs: Salvatore Stramondo, Istituto Nazionale di Geofisica e Vulcanologia; Paolo Gamba, University of Pavia

MOP2.PL.1 Board PL.1 **MODELING THE HEAT ISLAND INTENSITY (HII) BASED ON DISTANCE DIFFUSION AND TYPICAL GROUND FEATURE TYPES IN BEIJING DOWNTOWN**
Chen Yu, Deyong Hu, Capital Normal University, China

MOP2.PL.2 Board PL.2 **OIL STORAGE ESTIMATION WITH TIME-SERIES L-BAND SAR IMAGERY**
Takuma Anahara, Japan Aerospace Exploration Agency, Japan; Masanobu Shimada, Tokyo Denki University, Japan

MOP2.PL.3 Board PL.3 **PREDICTING URBAN GROWTH AND IMPLICATION ON URBAN THERMAL CHARACTERISTICS IN HARARE, ZIMBABWE**
Terence Darlington Mushore, John Odindi, Onisimo Mutanga, Timothy Dube, University of KwaZulu-Natal, South Africa

MOP2.PL.4 Board PL.4 **MAPPING DEVELOPMENT PATTERN IN CHINA USING DMSP/OLS NIGHTTIME LIGHT DATA**
Yi'na Hu, Kun Qi, Peking University, China; Tao Hu, Huazhong Agricultural University, China

MOP2.PL.5 Board PL.5 **MAPPING URBANIZATION IN THE UNITED STATES FOR 2020**
Lahouari Bounoua, Joseph Nigro, Kurtis Thome, Ping Zhang, NASA Goddard Space Flight Center, United States; Asia Lachir, Faculty of Sciences Semlalia, Morocco

MOP2.PL.6 Board PL.6 **ECO-ENVIRONMENTAL EVALUATION TO SUPPORT ENVIRONMENTAL PROTECTION FOR TWIN TAIPEI CITIES BY LANDSAT DATA**
Yuei-An Liou, National Central University, Taiwan; Anh Kim Nguyen, Postdoctoral Fellow/ National Central University, Taiwan

MOP2.PL.7 Board PL.7 **DAMAGE ASSESSMENT OF BRIDGES USING POST-EVENT HIGH-RESOLUTION SAR IMAGES**
Wen Liu, Haruya Hirano, Fumio Yamazaki, Chiba University, Japan

MOP2.PL.8 Board PL.8 **USING INSAR STACKING TECHNIQUES TO PREDICT BRIDGE COLLAPSE DUE TO SCOUR**
Sivasakthy Selvakumaran, University of Cambridge, United Kingdom; Simon Plank, German Aerospace Center (DLR), Germany; Cristian Rossi, Satellite Applications Catapult, United Kingdom; Christian Geiß, German Aerospace Center (DLR), Germany

MOP2.PL.9 Board PL.9 **DAMAGE MAPPING AFTER THE 2017 PUEBLA EARTHQUAKE IN MEXICO USING HIGH-RESOLUTION ALOS2 PALSAR2 DATA**
Bruno Adriano, RIKEN Center for Advanced Intelligence Project, Japan; Shunichi Koshimura, Tohoku University, Japan; Sadra Karimzadeh, Masashi Matsuoka, Tokyo Institute of Technology, Japan; Magaly Koch, Boston University, United States

MOP2.PL.10 Board PL.10 **ON THE MODELLING OF URBAN INFRASTRUCTURE DEFORMATION PROFILES USING THE APPLIED ELEMENT METHOD AND MULTIPLE HYPOTHESIS TESTING**
Bogdan Sebacher, Military Technical Academy, Romania; Stefan-Adrian Toma, Terrasigna, Romania; Marin Lupoae, Mihai Lica Pura, Military Technical Academy, Romania

MONDAY POSTER

Monday, July 23 15:50 - 16:50 Poster Area M
Session MOP2.PM Poster

Clouds and Precipitation: Radar Techniques and Data

MOP2.PM.1 Board PM.1 **A DEMONSTRATOR FOR THE DOPPLER RADAR CLOUD PROFILER (DRCP)**
Dirk Klugmann, S&AO Ltd, United Kingdom; Matthew Surridge, National Instruments Corporation (U.K.) Ltd., United Kingdom

MOP2.PM.2 Board PM.2 **ATTENUATION CORRECTION AND RAINFALL ESTIMATION OF WEATHER RADAR USING MICROWAVE LINK**
Peng Zhang, Army Engineering University of PLA, China; Xiaofeng Zhao, Zeming Zhou, National University of Defense Technology, China; Zhaoming Li, Institute of Atmospheric Physics, UCAS, China; Pinglv Yang, National University of Defense Technology, China

MOP2.PM.3 Board PM.3 **EVALUATION OF QUALITY CONTROL TECHNIQUES APPLIED TO KA BAND CLOUD RADAR OBSERVATIONS**
Abhishek Kodilkar, Arvind Agarwal, Js Pillai, K Aurobindo, Society for Applied Microwave Electronics Engineering and Research, India

MOP2.PM.4 Board PM.4 **A PRELIMINARY STUDY TO QUANTIFY THE WIND VELOCITY FROM DOPPLER SPECTRA ACQUIRED BY VERTICALLY POINTING MICROWAVE RADARS**
Mario Montopoli, Luca Baldini, Elisa Adirosi, Nicoletta Roberto, National Research Council of Italy (CNR), Italy; Errico Picciotti, Himet s.r.l. company, Italy

MOP2.PM.5 Board PM.5 **THE STUDY ON RETRIEVAL ALGORITHM OF SPACEBORNE DUAL-FREQUENCY CLOUD RADAR**
Qiong Wu, Feng Lu, Jian Shang, FangLi Dou, DaWei An, National Satellite Meteorological Center, China

MOP2.PM.6 Board PM.6 **COMPACT AIRBORNE KA-BAND RADAR: A NEW ADDITION TO THE UNIVERSITY OF WYOMING AIRCRAFT FOR ATMOSPHERIC RESEARCH**
Samuel Haimov, University of Wyoming, United States; Andrew Pazmany, ProSensing, Inc., United States; Jeffrey French, Bart Geerts, Zhien Wang, Min Deng, Alfred Rodi, University of Wyoming, United States

MOP2.PM.7 Board PM.7 **WIVERN: A NEW SATELLITE CONCEPT TO PROVIDE GLOBAL IN-CLOUD WINDS, PRECIPITATION AND CLOUD PROPERTIES**
Alessandro Battaglia, University of Leicester, United Kingdom; Anthony Illingworth, Mengistu Wolde, University of Reading, United Kingdom

Monday, July 23 15:50 - 16:50 Poster Area N
Session MOP2.PN Poster

Clouds and Precipitation: IR and GPS Data Techniques

Session Chair: David Kunkee, The Aerospace Corporation

MOP2.PN.1 Board PN.1 **A POTENTIAL LOW COST REMOTE SENSING USING GPS DERIVED PWV**
Shilpa Manandhar, Yee Hui Lee, Nanyang Technological University, Singapore; Yu Song Meng, National Metrology Centre, Agency for Science, Technology and Research (ASTAR), Singapore; Feng Yuan, Nanyang Technological University, Singapore; Soumyabrata Dev, The ADAPT Centre, Trinity College, Ireland

MOP2.PN.2 Board PN.2 **CORRECTION OF THIN CIRRUS SCATTERING EFFECTS FROM LANDSAT8 OLI AND VIIRS DATA**
Bo-Cai Gao, Rong-Rong Li, Naval Research Laboratory, United States

MOP2.PN.3 Board PN.3 **A STUDY OF MICROPHYSICAL TRANSITION IN WATER CLOUDS OVER EASTERN CHNIA BASED ON CLOUDSAT AND MODIS DATA**
Yuqin Liu, Institute of Urban Environment, Chinese Academy of Sciences, China

MOP2.PN.4 Board PN.4 **USING INDEPENDENT COMPONENT ANALYSIS AND ESTIMATED THIN-CLOUD REFLECTANCE TO REMOVE CLOUD EFFECT ON LANDSAT-8 OLI BAND DATA**
Haitao Lv, University of Electronic Science and Technology of China, China; Yong Wang, East Carolina University, Greenville, Armenia; Yue Gao, University of Electronic Science and Technology of China, China

MOP2.PN.5 Board PN.5 **CLOUD DETECTION OF OPTICAL REMOTE SENSING IMAGE TIME SERIES USING P-NORM BASED REGRESSION MODEL**
Jiang Qian, University of Electronic Science and Technology of China, China; Lu Wang, Northwestern Polytechnical University, China; Lixiang Ma, CETC 14, China; Yong Wang, Xiaobo Yang, University of Electronic Science and Technology of China, China

MOP2.PN.6 Board PN.6 **GLOBAL PRECIPITATION DETECTION BASED ON MWHS-II FROM CHINA FY-3C METEOROLOGICAL SATELLITE**
Na Li, Jieying He, Shengwei Zhang, Chinese Academy of Sciences, China; Naimeng Lu, National Satellite Meteorological Center, China

MOP2.PN.7 Board PN.7 **EXTENDIBILITY OF A THIN-CLOUD REMOVAL ALGORITHM TO HI-RESOLUTION VISIBLE BANDS OF SENTINEL-2 DATA**
Yue Gao, University of Electronic Science and Technology of China, China; Yong Wang, East Carolina University, United States; Haitao Lv, University of Electronic Science and Technology of China, China

MOP2.PN.8 Board PN.8 **ANALYSIS OF HEAVY RAINFALL EVENTS OCCURRED IN ITALY BY USING NUMERICAL WEATHER PREDICTION, MICROWAVE AND INFRARED TECHNIQUE**
Elisabetta Ricciardelli, Angela Cersosimo, Institute of Methodologies for Environmental Analysis - National Research Council, Italy; Domenico Cimini, Institute of Methodologies for Environmental Analysis - National Research Council / Centro di Eccellenza per l'integrazione di Tecniche di di Telerilevamento e Modellistica Numerica per la Previsione di Eventi Meteorologici Severi, Department of Physics, University of L'Aquila, Italy; Francesco Di Paola, Donatello Gallucci, Institute of Methodologies for Environmental Analysis - National Research Council, Italy; Sabrina Gentile, Institute of Methodologies for Environmental Analysis - National Research Council / Centro di Eccellenza per l'integrazione di Tecniche di di Telerilevamento e Modellistica Numerica per la Previsione di Eventi Meteorologici Severi, Department of Physics, University of L'Aquila, Italy; Edoardo Geraldi, Saverio Teodosio Nilo, Filomena Romano, Mariassunta Viggiano, Institute of Methodologies for Environmental Analysis - National Research Council, Italy

MOP2.PN.9 Board PN.9 **POLARIMETRIC GNSS RADIO-OCCULTATIONS ABOARD PAZ: COMMISSIONING PHASE AND PRELIMINARY RESULTS**
Estel Cardellach, Sergio Tomas, Antonio Rius, Institute of Space Sciences (ICE, CSIC). Institut d'Estudis Espacials de Catalunya (IEEC), Spain; Chi O. Ao, Manuel de la Torre-Juárez, Ramon Padullés, Francis Joseph Turk, Jet Propulsion Laboratory, California Institute of Technology, United States; Bill Schreiner, University Corporation for Atmospheric Research, United States

Monday, July 23 15:50 - 16:50 Poster Area O
Session MOP2.PO Poster

Ocean Biology and Water Quality II

Session Chair: Ming-An Lee, National Taiwan Ocean University

MOP2.PO.1 Board PO.1 **DETECTING MICROPLASTICS POLLUTION IN WORLD OCEANS USING SAR REMOTE SENSING**
Narangerel Davaasuren, The Open University, United Kingdom; Armando Marino, The University of Stirling, United Kingdom; Carl P. Boardman, The Open University, United Kingdom; Matteo Alparone, Ferdinando Nunziata, The Parthenope University of Naples, Italy; Nicolas Ackermann, Swiss Federal Railways SBB, Switzerland; Irena Hajnsek, Swiss Federal Institute of Technology, Switzerland; The German Aerospace Center, Germany, Germany

MOP2.PO.2 Board PO.2 **EVALUATION OF QUASI ANALYTICAL MODEL FOR THE INHERENT OPTICAL PROPERTIES ALONG THE COASTAL WATERS OFF COCHIN**
Vishnu P S, Cochin University of Science and Technology, India; Sp Tiwari, King Abdullah University of Science and Technology (KAUST), Red Sea Research Center (RSRC), Biological and Environmental Sciences & Engineering Division (BESE), Saudi Arabia; S.S Shaju, Centre for Marine Living Resources and Ecology, India; Mohamed Hatha, School of Marine Science, Cochin University of Science and Technology (CUSAT), India; Nandini Menon, Nansen Environmental Research Centre (India) (NERCI), India; Mohandas A, National Centre for Aquatic Animal Health, PB No. 2341, Cochin University of Science and Technology Kochi -682 016, Kerala, India, India

MOP2.PO.3 Board PO.3 **REMOTE SENSING OBSERVATIONS OF PHYTOPLANKTON BLOOMS TRIGGERED BY TROPICAL STORM FUNG-WONG (2014)**
Dawei Li, The First Institute of Oceanography, State Oceanic Administration, China

MOP2.PO.4 Board PO.4 **WIND-WAVE-POOL EXPERIMENTAL DATA OF CONTAMINATED SEA WATER SURFACES: STATISTICAL SURFACES AND RADAR BACKSCATTERED FIELD**
Aymeric Mainvis, Vincent Fabbro, Henri-José Mametsa, ONERA, France; Christophe Bourlier, IETR, France; Pierre Borderies, ONERA, France; Véronique Miegebielle, TOTAL SA, France

MOP2.PO.5 Board PO.5 **OPERATIONAL DERIVATION OF WATER QUALITY, WATER DEPTH AND SEA BOTTOM TYPE FROM REMOTE SENSING SATELLITE DATA**
Elizabeth Wong, Joel Wong, Soo Chin Liew, National University of Singapore, Singapore

MOP2.PO.6 Board PO.6 **PREDICTING WINTER POTENTIAL FISHING ZONES OF ALBACORE TUNA (THUNNUS ALALUNGA) USING MAXIMUM ENTROPY MODELS AND REMOTELY SENSED DATA IN THE SOUTH INDIAN OCEAN**
Ming-An Lee, Wan-Chen Yang, I-Cheng Hung, Sheng-Yuan Teng, National Taiwan Ocean University, Taiwan

MOP2.PO.7 Board PO.7 **CURRENT STATUS AND FUTURE PERSPECTIVE OF OCEANIC SATELLITE IN CHINA**
Mingsen Lin, National Satellite Ocean Application Service, China

MOP2.PO.8 Board PO.8 **SPATIO-TEMPORAL VARIABILITY OF PHYTOPLANKTON FUNCTIONAL TYPES IN ALBORAN SEA FROM REMOTE SENSING IMAGES**
Gabriel Navarro, Pablo Almaraz, Isabel Caballero, ICMAN-CSIC, Spain; Agueda Vazquez, University of Cadiz, Spain; I. Emma Huertas, ICMAN-CSIC, Spain

MOP2.PO.9 Board PO.9 **THE DIFFERENCE OF RRS PRODUCT DERIVED FROM MODIS MERIS AND SEAWIFS IN SOUTH CHINA SEA**
Jun Li, Jianhua Zhu, Tongji Li, Bing Han, Chuntao Chen, Anan Yang, Hongli Zhou, Fei Gao, National Ocean Technology Center, China

Monday, July 23 15:50 - 16:50 Poster Area P
Session MOP2.PP Poster

Ocean Surface Winds and Currents I

Session Chair: Xingou Xu, Key Laboratory of Microwave Remote Sensing, National Space Science Center, Chinese Academy of Sciences

MOP2.PP.1 Board PP.1 **GEOPHYSICAL TURBULENT CHARACTERISTICS INFERRED FROM OBSERVATIONS OF SUBMESOSCALE SURFACE CURRENTS AND CHLOROPHYLL CONCENTRATION MAPS**
Sung Yong Kim, Eun Ae Lee, Korea Advanced Institute of Science and Technology, Republic of Korea

MOP2.PP.2 Board PP.2 **THE SWIM INSTRUMENT, TOWARDS THE LAUNCH**
Raquel Rodriguez Suquet, Cédric Tourain, Céline Tison, Centre National d'Etudes Spatiales, France; Lauriane Delaye, ACRI-ST, France; Danièle Hauser, Patricia Schippers, LATMOS, France; Flavien Gouillon, Laura Hermoza, Thierry Amiot, Emmanuelle Riviere, Patrick Castillan, Centre National d'Etudes Spatiales, France

MOP2.PP.3 Board PP.3 **THE DOPPLER SPECTRUM OF THE MICROWAVE RADAR SIGNAL BACKSCATTERED BY THE SEA SURFACE AT LOW INCIDENCE ANGLES**
Vladimir Karaev, Maria Ryabkova, Mariya Panfilova, Yuriy Titchenko, Eugeny Meshkov, Institute of Applied Physics, Russian Academy of Sciences, Russian Federation

MOP2.PP.4 Board PP.4 **ANOMALOUS SCATTEROMETER WINDS IN THE MEDITERRANEAN SEA DUE TO THE PRESENCE OF SHIPS**
Stefano Zecchetto, National Research Council of Italy (CNR), Italy

MOP2.PP.5 Board PP.5 **IMPROVING WIND FORCING WITH SCATTEROMETER OBSERVATIONS FOR OPERATIONAL STORM SURGE FORECASTING IN THE ADRIATIC SEA**
Francesco De Biasio, Stefano Zecchetto, National Research Council of Italy (CNR), Italy

MOP2.PP.6 Board PP.6 **BIG DATA MANAGEMENT OF SEA SURFACE WIND DATA**
Félix R. Rodríguez, Daniel Teomiro Villa, Jaime Pina Cambero, Diego J. Merino Fernández, University of Extremadura, Spain

MOP2.PP.7 Board PP.7 **LOW-TO-MODERATE WIND SPEED RETRIEVAL FROM SENTENEL-1 DUAL-POLARIZED SAR IMAGES**
Chao Yang, Dongxiang Zhang, Kaijun Ren, Jia Liu, Chaoxiong Ke, National University of Defense Technology, China

MOP2.PP.8 Board PP.8 **WIND DIRECTION FROM SENTINEL-1 SAR IMAGES IN REGIONAL SEAS**
Stefano Zecchetto, National Research Council of Italy (CNR), Italy

MOP2.PP.9 Board PP.9 **MULTI-APERTURE ALONG-TRACK INTERFEROMETRIC SAR FOR ESTIMATING VELOCITY VECTOR OF OCEAN CURRENTS**
Kazuo Ouchi, IHI Corporation, Japan; Takero Yoshida, The University of Tokyo, Japan; Chan-Su Yang, Korea Institute of Ocean Science and Technology, Japan

MOP2.PP.10 Board PP.10 **THE WIND SPEED INVERSION AND IN-ORBIT ASSESSMENT OF IMAGING ALTIMETER ON TIANGONG-2 SPACE STATION**
Qingliu Bao, Xiaobin Yin, Beijing Piesat Information Technology Co., Ltd, China; Juhong Zou, Mingsen Lin, Youguang Zhang, National Satellite Ocean Application Service, China; Yunhua Zhang, National Space Science Center, Chinese Academy of Sciences, China

Monday, July 23 15:50 - 16:50 Poster Area Q
Session MOP2.PQ Poster

Microwave Radiometers: Sensor Design and Development

Session Chair: Aili Zhang, National Space Science Center, Chinese Academy of Sciences

MOP2.PQ.1 Board PQ.1 **QUANTITATIVE EVALUATION OF LINEAR FEED ARRAY OF INTERFEROMETRIC SYNTHETIC APERATURE MICROWAVE IMAGER ON WCOM**
Aili Zhang, Hao Liu, Ji Wu, Lin Wu, National Space Science Center, Chinese Academy of Sciences, China; Xue Chen, National Space Science Center,the Chinese Academy of Sciences, China

MOP2.PQ.2 Board PQ.2 **MAS-V: EXPERIMENTAL SYSTEM OF MIRRORED APERTURE SYNTHESIS AT V BAND**
Qingxia Li, Haofeng Dou, Liangqi Gui, Huazhong University of Science and Technology, China; Liangbing Chen, Nanchang Universtiy, China; Ke Chen, Yuanchao Wu, Zhenyu Lei, Yufang Li, Liang Lang, Wei Guo, Huazhong University of Science and Technology, China

MOP2.PQ.3 Board PQ.3 **IMAGING COMPARISON BETWEEN THE REAL APERTURE AND SYNTHETIC APERTURE MICROWAVE RADIOMETERS: A CASE STUDY FOR GEO SOUNDER**
Cheng Zhang, Hao Liu, Ji Wu, Chinese Academy of Sciences, China

MOP2.PQ.4 Board PQ.4 **FPIR: DEMONSTRATOR INTEGRATION AND GROUND-BASED SALINITY OBSERVATION EXPERIMENT**
Lin Wu, Jingye Yan, Fei Zhao, Ailan Lan, Ji Wu, National Space Science Center, China

MOP2.PQ.5 Board PQ.5 **DESIGN AND PERFORMANCE OF THE TROPICS RADIOMETER COMPONENTS**
William Blackwell, MIT Lincoln Laboratory, United States

MOP2.PQ.6 Board PQ.6 **MULTI-FREQUENCY MICROWAVE RESONANCE CAVITY FOR NONDESTRUCTIVE CORE PLUG MEASUREMENTS**
Jose Oliverio Alvarez, Aramco Services Company - Aramco Research Center - Houston, United States; Felipe Peñaranda-Foix, Instituto ITACA, Universidad Politécnica de Valencia, Spain

MOP2.PQ.7 Board PQ.7 **SPATIAL RESOLUTION ENHANCEMENT OF MICROWAVE DATA USING A L^P-PENALIZATION APPROACH WITH VARIABLE P**
Matteo Alparone, Ferdinando Nunziata, Università degli Studi di Napoli Parthenope, Italy; Claudio Estatico, Università degli Studi di Genova, Italy; Flavia Lenti, CLC Space GmbH, Germany; Maurizio Migliaccio, Università degli Studi di Napoli Parthenope, Italy

MOP2.PQ.8 Board PQ.8 **COMPARISON OF INSTRUMENT CALIBRATION PERFORMANCE FOR THE SNPP ATMS AND JPSS1 ATMS**
James Fuentes, Joel Amato, Mark Hernquist, Kent Anderson, Northrop Grumman Corporation, United States

MOP2.PQ.9 Board PQ.9 **ON-ORBIT SPECIAL TESTING OF NOAA-20/JPSS-1 ATMS**
Edward Kim, NASA Goddard Space Flight Center, United States; Vince Leslie, MIT Lincoln Laboratory, United States; Joseph Lyu, NASA Goddard Space Flight Center and GESTAR, United States; Lisa McCormick, NASA and Fibertek, United States; Craig Smith, NASA and SGT, United States; Idahosa Osaretin, MIT Lincoln Laboratory, United States; Quanhua (Mark) Liu, Ninghai Sun, Hu Yang, Lin Lin, NOAA/STAR, United States; Kent Anderson, Mark Hernquist, James Fuentes, Elliot Stiglic, Michael Replan, Northrop Grumman Corporation, United States

MOP2.PQ.10 Board PQ.10 **A STUDY ON IN-ORBIT CALIBRATION FOR A SPACEBORNE DISTRIBUTED INTERFEROMETER**
Ailan Lan, Jingye Yan, Lin Wu, Fei Zhao, Ji Wu, National Space Science Center, Chinese Academy of Sciences, China

Monday, July 23 15:50 - 16:50 Poster Area R
Session MOP2.PR Poster

GNSS-R I: Signal Processing

Session Chair: Hyuk Park, Universitat Politècnica de Catalunya

MOP2.PR.1 Board PR.1 **SPECULAR POINT CALCULATION BASED ON MODIFIED GRADIENT DESCENT ALGORITHM**
Yusen Tian, Xianyi Wang, Yueqiang Sun, Dongwei Wang, Chunjun Wu, Weihua Bai, Junming Xia, Qifei Du, National Space Science Center, Chinese Academy of Sciences/University of Chinese Academy of Sciences, China

MOP2.PR.2 Board PR.2 **IMPACT OF THE ELEVATION ANGLE ON CYGNSS GNSS-R REFLECTIVITY OVER DIFFERENT SCATTERING MEDIA OVER LAND AND OCEAN**
Hugo Carreno-Luengo, Guido Luzi, Michele Crosetto, Centre Tecnològic de Telecomunicacions de Catalunya, Spain

MOP2.PR.3 Board PR.3 **OPTIMIZING WAVEFORM MAXIMUM DETERMINATION FOR SPECULAR POINT TRACKING IN AIRBORNE GNSS-R**
Erwan Motte, Mehrez Zribi, CNRS, France; Pascal Fanise, IRD, France

MOP2.PR.4 Board PR.4 **SATELLITE PITCH ESTIMATION USING DELAY DOPPLER MAPS**
Benjamin Southwell, Andrew Dempster, University of New South Wales, Sydney, Australia

MOP2.PR.5 Board PR.5 **3CAT-4: COMBINED GNSS-R, L-BAND RADIOMETER WITH RFI MITIGATION, AND AIS RECEIVER FOR A 1-UNIT CUBESAT BASED ON SOFTWARE DEFINED RADIO**
Joan Francesc Munoz-Martin, Noemí Miguélez, Ricard Castellà, Lara Fernández-Capón, Arnau Solanellas, Pol Via, Adriano Camps, Universitat Politècnica de Catalunya, Spain

MOP2.PR.6 Board PR.6 **EFFECT OF LHCP ANTENNA'S CENTRAL BEAM DIRECTION ON DDM'S SNR AROUND SPECULAR**
Junming Xia, Weihua Bai, National Space Science Center, China; Xuerui Wu, Shanghai Astronomical Observatory, Chinese Academy of Sciences, China; Yueqiang Sun, Qifei Du, Xianyi Wang, Xiangguang Meng, Congliang Liu, Danyang Zhao, National Space Science Center, China; Yingqiang Wang, College of Meteorology and Oceanology, National university of Defense Technology, China; Dongwei Wang, Chunjun Wu, Yuerong Cai, Cheng Liu, National Space Science Center, China

MOP2.PR.7 Board PR.7 **SPACEBORNE GNSS-REFLECTOMETRY FOR SHIP-DETECTION APPLICATIONS: IMPACT OF ACQUISITION GEOMETRY AND POLARIZATION**
Alessio Di Simone, University of Naples, Federico, Italy; Leonardo Millefiori, NATO Science and Technology Organization Centre for Maritime Research and Experimentation, Italy; Gerardo Di Martino, Antonio Iodice, Daniele Riccio, Giuseppe Ruello, University of Naples Federico II, Italy; Paolo Braca, NATO Science and Technology Organization Centre for Maritime Research and Experimentation, Italy; Peter Willett, University of Connecticut, United States

MOP2.PR.8 Board PR.8 **SOFTWARE DESIGN OF GNOS-2'S GNSS-R MODULE**
Xianyi Wang, National Space Science Center, Chinese Academy of Sciences, China; Yusen Tian, National Space Science Center, Chinese Academy of Sciences/ National Space Science Center, Chinese Academy of Sciences, China; Yueqiang Sun, National Space Science Center, Chinese Academy of Sciences, China; Dongwei Wang, Chunjun Wu, National Space Science Center, Chinese Academy of Sciences/ National Space Science Center, Chinese Academy of Sciences, China; Qifei Du, Yuerong Cai, Weihua Bai, Junming Xia, Wei Li, Fu Li, National Space Science Center, Chinese Academy of Sciences, China

MOP2.PR.9 Board PR.9 **A MMW SEEKER PERFORMANCE EVALUATION METHOD FOR MOVING TARGETS VIA RTK TECHNOLOGY**
Fugang Lu, Shichao Chen, Xi'an Modern Control Technology Research Institute, China; Ming Liu, Shaanxi Normal University, China; Jun Wang, Xi'an Modern Control Technology Research Institute, China; Taoli Yang, University of Electronic Science and Technology of China, China

MOP2.PR.10 Board PR.10 **A MULTI-FREQUENCY ACQUISITION ALGORITHM FOR A GNSS SOFTWARE RECEIVER**
Shaolong Cui, Dacheng Wang, Bernhard Holtkamp, Xiaojing Yao, The Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China; Tianhe Chi, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China; Jinyun Fang, Institute of Computing Technology, Chinese Academy of Sciences, China

Monday, July 23 15:50 - 16:50 Poster Area S
Session MOP2.PS Poster

Optical Calibration I

Session Chair: Cindy Ong, CSIRO

MOP2.PS.1 Board PS.1 **AN IMPROVED INDEX FOR DESATURATION OF DMSP NIGHTTIME LIGHT DATA**
Xiaolong Ma, Chinese Academy of Surveying and Mapping, China; Xiaohua Tong, Sicong Liu, Tongji University, China; Zhaoting Ma, Chinese Academy of Surveying and Mapping, China; Shouzhu Zheng, Tongji University, China

MOP2.PS.2 Board PS.2 **COMPARISON OF VIIRS DNB GAIN RATIO ALGORITHMS FOR IMPROVING CALIBRATION AND IMAGERY QUALITY**
Ziping (Frank) Sun, David Moyer, Frank De Luccia, The Aerospace Corporation, United States

MOP2.PS.3 Board PS.3 **S-NPP, JPSS-1, AND JPSS-2 VIIRS DNB CALIBRATION DATA ANOMALIES ANALYSIS AND FLAGGING**
Ziping (Frank) Sun, David Moyer, Frank De Luccia, The Aerospace Corporation, United States

MOP2.PS.4 Board PS.4 **SENTINEL-3 A AND B OPTICAL PAYLOAD: EARLY RESULTS FROM COMMISSIONING AND TANDEM FLIGHT ACTIVITIES**
Jens Nieke, European Space Agency/ESTEC, Netherlands; Steffen Dransfeld, European Space Agency/ESRIN, Netherlands; Craig Donlon, Bruno Berruti, European Space Agency/ESTEC, Netherlands; Susanne Mecklenburg, European Space Agency/ESRIN, Netherlands

MOP2.PS.5 Board PS.5 **ROBUST CALIBRATION FOR VIIRS REFLECTIVE SOLAR BANDS**
Junqiang Sun, NOAA / GST, United States; Menghua Wang, NOAA, United States

MOP2.PS.6 Board PS.6 **THE EFFECTS OF VIIRS SPECTRAL RESPONSE DIFFERENCES BETWEEN SUOMI NPP AND NOAA-20 FOR THE THERMAL EMISSIVE BANDS**
Lin Lin, University of Maryland, United States; Changyong Cao, NOAA/NESDIS/STAR, United States

MOP2.PS.7 Board PS.7 **LINKING SNPP AND NOAA-20 CRIS TOWARD MEASUREMENT CONSISTENCY AND CLIMATE DATA RECORDS**
Likun Wang, Yong Chen, University of Maryland, United States; Changyong Cao, NOAA/NESDIS/STAR, United States

MOP2.PS.8 Board PS.8 **EARLY RESULTS FROM NOAA-20 (JPSS-1) VIIRS ON-ORBIT CALIBRATION AND CHARACTERIZATION**
Xiaoxiong Xiong, NASA Goddard Space Flight Center, United States; Changyong Cao, NOAA/NESDIS, United States; Ning Lei, Vincent Chiang, Amit Angal, Yonghong Li, SSAI, United States; Slawomir Blonski, Wenhui Wang, Taeyoung Choi, ERT, United States

Monday, July 23 15:50 - 16:50 Poster Area T
Session MOP2.PT Poster

Big Machine Learning II

Session Chair: Francesca Bovolo, Fondazione Bruno Kessler

MOP2.PT.1 Board PT.1 **DEEP LEARNING – A NEW APPROACH FOR MULTI-LABEL SCENE CLASSIFICATION IN PLANETSCOPE AND SENTINEL-2 IMAGERY**
Iurii Shendryk, Yannik Rist, Rob Lucas, Catherine Ticehurst, Peter Thorburn, The Commonwealth Scientific and Industrial Research Organisation, Australia

MOP2.PT.2 Board PT.2 **PATTERN STRENGTHENED DEEP MODEL FOR SAR IMAGE CLASSIFICATION**
Xinlong Liu, Yan Wang, Gong Han, Electronic Information School, Wuhan University, China; Mingxia Tu, Wuhan University, China; Chu He, Electronic Information School, Wuhan University, China

MOP2.PT.3 Board PT.3 **DEEP SEMANTIC HASHING RETRIEVAL OF REMOTE SENSING IMAGES**
Cheng Chen, Huanxin Zou, Ningyuan Shao, Jiachi Sun, National University of Defense Technology, China; Xianxiang Qin, Air Force Engineering University, China

MOP2.PT.4 Board PT.4 **AUTOMATED ANALYSIS OF REMOTELY SENSED IMAGES USING THE UNICORE WORKFLOW MANAGEMENT SYSTEM**
Shahbaz Memon, Gabriele Cavallaro, Björn Hagemeier, Morris Riedel, Forschungszentrum Jülich, Germany; Helmut Neukirchen, University of Iceland, Iceland

MOP2.PT.5 Board PT.5 **POTENTIAL ANALYSIS OF FEATURE EXTRACTION BASED QUICK RESPONSE FOR ENVIRONMENTAL CHANGE WITH SOCIAL MEDIA PHOTOS**
Yuanfeng Wu, Lianru Gao, Key Laboratory of Digital Earth Science, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China; Wenzhi Liao, Ghent University-TELIN-IPI-IMEC, Belgium, Belgium; Paolo Gamba, Dipartimento di Ingegneria Industriale e dell'Informazione, Università degli Studi di Pavia, Italy; Bing Zhang, Key Laboratory of Digital Earth Science, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China

MOP2.PT.6 Board PT.6 **TIME-SCALE TRANSFERRING DEEP CONVOLUTIONAL NEURAL NETWORK FOR MAPPING EARLY RICE**
Yaming Duan, Jinshui Zhang, College of Resources Science and Technology/Skate Key Laboratory of Earth Surface Processes and Resource Ecology, Beijing Normal University, China; Guanyuan Shuai, Department of Earth and Environment Science, Michigan State University, United States; Shuang Zhu, Beijing Polytechnic College, Beijing 100042, China, China; Xiaohe Gu, Beijing Polytechnic College / ChinaBeijing Polytechnic College, China

MOP2.PT.7 Board PT.7 **AUTOMATIC ROAD EXTRACTION IN HIGH RESOLUTION REMOTE SENSING IMAGES VIA GENERATIVE ADVERSARIAL NETWORKS**
Yuming Xiang, Feng Wang, Wenchao Kang, Hongjian You, Institute of Electronics, Chinese Academy of Sciences, China

MOP2.PT.8 Board PT.8 **COMBINING FOURIER ANALYSIS AND MACHINE LEARNING TO ESTIMATE THE SHALLOW-GROUND THERMAL DIFFUSIVITY IN SWITZERLAND**
Dan Assouline, Ecole Polytechnique Federale de Lausanne (EPFL), Switzerland; Nahid Mohajeri, University of Oxford, United Kingdom; Agust Gudmundsson, Royal Holloway University of London, United Kingdom; Jean-Louis Scartezzini, Ecole Polytechnique Federale de Lausanne (EPFL), Switzerland

MOP2.PT.9 Board PT.9 **SUPER-RESOLUTION OF REMOTE SENSING IMAGES BASED ON TRANSFERRED GENERATIVE ADVERSARIAL NETWORK**
Wen Ma, University of Chinese Academy of Sciences; Institute of Electronics, Chinese Academy of Sciences; Key Laboratory of Technology in Geo-spatial Information Processing and Application System, Chinese Academy of Sciences, China; Zongxu Pan, Institute of Electronics, Chinese Academy of Sciences; Key Laboratory of Technology in Geo-spatial Information Processing and Application System, Chinese Academy of Sciences, China; Jiayi Guo, University of Chinese Academy of Sciences; Institute of Electronics, Chinese Academy of Sciences; Key Laboratory of Technology in Geo-spatial Information Processing and Application System, Chinese Academy of Sciences, China; Bin Lei, Institute of Electronics, Chinese Academy of Sciences; Key Laboratory of Technology in Geo-spatial Information Processing and Application System, Chinese Academy of Sciences, China

Monday, July 23 15:50 - 16:50 Poster Area U
Session MOP2.PU Poster

Global Essential Variables I

Session Chair: Jose Gomez-Dans, UCL

MOP2.PU.1 Board PU.1 **A INTEGRATED INVERSION METHOD FOR ESTIMATING GLOBAL LEAF AREA INDEX FROM CHINESE FY-3A MERSI DATA**
Jing Zhao, Jing Li, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China; Qinhuo Liu, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences / College of Resources and Environment, University of Chinese Academy of Sciences / Joint Center for Global Change Studies, China; Baodong Xu, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences / College of Resources and Environment, University of Chinese Academy of Sciences, China; Chen Chen, National Administration of Surveying mapping and Geo-information of China, China; Li Li, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China

MOP2.PU.2 Board PU.2 **EVALUATION OF AMSR2 AND MODIS LAND SURFACE TEMPERATURE USING GROUND MEASUREMENTS IN HEIHE RIVER BASIN**
Jin Ma, Ji Zhou, Yingjun Zhang, Xiaodong Zhang, University of Electronic Science and Technology of China, China

MOP2.PU.3 Board PU.3 **MODELING SURFACE THERMAL ANISOTROPY USING BRIGHTNESS TEMPERATURE OVER COMPLEX TERRAINS**
Zhong-Hu Jiao, Institute of Geology, China Earthquake Administration; Beijing Normal University, China; Guangjian Yan, Beijing Normal University, China; Tianxing Wang, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China; Xihan Mu, Beijing Normal University, China; Jing Zhao, Harbin Institute of Technology Shenzhen Graduate School, China

MOP2.PU.4 Board PU.4 **AN APPROACH FOR RISK MAPS OF VECTOR-BORNE INFECTIOUS DISEASES: ECOLOGICAL AND ADAPTIVE CAPACITY INDICATORS**
Anh Kim Nguyen, Postdoctoral Fellow/National Central University, Taiwan; Yuei-An Liou, National Central University, Taiwan

MOP2.PU.6 Board PU.6 **VALIDATION OF GLOBAL LAND SURFACE SATELLITE PHASE-2 SURFACE BROADBAND ALBEDO PRODUCT**
Xijia Li, Hongbo Yan, Xianlei Fan, Yanling Ding, Ying Qu, Northeast Normal University, China

MOP2.PU.7 Board PU.7 **RETRIEVAL OF TYPHOON AND HURRICANE SURFACE BAROMETRIC PRESSURE BY PASSIVE MICROWAVE MEASUREMENTS**
Zijin Zhang, Xiaolong Dong, CAS Key Laboratory of Microwave Remote Sensing, National Space Science Center, Chinese Academy of Sciences, China

MOP2.PU.8 Board PU.8 **VALIDATION OF ATMOSPHERIC WATER VAPOR FROM SEVERAL SATELLITE INSTRUMENTS USING GPS MEASUREMENTS AT SPANISH STATIONS UNDER CLOUD-FREE CONDITIONS**
Javier Vaquero-Martinez, Manuel Antón, Universidad de Extremadura, Badajoz (Spain), Spain; José Pablo Ortiz de Galisteo, AEMET (Valladolid), Spain; Victoria Cachorro, Pablo Álvarez Zapatero, Universidad de Valladolid, Spain; Roberto Román, Universidad de Granada, Spain; Diego Loyola, German Aerospace Center (DLR), Germany; Maria Joao Costa, Universidade de Evora, Portugal; Huiquin Wang, Gonzalo Gonzalez Abad, Smithsonian Astrophysical Observatory, United States; Stefan Noel, University of Bremen, United States

MOP2.PU.9 Board PU.9 **ASSESSMENT OF TWO SATELLITE-BASED LAND SURFACE SHORTWAVE DOWNWARD RADIATION DATASETS OVER THE TIBETAN PLATEAU**
Yuechi Yu, Tianxing Wang, Jiancheng Shi, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China

MOP2.PU.10 Board PU.10 **TESTING THE SPECTRAL VARIATION HYPOTHESIS BY USING THE RAO-Q INDEX TO ESTIMATE FOREST BIODIVERSITY: EFFECT OF SPATIAL RESOLUTION**
Michele Torresani, University of Bolzano-Bozen, Italy; Duccio Rocchini, University of Trento, Italy; Marc Zebisch, Ruth Sonnenschein, European Academy of Bolzano (EURAC), Italy; Giustino Tonon, University of Bolzano-Bozen, Italy

Monday, July 23 15:50 - 16:50 Poster Area V
Session MOP2.PV Poster

New Remote Sensing Techniques and Methods I

MOP2.PV.1 Board PV.1 **EXPERIMENTAL VERIFICATION OF ONE-DIMENSIONAL MIRRORED APERTURE SYNTHESIS**
Liangbing Chen, Yuhao Wang, Huilin Zhou, Chaoqun Zhang, Nanchang University, China; Haofeng Dou, Qingxia Li, Liangqi Gui, Yuanchao Wu, Zhenyu Lei, Huazhong University of Science and Technology, China

MOP2.PV.2 Board PV.2 **ENERGY MINIMIZATION FOR CIRRUS AND CUMULUS CLOUD SEPARATION IN ATMOSPHERIC IMAGES**
Charles Marshak, University of California, Los Angeles, United States; Igor Yanovsky, Jet Propulsion Laboratory, United States; Luminita Vese, University of California, Los Angeles, United States

MOP2.PV.3 Board PV.3 **MULTITASK CLASSIFICATION OF REMOTE SENSING SCENES USING DEEP NEURAL NETWORKS**
Haikel Alhichri, King Saud University, Saudi Arabia

MOP2.PV.4 Board PV.4 **COMPARATIVE VALIDATION OF CLEAR SKY IRRADIANCE MODELS OVER FINLAND**
Viivi Kallio, Aku Riihelä, Finnish Meteorological Institute, Finland

MOP2.PV.5 Board PV.5 **HOMOGENEITY TEST FOR CONFUSION MATRICES: A METHOD AND AN EXAMPLE**
José L. García-Balboa, María V. Alba-Fernández, Francisco Javier Ariza-López, José Rodríguez-Avi, Universidad de Jaén, Spain

MOP2.PV.6 Board PV.6 **RESEARCH ON DETECTION OIL SPILL INFORMATION BASED ON POLARIZATION DECOMPOSITION**
Yarong Zou, National Satellite Ocean Application Service, China; Shengli Zhang, Beijing International Studies University, China; Chao Liang, Wentao An, National Satellite Ocean Application Service, China

MOP2.PV.7 Board PV.7 **ESTIMATION OF LAND SURFACE TEMPERATURE FROM UNMANNED AERIAL VEHICLE LOADED THERMAL IMAGER DATA**
Menglin Si, Bo-Hui Tang, State Key Laboratory of Resources and Environment Information System, China; Zhao-Liang Li, Key Laboratory of Agricultural Remote Sensing, China

MOP2.PV.8 Board PV.8 **BAG OF VISUAL WORDS MODEL FOR SEGMENT BASED CLASSIFICATION OF POLARIMETRIC SAR IMAGES**
Reza Mohammadi, Mahmod Reza Sahebi, Mehrnoosh Omati, Milad Vahidi, K. N. Toosi University of Technology, Iran

MOP2.PV.9 Board PV.9 **IDENTIFYING MULTIPLE STRESSORS IN REGIONAL AGRO-ECOSYSTEMS BASED ON SENTINEL-2 SPECTRAL INDICES TIME SERIES**
Meiling Liu, Xiangnan Liu, Yuanyuan Meng, China University of Geosciences Beijing, China; Andrew K Skidmore, Tiejun Wang, University of Twente, China

MOP2.PV.10 Board PV.10 **COMPLETE CONTROL OF AN OBSERVED CONFUSION MATRIX**
Francisco Javier Ariza-López, José Rodriguez-Avi, Virtudes Alba-Fernández, University of Jaén, Spain

MONDAY POSTER

Monday, July 23	15:50 - 16:50	Poster Area W
Session MOP2.PW		Poster-Invited

Radio Frequency Interference (RFI) in Microwave Remote Sensing II

Session Co-Chairs: Yan Soldo, NASA Goddard Space Flight Center; Roger Oliva, European Space Agency

MOP2.PW.1 Board PW.1 **EVOLUTION OF THE RADIO FREQUENCY INTERFERENCE ENVIRONMENT FACED BY EARTH OBSERVING MICROWAVE RADIOMETERS IN C AND X BANDS OVER EUROPE**
Mustafa Aksoy, University at Albany, State University of New York, United States

MOP2.PW.2 Board PW.2 **RADIO FREQUENCY INTERFERENCE (RFI) PRODUCTS ON THE AQUARIUS WEBSITE**
Paolo de Matthaeis, Yan Soldo, David Le Vine, NASA Goddard Space Flight Center, United States; Vardis Tsontos, NASA Jet Propulsion Laboratory, United States

MOP2.PW.3 Board PW.3 **INTERFERENCE SUPPRESSION FOR SAR BASE ON AMBIGUITY FUNCTION ITERATION DECOMPOSITION**
Jia Su, Mingliang Tao, Jian Xie, Ling Wang, Northwestern Polytechnical University, China

MOP2.PW.4 Board PW.4 **RFI ANALYSIS AND MITIGATION IN AIRBORNE GNSS-R CAMPAIGN**
Jorge Querol, Raul Onrubia, Daniel Pascual, Jordi Castellvi-Esturi, Hyuk Park, Adriano Camps, UPC-BarcelonaTech, Spain

MOP2.PW.5 Board PW.5 **MONITORING OF SMOS RFI SOURCES IN THE 1400–1427MHZ PASSIVE BAND**
Ekhi Uranga, Alvaro Llorente, Antonio de la Fuente, Elena Daganzo, Roger Oliva, European Space Agency, Spain; Yann Kerr, CESBIO, France

MOP2.PW.6 Board PW.6 **SNOW DENSITY AND GROUND PERMITTIVITY RETRIEVED FROM L-BAND RADIOMETRY: MELTING EFFECTS**
Mike Schwank, GAMMA Remote Sensing Research and Consulting AG, Switzerland; Reza Naderpour, Swiss Federal Research Institute WSL, Switzerland

MOP2.PW.7 Board PW.7 **SMOS L1 DATA QUALITY FOR NEXT MISSION REPROCESSING**
Roger Oliva, European Space Agency/ESAC, Spain; Manuel Martín-Neira, European Space Agency/ESTEC, Netherlands; Ignasi Corbella, Francesc Torres, Nuria Duffo, Israel Duran, Universitat Politècnica de Catalunya, Spain; Juha Kainulainen, Harp Technologies, Finland; Josep Closa, Alberto Zurita, Airbus Defence and Space, Spain; François Cabot, Ali Khazaal, Eric Anterrieu, CESBIO, France; Jose Barbosa, RDA, Switzerland; Gonçalo Lopes, Deimos Engenharia S.A, Portugal; Joe Tenerelli, OceanDataLab, France; Raúl Díez-García, European Space Agency/ESAC, Spain; Antonio Turiel, Verónica González-Gambau, SMOS Barcelona Expert Center, Spain; Raffaele Crapolicchio, European Space Agency/ESRIN, Italy; Martin Suess, European Space Agency/ESTEC, Netherlands

Tuesday, July 24 10:10 - 11:10 Poster Area A
Session TUP1.PA Poster

Microwave Models for Soil and Vegetation

Session Chair: Jose Luis Alvarez-Perez, University of Alcala (UAH)

TUP1.PA.1 Board PA.1 **THE DECOMPOSITION-RECONSTITUTION THEOREM FOR SCATTERING COMPUTATION FROM RANDOM ROUGH SURFACE**
Ming Li, Ling Tong, Xun Yang, Yu Li, University of Electronic Science and Technology of China, China

TUP1.PA.2 Board PA.2 **EVALUATING SCATTERED ELECTROMAGNETIC FIELD FROM FRACTAL SURFACE USING ITS COMPONENTS**
Yu Li, Ling Tong, Ming Li, Xun Yang, University of Electronic Science and Technology of China, China

TUP1.PA.3 Board PA.3 **EXTRACTING INFORMATION FROM THE COHERENCE TENSOR AND THE IEM2MC MODEL IN MULTI-POINT SAR OBSERVATIONS**
Jose Luis Alvarez-Perez, University of Alcala (UAH), Spain

TUP1.PA.4 Board PA.4 **BACKSCATTERING FROM FRACTAL ROUGH SURFACES UNDER TAPERED WAVE ILLUMINATION**
Yu Li, Ling Tong, Xun Yang, Ming Li, University of Electronic Science and Technology of China, China

TUP1.PA.5 Board PA.5 **COMPARISON AND VALIDATION ON MICROWAVE EXTINCTION PROPERTIES OF VEGETATION**
Fengmin Wu, Yan Hu, Jing Chen, Zhipeng Zheng, Chongqing Geomatics Center, China

TUP1.PA.6 Board PA.6 **CALIBRATION OF SCATTERING MODELS FOR GROWING CORN AND SOYBEAN AT C-BAND USING SENTINEL-1 AND RADARSAT-2 OBSERVATIONS**
Alejandro Monsivais-Huertero, Instituto Politecnico Nacional, Mexico; Jasmeet Judge, University of Florida, United States

TUP1.PA.7 Board PA.7 **A MODIFIED SCATTERING MODEL OF ROW WHEAT AT X- BAND**
Lei He, Chengdu University of Information Technology, China; Yuxia Li, University of Electronic Science and Technology of China, China; Wenyi Hu, Chengdu University of Technology, China; Hongping Shu, Chengdu University of Information Technology, China; Ling Tong, University of Electronic Science and Technology of China, China

TUP1.PA.8 Board PA.8 **PHYSICALLY BASED POLARIMETRIC SCATTERING FROM VEGETATION COMPONENTS**
Yang Du, Chao Yang, Zhejiang University, China; Qinhuo Liu, Institute of Remote Sensing and Digital Earth, China; Zengyuan Li, IFRIT, China

TUP1.PA.9 Board PA.9 **SUITABLE CAMP LOCATION FOR INTERNALLY DISPLACED PEOPLE: A CASE STUDY OF NORTH WAZIRISTAN, PAKISTAN**
Tahir Ali Shaikh, Mehran Sattar Soomro, Vipin Kumar Oad, Arjumand Zaidi, Mehran University of Engineering and Technology, Pakistan

TUP1.PA.10 Board PA.10 **SPATIAL AND TEMPORAL PROPERTIES OF SMOS RETRIEVAL OVER TROPICAL FORESTS**
Cristina Vittucci, Paolo Ferrazzoli, Tor Vergata University, Italy; Yann Kerr, Philippe Richaume, CESBIO, France; Leila Guerriero, Tor Vergata University, Italy; Gaia Vaglio Laurin, Tuscia University, Italy

Tuesday, July 24 15:50 - 16:50 Poster Area A
Session TUP2.PA Poster

SAR Interferometry: Along and Across III

Session Chair: Andrea Montiguarnieri, Polimi

TUP2.PA.1 Board PA.1 **MAXIMUM LIKELIHOOD PHASE ESTIMATION METHOD BASED ON SPLIT-SPECTRUM FOR MULTI-FREQUENCY INSAR SYSTEM**
Shuo Li, Huaping Xu, Beihang University, China; Yanan You, Bejing University of Posts and Telecommunications, China; Bo Yang, Beihang University, China

TUP2.PA.2 Board PA.2 **EXTENDED PUMA ALGORITHM FOR MULTIBASELINE SAR INTERFEROGRAMS**
Lifan Zhou, Changshu Institute of Technology, China; Dengfeng Chai, Zhejiang University, China; Yu Xia, Changshu Institute of Technology, China; Peifeng Ma, The Chinese University of Hong Kong, Hong Kong SAR of China

TUP2.PA.3 Board PA.3 **SAR BASED THREE-DIMENSIONAL SURFACE DEFORMATION MONITORING OF HIGH MOUNTAIN GLACIERS**
Min-Jeong Jo, USRA, NASA-GSFC, United States; Batuhan Osmanoglu, NASA Goddard Space Flight Center, United States; Hyung-Sup Jung, The University of Seoul, Republic of Korea

TUP2.PA.4 Board PA.4 **SPACEBORNE REPEAT-PASS INTERFEROMETRIC SYNTHETIC APERTURE RADAR EXPERIMENTAL EVALUATION FOR THE GAOFEN-3 SATELLITE**
Lixiang Ma, Yu Zhu, Beijing Institute of Spacecraft System Engineering, China; Fan Zhang, BeijingUniversity of Chemical Technology, China; Jian Liang, Zheng Lv, Lei Liu, Beijing Institute of Spacecraft System Engineering, China; Yuekun Wang, Xidian University, China

TUP2.PA.5 Board PA.5 **PRELIMINARY COHERENCE ASSESSMENT OF GAOFEN-3 SAR DATA**
Tao Li, Xinming Tang, Qianfu Chen, Xiaoming Gao, Xiang Zhang, Li Guo, Satellite Surveying and Mapping Application Center, National Administration of Surveying, Mapping and Geoinformation, China

TUP2.PA.6 Board PA.6 **JOINT DISTRIBUTION OF INTERFEROMETRIC PHASES FOR MULTIBASELINE INSAR**
Bo Yang, Huaping Xu, Shuo Li, Zening Song, Beihang University, China; Haifeng Liu, Hubei Sub-center of National Computer Network Emergency Response Technical Team/Coordination Center of China, China

TUP2.PA.7 Board PA.7 **CLUSTER BASED METHOD TO IDENTIFY PERSISTENT SCATTERERS FOR NONLINEAR DISPLACEMENT ANALYSIS OF STRUCTURES**
Taichi Tanaka, Osamu Hoshuyama, NEC Corporation, Japan

TUP2.PA.8 Board PA.8 **BISTATIC INSAR X-BAND STATISTICAL CHARACTERIZATION OF AGRICULTURAL FIELDS WITH TANDEM-X**
Carolina Gonzalez, Michele Martone, Paola Rizzoli, German Aerospace Center (DLR), Germany

TUP2.PA.9 Board PA.9 **EXPLOITING NONLOCAL FILTERS FOR HIGH-RESOLUTION INSAR DEM GENERATION**
Francescopaolo Sica, Michele Martone, Muriel Pinheiro, Deutsches Zentrum für Luft- und Raumfahrt (DLR), Germany; Davide Cozzolino, Universitá degli Studi di Napoli, Italy; Pau Prats-Iraola, Deutsches Zentrum für Luft- und Raumfahrt (DLR), Germany; Giovanni Poggi, Universitá degli Studi di Napoli, Italy

TUP2.PA.10 Board PA.10 **ATMOSPHERIC EFFECTS ON RADARSAT-2 INTERFEROGRAMS OF TOLBACHIK VOLCANIC COMPLEX**
Alexander Zakharov, Liudmila Zakharova, Kotelnikov institute of Radioengineering and Electronics, RAS, Russian Federation; Polina Mikhaylyukova, Lomonosov Moscow State University, Russian Federation; Pavel Denisov, JSC Russian Space Systems, Russian Federation

Tuesday, July 24 | 10:10 - 11:10 | Poster Area B
Session TUP1.PB | Poster

Differential SAR Interferometry V

Session Co-Chairs: Tom Farr, NASA Jet Propulsion Laboratory, California Institute of Technology; Michael Fourmelis, BGRM

TUP1.PB.1 Board PB.1 **A DIRECT METHOD TO ESTIMATE ATMOSPHERIC PHASE DELAY FOR INSAR WITH GLOBAL ATMOSPHERIC MODELS**
Zhongbo Hu, Jordi J. Mallorqui, Universitat Politècnica de Catalunya, Spain

TUP1.PB.2 Board PB.2 **SURFACE DEFORMATION DETECTION BY SMALL BASELINE SAR INTERFEROMETRY IN CANGZHOU COASTAL ZONE**
Yi Luo, Jingfa Zhang, Zhimin Liu, Wenhao Shen, Qisong Jiao, Institute of Crustal Dynamics,China Earthquake Administration, China; Liming Zuo, Geologic Reconnaissance Institute for Hebei Province, China

TUP1.PB.3 Board PB.3 **AN ADAPTIVE MULTILOOKING SCHEME FOR MULTI-TEMPORAL INSAR DATA**
Feng Zhao, Jordi J. Mallorqui, Universitat Politècnica de Catalunya, Spain

TUP1.PB.4 Board PB.4 **TOWARD OPERATIONAL INSAR TIME-SERIES ANALYSIS WITH FULL COVARIANCE MATRIX**
Heresh Fattahi, Piyush Agram, David Bekaert, Jet Propulsion Laboratory, California Institute of Technology, United States

TUP1.PB.5 Board PB.5 **A SIMPLE PHASE UNWRAPPING ERRORS CORRECTION ALGORITHM BASED ON PHASE CLOSURE ANALYSIS**
Béatrice Pinel-Puysségur, CEA, France; Cécile Lasserre, ENS Lyon, France; Angélique Benoit, Romain Jolivet, ENS Paris, France; Marie-Pierre Doin, Université Grenoble Alpes, France; Johann Champenois, CEA, France

TUP1.PB.6 Board PB.6 **USE OF DIFFERENTIAL INTERFEROMETRY ON SENTINEL-1 IMAGES FOR THE MEASUREMENT OF GROUND DISPLACEMENTS. ISCHIA EARTHQUAKE AND COMPARISON WITH INGV DATA**
Silvia Liberata Ullo, Università degli Studi del Sannio, Italy; Cesario Vincenzo Angelino, Luca Cicala, CIRA, The Italian Aerospace Research Center, Italy; Nicomino Fiscante, Università degli Studi del Sannio, Italy; Pia Addabbo, Giustino Fortunato University, Italy

TUP1.PB.7 Board PB.7 **MULTI-TEMPORAL INSAR MONITORING OF THE ASWAN HIGH DAM (EGYPT)**
Antonio M. Ruiz-Armenteros, Universidad de Jaén, Spain; J. Manuel Delgado, Universidad de Jaén / Delft University of Technology / University of Leuven, Italy; Francisco Lamas-Fernández, Rafael Bravo-Pareja, Universidad de Granada, Spain; Milan Lazecky, VSB-TU Ostrava, Czech Republic; Matus Bakon, insar.sk Ltd, Slovakia; Joaquim João Sousa, Universidade de Trás-os-Montes e Alto Douro, Portugal; Miguel Caro-Cuenca, TNO, Netherlands; Gert Verstraeten, University of Leuven, Belgium; Ramon F. Hanssen, Delft University of Technology, Netherlands

TUP1.PB.8 Board PB.8 **AUTOMATIC DETECTION OF BUILDING AND INFRASTRUCTURE INSTABILITIES BY SPATIAL AND TEMPORAL ANALYSIS OF INSAR MEASUREMENTS**
Mario Costantini, e-GEOS - an Italian Space Agency and Telespazio company, Italy; Mao Zhu, Vastitude Technology, China; Song Huang, Shenzhen Urban Public Safety and Technology Institute, China; Shujian Bai, Jiangke Cui, Vastitude Technology, China; Federico Minati, Francesco Vecchioli, e-GEOS - an Italian Space Agency and Telespazio company, Italy; Dianqi Jin, Shenzhen Urban Public Safety and Technology Institute, China; Qiong Hu, Vastitude Technology, China

TUP1.PB.9 Board PB.9 **THREE DIMENSIONAL DISASTER MONITORING OF THE POHANG EARTHQUAKE IN THE REPUBLIC OF KOREA BY SENTINEL-1**
Hyewon Yun, Junghum Yu, Soo Bong Lee, Mi Hee Lee, Disaster Information Research Division, National Disaster Management Research Institute, Republic of Korea

TUP1.PB.10 Board PB.10 **THE PARALLEL SBAS-DINSAR PROCESSING CHAIN FOR MASSIVE GENERATION OF SENTINEL-1 DEFORMATION TIME-SERIES**
Michele Manunta, Paolo Berardino, IREA-CNR, Italy; Manuela Bonano, IMAA-CNR, Italy; Francesco Casu, Claudio De Luca, Adele Fusco, Riccardo Lanari, Mariarosaria Manzo, Antonio Pepe, Ivana Zinno, IREA-CNR, Italy

TUESDAY POSTER

Tuesday, July 24 | 15:50 - 16:50 | Poster Area B
Session TUP2.PB | Poster

Differential SAR Interferometry VI

Session Co-Chairs: Nico Adam, German Aerospace Center (DLR); Jordi Mallorqui, Universitat Politècnica de Catalunya

TUP2.PB.1 Board PB.1 **MONITORING LAND SUBSIDENCE IN AZAR OILFIELD, ILAM, IRAN THROUGH SMALL-BASELINE SAR INTERFEROMETRY ANALYSIS**
Zahra Mirzaii, Mahdi Hasanlou, Javad Hatami, College of Engineering, University of Tehran, Iran

TUP2.PB.2 Board PB.2 **RHETICUS®: A CLOUD-BASED GEO-INFORMATION SERVICE FOR GROUND INSTABILITIES DETECTION AND MONITORING**
Sergio Samarelli, Luigi Agrimano, Planetek Italia srl, Italy; Italo Epicoco, Massimo Cafaro, University of Salento, Italy; Raffaele Nutricato, Davide Oscar Nitti, Geophysical Applications Processing s.r.l., Italy; Fabio Bovenga, CNR, Italy

TUP2.PB.3 Board PB.3 **SURFACE DEFORMATION MAPPING OF ITALY THROUGH THE P-SBAS DINSAR PROCESSING OF SENTINEL-1 DATA IN A CLOUD COMPUTING ENVIRONMENT**
Ivana Zinno, IREA-CNR, Italy; Manuela Bonano, IMAA - CNR, Italy; Sabatino Buonanno, Francesco Casu, Claudio De Luca, Riccardo Lanari, Mariarosaria Manzo, Michele Manunta, Giovanni Zeni, IREA-CNR, Italy

TUP2.PB.4 Board PB.4 **DEFORMATION MONITORING OF THE NORTHERN SECTOR OF THE VALENCIA BASIN (E SPAIN) USING PS-INSAR (1993-2010)**
Antonio M. Ruiz-Armenteros, J. Manuel Delgado, Universidad de Jaén, Spain; Bruno J. Ballesteros-Navarro, Instituto Geológico y Minero de España, Spain; Milan Lazecky, VSB-TU Ostrava, Czech Republic; Matus Bakon, insar.sk Ltd, Slovakia; Joaquim João Sousa, Universidade de Trás-os-Montes e Alto Douro, Portugal

TUP2.PB.5 Board PB.5 **SPATIOTEMPORAL EVOLUTION OF SEISMIC SLIP OF THE 31 OCTOBER 2013 RUISUI, TAIWAN, EARTHQUAKE**
Sanaz Vajedian, Institute of Photogrammetry and GeoInformation (IPI) Leibniz University, Germany; Mahdi Motagh, German Research Center for Geosciences (GFZ), Germany; Sergey Samsonov, Canada Centre for Mapping and Earth Observation, Canada

TUP2.PB.6 Board PB.6 **SPATIAL CORRELATION BASED PSINSAR TECHNIQUE TO ESTIMATE GROUND DEFORMATION IN LAS VEGAS REGION, US**
Kousik Biswas, Debashish Chakravarty, Pabitra Mitra, Indian Institute of Technology Kharagpur, India; Arundhati Misra, ISRO, India

TUP2.PB.7 Board PB.7 **LONG TERM DEFLECTION MONITORING OF CABLE-STAYED BRIDGE USING TIME-SERIES INTERFEROMETRY**
Jungkyo Jung, Duk-jin Kim, Suresh Krishnan P.V, Seoul National University, Republic of Korea

TUP2.PB.8 Board PB.8 **A JOINT MODEL FOR ISOLATING STRATIFIED TROPOSPHERIC DELAYS IN MULTI-TEMPORAL INSAR**
Hongyu Liang, Lei Zhang, Xiaoli Ding, The Hong Kong Polytechnic University, Hong Kong SAR of China; Zhong Lu, South Methodist University, United States; Xin Li, The Hong Kong Polytechnic University, Hong Kong SAR of China

TUP2.PB.9 Board PB.9 **ESTIMATION AND COMPENSATION OF WEATHER IMPACTS ON PERSISTENT SCATTERER INTERFEROMETRY IN LOWLAND AIRFIELDS**
Aleksey Sharov, Joanneum Research, Austria; Dmitry Nikolskiy, Sovzond, Russian Federation

Tuesday, July 24 **10:10 - 11:10** **Poster Area C**
Session TUP1.PC **Poster**

ISAR & Target Detection

Session Chair: Maria Sanjuan-Ferrer, German Aerospace Center (DLR)

TUP1.PC.1 Board PC.1
HIGH QUALITY ISAR IMAGING FOR TARGET OF ARBITRARY TRAJECTORY BASED ON BACK PROJECTION AND PARTICLE SWARM OPTIMIZATION
Tian Wang, Junjie Wu, Jianyu Yang, University of Electronic Science and Technology of China, China

TUP1.PC.2 Board PC.2
OFF-GRID SPARSE ISAR IMAGING BY BASIS SHIFT ALGORITHM
Mengjun Yang, Zhulin Zong, Jie Gao, University of Electronic Science and Technology of China, China

TUP1.PC.3 Board PC.3
INVERSE SYNTHETIC APERTURE IMAGING LADAR BASED ON BINARY PHASE CODED MODULATION
Si Gao, ZengHui Zhang, WenXian Yu, Shanghai Jiao Tong University, China

TUP1.PC.4 Board PC.4
SIMULATION OF ISAR MOTION COMPENSATION FOR MOVING TARGETS BASED ON PARTICLE SWARM OPTIMIZATION
Cheng-Yen Chiang, Yang-Lang Chang, Bo Yao Chen, Sina Hadipour, Yi Wen Wang, National Taipei University of Technology, Taiwan; Kuo-Chin Fan, National Central University, Taiwan

TUP1.PC.5 Board PC.5
A CROSS-RANGE SCALING METHOD FOR ISAR NON-UNIFORMLY ROTATING TARGETS BASED ON SHARPNESS MAXIMIZATION
Jialian Sheng, Shanghai Radio Equipment Research Institute, China; Rui Guo, Northwestern Polytechnical University, China; Chaowei Fu, Haitao Wang, Shanghai Radio Equipment Research Institute, China; Gang Xu, Southeast University, China

TUP1.PC.6 Board PC.6
A NOVEL INITIALIZATION METHOD FOR EM-BASED ISAR SCATTERER TRAJECTORY MATRIX COMPLETION
Lei Liu, Feng Zhou, Xiaoran Shi, Xidian University, China

TUP1.PC.7 Board PC.7
RESEARCH INTO SAR IMAGING OF MOVING SHIP TARGET BASED ON ISAR TECHNOLOGY
Lei Yu, Chunsheng Li, Pengbo Wang, Yue Fang, Beihang University, China; Xin Feng, Institute of Remote Sensing Information, China

TUP1.PC.8 Board PC.8
CLUTTER SUPPRESSION FOR SAR IMAGE BASED ON WAVEFORM DESIGN METHOD
Bingqi Zhu, Manjun Lu, Ke Du, Xiangzhen Yu, Qianli Dong, Shanghai Radio Equipment Research Institute, China

TUP1.PC.9 Board PC.9
L1/2 REGULARIZATION SAR IMAGING VIA COMPLEX IMAGE DATA: REGULARIZATION PARAMETER SELECTION FOR TARGET DETECTION TASK
Jiacheng Ni, Qun Zhang, Linghua Su, Jia Liang, Air Force Engineering University, China; Wenjun Huo, Xijing University, China

Tuesday, July 24 **15:50 - 16:50** **Poster Area C**
Session TUP2.PC **Poster**

Object Detection in SAR Data

TUP2.PC.1 Board PC.1
SALIENT SEED EXTRACTION BASED TARGET DETECTION IN SAR IMAGES
Zongxu Pan, Bin Lei, Institute of Electronics, Chinese Academy of Sciences, China

TUP2.PC.2 Board PC.2
TARGET DETECTION BASED ON SALIENCY ANALYSIS AND CONTOUR EXTRACTION FOR SYNTHETIC APERTURE RADAR IMAGES
Congyang Liu, Yue Wang, Shiyi Wang, Libao Zhang, Beijing Normal University, China

TUP2.PC.3 Board PC.3
TARGET ASPECT IDENTIFICATION IN SAR IMAGE: A MACHINE LEARNING APPROACH
Jifang Pei, Yulin Huang, Weibo Huo, Yin Zhang, Jianyu Yang, University of Electronic Science and Technology of China, China

TUP2.PC.4 Board PC.4
MULTI-VIEW BISTATIC SYNTHETIC APERTURE RADAR TARGET RECOGNITION BASED ON MULTI-INPUT DEEP CONVOLUTIONAL NEURAL NETWORK
Jifang Pei, Weibo Huo, Qianghui Zhang, Yulin Huang, Yuxuan Miao, Yin Zhang, University of Electronic Science and Technology of China, China

TUP2.PC.5 Board PC.5
MOVING TARGET DETECTION AND TRACKING BASED ON GMPHD FILTER IN SAR SYSTEM
Yun Zhang, Huilin Mu, Yicheng Jiang, Qinglong Hua, Harbin Institute of Technology, China

TUP2.PC.6 Board PC.6
LOCALITY-CONSTRAINED AND CLASS-SPECIFIC SPARSE REPRESENTATION FOR SAR TARGET RECOGNITION
Meiting Yu, Lingjun Zhao, Siqian Zhang, Gangyao Kuang, College of Electronic Science and Engineering, China

TUP2.PC.7 Board PC.7
D-ATR VIA DEEP NEURAL NETWORK FOR LARGE SCENE SAR IMAGES
Cui Tang, Zongyong Cui, Nengyuan Liu, Zongjie Cao, University of Electronic Science and Technology of China, China

TUP2.PC.9 Board PC.9
SMALL SAMPLE LEARNING OPTIMIZATION FOR RESNET BASED SAR TARGET RECOGNITION
Zhenzhen Fu, Fan Zhang, Qiang Yin, Ruirui Li, Wei Hu, Wei Li, Beijing University of Chemical Technology, China

TUP2.PC.10 Board PC.10
AIRCRAFT DETECTION IN SAR IMAGES USING SALIENCY BASED LOCATION REGRESSION NETWORK
Wenhui Diao, Fangzheng Dou, Kun Fu, Xian Sun, Chinese Academy of Sciences, China

Tuesday, July 24 | 10:10 - 11:10 | Poster Area D
Session TUP1.PD | Poster

SAR Water Applications & Speckle

TUP1.PD.1 Board PD.1 **SEA ICE MOTION TRACKING FROM NEAR REAL TIME SAR DATA ACQUIRED DURING ANTARCTIC CIRCUMNAVIGATION EXPEDITION**
Anja Frost, Stefan Wiehle, Suman Singha, Detmar Krause, DLR - German Aerospace Center, Germany

TUP1.PD.2 Board PD.2 **THE POLARIZATION ANALYSIS OF THE INFLUENCE ON INTERNAL WAVE IMAGING BY SAR**
Yunyun Meng, Yun Zhang, Yinsheng Wei, Harbin Institute of Technology, China

TUP1.PD.4 Board PD.4 **A DENSELY CONNECTED NEURAL NETWORK FOR MULTI-SCALE SAR SHIP DETECTION**
Jiao Jiao, Wen Hong, Xian Sun, Hao Sun, Yue Zhang, Xue Yang, Kun Fu, Institute of Electronics, Chinese Academy of Sciences, China

TUP1.PD.5 Board PD.5 **EFFECT OF BUILDING ORIENTATION ON URBAN FLOOD MAPPING USING ALOS-2 AMPILITUDE IMAGES**
Young-Joo Kwak, ICHARM-UNESCO-PWRI, Japan; Ryo Natsuaki, University of Tokyo / DLR, Germany; Sang-Ho Yun, Jet Propulsion Laboratory, United States

TUP1.PD.6 Board PD.6 **PERFORMANCE ANALYSIS OF SPECKLE FILTERING ON SINGLE-LOOK POLSAR DATA FOR LAND COVER CLASSIFICATION**
Rakesh Sharma, Rajib Kumar Panigrahi, Indian Institute of Technology Roorkee, India

TUP1.PD.7 Board PD.7 **A SPECKLE REDUCTION MODEL FOR SAR IMAGES BASED ON BELTRAMI REGULARIZATION**
Yong Meng, Yudi Liu, Zeming Zhou, Qixiang Luo, College of Meteorology and Oceanology, National University of Defense Technology, China

TUP1.PD.8 Board PD.8 **SAR IMAGE DESPECKLING BASED ON A NOVEL TOTAL VARIATION REGULARIZATION MODEL AND GF-3 DATA**
Qingjun Zhang, Tengfei Li, Yu Zhu, Zheng Lv, China Academy of Space Technology, China

TUP1.PD.9 Board PD.9 **SAR IMAGES COMPRESSED SENSING BASED ON RECOVERY ALGORITHMS**
Slim Rouabah, Mounira Ouarzeddine, Boularbah Souissi, USTHB, Algeria

TUP1.PD.10 Board PD.10 **LEARNING SPECKLE SUPPRESSION IN SAR IMAGES WITHOUT GROUND TRUTH: APPLICATION TO SENTINEL-1 TIME-SERIES**
Alexandre Boulch, Pauline Trouvé, Elise Koeniguer, Fabrice Janez, Bertrand Le Saux, ONERA, France

Tuesday, July 24 | 15:50 - 16:50 | Poster Area D
Session TUP2.PD | Poster

Classification of SAR/POLSAR Data I

Session Chair: Zhong Ping, National University of Defense Technology

TUP2.PD.1 Board PD.1 **TWO EXTENDED TREE-BASED CLASSIFIER ENSEMBLES FOR CLASSIFICATION OF FULLY POLARIMETRIC SAR DATA**
Iman Khosravi, Masoumeh Hamidi, University of Tehran, Iran; Saeid Homayouni, University of Ottawa, Canada; Mehdi Hosseini, University of Carleton, Canada; Heather McNairn, Ottawa Research and Development Centre, Agriculture and Agri-Food Canada, Ottawa, Canada, Canada

TUP2.PD.2 Board PD.2 **HIGH RESOLUTION SAR IMAGE CLASSIFICATION WITH DEEPER CONVOLUTIONAL NEURAL NETWORK**
Yue Zhang, Xian Sun, Institute of Electronics, Chinese Academy of Sciences, China; Hao Sun, Zequn Zhang, Wenhui Diao, Key Laboratory of Spatial Information Processing and Application System Technology, Chinese Academy of Sciences, China; Kun Fu, Institute of Electronics, Chinese Academy of Sciences, China

TUP2.PD.3 Board PD.3 **POLARIZATION FEATURE EXTRACTION USING QUATERNION NEURAL NETWORKS FOR FLEXIBLE UNSUPERVISED POLSAR LAND CLASSIFICATION**
Hyunsoo Kim, Akira Hirose, The University of Tokyo, Japan

TUP2.PD.4 Board PD.4 **CLASSIFICATION OF SAR IMAGE AND MULTISPECTRAL IMAGE USING DECONVOLUTIONAL NETWORKS**
Xiaorui Ma, Anyan Fu, Jie Geng, Jie Wang, Hongyu Wang, Dalian University of Technology, China

TUP2.PD.5 Board PD.5 **AVALANCHE DETECTION IN SAR IMAGES USING DEEP LEARNING**
Anders U. Waldeland, Jarle Hamar Reksten, Arnt-Børre Salberg, Norwegian Computing Center, Norway

TUP2.PD.6 Board PD.6 **SUPERPIXEL-BASED UNSUPERVISED CLASSIFICATION OF POLSAR IMAGES WITH ADAPTIVE NUMBER OF TERRAIN CLASSES**
Huanxin Zou, Ningyuan Shao, Meilin Li, Cheng Chen, National University of Defense Technology, China; Xianxiang Qin, Air Force Engineering University, China

TUP2.PD.7 Board PD.7 **SAR POLARIMETRY IN REMOTE SENSING OF ARCTIC REGION**
Alexander Zakharov, Liudmila Zakharova, Mark Sorochinsky, Kotelnikov institute of Radioengineering and Electronics, RAS, Russian Federation; Tumen Chimitdorzhiev, Institute of Physical Materials Science of SB RAS, Russian Federation

TUP2.PD.8 Board PD.8 **USING SENTINEL-1 SAR MEASUREMENTS TO DETECT HIGH RESOLUTION FREEZE AND THAW STATES IN ALASKA**
Marzi Azarderakhsh, Fairleigh Dickinson University, United States; Kyle McDonald, The City College of New York, United States; Hamid Norouzi, Adrian Barros, Patty Arunyavikul, Reginald Blake, The City University of New York - City Tech, United States

TUP2.PD.9 Board PD.9 **EVALUATION OF RETRIEVED CATEGORIES FROM A TERRASAR-X BENCHMARKING DATA SET**
Corneliu Octavian Dumitru, Gottfried Schwarz, Mihai Datcu, DLR - German Aerospace Center, Germany

Tuesday, July 24 10:10 - 11:10 **Poster Area E**
Session TUP1.PE **Poster**

Dual-Pol SAR

Session Chair: Carlos Lopez-Martinez, LIST

TUP1.PE.1 Board PE.1 **EXPLORING DUAL-POLARIMETIC DESCRIPTORS FOR SENTINEL-1 BASED SHIP DETECTION**
Ramona Pelich, Carlos López-Martínez, Marco Chini, Renaud Hostache, Patrick Matgen, Luxembourg Institute of Science and Technology, Luxembourg; Philippe Ries, Gerd Eiden, LuxSpace Sàrl, Luxembourg

TUP1.PE.2 Board PE.2 **A CONTROLLED ENVIRONMENT TO ANALYZE DUAL-POLARIMETRIC FEATURES FOR RADAR REMOTE SENSING PURPOSES**
Ferdinando Nunziata, Angelo Urciuoli, Angelo Gifuni, Maurizio Migliaccio, Università degli Studi di Napoli Parthenope, Italy

TUP1.PE.3 Board PE.3 **IMAGING EXPOSED INTERTIDAL FLATS USING MULTI-POLARIZATION SYNTHETIC APERTURE RADAR**
Martin Gade, Wensheng Wang, Universität Hamburg, Germany

TUP1.PE.4 Board PE.4 **ASSESSMENT OF SIMULATED COMPACT POLARIMETRY OF THE RCM MEDIUM RESOLUTION SAR MODES FOR OIL SPILL DETECTION**
Mohammed Dabboor, Environment and Climate Change Canada, Canada; Suman Singha, German Aerospace Center (DLR), Germany; Benoit Montpetit, Benjamin Deschamps, Dean Flett, Environment and Climate Change Canada, Canada

TUP1.PE.5 Board PE.5 **ASSESSMENT OF SIMULATED COMPACT POLARIMETRY OF THE HIGH RESOLUTION RADARSAT CONSTELLATION MISSION SAR MODE FOR MULTIYEAR AND FIRST YEAR SEA ICE CHARACTERIZATION**
Mohammed Dabboor, Benoit Montpetit, Stephen Howell, Environment and Climate Change Canada, Canada

TUP1.PE.6 Board PE.6 **CONVOLUTIONAL HIGHWAY UNIT NETWORK FOR LARGE-SCALE CLASSIFICATION WITH GF-3 DUAL-POL SAR DATA**
Yujuan Guo, Erxue Chen, Zengyuan Li, Lei Zhao, Kunpeng Xu, Research Institute of Forest Resources Information Techniques, China

TUP1.PE.7 Board PE.7 **CLASSIFYING MULTI-CHANNEL POLSAR IMAGES BASE ON POLARIZATION SIGNATURE**
Ramin Saadi, Mahdi Hasanlou, Abdolreza Safari, College of Engineering, University of Tehran, Iran

TUP1.PE.8 Board PE.8 **SIGNAL PENETRATION OF LOW SAR FREQUENCY OVER THREE COMPACT POLARIMETRIC MODES**
Abdullah Algafsh, KACST, Saudi Arabia

TUP1.PE.9 Board PE.9 **ON THE OPTIMAL COMPACT POLARIMETRIC SAR MODES AND FEATURES FOR MARINE OIL SPILL CLASSIFICATION**
Yu Li, Beijing University of Technology, China; Yuanzhi Zhang, Chinese Academy of Sciences, China; Maurizio Migliaccio, Ferdinando Nunziata, Andrea Buono, Università di Napoli Parthenope, Italy

TUP1.PE.10 Board PE.10 **CHARACTERIZATION OF LAND SURFACE USING BACKSCATTERING FEATURES: AN APPLICATION OF HYBRID POLARIMETRIC RISAT-1 SAR DATA**
Nidhi Verma, Shantal Raj, Pooja Mishra, Neetesh Purohit, Indian Institute of Information Technology, Allahabad, India

Tuesday, July 24 15:50 - 16:50 **Poster Area E**
Session TUP2.PE **Poster**

Analysis of Optical/Hyperspectral Data

Session Chair: Josée Lévesque, Valcartier Research Center

TUP2.PE.1 Board PE.1 **PARALLEL OPTIMIZATION FOR SPATIAL-SPECTRAL HYPERSPECTRAL IMAGE CLASSIFICATION BASED ON MULTI-GPU PLATFORM**
Linlin Shi, Zebin Wu, Jie Wei, Yang Xu, Huimin Yu, Nanjing University of Science and Technology, China; Jiandong Yang, China Satellite Maritime Tracking and Control Department, China; Zhihui Wei, Nanjing University of Science and Technology, China

TUP2.PE.2 Board PE.2 **DISTRIBUTED PARALLEL IMPLEMENTATION OF HYPERSPECTRAL IMAGE FEATURE FUSION CLASSIFICATION BASED ON CLOUD COMPUTING ARCHITECTURE**
Qitao Zang, Zebin Wu, Nanjing University of Science and Technology, China; Weixuan Zhang, Jingling High School, China; Jin Sun, Yi Zhang, Zhihui Wei, Ling Qian, Nanjing University of Science and Technology, China

TUP2.PE.3 Board PE.3 **FPGA BASED IMPLEMENTATION OF CONVOLUTIONAL NEURAL NETWORK FOR HYPERSPECTRAL CLASSIFICATION**
Xiaofeng Chen, Jingyu Ji, Shaohui Mei, Yifan Zhang, Northwestern Polytechnical University, China; Manli Han, Aeronautical Computing Technique Research Institute, China; Qian Du, Mississippi State University, United States

TUP2.PE.4 Board PE.4 **AN EFFICIENT REGION PROPOSAL METHOD FOR OPTICAL REMOTE SENSING IMAGERY**
Shahid Karim, Ye Zhang, Shoulin Yin, Harbin Institute of Technology, China; Muhammad Rizwan Asif, Xi'an Jiaotong University, China

TUP2.PE.5 Board PE.5 **SUB-PIXEL MAPPING WITH HYPERSPECTRAL IMAGES USING SUPER-RESOLUTION**
Shikha Gaur, University of Wisconsin-Madison, United States; Krishna Mohan Buddhiraju, Alok Porwal, Indian Institute of Technology Bombay, United States

TUP2.PE.6 Board PE.6 **WIND TURBINE VISUAL CLASSIFICATION FROM OVERHEAD IMAGES**
Lily Lee, Virginia Goodwin, Jason Biddle, Massachusetts Institute of Technology, United States

TUP2.PE.7 Board PE.7 **INVESTIGATION OF NATURAL ECOLOGICAL ENVIROMENT USING REMOTE SENSING BASED INTEGRATED INDEX AT A CITY SCALE**
Jinling Zhao, Jie Wang, Qi Hong, Anhui University, China; Qixiang Song, Suzhou University, China; Linsheng Huang, Dongyan Zhang, Anhui University, China

TUP2.PE.8 Board PE.8 **IMPACT OF NON-PROPORTIONAL TRAINING SAMPLING OF IMBALANCED CLASSES ON LAND COVER CLASSIFICATION ACCURACY WITH SEE5 DECISION TREE**
Zhengwei Yang, Claire Boryan, USDA National Agricultural Statistics Service, United States

TUP2.PE.9 Board PE.9 **SEMI-SUPERVISED REMOTE SENSING CLASSIFICATION VIA ASSOCIATIVE TRANSFER**
Youyou Li, Teng Long, Binbin He, Xiaodong Zhang, University of Electronic Science and Technology of China, China; Xiaofang Liu, Sichuan University of Science and Engineering, China

TUP2.PE.10 Board PE.10 **ENHANCING THE CLASSIFICATION OF REMOTE SENSING DATA USING MULTIBAND COMPACT TEXTURE UNIT DESCRIPTOR AND DEEP CONVOLUTIONAL NEURAL NETWORK**
Khelifa Djerriri, Centre des Techniques Spatiales, Algeria; Abdelmounaime Safia, Centre for Research and Applications in Remote Sensing (CARTEL), Canada; Moussa Sofiane Karoui, Centre des Techniques Spatiales, Algeria; Reda Adjoudj, Djillali Liabes University, Algeria

Tuesday, July 24 10:10 - 11:10 Poster Area F
Session TUP1.PF Poster

Object Detection in Optical Images II

TUP1.PF.1 Board PF.1 **DECONV R-CNN FOR SMALL OBJECT DETECTION ON REMOTE SENSING IMAGES**
Wei Zhang, Shihao Wang, Sophanyouly Thachan, Jingzhou Chen, Yuntao Qian, Zhejiang University, China

TUP1.PF.2 Board PF.2 **EFFICIENT DETECTION OF INTENSIVELY PARKED VEHICLES FORM SATELLITE IMAGE WITH 0.5-METER SPATIAL RESOLUTION**
Hao Chen, Wen Chen, Tong Gao, Zhichao Lai, Harbin Institute of Technology, China

TUP1.PF.3 Board PF.3 **AIRPORT DETECTION COMBINING SALIENT REGION SEGMENTATION AND PRIOR FEATURE EXTRACTION**
Qijian Zhang, Wenqi Shi, Jue Zhang, Yue Liu, Beijing Normal University, China

TUP1.PF.4 Board PF.4 **SINGLE-SAMPLE AEROPLANE DETECTION IN HIGH-RESOLUTION OPTIMAL REMOTE SENSING IMAGERY**
Bin Pan, Beihang University, China; Liming Wang, Institute of Information Engineering Chinese Academy of Sciences, China; Xinran Yu, The 28th Research Institute of China Electronics Technology Group, China; Zhenwei Shi, Beihang University, China

TUP1.PF.5 Board PF.5 **ROTATION-INVARIANT LATENT SEMANTIC REPRESENTATION LEARNING FOR OBJECT DETECTION IN VHR OPTICAL REMOTE SENSING IMAGES**
Xiwen Yao, Gong Cheng, Peicheng Zhou, Junwei Han, Lei Guo, Northwestern Polytechnical University, China

TUP1.PF.6 Board PF.6 **SEMI-SUPERVISED OBJECT DETECTION IN REMOTE SENSING IMAGES USING GENERATIVE ADVERSARIAL NETWORKS**
Guowei Chen, University of Chinese Academy of Sciences, Institute of Electronics, Chinese Academy of Sciences, Key Laboratory of Technology in Geo-spatial Information Processing and Application System, Chinese Academy of Sciences, China; Lei Liu, Wenlong Hu, Zongxu Pan, Institute of Electronics, Chinese Academy of Sciences Key Laboratory of Technology in Geo-spatial Information Processing and Application System, Chinese Academy of Sciences, China

TUP1.PF.7 Board PF.7 **OBJECT DETECTION WITH HEAD DIRECTION IN REMOTE SENSING IMAGES BASED ON ROTATIONAL REGION CNN**
Xue Yang, Kun Fu, Hao Sun, Xian Sun, Menglong Yan, Wenhui Diao, Zhi Guo, Institute of Electronics, Chinese Academy of Sciences, China

TUP1.PF.8 Board PF.8 **AIRPORT DETECTION BASED ON SUPERPIXEL SEGMENTATION AND SALIENCY ANALYSIS FOR REMOTE SENSING IMAGES**
Shiyi Wang, Libao Zhang, Beijing Normal University, China

TUP1.PF.9 Board PF.9 **JOINT FEATURE NETWORK FOR BRIDGE SEGMENTATION IN REMOTE SENSING IMAGES**
Jian Cai, Lei Ma, Feimo Li, Yiping Yang, Institute of Automation, Chinese Academy of Science, China

TUP1.PF.10 Board PF.10 **AUTOMATIC RECOGNITION OF OIL INDUSTRY FACILITIES BASED ON DEEP LEARNING**
Nannan Zhang, Yang Liu, Liqun Zou, Hang Zhao, Wentong Dong, Hongying Zhou, Hongyan Guo, Research Institute of Petroleum Exploration & Development, PetroChina, China; Miaofen Huang, Guangdong Ocean University, China

Tuesday, July 24 15:50 - 16:50 Poster Area F
Session TUP2.PF Poster

Estimation and Regression in Thermal IR Data

Session Co-Chairs: Michal Shimoni, SIC-RMA; Roberto Luciani, Università di Roma 'La Sapienza'

TUP2.PF.1 Board PF.1 **DEVELOPMENT AND VALIDATION OF A DAILY MAXIMUM TEMPERATURE ESTIMATION ALGORITHM USING LANDSAT-8**
Soo Bong Lee, Dalgeun Lee, Jongpil Kim, Jinyoung Kim, NDMI, Republic of Korea

TUP2.PF.2 Board PF.2 **DOWNSCALING LAND SURFACE TEMPERATURE BY USING RANDOM FOREST REGRESSION ALGORITHM**
Wan Li, State Key Laboratory of Resources and Environment Information System, China; Li Ni, Key Laboratory of Digital Earth Science, China; Zhao-Liang Li, Key Laboratory of Agricultural Remote Sensing, China; Hua Wu, State Key Laboratory of Resources and Environment Information System, China

TUP2.PF.3 Board PF.3 **PRELIMINARY EVALUATION OF THE TWO COLLECTION 6 MODIS LAND SURFACE TEMPERATURE PRODUCTS IN AN ARID AREA OF NORTHWEST CHINA**
Hua Li, Yikun Yang, Yongming Du, Biao Cao, Qinhuo Liu, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China

TUP2.PF.4 Board PF.4 **LAND SURFACE TEMPERATURE RETRIEVAL FROM THE INFRARED MEASUREMENTS OF ADVANCED HIMAWARI IMAGER ON HIMAWARI-8**
Geng-Ming Jiang, Wen-Xia Li, Fudan University, China

TUP2.PF.5 Board PF.5 **A MACHINE LEARNING METHOD TO CORRECT THE TERRAIN EFFECT ON LAND SURFACE TEMPERATURE IN MOUNTAINOUS AREAS**
Wei Zhao, Fengping Wen, Ainong Li, Institute of Mountain Hazards and Environment, Chinese Academy of Sciences, China

TUP2.PF.6 Board PF.6 **A TEMPERATURE AND EMISSIVITY SEPARATION ALGORTIHM FOR CHINESE GAOFEN-5 SATELLTIE DATA**
Yikun Yang, Hua Li, Yongming Du, Biao Cao, Qinhuo Liu, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China; Lin Sun, Jinshan Zhu, Geomatics college, Shandong University of Science and Technology, China; Fan Mo, Beijing Institute of Spacecraft System Engineering, China Academy of Space Technology, China

TUP2.PF.7 Board PF.7 **ESTIMATING SURFACE TURBULENT HEAT FLUXES FROM LAND SURFACE MOISTURE AND TEMPERATURE OBSERVATIONS USING AN INTEGRATED VARIATIONAL DATA ASSIMILATION METHODOLOGY**
Leila Farhadi, Abedeh Abdolghafoorian, George Washington University, United States

TUP2.PF.8 Board PF.8 **A REFINED GENERALIZED SPLIT-WINDOW ALGORITHM FOR RETRIEVING LONG-TERM GLOBAL LAND SURFACE TEMPERATURE FROM SERIES NOAA-AVHRR DATA**
Xiangyang Liu, Bo-Hui Tang, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, China; Zhao-Liang Li, Institute of Agricultural Resources and Regional Planning, Chinese Academy of Agricultural Sciences, China

TUP2.PF.9 Board PF.9 **DEVELOPMENT OF DAILY MAXIMUM AIR TEMPERATURE ESTIMATION ALGORITHM FOR THE KOREAN PENINSULA USING MODIS DATA**
Mi Hee Lee, Jung Hum Yu, Hyewon Yun, Eunji Cheon, National Disaster Management Research Institute, Republic of Korea

TUP2.PF.10 Board PF.10 **ESTIMATION OF LAND SURFACE TEMPERATURE FROM CHINESE GAOFEN-5 SATELLITE DATA**
Bo-Hui Tang, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, China; Zhao-Liang Li, Institute of Agricultural Resources and Regional Planning, Chinese Academy of Agricultural Sciences, China

Tuesday, July 24 10:10 - 11:10 Poster Area G
Session TUP1.PG Poster

Spectral-Spatial Approaches in Hyperspectral Remote Sensing

Session Co-Chairs: Gemine Vivone, University of Salerno; Mathieu Fauvel, National Polytechnic Institute of Toulouse

TUP1.PG.1 Board PG.1 **HYPERSPECTRAL CLASSIFICATION VIA SPATIAL CONTEXT EXPLORATION WITH MULTI-SCALE CNN**
Zhongqi Tian, Jingyu Ji, Shaohui Mei, Northwestern Polytechnical University, China; Junhui Hou, City University of Hong Kong, China; Shuai Wan, Northwestern Polytechnical University, China; Qian Du, Mississippi State University, United States

TUP1.PG.2 Board PG.2 **HYPERSPECTRAL CLASSIFICATION BASED ON SIAMESE NEURAL NETWORK USING SPECTRAL-SPATIAL FEATURE**
Shizhi Zhao, Wei Li, Beijing University of Chemical Technology, China; Qian Du, Mississippi State University, United States; Qiong Ran, Beijing University of Chemical Technology, China

TUP1.PG.3 Board PG.3 **SVM FOR UNSUPERVISED SPECTRAL-SPATIAL CLASSIFICATION OF HYPERSPECTRAL IMAGES**
Rafika Ben Salem, INSAT-TUNISIA, Tunisia; Karim Saheb Ettabaa, Laboratory ITI, Telecom Bretagne Brest Iroise Technopole CS 81828, Tunisia; Zouhaier Ben Rabeh, Laboratory for research in computer Arabized and integrated documentation, National School of Computer Sciences, Tunis, Tunisia., Tunisia

TUP1.PG.4 Board PG.4 **SUPERPIXEL BASED DIMENSION REDUCTION FOR HYPERSPECTRAL IMAGERY**
Huilin Xu, Hongyan Zhang, Wuhan University, China; Wei He, RIKEN AIP, Japan; Liangpei Zhang, Wuhan University, China

TUP1.PG.5 Board PG.5 **A NOVEL GRAPH BASED LABEL PROPAGATION METHOD FOR HYPERSPECTRAL REMOTE SENSING DATA CLASSIFICATION**
Xiaopan Wang, Yan Hu, Shaojia Zhang, Chongqing Geomatics Center, China

TUP1.PG.6 Board PG.6 **ROLLING GUIDANCE RECURSIVE FILTERING-BASED MULTIPLE KERNEL LEARNING FOR HYPERSPECTRAL IMAGE CLASSIFICATION**
Binge Cui, Liwei Zhong, Yong Zhong, The College of Computer Science and Engineering, Shandong University of Science and Technology, China

TUP1.PG.7 Board PG.7 **ACTIVE MANIFOLD LEARNING FOR HYPERSPECTRAL IMAGE CLASSIFICATION**
Zhou Zhang, University of California, United States; Gulsen Taskin, Istanbul Technical University, Turkey; Melba Crawford, Purdue University, United States

TUP1.PG.8 Board PG.8 **MULTISCALE SPECTRAL-SPATIAL HYPERSPECTRAL IMAGE CLASSIFICATION WITH ADAPTIVE FILTERING**
Sifan Wu, Junping Zhang, Harbin Institute of Technology, China; Chunyu Shi, Remote Sensing Information Institute of Beijing, China; Weike Li, Harbin Institute of Technology, China

TUP1.PG.9 Board PG.9 **DUAL-CHANNEL DENSENET FOR HYPERSPECTRAL IMAGE CLASSIFICATION**
Gefei Yang, Utsav Gewali, Emmett Ientilucci, Micheal Gartley, Sildomar Monteiro, Rochester Institute of Technology, United States

Tuesday, July 24 15:50 - 16:50 Poster Area G
Session TUP2.PG Poster

Estimation and Regression in Multspectral Data

Session Co-Chairs: Marco Chini, Luxembourg Institute of Science and Technology; Luca Pulvirenti, CIMA Research Foundation

TUP2.PG.1 Board PG.1 **RETRIEVAL OF CHLOROPHYLL-A CONTENT USING EMPIRICAL MODELING AND MSI SENTINEL-2 IMAGE IN TROPICAL EUTROPHIC RESERVOIRS**
Fernanda Watanabe, Enner Alcântara, UNESP, Brazil; Thanan Rodrigues, Federal Institute of Education, Science and Technology from Pará, Brazil; Nariane Bernardo, Ana Carolina Gomes, Caroline Piffer, Alisson do Carmo, Nilton Imai, Luiz Rotta, UNESP, Brazil

TUP2.PG.2 Board PG.2 **INTER-SENSOR REGRESSION ANALYSIS FOR OPERATIONAL SENTINEL-2 AND SENTINEL-3 DATA PRODUCTS**
Juan M. Haut, Hyperspectral Computing Laboratory, Spain; Rubén Fernandez-Beltran, Institute of New Imaging Technologies, Spain; Mercedes E. Paoletti, Javier Plaza, Antonio Plaza, Hyperspectral Computing Laboratory, Spain; Filiberto Pla, Institute of New Imaging Technologies, Spain

TUP2.PG.3 Board PG.3 **DOWNSCALING OF LAND SURFACE ALBEDO METHOD BASED ON STRATIFIED LINEAR REGRESSION**
Zihao Wang, Juan Sui, Yuanheng Sun, Huazhong Ren, Guhuai Han, Qiming Qin, Peking University, China

TUP2.PG.4 Board PG.4 **DEEP IMAGE-TO-IMAGE TRANSFER APPLIED TO RESOLUTION ENHANCEMENT OF SENTINEL-2 IMAGES**
Mario Beaulieu, Samuel Foucher, Computer Research Institute of Montreal, Canada; Dan Haberman, Colin Stewart, Local Logic, Canada

TUP2.PG.5 Board PG.5 **URBAN KNOWLEDGE ANALYSIS FOR DYNAMIC FORECASTING USING MULTISPECTRAL DATA**
Ivan Villalon-Turrubiates, Instituto Tecnológico y de Estudios Superiores de Occidente, ITESO, Mexico

TUP2.PG.6 Board PG.6 **ESTIMATION OF LEAF AREA INDEX WITH VARIOUS VEGETATION INDICES FROM GAOFEN-5 BAND REFLECTANCES**
Ziyang Zhang, Bo-Hui Tang, State Key Laboratory of Resources and Environment Information System, China

TUP2.PG.7 Board PG.7 **NET SURFACE SHORTWAVE RADIATION RETRIEVAL USING VIIRS DATA**
Wangmin Ying, Hua Wu, Zhao-Liang Li, State Key Laboratory of Resources and Environment Information System, China

TUP2.PG.8 Board PG.8 **PALM TREES COUNTING IN REMOTE SENSING IMAGERY USING REGRESSION CONVOLUTIONAL NEURAL NETWORK**
Khelifa Djerriri, Mohamed Ghabi, Moussa Sofiane Karoui, Centre des Techniques Spatiales, Algeria; Reda Adjoudj, Djillali Liabes University, Algeria

TUP2.PG.9 Board PG.9 **ESTIMATING IMPERVIOUS SURFACES OF GWADAR CITY BASED ON THE CHINESE MULTI-SOURCES REMOTE SENSING IMAGES**
Jiaqi Zuo, Southwest Petroleum University, China; Jinhu Bian, Ainong Li, Guangbin Lei, Institute of Mountain Hazards and Environment, Chinese Academy of Sciences, China; Zegen Wang, Southwest Petroleum University, China

TUP2.PG.10 Board PG.10 **EVALUATION OF TWO METHODS FOR DAILY EVAPOTRANSPIRATION ESTIMATION FROM FIELD AND MODIS DATA**
Yazhen Jiang, University of Chinese Academy of Sciences, China; Ronglin Tang, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, China; Xiaoguang Jiang, University of Chinese Academy of Sciences, China; Zhao-Liang Li, Ministry of Agriculture/Institute of Agricultural Resources and Regional Planning, Chinese Academy of Agricultural Sciences, China

Tuesday, July 24 10:10 - 11:10 **Poster Area H**
Session TUP1.PH **Poster**

Classification of Hyperspectral Data

Session Chair: Javier Plaza, University of Extremadura

TUP1.PH.1 Board PH.1 **INNOVATIVE MULTI PCNN BASED NETWORK FOR GREEN AREA MONITORING - IDENTIFICATION AND DESCRIPTION OF NEARLY INDISTINGUISHABLE AREAS - IN HYPERSPECTRAL SATELLITE IMAGES**
Serban Vasile Carata, Institute of Space Science, Romania; Mihai Gabriel Constantin, University Politehnica of Bucharest, Romania; Veta Ghenescu, Institute of Space Science, Romania; Mihai Chindea, UTI Grup, Romania; Marian Traian Ghenescu, Institute of Space Science, Romania

TUP1.PH.2 Board PH.2 **CLASSIFICATION OF HYPERSPECTRAL IMAGE BASED ON HYBRID NEURAL NETWORKS**
Anyan Fu, Xiaorui Ma, Hongyu Wang, Dalian University of Technology, China

TUP1.PH.3 Board PH.3 **AI-NET: ATTENTION INCEPTION NEURAL NETWORKS FOR HYPERSPECTRAL IMAGE CLASSIFICATION**
Zhitong Xiong, Yuan Yuan, Qi Wang, Northwestern Polytechnical University, China

TUP1.PH.4 Board PH.4 **SYNTHETIC MINORITY OVER-SAMPLING TECHNIQUE BASED ROTATION FOREST FOR THE CLASSIFICATION OF UNBALANCED HYPERSPECTRAL DATA**
Wei Feng, Wenjiang Huang, Huichun Ye, Longlong Zhao, Chinese Academy of Sciences, China

TUP1.PH.5 Board PH.5 **COMPARISON OF K-MEANS AND LDA FOR SOIL CLASSIFICATION USING COASTAL HYPERSPECTRAL DATA**
Jayneel Vora, Tanish Zaveri, Dharam Shah, Pooja Shah, Nirma University, India

TUP1.PH.6 Board PH.6 **CLASSIFICATION OF HYPERSPECTRAL REMOTE SENSING IMAGES BY AN ENSEMBLE OF SUPPORT VECTOR MACHINES UNDER IMBALANCED DATA**
Laxmi Narayana Eeti, Krishna Mohan Buddhiraju, Indian Institute of Technology Bombay, India

TUP1.PH.7 Board PH.7 **IMPROVED ITERATIVE ERROR ANALYSIS USING SPECTRAL SIMILARITY MEASURES FOR VEGETATION CLASSIFICATION IN HYPERSPECTRAL IMAGES**
Ahram Song, Yongil Kim, Seoul National University, Republic of Korea

TUP1.PH.8 Board PH.8 **USING IMAGE SEGMENTATION AND SUB-PIXEL MAPPING FOR HYPERSPECTRAL IMAGE CLASSIFICATION**
Huan Xie, Qing Hu, Li Du, Xiong Xv, Sa Gao, Sicong Liu, Haiyan Pan, Xiaohua Tong, Tongji University, China

TUP1.PH.9 Board PH.9 **SMALL SIZE CLASS PRESERVING CLASSIFICATION BASED ON SEGMENTATION FOR HYPERSPECTRAL DATA**
Tatsuya Yamada, Junshi Xia, Akira Iwasaki, The University of Tokyo, Japan

TUP1.PH.10 Board PH.10 **CLASSIFICATION OF URBAN MATERIALS USING ARTIFICIAL COLOR FEATURES FOR HYPERSPECTRAL DATA**
Shailesh Deshpande, TCS Innovation and Research, Tata Research Development and Design Centre, India; Arun Inamdar, Centre of Studies in Resource Engineering, Indian Institute of Technology-Bombay, India; Balamuralidhar P, TCS Innovation and Research, India

Tuesday, July 24 15:50 - 16:50 **Poster Area H**
Session TUP2.PH **Poster**

Spectral Unmixing Techniques I

Session Chair: Mauro Dalla Mura, GIPSA-lab, Grenoble Institute of Technology

TUP2.PH.1 Board PH.1 **IMPROVING IMPERVIOUS SURFACE ESTIMATION BY INTEGRATING MULTISPECTRAL AND NIGHTTIME LIGHT IMAGES**
Xiaolin Chen, Xiuping Jia, Mark Pickering, University of New South Wales, Canberra, Australia; Genyun Sun, China University of Petroleum (East China), China

TUP2.PH.2 Board PH.2 **SIMULTANEOUS DICTIONARY SPARSE PRUNING AND COLLABORATIVE SPARSE REGRESSION FOR HYPERSPECTRAL IMAGE UNMIXING**
Shengfu Li, Liang Xiao, Zhihui Wei, Ling Qian, Nanjing University of Science and Technology, China

TUP2.PH.3 Board PH.3 **EXTENDED LINEAR MIXING MODEL IN AN ECOSYTEM WITH HIGH SPECTRAL VARIABILITY**
Edurne Ibarrola-Ulzurrun, Universidad de Las Palmas de Gran Canaria, ULPGC, Spain; Lucas Drumetz, IMT Atlantique, France; Jocelyn Chanussot, University of Grenoble Alpes, CNRS, France; Consuelo Gonzalo-Martín, Universidad Politécnica de Madrid, Spain; Javier Marcello, Universidad de Las Palmas de Gran Canaria, ULPGC, Spain

TUP2.PH.4 Board PH.4 **AN ALGORITHM FOR FAST SPECTRAL ENDMEMBER DETERMINATION IN HYPERSPECTRAL DATA**
Hsiao-Chi Li, Fu-Jen Catholic University, Taiwan

TUP2.PH.5 Board PH.5 **NONLINEAR HYPERSPECTRAL UNMIXING VIA MODELLING BAND DEPENDENT NONLINEARITY**
Bin Yang, Bin Wang, Bo Hu, Jian Qiu Zhang, Fudan University, China

TUP2.PH.6 Board PH.6 **A GENERALIZATION OF P-LINEAR MIXING MODEL BY COMBINATION OF TWO KINDS OF APPROXIMATOR IN HYPERSPECTRAL UNMIXING**
Huimin Lu, Ying Li, Dalian Maritime University, China; Feng Chen, Xiamen University, China; Hui Zhou, Dalian Neusoft University of Imformation, China; Can Cui, Xueyuan Zhu, Dalian Maritime University, China

TUP2.PH.7 Board PH.7 **MAPPING URBAN LAND COVER USING MULTIPLE CRITERIA SPECTRAL MIXTURE ANALYSIS: A CASE STUDY IN CHENGDU, CHINA**
Sen Cao, University of Alberta, Canada; Wenbo Xu, University of Electronic Science and Technology of China, China; Arturo Sanchez-Azofeifa, University of Alberta, Canada; Musa Tarawally, University of Electronic Science and Technology of China, China

TUP2.PH.8 Board PH.8 **RELATIVE ATTRIBUTE BASED UNMIXING**
Genping Zhao, Lianglun Cheng, Heng Wu, Hui Li, Guangdong University of Technology, China; Xiaolin Li, Yantai University, China

TUP2.PH.9 Board PH.9 **REPRESENTATIVE SIGNATURE GENERATION FOR PLANT DETECTION IN HYPERSPECTRAL IMAGES**
Omer Ozdil, Yunus Emre Esin, Berkan Demirel, Safak Ozturk, HAVELSAN Inc., Turkey

TUP2.PH.10 Board PH.10 **A NOVEL SUPERVISED LINEAR SPECTRAL UNMIXING MODEL CONSTRAINED PSO APPROACH FOR ABUNDANCE ESTIMATION**
Vaibhav Lodhi, Debashish Chakravarty, Pabitra Mitra, Indian Institute of Technology Kharagpur, India

Tuesday, July 24 **10:10 - 11:10** **Poster Area I**
Session TUP1.PI **Poster**

Estimation and Regression in Hyperspectral Data I

Session Chair: Jordi Inglada, CESBIO

TUP1.PI.1 Board PI.1 **HYPERSPECTRAL IMAGERY DENOISING USING MULTI-LINEAR WEIGHTED NUCLEAR NORM MINIMIZATION**
Xiangyang Kong, Yongqiang Zhao, Northwestern Polytechnical University, China; Jonathan Cheung-Wai Chan, Vrije Universiteit Brussel, China

TUP1.PI.2 Board PI.2 **PREDICTION OF SOIL ARSENIC CONTENT USING REFLECTANCE SPECTROSCOPY**
Weichao Sun, Xia Zhang, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China

TUP1.PI.3 Board PI.3 **A NEW UNMIXING-BASED APPROACH FOR SHADOW CORRECTION OF HYPERSPECTRAL REMOTE SENSING DATA**
Moussa Sofiane Karoui, Khelifa Djerriri, Centre des Techniques Spatiales, Algeria

TUP1.PI.4 Board PI.4 **A NOVEL NONCONVEX SPARSITY MEASURE FOR HYPERSPECTRAL IMAGES RESTORATION**
Ting Xie, Shutao Li, Leyuan Fang, Licheng Liu, Hunan University, China

TUP1.PI.5 Board PI.5 **NON-CONVEX LOW-RANK APPROXIMATION FOR HYPERSPECTRAL IMAGE RECOVERY WITH WEIGHTED TOTAL VARAITION REGULARIZATION**
Hanyang Li, Peipei Sun, Hongyi Liu, Zebin Wu, Zhihui Wei, Nanjing University of Science and Technology, China

TUP1.PI.6 Board PI.6 **SEMI-TENSOR COMPRESSED SENSING FOR HYPERSPECTRAL IMAGE**
Wei Fu, Shutao Li, Hunan University, China

TUP1.PI.7 Board PI.7 **COMPARISON OF FOUR DIFFERENT SUN-INDUCED CHLOROPHYLL FLUORESCENCE RETRIEVAL ALGORITHMS USING SIMULATED AND FIELD-MEASURED DATA**
Menghao Ji, Bo-Hui Tang, State Key Laboratory of Resources and Environment Information System, China

TUP1.PI.8 Board PI.8 **RETRIEVAL OF ATMOSPHERIC AND LAND SURFACE PARAMETERS FROM SATELLITE-BASED THERMAL INFRARED HYPERSPECTRAL DATA USING AN ARTIFICIAL NEURAL NETWORK TECHNIQUE**
Mengshuo Chen, University of Chinese Academy of Sciences, China; Li Ni, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China; Xiaoguang Jiang, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, China; Zhao-Liang Li, Ministry of Agriculture/Institute of Agricultural Resources and Regional Planning, Chinese Academy of Agricultural Sciences, China; Hua Wu, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, China

TUP1.PI.9 Board PI.9 **DETECTING RICE BLAST DISEASE USING MODEL INVERTED BIOCHEMICAL VARIABLES FROM CLOSE-RANGE REFLECTANCE IMAGERY OF FRESH LEAVES**
Long Tian, Zefu Wan, Dong Li, Jiale Jiang, Xia Yao, Qiang Cao, Yongchao Tian, Yan Zhu, Weixing Cao, Tao Cheng, Nanjing Agricultural University, China

Tuesday, July 24 **15:50 - 16:50** **Poster Area I**
Session TUP2.PI **Poster**

Target Detection I

Session Chair: Shaohui Mei, Northwestern Polytechical University

TUP2.PI.1 Board PI.1 **HYPERSPECTRAL TARGET DETECTION: A PREPROCESSING METHOD BASED ON TENSOR PRINCIPAL COMPONENT ANALYSIS**
Zehao Chen, Bin Yang, Bin Wang, Fudan University, China

TUP2.PI.2 Board PI.2 **MULTI-PRIORI LEARNING ALGORITHM FOR HYPERSPECTRAL TARGET DETECTION**
Yuxiang Zhang, China University of Geosciences Wuhan, China; Mingming Xu, China University of Petroleum (East China), China; Bo Du, Wuhan University, China; Ke Wu, Xiangyun Hu, Yanni Dong, China University of Geosciences Wuhan, China

TUP2.PI.3 Board PI.3 **CNN-BASED TARGET DETECTION IN HYPERSPECTRAL IMAGERY**
Jinming Du, Zhiyong Li, Hao Sun, National University of Defense Technology, China

TUP2.PI.4 Board PI.4 **SPATIALLY REGULARZIED SPARSECEM FOR TARGET DETECTION IN HYPERSPECTRAL IMAGES**
Xiaoli Yang, Zeng Li, Jie Chen, Northwestern Polytechnical University, China

TUP2.PI.5 Board PI.5 **WEAK TARGET TRACKING BASED ON IMPROVED PARTICLE FILTER ALGORITHM**
Kaiqi Hu, Pengbo Wang, Xinkai Zhou, Hong-Cheng Zeng, Yue Fang, Beihang University, China

TUP2.PI.7 Board PI.7 **CLOSED-FORM DETECTOR FOR SOLID SUB-PIXEL TARGETS IN MULTIVARIATE T-DISTRIBUTED BACKGROUND CLUTTER**
James Theiler, Los Alamos National Laboratory, United States; Beate Zimmer, Texas A&M University-Corpus Christi, United States; Amanda Ziemann, Los Alamos National Laboratory, United States

TUP2.PI.8 Board PI.8 **DETECTION OF FUSARIUM WILT ON PHALAENOPSIS STEM BASE REGION USING BAND SELECTION TECHNIQUES**
Meng-Chueh Lee, National Chung Hsing University, Taiwan; Kenneth-Yeonkong Ma, University of Maryland, Baltimore County, United States; Yen-Chieh Ouyang, National Chung Hsing University, Taiwan; Mang Ou-Yang, National Chiao Tung University, Taiwan; Horng-Yuh Guo, Tsang-Sen Liu, Council of Agriculture, Taiwan; Hsian-Min Chen, Taichung Veterans General Hospital, Taiwan; Chao-Cheng Wu, National Taipei University of Technology, Taiwan; Chein-I Chang, University of Maryland, Baltimore County, United States

TUP2.PI.9 Board PI.9 **GPU PARALLEL IMPLEMENTATION OF GAS PLUME DETECTION IN HYPERSPECTRAL VIDEO SEQUENCES**
Huimin Yu, Zebin Wu, Jie Wei, Yang Xu, Nanjing University of Science and Technology, China; Jocelyn Chanussot, University of Grenoble Alpes, CNRS, Grenoble INP, GIPSA-lab, France; Andrea L. Bertozzi, University of California, Los Angeles, United States; Linlin Shi, Zhihui Wei, Nanjing University of Science and Technology, China

TUP2.PI.10 Board PI.10 **ESTIMATING HYPERSPECTRAL BACKGROUNDS: THE NEED TO MAINTAIN SPECTRAL COHERENCE**
Omer Faybish, Stanley Rotman, Ben-Gurion University of the Negev, Israel

Tuesday, July 24 | 10:10 - 11:10 | Poster Area J
Session TUP1.PJ | Poster

Estimation and Regression in Microwave, Radar & Lidar Data

Session Chair: Giuseppe Satalino, CNR-ISSIA

TUP1.PJ.1 Board PJ.1
ESTIMATION OF SNOW WATER EQUIVALENT USING SENTINEL SAR DATA IN THE INDIAN HIMALAYA
Akshay Patil, IITB-Monash Research Academy, India; Gulab Singh, Indian Institute of Technology Bombay, India; Christoph Rüdiger, Monash University, Australia

TUP1.PJ.2 Board PJ.2
AN ADAPTIVE REGION-BASED METHOD FOR SPECKLE REDUCTION IN SAR IMAGES WITH LOCAL GEOMETRIC CORRELATION
Jie Wu, Miao Ma, Ming Liu, Shannxi Normal University, China

TUP1.PJ.3 Board PJ.3
A FAST ALONG-TRACK VELOCITY ESTIMATION METHOD FOR MOVING TARGETS IN MONOSTATIC SAR IMAGE
Na Pu, Beihang University, Beijing Institute of Remote Sensing Information, China; Chunsheng Li, Shuo Li, Beihang University, China

TUP1.PJ.4 Board PJ.4
AN IMPROVED NON-LOCAL MEANS FILTER FOR SAR IMAGE DESPECKLE BASED ON HETEROGENEITY MEASUREMENT
Danping Tong, Haiguang Yang, Junjie Wu, Jianyu Yang, University of Electronic Science and Technology of China, China

TUP1.PJ.5 Board PJ.5
SAR SPECKLE FILTERING BY IMPROVED INLP FILTER
Tej-Albaha Hamrouni, Université of Carthage: COSIM Lab, Higher School of Communications of Tunis, Tunisia; Mohamed Yahia, SYSCOM Laboratory ENIT/Université Tunis El Manar, Tunisia; Riadh Abdelfattah, Université of Carthage: COSIM Lab, Higher School of Communications of Tunis, Tunisia

TUP1.PJ.6 Board PJ.6
AN APPROACH TO TREE SPECIES CLASSIFICATION USING VOXEL NEIGHBORHOOD DENSITY-BASED SUBSAMPLING OF MULTISCAN TERRESTRIAL LIDAR DATA
Aravind Harikumar, Fondazione Bruno Kessler, Italy; Liang Xinlian, Finnish Geospatial Research Institute, Italy; Francesca Bovolo, Fondazione Bruno Kessler, Italy

TUP1.PJ.7 Board PJ.7
ESTIMATION OF FOREST TREES DIAMETER FROM TERRESTRIAL LASER SCANNING POINT CLOUDS BASED ON A CIRCLE FITTING METHOD
Rongren Wu, Yiping Chen, Cheng Wang, Jonathan Li, Xiamen University, China

TUP1.PJ.8 Board PJ.8
CORRELATION BETWEEN GRACE TERRESTRIAL WATER STORAGE ANOMALY AND TRMM PRECIPITATION
Shuxu Gao, Binbin He, Yuwei Guan, Kaiwei Luo, Ningning Xiao, University of Electronic Science and Technology of China, China; Xiaofang Liu, Sichuan University of Science and Engineering, China

TUP1.PJ.9 Board PJ.9
PARTICLE FILTERING BASED TRACK-BEFORE-DETECT WITH SENSOR REGISTRATION IN SINGLE FREQUENCY NETWORK
Wen Sun, Ping Wei, Lin Gao, Hongshu Liao, Lijuan Deng, University of Electronic Science and Technology of China, China

TUP1.PJ.10 Board PJ.10
SMOS-IC VEGETATION OPTICAL DEPTH INDEX IN MONITORING ABOVEGROUND CARBON CHANGES IN THE TROPICAL CONTINENTS DURING 2010-2016
Lei Fan, Jean-Pierre Wigneron, Institut National de la Recherche Agronomique, France; Arnaud Mialon, Nemesio Rodríguez-Fernández, CESBIO, CNES/CNRS/IRD/UPS, France; Amen Al-Yaari, Institut National de la Recherche Agronomique, France; Yann Kerr, CESBIO, CNES/CNRS/IRD/UPS, France; Martin Brandt, University of Copenhagen, France; Philippe Ciais, Laboratoire des Sciences du Climat et de l'Environnement, CEA-CNRS-UVSQ, France

Tuesday, July 24 | 15:50 - 16:50 | Poster Area J
Session TUP2.PJ | Poster

Target Detection II

Session Chair: Wenzhi Liao Liao, Ghent University

TUP2.PJ.1 Board PJ.1
AN IMPROVED CFAR SCHEME FOR MAN-MADE TARGET DETECTION IN HIGH RESOLUTION SAR IMAGES
Weike Li, Bin Zou, Harbin Institute of Technology, China; Yu Xin, Institute of Beijing Remote Sensing Information, China; Lamei Zhang, Zhilu Wu, Harbin Institute of Technology, China

TUP2.PJ.2 Board PJ.2
MOVING TARGET DETECTION AND IMAGING FOR GEOSYNCHRONOUS SAR
Haoyu Tian, Jianshu Cao, Shunsheng Zhang, Wen-Qin Wang, Huihui Ding, University of Electronic Science and Technology of China, China

TUP2.PJ.3 Board PJ.3
A SALIENCY-BASED METHOD FOR SAR TARGET DETECTION
Haixiang Li, Xuelian Yu, Xuegang Wang, University of Electronic Science and Technology of China, China

TUP2.PJ.4 Board PJ.4
A TARGET RECAPTURING METHOD FOR THE MILLIMETER WAVE SEEKER WITH NARROW BEAMWIDTH
Fugang Lu, Shichao Chen, Xi'an Modern Control Technology Research Institute, China; Ming Liu, Shaanxi Normal University, China; Jun Wang, Fei Ma, Xi'an Modern Control Technology Research Institute, China; Taoli Yang, University of Electronic Science and Technology of China, China

TUP2.PJ.5 Board PJ.5
LOCALIZATION DECEPTION APPROACH USING FREQUENCY DIVERSE ARRAY AGAINST BI-SATELLITE POSITIONING RECONNAISSANCE
Haoliang Guan, Shunsheng Zhang, Wen-Qin Wang, Hui Wang, University of Electronic Science and Technology of China, China

TUP2.PJ.6 Board PJ.6
AN IMPROVED METHOD FOR VEHICLE EXTRACTION FROM HIGH-RESOLUTION SATELLITE IMAGES
Zhumei Liu, Institute of Engineering Mechanics, China Earthquake Administration, China; Jingfa Zhang, Institute of Crustal Dynamics, China Earthquake Administration, China; Shengle Li, Institute of Seismology, China Earthquake Administration, China

TUP2.PJ.7 Board PJ.7
MANIFOLD REGULARIZED LOW-RANK REPRESENTATION FOR HYPERSPECTRAL ANOMALY DETECTION
Tongkai Cheng, Bin Wang, Fudan University, China

TUP2.PJ.8 Board PJ.8
HYPERSPECTRAL TARGET DETECTION USING SEMI- AND NON-PARAMETRIC METHODS
Assaf Dvora, Ben-Gurion University of the Negev, Israel; Stefania Matteoli, National Research Council of Italy (CNR), Italy; Stanley Rotman, Gil Tidhar, Ben-Gurion University of the Negev, Israel; Marco Diani, Italian Naval Academy, Italy; Mayer Aladjem, Ben-Gurion University of the Negev, Israel

TUP2.PJ.9 Board PJ.9
A DISTRIBUTED AND PARALLEL ANOMALY DETECTION IN HYPERSPECTRAL IMAGES BASED ON LOW-RANK AND SPARSE REPRESENTATION
Jun Liu, Nanjing University of Science and Technology, China; Weixuan Zhang, Jinling High School, China; Zebin Wu, Yi Zhang, Yang Xu, Ling Qian, Zhihui Wei, Nanjing University of Science and Technology, China

TUP2.PJ.10 Board PJ.10
TARGET DETECTION IN REMOTE SENSING IMAGE BASED ON SALIENCY COMPUTATION OF SPIKING NEURAL NETWORK
Yang Liu, Kun Cai, Miao-hui Zhang, Feng-Bin Zheng, Henan University, China

TUESDAY POSTER

Tuesday, July 24 10:10 - 11:10 Poster Area K
Session TUP1.PK Poster

Remote Sensing of Vegetation I

Session Chair: Jan Pisek, Tartu Observatory

TUP1.PK.1 Board PK.1 **OLIVE BIOPHYSICAL PROPERTY ESTIMATION BASED ON SENTINEL-2 IMAGE INVERSION**
Hana Abdelmoula, Ecole National d'Ingénieur de Sfax, Tunisia; Abdelaziz Kallel, Digital Research Center of Sfax, Tunisia; Jean-Louis Roujean, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Sihem Chaabouni, Digital Research Center of Sfax, Tunisia; Kamel Gargouri, Mohamed Ghrab, Olive Tree Institute of Sfax, Tunisia; Jean-Philippe Gastellu-Etchegorry, Nicolas Lauret, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France

TUP1.PK.2 Board PK.2 **INTER-COMPARISON OF FIRE SEVERITY INDICES FROM MODERATE (MODIS) AND MODERATE-TO-HIGH SPATIAL RESOLUTION (LANDSAT 8 & SENTINEL-2A) SATELLITE SENSORS**
Shahriar Rahman, PhD Candidate, Australia; Hsing-Chung Chang, Senior Lecturer, Australia; Warwick Hehir, GIS Data Coordinator, Australia; Christina Magill, Senior Lecturer, Australia; Kerrie Tomkins, Lecturer, Australia

TUP1.PK.3 Board PK.3 **PRELIMINARY VALIDATION OF MIXED-PIXEL CLUMPING INDEX IN THE ARID AND SEMI-ARID REGION, WESTERN CHINA**
Qingmiao Ma, Yingjie Li, Jing Chen, Wen Chen, Xianwen Ji, Chen Cong, Yan Wang, Jiangsu Normal University, China

TUP1.PK.4 Board PK.4 **MODIS-BASED GRASSLAND TRENDS WITHIN AND AROUND THE KEKEXILI CORE PROTECTION ZONE OF THE SANJIANGYUAN NATURE RESERVE**
Fabian Ewald Fassnacht, Christopher Schiller, Karlsruhe Institute of Technology, Germany; Jiapeng Qu, Chinese Academy of Sciences, China; Teja Kattenborn, Karlsruhe Institute of Technology, Germany; Xinquan Zhao, Chinese Academy of Sciences, China

TUP1.PK.5 Board PK.5 **APPLICATION OF A ONE-CLASS CLASSIFIER AND A LINEAR SPECTRAL UNMIXING METHOD FOR DETECTING INVASIVE SPECIES IN CENTRAL CHILE**
Michael Förster, Tobias Schmidt, Alexandra Rios Gonzalez, TU Berlin, Germany; Julián Cabezas, Fabian Ewald Fassnacht, KIT, Germany

TUP1.PK.6 Board PK.6 **UP-SCALING OF LEAF AREA INDEX BY AN IMPROVED COMPUTATIONAL GEOMETRY METHOD**
Hong Chen, Hua Wu, Zhao-Liang Li, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, China

TUP1.PK.7 Board PK.7 **ASSESSING THE ECOLOGICAL VALUE OF GRASSLANDS FROM SENTINEL 2: A CASE STUDY IN FLANDERS**
Stien Heremans, Instituut voor Natuur- en Bosonderzoek (Research Institute Nature and Forest), Belgium; Rob Hillen, Laura Vanierschot, Ben Somers, KU Leuven (University of Leuven), Belgium

TUP1.PK.8 Board PK.8 **RETRIEVING LAI AND LCC SIMULTANEOUSLY FROM SENTINEL-2 DATA USING PROSAIL AND PSO-COUPLED BI-LUT**
Zihua Wu, Qiming Qin, Peking University, China

TUP1.PK.9 Board PK.9 **OBTAIN THE PATTERNS OF GLOBAL FOREST NPP AND ITS INFLUENCE FACTORS WITH GOOGLE EARTH ENGINE**
Wenjin Wu, RADI, CAS, China; Xuejing Zhao, Shandong University of Science and Technology, China; Chen Gong, Xinwu Li, RADI, CAS, China

Tuesday, July 24 15:50 - 16:50 Poster Area K
Session TUP2.PK Poster

Geographic Information Science II

Session Chair: Andrea Marinoni, University of Pavia

TUP2.PK.1 Board PK.1 **THE "URBAN GEOMATICS FOR BULK INFORMATION GENERATION, DATA ASSESSMENT AND TECHNOLOGY AWARENESS" PROJECT: DETECTION, REPRESENTATION AND ANALYSIS OF THE URBAN SCENARIO CHANGES**
Antonio Pepe, Manuela Bonano, Institute for the Electromagnetic Sensing of the Environment (IREA), National Research Council (CNR),, Italy; Gloria Bordogna, Institute for the Electromagnetic Sensing of the Environment (IREA), National Research Council (CNR), Italy; Maria Antonia Brovelli, Politecnico di Milano, Como, Italy; Fabiana Calò, Paola Carrara, Institute for the Electromagnetic Sensing of the Environment (IREA), National Research Council (CNR), Italy; Luca Congedo, ISPRA, Italian Institute for Environmental Protection and Research, Italy; Luca Frigerio, Institute for the Electromagnetic Sensing of the Environment (IREA), National Research Council (CNR), Italy; Pasquale Imperatore, Riccardo Lanari, Simone Lanucara, Institute for the Electromagnetic Sensing of the Environment (IREA), National Research Council (CNR),, Italy; Lorenzo Busetto, IREA-CNR, Italy; Mariarosaria Manzo, Michele Munafò, Institute for the Electromagnetic Sensing of the Environment (IREA), National Research Council (CNR),, Italy

TUP2.PK.2 Board PK.2 **AN INDOOR ROUTE PLANNING METHOD WITH ENVIRONMENT AWARENESS**
Yan Zhou, Hong Chen, Yueying Huang, Yunxin Luo, University of Electronic Science and Technology of China, China; Yeting Zhang, Wuhan University, China; Xiao Xie, Chinese Academy of Sciences, China

TUP2.PK.3 Board PK.3 **ANALYSIS OF VULNERABILITY TO WATER STRESS AT A NATIONWIDE SCALE**
Pratiman Patel, Subhankar Karmakar, Indian Institute of Technology Bombay, India

TUP2.PK.4 Board PK.4 **APPLYING A DISCRETE GLOBAL GRID SYSTEM TO EFFICIENTLY COMBINE GEOSPATIAL DATASETS: A TEST CASE TO ASSESS HUMAN ACTIVITY PATTERNS**
Michael Jendryke, Xi Li, Wuhan University, China

TUP2.PK.5 Board PK.5 **FAST VECTOR POLYGON INTERSECTION ALGORITHM BASED ON SPARK**
Xiao Yao, Qiang Qiu, Jinyun Fang, Chinese Academy of Sciences, China; Yutong Liu, Beijing University of Technology, China

TUP2.PK.6 Board PK.6 **THE DEVELOPMENT OF RAPID EXTRACTION AND PUBLISHING SYSTEM OF EARTHQUAKE DAMAGE BASED ON REMOTE SENSING**
Xiaoqing Wang, Aixia Dou, Xiang Ding, Xiaoxiang Yuan, Institute of Earthquake Forecasting, China

TUP2.PK.7 Board PK.7 **INDEX OF URBAN ENVIRONMENTAL QUALITY - UBERLÂNDIA, MINAS GERAIS STATE, BRAZIL**
Lucas Biziak, Aracy Araújo, Claudionor Silva, Federal University of Uberlândia, Brazil

TUP2.PK.8 Board PK.8 **RISK ASSESSMENT OF GEOLOGICAL HAZARDS OF WENCHUAN COUNTY BASED ON AHP AND FCE**
Fan Mou, Jiali Yang, Zezhong Zheng, Pingchuan Zhong, University of Electronic Science and Technology of China, China; Mingcang Zhu, Land and Resources Department of Sichuan Province, China; Yong He, Sichuan Institute of Geo-Environment Monitoring, China; Ling Jiang, University of Electronic Science and Technology of China, China; Guoqing Zhou, Guilin University of Technology, China; Jiang Li, Old Dominion University, China

TUP2.PK.9 Board PK.9 **A SIMILARITY EVALUATION MODAL FOR REMOTE SENSING DATA DISTRIBUTION**
Xiaoxia Yang, Chengdu University of Technology, China; Yan Zhou, University of Electric Science and Technology of China, China; Lina Hao, Xi Liu, Chengdu University of Technology, China

TUP2.PK.10 Board PK.10 **A MAP RENDERING ALGORITHM FOR VECTORIAL TILES IN GPGPU**
Qiang Qiu, Xiao Yao, Zhuojian Xiao, Cong Han, Jinyun Fang, Institute of Computing Technology, Chinese Academy of Sciences, China

Tuesday, July 24 10:10 - 11:10 Poster Area L
Session TUP1.PL Poster

Urban and Built Environment II

TUP1.PL.1 Board PL.1 **REGION-BASED CO-SEISMIC GROUND DISPLACEMENT DECTECTION USING OPTICAL AERIAL IMAGERY**
Min-Lung Cheng, Toshiaki Satoh, Masashi Matsuoka, Tokyo Institute of Technology, Japan

TUP1.PL.2 Board PL.2 **TREE CROWN DETECTION AND DELINEATION USING OPTICAL SATELLITE IMAGERY**
Xiaojing Huang, Chenghua Shi, Soo Chin Liew, National University of Singapore, Singapore

TUP1.PL.3 Board PL.3 **LAND PRICE PREDICTION BASED ON RANDOM FOREST**
Ankai Hou, Pingchuan Zhong, Zezhong Zheng, University of Electronic Science and Technology of China, China; Mingcang Zhu, Land and Resources Department of Sichuan Province, China; Yong He, Sichuan Institute of Geo-Environment Monitoring, China; Qiuying Li, Biao Zhang, Fang Huang, University of Electronic Science and Technology of China, China; Guoqing Zhou, Guilin University of Technology, China; Jiang Li, Old Dominion University, China

TUP1.PL.4 Board PL.4 **RAILWAY BRIDGE MONITORING WITH SAR: A CASE STUDY**
Gerardo Di Martino, Manuela Esposito, Bruna Festa, Antonio Iodice, Laura Mancini, Davod Poreh, Daniele Riccio, Giuseppe Ruello, University of Naples Federico II, Italy

TUP1.PL.5 Board PL.5 **POTENTIAL OF SATELLITE REMOTE SENSING TO MONITOR VULNERABLITY OF BUILDINGS TO EARTHQUAKES WITHIN A SEMI-EMPIRICAL MACROSEISMIC APPROACH**
Gonéri Le Cozannet, Daniel Raucoules, Marcello De Michele, Abed Benaichouche, Pierre Gehl, Daniel Monfort Climent, Caterina Negulescu, Jeremy Rohmer, BRGM, France; Nazzareno Pierdicca, University of Rome - La Sapienza, Italy; Matteo Albano, INGV, Instituto Nazionale di Geofisica e Vulcanologia, Italy; Sonia Giovinazzi, University of Rome - La Sapienza, Italy; Michael Foumelis, BRGM, France

TUP1.PL.6 Board PL.6 **URBAN BOUNDARY MAPPING USING SENTINEL-1A SAR DATA**
Christopher Storie, The University of Winnipeg, Canada

TUP1.PL.7 Board PL.7 **MONITORING BRIDGES VIBRATION USING A GROUND BASED RADAR**
Armando Marino, The University of Stirling, United Kingdom

TUP1.PL.8 Board PL.8 **ROBUST MAPPING OF URBAN STRUCTURE TYPES ACROSS THREE GERMAN CITIES**
Christian Berger, University of Jena, Germany; Voltersen Michael, Tama Group GmbH, Germany; Christiane Schmullius, Sören Hese, University of Jena, Germany

TUP1.PL.9 Board PL.9 **MONITORING OF ECOLOGICAL ENVIRONMENT CHANGE IN SHENDONG MINING AREA BASED ON REMOTE SENSING ECOLOGICAL INDEX**
Ying Liu, Hui Yue, Yang Lu, Yao Li, Xi'an University of Science and Technology, China

TUP1.PL.10 Board PL.10 **LANDSAT 8 IMAGE-BASED ANALYSIS OF THE URBAN HEAT ISLAND CHARACTERISTICS IN JINAN, CHINA**
Fei Meng, Qingfeng Xiao, Shandong Jianzhu University, China

Tuesday, July 24 15:50 - 16:50 Poster Area L
Session TUP2.PL Poster

Dynamics of Vegetated Areas

TUP2.PL.1 Board PL.1 **TOWARDS JOINT LAND COVER AND CROP TYPE MAPPING WITH NUMEROUS CLASSES**
Christina Karakizi, Georgia Espeseth, Konstantinos Karantzalos, National Technical University of Athens, Greece

TUP2.PL.2 Board PL.2 **GRASS BIOMASS ESTIMATION ON ZAMBIAN PASTURES FOR FUTURE CLIMATE CHANGE EFFECTS MITIGATION AND ADAPTATION USING SATELLITE IMAGERY AND NEURAL NETWORK TECHNIQUE**
Chiara Clementini, Fabio Del Frate, Andrea Pomente, Tor Vergata University of Rome, Italy; Giorgia Salvucci, GEO-K S.r.l, Italy; Felix Teillard, Hideki Kanamaru, Mariko Fujisawa, Anne Mottet, Ana Heureux, Food and Agriculture, Italy

TUP2.PL.3 Board PL.3 **IMPROVED CHARACTERIZATION OF DRYLAND DEGRADATION USING TRENDS IN VEGETATION/ RAINFALL SEQUENTIAL LINEAR REGRESSION (SERGS-TREND)**
Christin Abel, Martin Brandt, University of Copenhagen, Denmark; Torbern Tagesson, Lund University, Sweden; Rasmus Fensholt, University of Copenhagen, Denmark

TUP2.PL.4 Board PL.4 **OPTICAL RESPONSES ON MULTIPLE SPATIAL SCALES FOR ASSESSING VEGETATION DYNAMICS - A CASE STUDY FOR ALPINE GRASSLANDS**
Mattia Rossi, Free University of Bolzano, Italy; Georg Niedrist, EURAC Research, Italy; Sarah Asam, German Aerospace Center (DLR), Germany; Tonon Giustino, Free University of Bolzano, Italy; Marc Zebisch, EURAC Research, Italy

TUP2.PL.5 Board PL.5 **LAND USE AND LAND COVER DYNAMICS IN RELATION TO FIRE RECURRENCE IN THE BRAZILIAN AMAZON, 2008-2014.**
João Felipe Pinto, Foundation for Science, Technology and Space Applications, Brazil; Alberto Setzer, Fabiano Morelli, National Institute for Space Research - INPE, Brazil; Marcos Adami, National Institute for Space Research - INPE / Regional Amazon Center, Brazil; Adriano Venturieri, Brazilian Agricultural Research Corporation / Eastern Amazon, Brazil; Alessandra Gomes, National Institute for Space Research - INPE, Brazil

TUP2.PL.6 Board PL.6 **REMOTE SENSING AND LANDSCAPE METRICS FOR EVALUATION OF SECONDARY VEGETATION PATTERNS IN THE FOREST FRAGMENTATION IN AN AREA OF THE BRAZILIAN AMAZON**
Andréa Coelho, Lucyana Santos, Marcia Barros, Fundação de Ciência, Aplicações e Tecnologia Espaciais – FUNCATE, Brazil; Alessandra Gomes, Instituto Nacional de Pesquisas Espaciais – INPE, Brazil; Larisse Souza, Universidade Federal do Pará - UFPA, Brazil; Ana Luisa Albernaz, Museu Paraense Emilio Goeldi - MPEG, Brazil; Laís Santos, Universidade de Brasília, Brazil; Marcos Adami, Instituto Nacional de Pesquisas Espaciais – INPE, Brazil

TUP2.PL.7 Board PL.7 **RADAR ALTIMETRY BACKSCATTERING FROM JASON-3 AND SENTINEL-3A OVER LAND**
Fabien Blarel, Frédéric Frappart, Eric Mougin, Observatoire Midi-Pyrénées, France

TUP2.PL.8 Board PL.8 **TOWARDS AN IMPROVED INVENTORY OF N2O EMISSIONS USING LAND COVER MAPS DERIVED FROM OPTICAL REMOTE SENSING IMAGES**
Tiphaine Tallec, Claire Marais Sicre, Rémy Fieuzal, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France

TUP2.PL.9 Board PL.9 **CROPLAND USE CHANGE ANALYSIS IN SHAANXI PROVINCE OF CHINA BASED ON THE SHAPE-MATCHING CROPPING INDEX MAPPING METHOD**
Jianhong Liu, Xuyang He, Fan Liang, Tongsheng Li, Northwest University, China

TUESDAY POSTER

Tuesday, July 24 **10:10 - 11:10** **Poster Area M**
Session TUP1.PM **Poster**

Clouds and Precipitation: Modeling and Evaluation

TUP1.PM.1 Board PM.1 **A NEURAL NETWORK SEA-ICE CLOUD CLASSIFICATION ALGORITHM FOR COPERNICUS SENTINEL-3 SEA AND LAND SURFACE TEMPERATURE RADIOMETER**
Matteo Picchiani, GEO-K S.r.l, Italy; Fabio Del Frate, Massimiliano Sist, Tor Vergata University, Italy

TUP1.PM.2 Board PM.2 **INTEGRATED APPLICATION OF SOUNDINGS AND REMOTE SENSINGS TO CLOUDS AND SNOWFALL IN THE YEONGDONG REGION OF KOREA**
Byung-Gon Kim, Dae-Hong Koh, Kwon-Ho Lee, Gangneung-Wonju National University, Republic of Korea; Hyoung-Gu Nam, Yoo-Jun Kim, National Institute of Meteorological Research, Republic of Korea

TUP1.PM.3 Board PM.3 **CLASSIFICATION OF TROPICAL CYCLONE FORMATION OBSERVED BY SATELLITE BASED ON MACHINE LEARNING APPROACHES**
Minsang Kim, Myong-In Lee, Jungho Im, Ulsan National Institute of Science and Technology, Republic of Korea

TUP1.PM.4 Board PM.4 **TYPHOON CLOUD PREDICTION VIA GENERATIVE ADVERSARIAL NETWORKS**
Hui Li, Xingrui Yu, Peng Ren, China University of Petroleum (East China), China

TUP1.PM.5 Board PM.5 **SYSTEMATIC STUDY OF WEATHER VARIABLES FOR RAINFALL DETECTION**
Shilpa Manandhar, Nanyang Technological University, Singapore; Soumyabrata Dev, The ADAPT Centre, Trinity College, Ireland; Yee Hui Lee, Nanyang Technological University, Singapore; Stefan Winkler, Advanced Digital Sciences Center (ADSC), Singapore; Yu Song Meng, National Metrology Centre, Agency for Science, Technology and Research (ASTAR), Singapore

TUP1.PM.6 Board PM.6 **CONSTRUCTING CLOUD STRUCTURE USING CLOUDSAT/AQUA DATA**
Juan Huo, Institute of Atmospheric Physics, Chinese Academy of Sciences, China

TUP1.PM.7 Board PM.7 **ATMOSPHERIC INTEGRATED WATER PARAMETERS IN THE ARCTIC: SEASONAL VARIABILITY AND INFLUENCE ON THE AMSR2 MEASURED MICROWAVE RADIATION OF THE SEA ICE-ATMOSPHERE SYSTEM**
Elizaveta Zabolotskikh, RSHU, Russian Federation; Bertrand Chapron, IFREMER, France

TUP1.PM.8 Board PM.8 **COMPARATIVE STUDY OF TRMM SATELLITE PREDICTED RAINFALL DATA WITH RAIN GAUGE DATA OVER HIMALAYAN BASIN**
Anoop Kumar Shukla, Chandra Shekhar Prasad Ojha, Rahul Dev Garg, Indian Institute of Technology Roorkee, India

TUP1.PM.9 Board PM.9 **EVALUATION OF THE LATEST SATELLITE-BASED PRECIPITATION PRODUCTS THROUGH PIXEL-POINT COMPARISON AND HYDROLOGICAL APPLICATION OVER THE MEKONG RIVER BASIN**
Yishan Li, Tsinghua University, China; Wei Wang, Changjiang Institute of Survey, Planning, Design and Research, China; Hui Lu, Tsinghua University, China

TUP1.PM.10 Board PM.10 **IMPROVING GPM PRECIPITATION DATA OVER YARLUNG ZANGBO RIVER BASIN USING SMAP SOIL MOISTURE RETRIEVALS**
Fan Yang, Tsinghua University, China; Wei Wang, Changjiang Institute of Survey, Planning, Design and Research, China; Hui Lu, Kun Yang, Fuqiang Tian, Tsinghua University, China

Tuesday, July 24 **15:50 - 16:50** **Poster Area M**
Session TUP2.PM **Poster**

Land Mapping and Mineral Exploration

Session Co-Chairs: Tom Farr, NASA Jet Propulsion Laboratory, California Institute of Technology; Othmar Frey

TUP2.PM.1 Board PM.1 **VERTICAL DISPLACEMENT DISTRIBUTION OF THE SOUTH HELI SHAN FAULT AT NORTHEASTERN TIBETAN PLATEAU DERIVED FROM HIGH-RESOLUTION TOPOGRAPHIC DATA**
Haiyun Bi, China Earthquake Administration, China; Wenjun Zheng, Sun Yat-Sen University, China; Jiangyuan Zeng, Chinese Academy of Sciences, China

TUP2.PM.2 Board PM.2 **SOURCE MODEL OF THE 12 NOVEMBER 2017 MW 7.3 KERMANSHAH EARTHQUAKE (IRAN-IRAQ BORDER) INFERRED FROM ALOS-2 SCANSAR AND SENTINEL-1 DATA**
Jianming Kuang, Linlin Ge, Graciela Isabel Metternicht, University of New South Wales, Australia; Alex Hay-Man Ng, Guangdong University of Technology, China; Mehdi Zare, International Institute of Earthquake Engineering and Seismology, Iran; Farnaz Kamranzad, University of Tehran, Iran

TUP2.PM.3 Board PM.3 **SURFACE DEFORMATION OF KANGDING AIRPORT, QINGHAI-TIBET PLATEAU, CHINA USING INSAR TECHNIQUES AND MULTI-TEMPORAL SENTINEL-1 DATASETS**
Hanning Chen, Yong Wang, Yin Zhang, Yan Yan, University of Electronic Science and Technology of China, China

TUP2.PM.4 Board PM.4 **SURFACE DEFORMATION AND SOURCE MODELING FOR THE MW 7.3 IRAN EARTHQUAKE (NOVEMBER 12, 2017) EXPLOITING SENTINEL-1 AND ALOS-2 INSAR DATA**
Cristiano Tolomei, Istituto Nazionale di Geofisica e Vulcanologia, Italy; Nikos Svigkas, Istituto Nazionale di Geofisica e Vulcanologia, Aristotle University of Thessaloniki, Italy; Aram Fathian, RWTH Aachen University, Germany; Simone Atzori, Giuseppe Pezzo, Istituto Nazionale di Geofisica e Vulcanologia, Italy

TUP2.PM.5 Board PM.5 **MONITORING OF SAKURAJIMA VOLCANO, JAPAN, WITH SAR DATA: FROM SMALL DISPLACEMENT MEASUREMENTS TO MODELING AND FORECAST**
Giulia Tessari, Sarmap, Switzerland; Lisa Beccaro, University of Padova, Italy; Simone Ippoliti, La Sapienza University, Italy; Paolo Riccardi, Sarmap, Switzerland; Mario Floris, Andrea Marzoli, University of Padova, Italy; Fumitaka Ogushi, Harris, Japan; Paolo Pasquali, Sarmap, Switzerland

TUP2.PM.6 Board PM.6 **PRELIMINARY STUDY ON EARTHQUAKE SURFACE RUPTURE EXTRACTION FROM UAV IMAGES**
Xiaoxiang Yuan, Xiaoqing Wang, Xiang Ding, Xiaoyong Wu, Aixia Dou, Institute of Earthquake Forecasting, China Earthquake Administration, China

TUP2.PM.7 Board PM.7 **THE APPLICATION OF LANDSLIDE INVESTIGATION BASED ON HIGH RESOLUTION SATELLITE STEREO PAIRS**
Xia Li, Hongga Li, Xiaoxia Huang, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China; Bangyong Qin, Technology and Engineering Center for Space Utilization, Chinese Academy of Sciences, China; Jinliang Han, Institute of Geomechanics, Chinese Academy of Geological Science, China

Tuesday, July 24 | **10:10 - 11:10** | **Poster Area N**
Session TUP1.PN | **Poster**

Microwave Radiometers: Calibration and Data Product Performance

Session Co-Chairs: Emmanuel Dinnat, Chapman University & NASA/GSFC; Xiaolei Zou, University of Maryland, College Park

TUP1.PN.1 Board PN.1
VALIDATION OF AMSR2 OCEANIC ENVIRONMENTAL DATA RECORDS USING TROPICAL CYCLONE COMPOSITE FIELDS
Suleiman Alsweiss, Joseph Sapp, Zorana Jelenak, Paul Chang, National Oceanic and Atmospheric Administration/National Environmental Satellite, Data, and Information Service, United States

TUP1.PN.2 Board PN.2
AQUARIUS FINAL RELEASE PRODUCT AND FULL RANGE CALIBRATION OF L-BAND RADIOMETERS
Emmanuel Dinnat, Chapman University & NASA/GSFC, United States; David Le Vine, NASA Goddard Space Flight Center, United States; Liang Hong, SAIC & NASA-GSFC, United States

TUP1.PN.3 Board PN.3
GALAXY CORRECTION UPGRADE IN THE SOIL MOISTURE ACTIVE/PASSIVE (SMAP) MICROWAVE RADIOMETER ALGORITHM
Jinzheng Peng, Universities Space Research Association / NASA Goddard Space Flight Center, United States; Jeffrey Piepmeier, NASA Goddard Space Flight Center, United States; Simon Yueh, NASA Jet Propulsion Laboratory, United States; Giovanni De Amici, NASA Goddard Space Flight Center, United States

TUP1.PN.4 Board PN.4
NEW METHODOLOGY FOR THE FARADAY ROTATION ANGLE RETRIEVAL IN THE SMOS FIELD OF VIEW
Roselena Rubino, Nuria Duffo, Universitat Politècnica de Catalunya, Spain; Verónica González-Gambau, Institute of Marine Sciences, Spain; Francesc Torres, Ignasi Corbella, Universitat Politècnica de Catalunya, Spain; Manuel Martín-Neira, European Space Agency, Netherlands

TUP1.PN.5 Board PN.5
COMPARISON OF RO-ESTIMATED ATMS BIASES BETWEEN NOAA-20 AND S-NPP
Xiaoxu Tian, Xiaolei Zou, University of Maryland, College Park, United States; Ninghai Sun, National Oceanic and Atmospheric Administration, United States

TUP1.PN.6 Board PN.6
COMPARISON OF ATMS STRIPING NOISE BETWEEN NOAA-20 AND S-NPP
Xiaolei Zou, Xiaoxu Tian, University of Maryland, College Park, United States

TUP1.PN.7 Board PN.7
CALIBRATION OF MICROWAVE RADIOMETERS FROM GPM TO CUBESATS
Wesley Berg, Colorado State University, United States

TUP1.PN.8 Board PN.8
UTILIZING BRIGHTNESS TEMPERATURE HISTOGRAMS FOR MICROWAVE RADIOMETER HIGH FREQUENCY (150-183 GHZ) CALIBRATION
Rachael Kroodsma, ESSIC, University of Maryland, United States

TUP1.PN.9 Board PN.9
A COMPARISON ANALYSIS BETWEEN SMAP, SMOS AND ATI ROOT ZONE SOIL MOISTURE ESTIMATIONS
Ángel González-Zamora, Miriam Pablos, Nilda Sánchez, José Martínez-Fernández, University of Salamanca, Spain

TUP1.PN.10 Board PN.10
CALIBRATION FOR TANDEM PAIR OF ATMS INSTRUMENTS USING LUNAR OBSERVATIONS
Hu Yang, Jun Zhou, University of Maryland, United States; Ninghai Sun, ERT Corp., United States

Tuesday, July 24 | **15:50 - 16:50** | **Poster Area N**
Session TUP2.PN | **Poster**

Science and Techniques in Atmospheric Sounding I

TUP2.PN.1 Board PN.1
MICROWAVE MEASUREMENTS OF STRATOSPHERIC AND MESOSPHERIC OZONE IN MOSCOW
Sergey Rozanov, P.N.Lebedev Physical Institute of the Russian Academy of Sciences, Russian Federation; Alexey Zavgorodniy, Russian Metrological Institute of Technical Physics and Radio Engineering, Russian Federation; Sergey Solomonov, Elena Kropotkina, Alexandr Lukin, P.N.Lebedev Physical Institute of the Russian Academy of Sciences, Russian Federation; Alexandr Ignatyev, Federal State Unitary Enterprise NII Kvant, Russian Federation

TUP2.PN.2 Board PN.2
CONSISTENCY IN XCO2 RETRIEVALS FROM SCIAMACHY, GOSAT AND OCO-2 FOR SPATIO-TEMPORAL CHARACTERISTICS AT A GLOBAL SCALE
Liping Lei, Hui Zhong, Changjiang Wu, Institute of Remote Sensing and Digital Earth, China; Zhaocheng Zeng, California Institute of Technology, United States; Zhonghua He, Yanhong Wu, Key Laboratory of Digital Earth Science, China

TUP2.PN.3 Board PN.3
EXPERIMENTS OF CRYOGENIC DEW AND FROST POINT HYGROMETER FOR UPPER AIR SOUNDING
Zhendong Yao, Chengdu University of Information Technology, China; Xiangdong Zheng, China Meteorological Administration, China; Jian Li, Xiaobiao Zheng, Chengdu University of Information Technology, China

TUP2.PN.4 Board PN.4
RANGE-DEPENDENT REFRACTIVITY REMOTE SENSING FROM RADAR CLUTTER
Xiaofeng Zhao, National University of Defense Technology, China

TUP2.PN.5 Board PN.5
OVER-THE-HORIZON RADIO PROPAGATION ABOVE SEA
Mikhail Mikhailov, Valery Permyakov, Mikhail Isakov, National Research University MPEI, Russian Federation

TUP2.PN.6 Board PN.6
HIGH-ORDER IONOSPHERIC EFFECTS ON 3-D GPS COORDINATE ESTIMATION IN TURKEY
Volkan Akgul, Shuanggen Jin, Gokhan Gurbuz, Eray Koksal, Bulent Ecevit University, Turkey

TUP2.PN.7 Board PN.7
OPEN LOOP PERFORMANCE OF GNOS UNDER SEVERE IONOSPHERIC SCINTILLATION
Yusen Tian, National Space Science Center, Chinese Academy of Sciences/University of Chinese Academy of Sciences, China; Xianyi Wang, Yueqiang Sun, National Space Science Center, Chinese Academy of Sciences, China; Dongwei Wang, Chunjun Wu, National Space Science Center, Chinese Academy of Sciences/University of Chinese Academy of Sciences, China; Yuerong Cai, Cheng Liu, Fu Li, Hao Qiao, National Space Science Center, Chinese Academy of Sciences, China

TUP2.PN.8 Board PN.8
ANALYSING SEASONAL CHARACTERISTICS OF RESIDUAL IONOSPHERIC ERRORS IN BENDING ANGLES BASED ON ENSEMBLES OF PROFILES FROM END-TO-END SIMULATIONS
Congliang Liu, National Space Science Center, Chinese Academy of Sciences, China; Gottfried Kirchengast, Wegener Center for Climate and Global Change, Austria; Yueqiang Sun, Qifei Du, Weihua Bai, Xianyi Wang, Xiangguang Meng, Junming Xia, Danyang Zhao, Yuerong Cai, Dongwei Wang, Chunjun Wu, Wei Li, Cheng Liu, National Space Science Center, Chinese Academy of Sciences, China

TUP2.PN.9 Board PN.9
A LEO-LEO OCCULTATION SYSTEM USING MICROWAVE SIGNALS
Chunjun Wu, Yueqiang Sun, Xianyi Wang, Congliang Liu, Qifei Du, Weihua Bai, Dongwei Wang, Xiangguang Meng, Yuerong Cai, Cheng Liu, Junming Xia, Danyang Zhao, Wei Li, Fu Li, Hao Qiao, National Space Science Center, China

TUP2.PN.10 Board PN.10
A LOW COST MICROWAVE TRANSMITTER-RECEIVER LINK FOR MEASURING THE INTEGRATED WATER VAPOR
Giovanni Macelloni, Francesco Montomoli, IFAC-CNR, Italy; Luca Facheris, University of Florence, Italy; Fabrizio Cuccoli, RaSS CNIT laboratory, Pisa, Italy; Alberto Toccafondi, Federico Puggelli, University of Siena, Italy; Alessio Cucini, Francesco Mariottini, WaveComm srl, Italy; Luigi Volpi, Pasquali Microwave System srl, Italy; Devis Dei, Florence Engineering srl, Italy; Marco Gai, Laboratori Victoria srl, Italy

Tuesday, July 24 **10:10 - 11:10** **Poster Area O**
Session TUP1.PO **Poster**

GNSS-R II: Models and Applications

Session Co-Chairs: Mercedes Vall·llossera, Universitat Politècnica de Catalunya; Han Zhang, Purdue University

TUP1.PO.1 Board P0.1 **PROGRESSES ON GNSS-R/IR LAND SURFACE SCATTERING MODELS**
Xuerui Wu, Shanghai Astronomical Observatory, Chinese Academy of Sciences, China; Bowen Li, School of Electronic and Information Engineering, Beihang University, China; Junming Xia, National Space Science Center, Chinese Academy of Sciences, China; Fang Wang, China Transport Telecommunications & Information Center, China; Shuanggen Jin, Shanghai Astronomical Observatory, Chinese Academy of Sciences, China; Weihua Bai, National Space Science Center, Chinese Academy of Sciences, China; Lei Yang, School of Information Science and Engineering, Shandong Agricultural University, China

TUP1.PO.2 Board P0.2 **SPACEBORNE GNSS-R END-TO-END SIMULATOR: TOPOGRAPHY AND VEGETATION EFFECTS**
Hyuk Park, Adriano Camps, Daniel Pascual, Jorge Querol, Raul Onrubia, Universitat Politècnica de Catalunya, Spain

TUP1.PO.3 Board P0.3 **SENSITIVITY TO SOIL MOISTURE OF SPACEBORNE GNSS-R OBSERVABLES**
Adriano Camps, Mercè Vall-llossera, Hyuk Park, Gerard Portal, Luciana Rossato, Universitat Politècnica de Catalunya-BarcelonaTech & IEEC/CTE-UPC, Spain

TUP1.PO.4 Board P0.4 **SIMULATION STUDY OF THE COMMON SURFACE SCENARIO IN GNSS-REFLECTOMETRY**
Ian Collett, Yu Morton, University of Colorado Boulder, United States

TUP1.PO.5 Board P0.5 **ESTIMATING SNOW DEPTH WITH PSEUDORANGE AND CARRIER-PHASE COMBINATION OF BDS DUAL-FREQUENCY SIGNALS**
Yunwei Li, Kegen Yu, Xin Chang, Wuhan University, China

TUP1.PO.6 Board P0.6 **SNOW DENSITY ESTIMATION BASED ON SNR AMPLITUDE ATTENUATION MODELING AND MATCHING**
Xin Chang, Kegen Yu, Yunwei Li, Jiancheng Li, Wuhan University, China

TUP1.PO.7 Board P0.7 **OCEAN ROUGHNESS AND WIND MEASUREMENTS WITH L- AND S-BAND SIGNALS OF OPPORTUNITY (SOOP) REFLECTOMETRY**
Han Zhang, James Garrison, Purdue University, United States; Derek Burrage, Naval Research Laboratory, United States

TUP1.PO.8 Board P0.8 **TWO-SCALE MODEL FOR THE EVALUATION OF SEA-SURFACE SCATTERING IN GNSS-R SHIP-DETECTION APPLICATIONS**
Maurizio Di Bisceglie, Università del Sannio, Italy; Gerardo Di Martino, Alessio Di Simone, University of Naples Federico II, Italy; Carmela Galdi, Università del Sannio, Italy; Antonio Iodice, Daniele Riccio, Giuseppe Ruello, University of Naples Federico II, Italy

TUP1.PO.9 Board P0.9 **DETERMINATION OF SEA CORRELATION TIME AT L-BAND WITH AIRBORNE REFLECTED NEW GNSS SIGNALS**
Daniel Pascual, Raul Onrubia, Jorge Querol, Jordi Castellvi-Esturi, Huyk Park, Adriano Camps, CommSensLab - Department of Signal Theory and Communications, Spain

TUP1.PO.10 Board P0.10 **GPS-DERIVED VELOCITY FIELDS OF NORTHERN TIEN SHAN FROM PERMANENT STATIONS IN KAZAKHSTAN**
Zhumabek Zhantayev, Azamat Kaldybayev, Assylkhan Bibossinov, Andrey Vilyaev, Arman Turgumbayev, Serik Nurakynov, Institute of Ionosphere, National Center of Space Research and Technology, Kazakhstan

Tuesday, July 24 **15:50 - 16:50** **Poster Area O**
Session TUP2.PO **Poster**

Ocean Surface Winds and Currents II

Session Chair: Hans Graber, University of Miami

TUP2.PO.1 Board P0.1 **WAVE SPECTRUM AND SURFACE CURRENT RETRIEVAL FROM AIRBORNE AND SATELLITE SUNGLITTER IMAGERY**
Maria Yurovskaya, Vladimir Kudryavtsev, Russian State Hydrometeorological University, Russian Federation; Bertrand Chapron, IFREMER, Russian State Hydrometeorological University, France; Nicolas Rascle, CICESE, Mexico; Fabrice Collard, Ocean Data Laboratory, France

TUP2.PO.2 Board P0.2 **VALIDATION OF THE NSCAT-5 GEOPHYSICAL MODEL FUNCTION FOR SCATSAT-1 WIND SCATTEROMETER**
Wenming Lin, Nanjing University of Information Science and Technology, China; Marcos Portabella, Institute of Marine Sciences (ICM-CSIC), Spain; Ad Stoffelen, Anton Verhoef, Royal Netherlands Meteorological Institute (KNMI), Netherlands; Zhixiong Wang, Nanjing University of Information Science and Technology, China

TUP2.PO.3 Board P0.3 **ESTIMATION OF THE SEA SURFACE CURRENT INDUCED BY INTERNAL WAVE FROM X-BAND MARINE RADAR IMAGE SEQUENCE**
Zhongbiao Chen, Nanjing University of Information Science and Technology, China; Vladimir Kudryavtsev, Russian State Hydrometeorological University, Russian Federation; Feilong Lin, Second Institute of Oceanography, State Oceanic Administration, China; Biao Zhang, Yijun He, Nanjing University of Information Science and Technology, China

TUP2.PO.4 Board P0.4 **SIGNIFICANT WAVE HEIGHT RETRIEVAL FROM GAOFEN-3 WAVE MODE IMAGES**
Jing Wang, Zhejiang Ocean University, China; He Wang, National Ocean Technology Center, China; Weizeng Shao, Zhejiang Ocean University, China; Jianhua Zhu, National Ocean Technology Center, China; Xinzhe Yuan, National Satellite Ocean Application Service, China

TUP2.PO.5 Board P0.5 **NUMERICAL STUDY FOR OCEAN WAVE MEASUREMENT BY HIGH RESOLUTION ALONG-TRACK INTERFEROMETRIC SAR**
Shoichiro Kojima, National Institute of Information and Communications Technology, Japan

TUP2.PO.6 Board P0.6 **A SAR CROSS-POL CORRELATION SEA SURFACE WIND SPEED STUDY**
Lanqing Huang, Shanghai Jiao Tong University, Shanghai Key Laboratory of Intelligent Sensing and Recognition, China; Maurizio Migliaccio, Ferdinando Nunziata, Valeria Corcione, Università di Napoli Parthenope, Italy; Zenghui Zhang, Wenxian Yu, Shanghai Jiao Tong University, Shanghai Key Laboratory of Intelligent Sensing and Recognition, China

TUP2.PO.7 Board P0.7 **LG-MOD MULTI-SCALE APPROACH FOR SAR SEA SURFACE WIND DIRECTIONS RETRIEVAL**
Fabio Michele Rana, Maria Adamo, Palma Blonda, National Research Council of Italy, Istituto sull'Inquinamento Atmosferico, Italy

TUP2.PO.8 Board P0.8 **SWELL WAVELENGTH VARIATION ACROSS THE OCEAN BASED ON SAR WAVE MODE DATA**
Jian Sun, Ocean University of China, China; Alexander V Babanin, University of Melbourne, Australia

TUP2.PO.9 Board P0.9 **DYNAMIC VALIDATION OF OCEAN SWELL DERIVED FROM SENTINEL-1 WAVE MODE AGAINST BUOYS**
He Wang, National Ocean Technology Center, China; Alexis Mouche, IFREMER, France; Romain Husson, CLS, France; Bertrand Chapron, IFREMER, France

TUP2.PO.10 Board P0.10 **IMPLEMENTING HF RADAR CURRENTS IN A PARTICLE-TRACKING MODEL**
Jin-Yong Choi, Kwang-Soon Park, Kyu-Min Song, Korea Institute of Ocean Science and Technology, Republic of Korea

Tuesday, July 24 **10:10 - 11:10** **Poster Area P**
Session TUP1.PP **Poster**

Lidar Systems and Applications

Session Co-Chairs: K. Olaf Niemann, University of Victoria; John Kerekes, Rochester Institute of Technology

TUP1.PP.1 Board PP.1 **AEROSOL MAPPING USING A BISTATIC CAMERA LIDAR AND COMPARING WITH RADIOSONDE DATA IN THE BAHAMAS**
Amin Kabir, University of The Bahamas, Bahamas; Nimmi Sharma, Central Connecticut State University, United States; John Barnes, NOAA/ESRL/Global Monitoring Division, United States; Jalal Butt, Central Connecticut State University, United States; Mauricio Bridgewater, Najee Stubbs, University of The Bahamas, Bahamas

TUP1.PP.2 Board PP.2 **SPACEBORNE DUAL-LINE-OF-SIGHT LIDAR SYSTEM FOR AEROSOL DETECTION**
Yuzhao Wang, Pingping Luo, Beijing Institute of Space Mechanics & Electricity, China

TUP1.PP.3 Board PP.3 **FOREST CANOPY LEAF AREA DENSITY ESTIMATION BASED ON AIRBORNE AND TERRESTRIAL LIDAR DATA**
Leiyu Dai, Shihua Li, Yankai Zhao, Sen Lin, Ze He, University of Electronic Science and Technology of China, China

TUP1.PP.4 Board PP.4 **WHEEL-BASED LIDAR DATA FOR PLANT HEIGHT AND CANOPY COVER EVALUATION TO AID BIOMASS PREDICTION**
Radhika Ravi, Yun-Jou Lin, Tamer Shamseldin, Magdy Elbahnasawy, Ali Masjedi, Melba Crawford, Ayman Habib, Purdue University, United States

TUP1.PP.5 Board PP.5 **BIOMASS INVERSION BASED ON GEOMETRIC INFORMATION OF LASER POINT CLOUD**
Li Pan, Beijing Research Center for Information Technology In Agriculture, China; Wei Guo, Henan Agriculture University, China; Liang Pei, Liaoning Technical University, China; Haikuan Feng, Beijing Research Center for Information Technology In Agriculture, China; Fan Yang, National Calibration Center for Surveying Instruments, China; Haojie Pei, Guijun Yang, Zhichao Wu, Mingxing Liu, Beijing Research Center for Information Technology In Agriculture, China

TUP1.PP.6 Board PP.6 **THREE STEPS CALIBRATION METHOD DEDICATED TO THE HETEROGENEOUS MATCHING OF LIDAR POINT CLOUD AND SAL IMAGES**
Parvin Kalantari, INO, Canada; Sylvie Daniel, Laval University, Canada; Simon Turbide, Linda Marchese, Alain Bergeron, INO, Canada

Tuesday, July 24 **15:50 - 16:50** **Poster Area P**
Session TUP2.PP **Poster**

Ocean Surface Winds and Currents III

Session Co-Chairs: Wenming Lin, Nanjing University of Information Science and Technology; Mark Bourassa, Florida State University

TUP2.PP.1 Board PP.1 **WIND DIRECTION EXTRACTION FROM SAR IMAGES USING NSCT TRANSFORM**
Fatemeh Tabarteh Farahani, Ahmad Keshavarz, Persian Gulf University, Iran; Stefano Zecchetto, National Research Council of Italy (CNR), Italy

TUP2.PP.2 Board PP.2 **CFOSAT MISSION: USING OF SWIM MEASUREMENTS FOR IMPROVING SCAT WIND VECTOR RETRIEVAL**
Alexey Mironov, OceanDataLab, France; Yves Quilfen, Bertrand Chapron, Institut Francais de Recherche pour l'Exploitation de la Mer, France

TUP2.PP.3 Board PP.3 **WIND DIRECTION AMBIGUITY REMOVAL USING ALONG-TRACK INSAR: A CASE STUDY**
Anis Elyouncha, Leif E.B. Eriksson, Chalmers University of Technology, Sweden; Roland Romeiser, University of Miami, United States; Lars M. H. Ulander, Chalmers University of Technology, Sweden

TUP2.PP.4 Board PP.4 **A MODIFIED WAVE SPECTRUM FOR MODELING IN REMOTE SENSING PROBLEMS**
Maria Ryabkova, Vladimir Karaev, Institute of Applied Physics of the Russian Academy of Sciences, Russian Federation

TUP2.PP.5 Board PP.5 **WAVE-DEPENDENT DIRECTIONAL BIASES IN AIRBORNE OCEAN SURFACE CURRENT ESTIMATION**
Shadi Aslebagh, University of Washington, United States; Gordon Farquharson, Capella Space, United States; John Sahr, University of Washington, United States; Roland Romeiser, University of Miami, United States

TUP2.PP.6 Board PP.6 **ROUTINE SHIPBOARD MARINE X-BAND RADAR NEAR-SURFACE CURRENT MAPPING: INSIGHTS FROM TWO RESEARCH CRUISES**
Björn Lund, Lisa Nyman, Neil Williams, Hans Graber, University of Miami, United States; Jochen Horstmann, Helmholtz Zentrum Geesthacht, Germany

TUP2.PP.7 Board PP.7 **VALIDATION OF TWO-WAY COUPLED AIR-SEA MODEL STRESS AND CURRENTS THROUGH REMOTELY SENSED WINDS AND SST**
Mark Bourassa, Qi Shi, Florida State University, United States

TUP2.PP.8 Board PP.8 **COMPARISON OF WIND SPEED FROM QUIKSCAT, ASCAT, WINDSAT, ERA-INTERIM REANALYSIS AND SHIP MEASUREMENTS OVER THE CHINA SEA**
Dongxiang Zhang, Chao Yang, Kaijun Ren, Jia Liu, Junqiang Song, National University of Defense Technology, China

TUP2.PP.9 Board PP.9 **ABNORMAL WAVES GENERATED BY POLAR LOWS: EVALUATION OF EXPECTANCY**
Pavel Golubkin, Vladimir Kudryavtsev, Russian State Hydrometeorological University, Russian Federation; Julia Smirnova, Nansen International Environmental and Remote Sensing Centre, Russian Federation; Bertrand Chapron, Institute Français de Recherche pour l'Exploitation de la Mer, France

Tuesday, July 24 10:10 - 11:10 Poster Area Q
Session TUP1.PQ Poster

Optical Calibration II

TUP1.PQ.2 Board PQ.2 **GEOMETRIC CORRECTION OF GEOSTATIONARY OCEAN COLOR IMAGER AND ITS QUALITY ASSESSMENT**
Jaehoon Jeong, Heejeong Han, Seongik Cho, Young-Je Park, Korea Institute of Ocean Science and Technology, Republic of Korea

TUP1.PQ.3 Board PQ.3 **PERFORMANCE STABILITY EVALUATION OF CLOUDS AND THE EARTH'S RADIANT ENERGY SYSTEM (CERES) FLIGHT MODEL 5 (FM5) INSTRUMENT ON S-NPP**
Susan Thomas, Science Systems and Applications, Inc, United States; Kory Priestley, NASA, United States; Nathaniel Smith, Robert Wilson, Dale Walikainen, Natvidad Smith, Science Systems and Applications, Inc, United States

TUP1.PQ.4 Board PQ.4 **VICARIOUS RADIOMETRIC CALIBRATION USING A GROUND RADIANCE-BASED APPROACH: A CASE STUDY OF SENTINEL 2A MSI**
Yaokai Liu, Zhihong Ma, Key Laboratory of Quantitative Remote Sensing Information Technology, Academy of Opto-Electronics, Chinese Academy of Sciences,University of Chinese Academy of Sciences, China; Lingling Ma, Ning Wang, Yonggang Qian, Chuanrong Li, Lingli Tang, Key Laboratory of Quantitative Remote Sensing Information Technology, Academy of Opto-Electronics, Chinese Academy of Sciences, China

TUP1.PQ.5 Board PQ.5 **STAR IMAGE SIMULATION AND SUBPIXEL CENTROIDING FOR AN EARTH OBSERVING SENSOR**
Haopeng Zhang, Yi Su, Bowen Cai, Zhiguo Jiang, Beihang University, China

TUP1.PQ.6 Board PQ.6 **SPECTRAL CHARACTERIZATION AND SMILE CORRECTION FOR THE IMAGING SPECTROSCOPY MISSION ENMAP**
Tobias Storch, DLR - German Aerospace Center, Germany; Hans-Peter Honold, OHB System AG, Germany; Harald Krawczyk, DLR - German Aerospace Center, Germany; Richard Wachter, OHB System AG, Germany; Raquel de los Reyes, Maximilian Langheinrich, DLR - German Aerospace Center, Germany; Martin Muecke, OHB System AG, Germany; Sebastian Fischer, DLR - German Aerospace Center, Germany

TUP1.PQ.7 Board PQ.7 **RADIOMETRIC CROSS-CALIBRATION OF GF-4 INFRARED SPECTRAL BAND BASED ON MODIS**
Wenjiao Zhong, Yong Xie, Nanjing University of Information Science and Technology, China; Banghui Yang, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China; Hai Huan, Nanjing University of Information Science and Technology, China; Chuang Ding, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China

TUP1.PQ.8 Board PQ.8 **QUALITY OF INTA-AHS IMAGES FOR ESTIMATING APPARENT THERMAL INERTIA IN SOILS**
Eduardo de Miguel, Victor Bartolomé Carrascosa, INTA, Spain; Malena González Lagos, ISDEFE, Spain; Marcos Jiménez Michavila, INTA, Spain; Thomas Schmid, CIEMAT, Spain; Óscar Gutiérrez de la Cámara, INTA, Spain

TUP1.PQ.9 Board PQ.9 **REMOVING SUNLIGHT DAMAGE PATTERNS IN SHATTER-LESS BOLOMETER IMAGES BY UTILIZING DEEPSPACE OBSERVATIONS**
Toru Kouyama, Soushi Kato, National Institute of Advanced Industrial Science and Technology, Japan; Tetsuya Fukuhara, Rikkyo University, Japan; Hiroaki Akiyama, Wakayama University, Japan; Ryosuke Nakamura, National Institute of Advanced Industrial Science and Technology, Japan

TUP1.PQ.10 Board PQ.10 **RADIATION BUDGET INSTRUMENT ON-BOARD SOLAR CALIBRATION TARGET – CONCEPT AND OPERATION**
Georgi Georgiev, Yana Williams, NASA, United States; Christopher Randall, SSAI, United States; Kory Priestley, Elena Georgieva, NASA, United States

Tuesday, July 24 15:50 - 16:50 Poster Area Q
Session TUP2.PQ Poster

GNSS-R III: Sensors and Applications

TUP2.PQ.1 Board PQ.1 **A GNSS-R FORWARD MODEL FOR DELAY-DOPPLER MAP ASSIMILATION**
Feixiong Huang, James Garrison, Purdue University, United States; Mark Leidner, Atmospheric and Environmental Research, United States; Bachir Annane, Cooperative Institute for Marine and Atmospheric Studies, United States; Ross Hoffman, Atmospheric and Environmental Research, United States

TUP2.PQ.2 Board PQ.2 **REAL-VALUED SOLUTIONS TO AN INVERSE FRESNEL PROBLEM IN GNSS-R**
Patrizia Savi, Politecnico di Torino, Italy; Albert James Milani, Botswana International University of Science and Technology, Botswana

TUP2.PQ.3 Board PQ.3 **PRELIMINARY ALTIMETRY RESULTS OF THE MALYGNSS INSTRUMENT IN THE HUMIT PROJECT**
Raul Onrubia, Daniel Pascual, Jorge Querol, Jordi Castellvi-Esturi, Universitat Politècnica de Catalunya, Spain; Jordi Corbera Simó, Institut Cartogràfic i Geológic de Catalunya, Spain; Hyuk Park, Adriano Camps, Universitat Politècnica de Catalunya, Spain

TUP2.PQ.4 Board PQ.4 **COMPARISON OF INTEGRATED PRECIPITABLE WATER DERIVED FROM COSMIC OCCULTATION DATA AND GROUND GPS MEASUREMENTS**
Wenying He, LAGEO, Institute of Atmospheric Physics, Chinese Academy of Sciences, China

TUP2.PQ.5 Board PQ.5 **IONOSPHERIC SCINTILLATION MONITORING USING GNSS-R?**
Adriano Camps, Hyuk Park, Universitat Politècnica de Catalunya-BarcelonaTech & IEEC/CTE-UPC, Spain; José Miguel Juan, Jaume Sanz, Guillermo González-Casado, Universitat Politècnica de Catalunya - BarcelonaTech, Spain; Jose Barbosa, RDA -Research and Development in Aerospace GmbH, Spain; Vincent Fabbro, Joel Lemorton, ONERA, France; Raul Orús, European Space Agency/ESTEC, Netherlands

TUP2.PQ.6 Board PQ.6 **SPACEBORNE GNSS REFLECTOMETRY DATA FOR LAND APPLICATIONS: AN ANALYSIS OF TECHDEMOSAT DATA**
Nazzareno Pierdicca, Sapienza Università di Roma, Italy; Antonio Mollfulleda, Starlab, Spain; Fabiano Costantini, Deimos Engenharia S.A, Portugal; Leila Guerriero, Laura Dente, Tor Vergata University of Rome, Italy; Simonetta Paloscia, Emanuele Santi, IFAC-CNR, Italy; Mehrez Zribi, CESBIO, France

TUP2.PQ.8 Board PQ.8 **THE ADVANCEMENTS IN RESEARCH OF FY-3 GNOS II AND INSTRUMENT PERFORMANCE**
Qifei Du, Yueqiang Sun, Weihua Bai, Xianyi Wang, Dongwei Wang, Xiangguang Meng, Yuerong Cai, Junming Xia, Chunjun Wu, Congliang Liu, Wei Li, Cheng Liu, National Space Science Center, China

Tuesday, July 24 | 10:10 - 11:10 | Poster Area R
Session TUP1.PR | Poster

Close Range Remote Sensing I

TUP1.PR.1 Board PR.1
YARDANG MORPHOLOGY WITHIN NICHOLSON CRATER, MARS; AN IMPLICATION TOWARDS PAST FLUVIAL PROCESSES
Ami Desai, Murty S.V.S, Physical Research Laboratory, India

TUP1.PR.2 Board PR.2
ESTIMATION MODEL FOR DUST-RETENTION CONTENT OF MAIN GREEN PLANTS IN SOUTH CHINA BASED ON THE RED EDGE OF REFLECTANCE
Chongyang Wang, Guangzhou Institute of Geography, China; Chen Zhang, Guangzhou Institute of Geography; Shandong University of Science and Technology, China; Xia Zhou, Ji Yang, Wenlong Jing, Shuisen Chen, Guangzhou Institute of Geography, China

TUP1.PR.3 Board PR.3
DENSITY BASED SPATIO-TEMPORAL TRAJECTORY CLUSTERING ALGORITHM
Zhiyuan Cheng, Ling Jiang, Desheng Liu, Zezhong Zheng, University of Electronic Science and Technology of China, China

TUP1.PR.5 Board PR.5
ON THE INFLUENCE OF SPATIAL RESOLUTION IN SOIL SURFACE ROUGHNESS CHARACTERIZATION USING TLS AND SFM TECHNIQUES
Alex Martinez-Agirre, Jesús Álvarez-Mozos, Rafael Giménez, Public University of Navarre, Spain; Milutin Milenkovic, Norbert Pfeifer, Technische Universität Wien, Austria; José Manuel Valle Melón, Álvaro Rodríguez Miranda, University of the Basque Country, Spain

TUP1.PR.6 Board PR.6
DETERMINATION OF DEGREE OF DAMAGE ON BUILDING ROOFS DUE TO WIND DISASTER FROM CLOSE RANGE REMOTE SENSING IMAGES USING TEXTURE WAVELET ANALYSIS
Sudha Radhika, BITS Pilani Hyderabad Campus, India; Yukio Tamura, Chongqing University, Tokyo Polytechnic University, Japan; Masahiro Matsui, Tokyo Polytechnic University, Japan

TUP1.PR.7 Board PR.7
VERY HIGH-RESOLUTION IMAGING OF THE CITY OF GOMA (NORTH KIVU, D.R. CONGO) USING SFM-MVS PHOTOGRAMMETRY
Benoît Smets, Caroline Michellier, Royal Museum for Central Africa, Belgium; Adalbert M. Syavulisembo, Goma Volcano Observatory, Democratic Republic of the Congo; Gustave Munganga, Institut Géographique du Congo, Democratic Republic of the Congo; Nicolas d'Oreye, European Center for Geodynamics and Seismology, Luxembourg; François Kervyn, Royal Museum for Central Africa, Belgium

TUP1.PR.8 Board PR.8
A HIGH-PRECISION ELLIPTICAL TARGET IDENTIFICATION METHOD FOR IMAGE SEQUENCES
Shouzhu Zheng, Peng Chen, Sicong Liu, Xiaolong Ma, Sa Gao, Xiaohua Tong, Tongji University, China

TUP1.PR.9 Board PR.9
A GRID PROJECTION METHOD BASED ON ULTRASONIC SENSOR FOR PARKING SPACE DETECTION
Yunfeng Shao, Pengzhen Chen, Tongtong Cao, Huawei Digital Technologies Co., Ltd., China

TUP1.PR.10 Board PR.10
USE OF SHORT RANGE SENSOR FOR TEMPORAL ANALYSIS OF VEGETATION COVER INDEX FOR AN EXPERIMENT CONSIDERING EROSION CONTROL WITH VERTIVER PLANT ASSOCIATED WITH BIODEGRADABLE GEOMESHES
Felipe Franca Lafaiete, Regla Toujaguez, Federal University of Alagoas, Brazil

Tuesday, July 24 | 15:50 - 16:50 | Poster Area R
Session TUP2.PR | Poster

Optical Calibration III

TUP2.PR.1 Board PR.1
STREAMLINED USER INTERFACES FOR FIELD SPECTRORADIOMETERS
Andreas Hueni, University of Zürich, Switzerland; Raphael Bolliger, Andreas Luescher, Yarx GmbH, Switzerland; Patrick Wigger, Roland Mosimann, Martin Gwerder, University of Applied Sciences and Arts Northwestern Switzerland, Switzerland

TUP2.PR.2 Board PR.2
CROSS-CALIBRATION FOR HIGH RESOLUTION SENSOR DATA WITH NARROW FIELD OF VIEW
Aixia Yang, Bo Zhong, Wenbo Lv, Shanlong Wu, Qinhuo Liu, State Key Laboratory of Remote Sensing Science, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China

TUP2.PR.3 Board PR.3
RADIOMETRIC PERFORMANCE OF MULTISPECTRAL CAMERA APPLIED TO OPERATIONAL PRECISION AGRICULTURE
José González-Piqueras, Sergio Sánchez, Julio Villodre, University of Castilla-La Mancha, Spain; Horacio López, Instituto Técnico Agronómico Provincial (ITAP) and FUNDESCAM, Spain; Alfonso Calera, David Hernández-López, Juan Manuel Sánchez, University of Castilla-La Mancha, Spain

TUP2.PR.4 Board PR.4
A METROLOGICAL APPROACH TO PRODUCING HARMONISED FUNDAMENTAL CLIMATE DATA RECORDS FROM LONG-TERM SENSOR SERIES DATA
Samuel Hunt, National Physical Laboratory, United Kingdom; Ralf Quast, FastOpt GmbH, Germany; Peter Harris, National Physical Laboratory, United Kingdom; Jonathan Mittaz, University of Reading, National Physical Laboratory, United Kingdom; Emma Woolliams, National Physical Laboratory, United Kingdom; Ralf Giering, FastOpt GmbH, Germany; Arta Dilo, National Physical Laboratory, United Kingdom; Christopher Merchant, University of Reading, United Kingdom

TUP2.PR.5 Board PR.5
A DENSE VECTOR MATCHING APPROACH FOR BAND TO BAND REGISTRATION OF ALSAT-2 IMAGES
Issam Boukerch, Nezha Farhi, Moussa Sofiane Karoui, Khelifa Djerriri, Redouane Mahmoudi, Centre des Techniques Spatiales, Algeria

TUP2.PR.6 Board PR.6
CROSSTALK EFFECT AND ITS MITAGATION IN REMOTE SENSORS
Junqiang Sun, NOAA / GST, United States; Menghua Wang, NOAA, United States

TUP2.PR.7 Board PR.7
ENABLING GROUND BASED MATERIALS ANALYSIS AND IDENTIFICATION USING REFLECTANCE SPECTROSCOPY
Bogdan Lita, Brian Curtiss, Gary A. Fager, Lee Feldman, Susan M. Parks, Kevin B. Tanguay, ASD Inc. a Malvern Panalytical Brand, United States

TUP2.PR.8 Board PR.8
MULTI-SENSOR INTEGRATION ONBOARD A UAV-BASED MOBILE MAPPING SYSTEM FOR AGRICULTURAL MANAGEMENT
Magdy Elbahnasawy, Tamer Shamseldin, Radhika Ravi, Tian Zhou, Yun-Jou Lin, Ali Masjedi, Evan Flatt, Melba Crawford, Ayman Habib, Purdue University, United States

Tuesday, July 24 **10:10 - 11:10** **Poster Area S**
Session TUP1.PS **Poster**

Global Essential Variables II

Session Chair: Amen Al-Yaari, INRA

TUP1.PS.1 Board PS.1 **MAPPING OF PLANT FUNCTIONAL TYPE FROM SATELLITE-DERIVED LAND COVER DATASETS FOR CLIMATE MODELS**
Libo Wang, Paul Bartlett, Ed Chan, Ming Xiao, Environment and Climate Change Canada, Canada

TUP1.PS.2 Board PS.2 **SPECTRAL IDENTIFICATION OF NATIVE AND NON-NATIVE PLANT SPECIES FOR BIODIVERSITY ASSESSMENTS**
Maria Santos, University of Zürich, Switzerland; Susan Ustin, University of California, Davis, United States

TUP1.PS.3 Board PS.3 **A GLOBAL ANALYSIS OF LAND SURFACE TEMPERATURE DIURNAL CYCLE**
Zahra Sharifnezhadazizi, City College of New York, United States; Christopher Beale, Hamid Norouzi, Reginald Blake, Sergio Cortes, Makini Valentine, New York City College of Technology, United States

TUP1.PS.5 Board PS.5 **HIGH RESOLUTION ALBEDO ESTIMATION WITH CHINESE GF-1 WFV DATA**
Hongmin Zhou, beijing normal university, China; Ni Hu, Patent examinaton cooperation center of sipo, China; Tao He, Wuhan University, China; Shunlin Liang, University of Maryland, United States; Jindi Wang, Beijing Normal University, China

TUP1.PS.6 Board PS.6 **ESTIMATION OF 1-KM ALL-WEATHER LAND SURFACE TEMPERATURE OVER THE TIBETAN PLATEAU**
Xiaodong Zhang, Ji Zhou, Weichen Dong, University of Electronic Science and Technology of China, China; Lisheng Song, Southwestern University, China

TUP1.PS.7 Board PS.7 **NEW SCHEME FOR ESTIMATING LAND SURFACE TEMPERATURE FROM AMSR-E OVER THE CONTINENTAL UNITED STATES**
Rui Zhao, Jilin University, China; Tianxing Wang, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China; Zhiguo Meng, Jilin University, China; Jiancheng Shi, Wang Zhou, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China; Shangnan Li, Jilin University, China

Tuesday, July 24 **15:50 - 16:50** **Poster Area S**
Session TUP2.PS **Poster**

Big Machine Learning I

Session Co-Chairs: Yuliya Tarabalka, Inria Sophia Antipolis-Méditerranée; Mathieu Fauvel, National Polytechnic Institute of Toulouse

TUP2.PS.1 Board PS.1 **TOWARDS INTERNET OF THINGS BASED APPROACH FOR USING ARCHIVES OF EARTH OBSERVATION FOR CROP WATER MANAGEMENT IN SEMI-ARID AREAS**
Suryakant Sawant, Jayant Mohite, TCS Innovation Labs, Tata Consultancy Services, India

TUP2.PS.2 Board PS.2 **TOWARD THE USE OF DEEP LEARNING FOR TOPOGRAPHIC FEATURE EXTRACTION FROM HIGH RESOLUTION OPTICAL SATELLITE IMAGERY**
Jean-Samuel Proulx-Bourque, Mathieu Turgeon-Pelchat, Canada Center for Mapping and Earth Observation, Canada

TUP2.PS.3 Board PS.3 **DEEP LEARNING NEURAL NETWORKS FOR LAND USE LAND COVER MAPPING**
Christopher Storie, Christopher Henry, The University of Winnipeg, Canada

TUP2.PS.4 Board PS.4 **DEEP HYBRID WAVELET NETWORK FOR ICE BOUNDARY DETECTION IN RADAR IMAGERY**
Hamid Kamangir, Maryam Rahnemoonfar, Dugan Dobbs, John Paden, Geoffrey Fox, Texas A&M University-Corpus Christi, United States

TUP2.PS.5 Board PS.5 **EXTRACTION AND CLASSIFICATION OF ROOF LINEAR ELEMENTS BASED ON CONVOLUTIONAL AUTO ENCODER NETWORKS**
Fatemeh Alidoost, Hossein Arefi, University of Tehran, Iran

TUP2.PS.6 Board PS.6 **TOWARDS REGISTRATION OF SATELLITE IMAGES USING DEEP CONVOLUTIONAL NEURAL NETWORK**
Prajowal Manandhar, Prashanth Marpu, Zeyar Aung, Masdar Institute, United Arab Emirates

TUP2.PS.7 Board PS.7 **BUILDING DETECTION AND SEGMENTATION USING A CNN WITH AUTOMATICALLY GENERATED TRAINING DATA**
Xiangyu Zhuo, German Aerospace Center (DLR), Germany; Friedrich Fraundorfer, Graz University of Technology, Austria; Franz Kurz, Peter Reinartz, German Aerospace Center (DLR), Germany

Tuesday, July 24 **10:10 - 11:10** **Poster Area T**
Session TUP1.PT **Poster**

Advances in Model-data Integration and Assimilation

Session Co-Chairs: Emma Izquierdo, IPL; Alvaro Moreno, University of Montana

TUP1.PT.1 Board PT.1 **A METHOD FOR MULTISCALE ESTIMATION OF LEAF AREA INDEX FROM TIME-SERIES MULTI-SOURCE REMOTE SENSING DATA**
Xuchen Zhan, Zhiqiang Xiao, Beijing Normal University, China; Jingyi Jiang, French National Institute for Agricultural Research, France

TUP1.PT.2 Board PT.2 **SOFTWARE SUITE FOR CREATING DOWNSTREAM APPLICATIONS AND THEMATIC SERVICES ON THE BASE OF REMOTE SENSING DATA PROCESSING AND INTEGRATED MODELLING**
Viacheslav Zelentsov, Semen Potryasaev, Ilya Pimanov, Viktor Mochalov, St. Petersburg Institute for Informatics and Automation of the Russian Academy of Sciences, Russian Federation

TUP1.PT.3 Board PT.3 **DISASTER MONITORING AND EMERGENCY RESPONSE SERVICES IN CHINA**
Jianjun Wu, Xinyi Han, Beijing Normal University, China; Yi Zhou, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China; Peng Yue, Wuhan University, China; Xiaoqing Wang, Institute of Earthquake Forecasting, China Earthquake Administration, China; Jingxuan Lu, China Institute of Water Resources and Hydropower Research, China; Weiguo Jiang, Jing Li, Hong Tang, Beijing Normal University, China; Futao Wang, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China; Xiaotao Li, China Institute of Water Resources and Hydropower Research, China; Jinlong Fan, National Satellite Meteorological Center, China Meteorological Administration, China

TUP1.PT.4 Board PT.4 **A MULTIMODAL APPROACH TO MAPPING SOUNDSCAPES**
Tawfiq Salem, Menghua Zhai, Scott Workman, Nathan Jacobs, University of Kentucky, United States

Tuesday, July 24 **15:50 - 16:50** **Poster Area T**
Session TUP2.PT **Poster**

New Remote Sensing Techniques and Methods III

Session Chair: José A. Sobrino, University of Valencia

TUP2.PT.1 Board PT.1 **EVALUATION OF A NEW VISIOMETER FOR AUTOMATED VISIBILITY OBSERVATION**
Jingli Wang, Institute of Urban Meteorology, China Meteorological Administration, Beijing, China, China; Xulin Liu, Beijing Meteorological Observation Center, China

TUP2.PT.2 Board PT.2 **THREE-DIMENSIONAL IMAGING APPROACH FOR A NOVEL AIRBORNE ARRAY-ENCODING LIDAR**
Fan Xu, Daiyin Zhu, Xiaofei Zhang, Nanjing University of Aeronautics and Astronautics, China

TUP2.PT.3 Board PT.3 **MULTI-DISCRIMINATOR GENERATIVE ADVERSARIAL NETWORK FOR HIGH RESOLUTION GRAY-SCALE SATELLITE IMAGE COLORIZATION**
Feimo Li, Lei Ma, Jian Cai, Institute of Automation, Chinese Academy of Science, China

TUP2.PT.4 Board PT.4 **CLOUD AND CLOUD SHADOW MASKING METHOD FOR SENTINEL-2 USING MULTITEMPORAL IMAGES**
Danang Surya Candra, Stuart Phinn, Peter Scarth, The University of Queensland, Australia

TUP2.PT.5 Board PT.5 **SIMULATION STUDY OF THE EARTH RADIATION BUDGET EXPERIMENT ON THE MOON-BASED EARTH OBSERVATION PLATFORM**
Hanlin Ye, Huadong Guo, Guang Liu, Guozhuang Shen, Zhen Xu, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China

TUP2.PT.6 Board PT.6 **SELF-CO-PHASING LENS IMAGING SYSTEM**
Yue Zhang, Beijing Institute of Space Mechanics & Electricity, China; Rui Zhao, Institute of Aerospace Nanjing University of Posts and Telecommunications, China; Jianchao Jiao, Yun Su, Beijing Institute of Space Mechanics & Electricity, China

TUP2.PT.7 Board PT.7 **TESTING THE MEASURABILITY OF SUN INDUCED FLUORESCENCE UNDER OPTIMAL AND NON-OPTIMAL SKY CONDITIONS**
Marcos Jiménez, Adrián Moncholí, Elena Salido, Eduardo De Miguel, National Institute of Aerospace Technology (INTA), Spain

TUP2.PT.8 Board PT.8 **CLOUD COVER ASSESSMENT IN SATELLITE IMAGES VIA DEEP ORDINAL CLASSIFICATION**
Chaomin Shen, Chenxiao Zhao, Mixue Yu, East China Normal University, China; Yaxin Peng, Shanghai University, China

TUP2.PT.9 Board PT.9 **ESTIMATING PIXEL TO METRE SCALE AND SEA STATE FROM REMOTE OBSERVATIONS OF THE OCEAN SURFACE**
Antonis Loizou, Jacqueline Christmas, University of Exeter, United Kingdom

TUP2.PT.10 Board PT.10 **METHOD TO ELIMINATE FARADAY ROTATION ANGLE AMBIGUITY ERROR IN LINEARLY POLARIZED SAR DATA**
Jinhui Li, Yifei Ji, Yongsheng Zhang, Qilei Zhang, Haifeng Huang, Zhen Dong, National University of Defense Technology, China

Tuesday, July 24	10:10 - 11:10	Poster Area U
Session TUP1.PU		Poster

New Remote Sensing Techniques and Methods II

Session Co-Chairs: Scott Hensley, NASA Jet Propulsion Laboratory, California Institute of Technology; Salvatore Stramondo, Istituto Nazionale di Geofisica e Vulcanologia

TUP1.PU.1 Board PU.1 **IMPROVED FLOOD MAPPING BASED ON THE FUSION OF MULTIPLE SATELLITE DATA SOURCES AND IN-SITU DATA**
Young-Joo Kwak, PWRI-ICHARM-UNESCO, Japan; Ramona Pelich, Luxembourg Institute of Science and Technology, Luxembourg; Jonggeol Park, Tokyo University of Information Sciences, Japan; Wataru Takeuchi, The University of Tokyo, Japan

TUP1.PU.2 Board PU.2 **ATMOSPHERIC CORRECTION ICOR AND INTEGRATION IN OPERATIONAL WORKFLOWS**
Stefan Adriaensen, Sindy Sterckx, Liesbeth De Keukelaere, Ruben Van De Kerchove, Els Knaeps, VITO NV, Belgium

TUP1.PU.3 Board PU.3 **THE GEOMETRY NUMERICAL SIMULATION AND ANALYSIS FOR MOON-BASED EARTH OBSERVATION**
Guozhuang Shen, Huadong Guo, Guang Liu, RADI, CAS, China

TUP1.PU.4 Board PU.4 **THE MONITORING AND RESTORATION TECHNOLOGY OF GEOLOCATION ACCURACY OF HIGH SPATIAL RESOLUTION REMOTE SENSING DATA**
Victor Eremeev, Andrei Kochergin, Aleksei Kuznetcov, Vasilii Poshekhonov, Andrei Ryzhikov, Ryazan State Radio Engineering University, Russian Federation

TUP1.PU.5 Board PU.5 **A METHOD OF RETRIEVING BRDF FROM SURFACE REFLECTED RADIANCE USING DECOUPLING OF ATMOSPHERIC RADIATIVE TRANSFER AND SURFACE REFLECTION**
Alexander Radkevich, Science Systems and Applications, Inc, United States

TUP1.PU.7 Board PU.7 **A MODIFIED FRAMEWORK FOR SHIP DETECTION FROM COMPACT POLARIZATION SAR IMAGE**
Qiancong Fan, Feng Chen, Ming Cheng, Cheng Wang, Jonathan Li, Xiamen University, China

TUP1.PU.8 Board PU.8 **A SEABORNE ISAR AUTOFOCUSING METHOD UNDER MINIMUM ENTROPY CRITERION**
Qun Zhang, Yichang Chen, Air Force Engineering University, China; Yong Wu, Shaanxi Institute of Metrology Science, China; Dan Wang, Air Force Engineering University, China

TUP1.PU.10 Board PU.10 **SIMULATION AND SIGNAL DETECTION OF PHOTON COUNTING LIDAR DATA IN FORESTED AREA**
Bowei Chen, Yong Pang, Zengyuan Li, Chinese Academy of Forestry, China; Peter North, Jacqueline Rosette, Iain Bye, Swansea University, United Kingdom; Hao Lu, Beijing Forestry University, China; Liuxia Liu, Anhui Agricultural University, China; Zhenyu Ma, Chinese Academy of Forestry, China

Wednesday, July 25 10:10 - 11:10 Poster Area A
Session WEP1.PA Poster

SAR Interferometry: Along and Across IV

WEP1.PA.1 Board PA.1 **PERFORMANCE ASSESSMENT METRICS FOR LINE-INFRASTRUCTURE MONITORING WITH MULTI-SENSOR SAR DATA**
Ling Chang, University of Twente, Netherlands; Rolf Dollevoet, Ramon F. Hanssen, Delft University of Technology, Netherlands

WEP1.PA.2 Board PA.2 **AUTOMATIC INSAR PHASE MODELING AND QUALITY ASSESSMENT USING MACHINE LEARNING AND HYPOTHESIS TESTING**
Bas van de Kerkhof, Delft University of Technology, Netherlands Aerospace Centre, Massachusetts Institute of Technology, Netherlands; Victor Pankratius, Massachusetts Institute of Technology, United States; Ling Chang, Delft University of Technology, Netherlands; Rob van Swol, Netherlands Aerospace Centre, Netherlands; Ramon F. Hanssen, Delft University of Technology, Netherlands

WEP1.PA.3 Board PA.3 **INTERFEROMETRIC PROCESSING OF CIRCULAR SAR USING FULLY POLARIMETRIC C-BAND DATA**
Xiaoning Hu, Bingnan Wang, Maosheng Xiang, Liangjiang Zhou, Xikai Fu, Qian Qian, Institute of Electronics, Chinese Academy of Sciences, China

WEP1.PA.4 Board PA.4 **EFFICIENT REGISTRATION FOR INSAR LARGE-SCALE IMAGE USING QUADTREE SEGMENTATION**
Shunjun Wei, Liming Pu, Xinxin Tang, Xiaoling Zhang, Jun Shi, University of Electronic Science and Technology of China, China

WEP1.PA.5 Board PA.5 **PROPOSAL OF SINGULAR-UNIT COMPENSATION IN POLARIMETRIC-INTERFEROMETRIC SYNTHETIC APERTURE RADAR BY PHASOR-QUATERNION NEURAL NETWORKS**
Kohei Oyama, Akira Hirose, The University of Tokyo, Japan

WEP1.PA.6 Board PA.6 **SLOPE STABILITY ANALYSIS IN NAINITAL TOWN USING PS AND QPS INSAR TECHNIQUE**
Manoj Kuri, Indian Institute of Technology Roorkee, India; Manoj K. Arora, PEC University of Technology, India; M. L. Sharma, Indian Institute of Technology Roorkee, India

WEP1.PA.7 Board PA.7 **USING THE DUAL POLARIZED SENTINEL1-A DATA FOR THE POLARIMETRIC OPTIMIZATION OF THE PSINSAR ALGORITHM**
Saeed Azadnezhad, Yasser Maghsoudi, Tayyebeh Managhebi, K. N. Toosi University of Technology, Iran; Daniele Perissin, Purdue University, United States

Wednesday, July 25 15:50 - 16:50 Poster Area A
Session WEP2.PA Poster

Bistatic and Digital Beamforming II

Session Chair: Andrei Anghel, University Politehnica of Bucharest

WEP2.PA.1 Board PA.1 **SPACECRAFT FORMATION DESIGN FOR BISTATIC SAR WITH GEO ILLUMINATOR AND LEO RECEIVER**
Zheng Lu, Beijing Institute of Spacecraft System Engineering, China; Yuekun Wang, National Laboratory of Radar Signal Processing, China; Mingming Xu, Yu Zhu, Jian Liang, Beijing Institute of Spacecraft System Engineering, China; Zhenfang Li, National Laboratory of Radar Signal Processing, China

WEP2.PA.2 Board PA.2 **RANGE LINEARIZATION FOR BISTATIC SAR**
Gaogao Liu, Dan Bao, Bin Wu, Guodong Qin, Jingjing Cai, Xidian University, China

WEP2.PA.3 Board PA.3 **SPACEBORNE BISTATIC SAR SCENE SIMULATION**
Rolf Scheiber, Muriel Pinheiro, Marc Rodriguez-Cassola, Pau Prats-Iraola, German Aerospace Center (DLR), Germany

Wednesday, July 25 10:10 - 11:10 Poster Area B
Session WEP1.PB Poster

General SAR Applications

WEP1.PB.1 Board PB.1 **RETRIEVAL OF RICE PHENOLOGY BASED ON TIME-SERIES POLARIMETRIC SAR DATA**
Hongyu Li, China University of Geosciences Beijing, China; Kun Li, Yun Shao, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China; Ping Zhou, China University of Geosciences Beijing, China; Xianyu Guo, Shandong University of Science and Technology, China; Changan Liu, Chinese Academy of Agricultural Sciences, China; Long Liu, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China

WEP1.PB.2 Board PB.2 **INVESTIGATION ON THE CORRELATION BETWEEN THE SUBSIDENCE PATTERN AND LAND USE IN BANDUNG, INDONESIA WITH BOTH SENTINEL-1/2 AND ALOS-2 SATELLITE IMAGES**
Zheyuan Du, Linlin Ge, The University of New South Wales, Australia; Alex Hay-Man Ng, Guangdong University of Technology, China

WEP1.PB.3 Board PB.3 **EVALUATION OF THE POTENTIALITY OF POLARIMETRIC C- AND L-SAR TIME-SERIES IMAGES FOR THE IDENTIFICATION OF WINTER LAND-USE.**
Julien Denize, IETR UMR CNRS 6164 and University of Rennes, France; Laurence Hubert-Moy, Samuel Corgne, LETG UMR CNRS 6554 and University of Rennes, France; Julie Betbeder, CIRAD, France; Eric Pottier, IETR - UMR 6164, University of Rennes 1, France

WEP1.PB.4 Board PB.4 **SPARSE SAR IMAGE FORMATION OF MOVING TARGETS-A REWEIGHTED SPARSE APPROACH**
Gang Xu, Southeast University, China; Xianpeng Wang, State Key Laboratory of Marine Resource Utilization in South China Sea, College of Information Science & Technology, Hainan University, China; Yanyang Liu, Di Zhao, Shanghai Institute of Satellite Engineering, China

WEP1.PB.5 Board PB.5 **SPATIAL FUZZY CLUSTERING AND DEEP AUTO-ENCODER FOR UNSUPERVISED CHANGE DETECTION IN SYNTHETIC APERTURE RADAR IMAGES**
Yangyang Li, Linhao Zhou, Cheng Peng, Licheng Jiao, Xidian University, China

WEP1.PB.6 Board PB.6 **SALIENCY DETECTION FOR L1/2 REGULARIZATION-BASED SAR IMAGE FEATURE ENHANCEMENT VIA BAYESIAN INFERENCE**
Hua Guan, Jiacheng Ni, Qun Zhang, Li Sun, Kai Wang, Air Force Engineering University, China

WEP1.PB.7 Board PB.7 **ANALYZING CONSPICUOUS FEATURES OF A CURVED AND GRADED BAY BRIDGE ON SAR IMAGERY**
Yong Wang, Xiaojian Gan, Taoli Yang, University of Electronic Science and Technology of China, United States

WEP1.PB.8 Board PB.8 **CLASSIFICATION OF POLSAR IMAGES BASED ON SVM WITH SELF-PACED LEARNING OPTIMIZATION**
Wenshuai Chen, Dong Hai, Shuiping Gou, Licheng Jiao, Xidian University, China

WEP1.PB.9 Board PB.9 **ATTENTION-BASED CONVOLUTIONAL NEURAL NETWORK FOR THE DETECTION OF BUILT-UP AREAS IN HIGH-RESOLUTION SAR IMAGES**
Yunfei Wu, Rong Zhang, Yibing Zhan, University of Science and Technology of China, China

WEP1.PB.10 Board PB.10 **A NEW METHOD OF RETRIEVING THE INCLINATION DIRECTION OF POWER TRANSMISSION TOWER BY GEOCODING**
Yue Yang, Yunping Chen, Yan Chen, Fanghong Xiao, University of Electronic Science and Technology of China, China; Wenzhu He, Sichuan Academy of Agricultural Sciences, China

Wednesday, July 25 15:50 - 16:50 Poster Area B
Session WEP2.PB Poster

Data Analysis Methods I

Session Chair: Wenzhi Liao Liao, Ghent University

WEP2.PB.1 Board PB.1 **ASSESSMENT OF TREE ATTRIBUTES EXTRACTION ALGORITHMS**
Li Liu, Samsung Lim, University of New South Wales, Australia

WEP2.PB.2 Board PB.2 **ATTRIBUTE PROFILES WITHOUT THRESHOLDS**
Erchan Aptoula, Gebze Technical University, Turkey; Safak Guner Koc, Okan University, Turkey

WEP2.PB.3 Board PB.3 **CLASSIFICATION OF REMOTE SENSING IMAGES USING ATTRIBUTE PROFILES AND FEATURE PROFILES FROM DIFFERENT TREES: A COMPARATIVE STUDY**
Minh-Tan Pham, IRISA - Université Bretagne Sud, France; Erchan Aptoula, Institute of Information Technologies, Gebze Technical University, Turkey; Sébastien Lefèvre, IRISA - Université Bretagne Sud, France

WEP2.PB.4 Board PB.4 **AN HIERARCHICAL AUTOMATIC OBJECT-ORIENTED METHOD OF EXTRACTING CULTIVATED LAND**
Maolin Liu, Yuan Wang, Fei Li, Yang Li, Qi Yin, Peking University, China

WEP2.PB.5 Board PB.5 **DISCRIMINATIVE LEARNING OF POINT CLOUD FEATURE DESCRIPTORS BASED ON SIAMESE NETWORK**
Xuelun Shen, Cheng Wang, Chenglu Wen, Weiquan Liu, Xiaotian Sun, Jonathan Li, Xiamen University, China

WEP2.PB.6 Board PB.6 **A NOVEL FRAMEWORK FOR AUTOMATIC DETERMINATION OF MORPHOMETRIC AND SHAPE PARAMETERS OF LUNAR FLOOR-FRACTURED CRATERS**
Suchit Purohit, Gujarat University, India; Khushali Shah, N/A, India; Savita Gandhi, Gujarat University, India; Prakash Chauhan, ISRO, India

WEP2.PB.7 Board PB.7 **ONE METHOD OF GEOLOGICAL DISASTERS MONITORING BASED ON UAV REMOTE SENSING IMAGES**
Liwen Xu, Xiuwan Chen, Fei Li, Yuan Wang, Peking University, China

WEP2.PB.8 Board PB.8 **KNOWLEDGE-BASED FOR DAMAGE DETECTION OF BRIDGE OVER WATER FROM HIGH-SPATIAL RESOLUTION REMOTE SENSING IMAGES**
Chao Chen, Jiaoqi Fu, Zhejiang Ocean University, China; Li Chen, China Areo Geophysical Survey and Remote Sensing Center for Land and Resources, China; Xu Lu, Zhejiang Ocean University, China

WEP2.PB.9 Board PB.9 **TBR MAXIMUM CRITERIA FOR HIGH RESOLUTION IMAGE VESSEL TARGET EXTRACTION**
Peng Chen, Navigation College, Dalian Maritime University, China; Hui Zhou, Dalian Neusoft University of Information, China; Shengtao Yu, Navigation College, Dalian Maritime University, China

WEP2.PB.10 Board PB.10 **DEEP METRIC AND HASH-CODE LEARNING FOR CONTENT-BASED RETRIEVAL OF REMOTE SENSING IMAGES**
Subhankar Roy, Enver Sangineto, University of Trento, Italy; Begum Demir, Technische Universität Berlin, Germany; Nicu Sebe, University of Trento, Italy

Wednesday, July 25 10:10 - 11:10 Poster Area C
Session WEP1.PC Poster

POLSAR Classification Methods

Session Chair: Carlos Lopez-Martinez, LIST

WEP1.PC.1 Board PC.1
ANISOTROPIC SCATTERING DETECTION FOR CHARACTERIZING POLARIMETRIC CIRCULAR SAR MULTI-ASPECT SIGNATURES
Yang Li, Beijing Institute of Electronic System Engineering, China; Yun Lin, Wen Hong, Institute of Electronics, Chinese Academy of Science, China; Ran Xu, Zhimin Zhuo, Beijing Institute of Electronic System Engineering, China; Qiang Yin, Beijing University of Chemical Technology, China

WEP1.PC.2 Board PC.2
MODEL-BASED DECOMPOSITION WITH REDUCED NEGATIVE SCATTERING POWERS
Ken Yoong Lee, Chen Guang Hou, Jun Xiang Chen, Soo Chin Liew, Leong Keong Kwoh, National University of Singapore, Singapore

WEP1.PC.3 Board PC.3
POLARIMETRIC SAR TERRAIN CLASSIFICATION USING 3D CONVOLUTIONAL NEURAL NETWORK
Lamei Zhang, Zexi Chen, Bin Zou, Harbin Institute of Technology, China; Ye Gao, Product Quality Supervision and Inspection Institute of Harbin, China

WEP1.PC.4 Board PC.4
AN TENSOR-BASED CORN MAPPING SCHEME WITH RADARSAT-2 FULLY POLARIMETRIC IMAGES
Lu Xu, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences; University of Chinese Academy of Sciences, China; Hong Zhang, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China; Chao Wang, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences; University of Chinese Academy of Sciences, China; Bo Zhang, Meng Liu, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China

WEP1.PC.5 Board PC.5
POLSAR ADAPTIVE MODEL-BASED DECOMPOSITION WITHOUT ASSUMPTION OF REFLECTION SYMMETRY
Hongzhong Li, Yu Han, Xinping Deng, Jinsong Chen, Shenzhen Institute of Advanced Technology, CAS, China

WEP1.PC.6 Board PC.6
A FOUR-COMPONENT DECOMPOSITION MODEL FOR POLARIMETRIC SAR IMAGES BASED ON ADAPTIVE VOLUME SCATTERING MODEL
Xiao Wang, Lamei Zhang, Harbin Institute of Technology, China; Sha Zhu, Institute of Beijing Remote Sensing Information (IBRSI), China

WEP1.PC.7 Board PC.7
DETECTION OF POSSIBLE WATER-ICE DEPOSITS ON LUNAR SURFACE USING CONFORMITY COEFFICIENT: AN APPLICATION OF MINISAR DATA
Nidhi Verma, Pooja Mishra, Neetesh Purohit, Indian Institute of Information Technology, Allahabad, India; Dharmendra Singh, Indian Institute of Information Technology, Roorkee, India

WEP1.PC.8 Board PC.8
A NEW FARADAY ROTATION ESTIMATOR BASED ON POLARIMETRIC COHERENCY MATRIX AND ITS EFFECT ON SEA ICE
Bing Li, Zemin Wang, Jiachun An, Chunxia Zhou, Yiming Chen, Wuhan University, China

WEP1.PC.9 Board PC.9
A NEW VOLUME SCATTERING MODEL FOR THREE-COMPONENT DECOMPOSITION OF POLARIMETRIC SAR DATA
Zezhong Wang, Qiming Zeng, Jian Jiao, Peking University, China

WEP1.PC.10 Board PC.10
FOREST CANOPY HEIGHT ESTIMATION FROM INTERFEROMETRIC TANDEM-X COHERENCE DATA OVER COMPLEX TERRAIN AREA
Yaxiong Fan, Erxue Chen, Zengyuan Li, Institute of Forest Resource Information Techniques,Chinese Academy of Forestry, China; Wangfei Zhang, College of Forestry, Southwest Forestry University, China; Lei Zhao, Institute of Forest Resource Information Techniques,Chinese Academy of Forestry, China; Yongjie Ji, College of Forestry, Southwest Forestry University, China

Wednesday, July 25 15:50 - 16:50 Poster Area C
Session WEP2.PC Poster

Radar and Lidar

WEP2.PC.1 Board PC.1
BARRAGE JAMMING DETECTION AND CLASSIFICATION BASED ON CONVOLUTIONAL NEURAL NETWORK FOR SYNTHETIC APERTURE RADAR
Yu Junfei, Li Jingwen, Sun Bing, Jiang YuMing, Beihang University, China

WEP2.PC.3 Board PC.3
ISAR IMAGING OF OBJECTS EMBEDDED IN CLUTTER USING COMPRESSIVE SENSING
Jon Mitchell, Saibun Tjuatja, University of Texas at Arlington, United States

WEP2.PC.4 Board PC.4
MULTI FREQUENCY ANALYSIS OF SCATTERING MATRIX AND SCATTERING POWER MATRIX FOR MARINE VESSELS DETECTION
Gaurav Kumar Dashondhi, Krishna Mohan Buddhiraju, Indian Institute of Technology Bombay, India

WEP2.PC.5 Board PC.5
NONPARAMETRIC BAYESIAN 3-D ISAR IMAGING OF SPACE DEBRIS
Feng Zhou, Yu Ning, Xueru Bai, Lei Liu, Xidian University, China

WEP2.PC.6 Board PC.6
UNDERWATER MATERIAL DISCRIMINABILITY WITH FLUORESCENCE LIDAR IN UNKNOWN ENVIRONMENTAL CONDITIONS
Stefania Matteoli, National Research Council of Italy (CNR), Italy; Giovanni Corsini, University of Pisa, Italy

WEP2.PC.7 Board PC.7
COMPARATIVE STUDY ON DIFFERENT TIME DISCRIMINATION METHODS FOR FULL-WAVEFORM LIDAR
Duan Li, Beihang University, China

WEP2.PC.8 Board PC.8
SEGMENT-BASED TRAFFIC SIGN DETECTION FROM MOBILE LASER SCANNING DATA
Ying Li, Lingfei Ma, University of Waterloo, Canada; Yuchun Huang, Wuhan University, China; Jonathon Li, University of Waterloo, Canada

WEP2.PC.9 Board PC.9
MOVING TARGET DETECTION AND RECOGNITION METHOD BASED ON IMAGES SEQUENCE
Li Deng, Jingye Yan, Zhen Yang, Ailan Lan, Ji Wu, National Space Science Center, Chinese Academy of Sciences, China

Wednesday, July 25 10:10 - 11:10 Poster Area D
Session WEP1.PD Poster

POLSAR Applications

Session Chair: Hannah Joerg, German Aerospace Center (DLR)

WEP1.PD.1 Board PD.1 **AUTOMATIC-ZOOMING-TYPE WINDOW SIZE OPTIMIZATION FOR POLSAR DATA INTERPRETATION**
Masanari Sugita, Naoto Kishi, Fang Shang, University of Electro-Communications, Japan

WEP1.PD.2 Board PD.2 **SOIL MOISTURE RETRIEVAL BY MEANS OF ADAPTIVE POLARIMETRIC TWO-SCALE TWO-COMPONENT MODEL WITH FULLY POLARIMETRIC ALOS-2 DATA**
Yuta Izumi, Tohoku University, Japan; Joko Widodo, Chiba university, Japan; Husnul Kausarian, Universitas Islam Riau, Indonesia; Sevket Demirci, Mersin University, Turkey; Ayaka Takahashi, Josaphat Tetuko Sri Sumantyo, Chiba university, Japan; Motoyuki Sato, Tohoku University, Japan

WEP1.PD.3 Board PD.3 **VALIDATION OF SAR ICEBERG DETECTION WITH GROUND-BASED RADAR AND GPS MEASUREMENTS**
Vahid Akbari, UiT The Arctic University of Norway, Norway; Tom Rune Lauknes, Line Rouyet, Northern Research Institute, Norway; Jean Negrel, NPI Norwegian Polar Institute, Norway; Torbjørn Eltoft, UiT The Arctic University of Norway, Norway

WEP1.PD.4 Board PD.4 **STUDY OF POLARIMETRIC DECOMPOSITION TECHNIQUES FOR MONITORING TEMPORAL GROWTH OF MAJOR KHARIF CROPS AND SURROUNDING LANDUSE IN INDIA**
Bindi Dave, Centre For Environment Planning And Technology, India; Shiv Mohan, Physical Research Laboratory, India

WEP1.PD.5 Board PD.5 **BURN SCAR DETECTION USING POLARIMETRIC ALOS-2 DATA**
Simon Plank, Susanne Karg, Sandro Martinis, German Aerospace Center (DLR), Germany

WEP1.PD.6 Board PD.6 **A THREE-LAYER SCATTERING MODEL OF THE SLOPE FOREST AREA FOR POLARIMETRIC SAR INTERFEROMETRY**
Lamei Zhang, Baolong Duan, Bin Zou, Harbin Institute of Technology, China; Yan Cheng, Product Quality Supervision and Inspection Institute of Harbin, China

WEP1.PD.8 Board PD.8 **POLSAR AND POLINSAR MODELING FOR SNOW PARAMETERS ESTIMATION USING RISAT-1 AND TERRASAR-X DATASETS**
Shubham Awasthi, Indian Institute of Technology Roorkee, India; Shashi Kumar, Praveen Kumar Thakur, Indian Institute of Remote Sensing, India; Sneh Mani, Snow & Avalanche Study Establishment, DRDO, Chandigarh, India, India

WEP1.PD.9 Board PD.9 **CODEBOOK-BASED HIERARCHICAL POLARIZATION FEATURE FOR UNSUPERVISED FINE LAND CLASSIFICATION USING HIGH-RESOLUTION POLSAR DATA**
Hyunsoo Kim, Akira Hirose, The University of Tokyo, Japan

WEP1.PD.10 Board PD.10 **COMPARISON OF COMPACT, DUAL AND QUAD-POL ALOS-2/PALSAR-2 SAR DATA FOR AGRICULTURE AND URBAN AREA CLASSIFICATION**
Vineet Kumar, Y. S. Rao, Indian Institute of Technology Bombay, India

Wednesday, July 25 15:50 - 16:50 Poster Area D
Session WEP2.PD Poster

Applications of Remote Sensing

Session Chair: Volkan Akgul, Bulent Ecevit University

WEP2.PD.2 Board PD.2 **EVALUATING THE POTENTIAL OF SENTINEL-2 FOR LOW SEVERITY MITES INFESTATION DETECTION IN GRAPES**
Jayantrao Mohite, Navin Twarakavi, Srinivasu Pappula, Tata Consultancy Services, India

WEP2.PD.3 Board PD.3 **CROP CLASSIFICATION BASED ON CONDITIONAL RANDOM FIELDS USING REMOTE SENSING IMAGERY WITH HIGH SPECTRAL AND SPATIAL RESOLUTION**
Ji Zhao, China University of Geosciences, China; Yanfei Zhong, Wuhan University, China; Lizhe Wang, China University of Geosciences, China; Lifei Wei, Hubei University, China; Ruyi Feng, China University of Geosciences, China; Lina Hao, Chengdu University of Technology, China

WEP2.PD.4 Board PD.4 **FULLY CONVOLUTIONAL NEURAL NETWORKS FOR LARGE SCALE CROPLAND MAPPING WITH HISTORICAL LABEL DATASET**
Dujuan Zhang, Jinshui Zhang, Yaozhong Pan, Yaming Duan, Beijing Normal University, China

WEP2.PD.5 Board PD.5 **CLASSIFICATION OF RARE BUILDING CHANGE USING CNN WITH MULTI-CLASS FOCAL LOSS**
Keisuke Nemoto, Ryuhei Hamaguchi, Tomoyuki Imaizumi, Shuhei Hikosaka, PASCO CORPORATION, Japan

WEP2.PD.6 Board PD.6 **COMPARISON BETWEEN SUPERVISED CLASSIFIERS FOR MULTIEMPORAL ANALYSIS OF THE LAND USE AND COVER IN SURROUNDING AREA OF THE RESERVOIR OF THE HYDROELECTRIC POWER PLANT OF CORUMBÁ IV, GOIÁS, BRAZIL**
Najla Vilar Aires de Moura, Osmar Abílio de Carvalho Júnior, Roberto Arnaldo Trancoso Gomes, Renato Fontes Guimarães, Universidade de Brasília, Brazil

WEP2.PD.7 Board PD.7 **IDENTIFYING FAVORABLE SPATIO-TEMPORAL CONDITIONS FOR WEST NILE VIRUS OUTBREAKS BY CO-CLUSTERING OF MODIS LST INDICES TIME SERIES**
Veronica Andreo, University of Twente, Netherlands; Emma Izquierdo-Verdiguier, University of Twente / Image Processing Laboratory (IPL), University of Valencia, Netherlands; Raúl Zurita-Milla, University of Twente, Netherlands; Roberto Rosà, Annapaola Rizzoli, Center of Research and Innovation. Fondazione Edmund Mach., Italy; Anna Papa, Arboviruses Reference Laboratory. Aristotle University of Thessaloniki., Greece

WEP2.PD.8 Board PD.8 **MAPPING URBAN EXTENT FROM NIGHT-TIME LIGHT IMAGERY USING OBJECT-BASED MODEL AND A NEURAL NETWORK**
Xi Li, Ruiqi Ma, Wuhan University, China; Huimin Xu, Wuhan Donghu University, China; Li Mi, Central South University, China; Michael Jendryke, Wuhan University, China

WEP2.PD.9 Board PD.9 **EXPLORING SENTINEL-1 DATA FOR LOCAL CLIMATE ZONE CLASSIFICATION**
Jingliang Hu, Xiao Xiang Zhu, DLR - German Aerospace Center, Germany

WEP2.PD.10 Board PD.10 **FEATURE IMPORTANCE ANALYSIS OF SENTINEL-2 IMAGERY FOR LARGE-SCALE URBAN LOCAL CLIMATE ZONE CLASSIFICATION**
Chunping Qiu, Michael Schmitt, Technical University of Munich (TUM), China; Pedram Ghamisi, Remote Sensing Technology Institute (IMF), German Aerospace Center (DLR), Germany; Lichao Mou, Xiao Xiang Zhu, Technical University of Munich (TUM), Germany

Wednesday, July 25 **10:10 - 11:10** **Poster Area E**
Session WEP1.PE **Poster**

Band Selection for Hyperspectral Data

Session Co-Chairs: Jose Bioucas Dias, Universidade de Lisboa; Saurabh Prasad, University of Hosuton

WEP1.PE.1 Board PE.1
COMBINATION OF BAND SELECTION AND WEIGHTED SPATIAL-SPECTRAL METHOD FOR HYPERSPECTRAL IMAGE CLASSIFICATION
Xiangjuan Li, College of Computer Science, Xi'an ShiYou University, China; Giorgos Mountrakis, State University of New York College of Environmental Science and Forestry, United States; Chuanyuan Zhao, Feng Zhang, College of Computer Science, Xi'an ShiYou University, China

WEP1.PE.2 Board PE.2
HYPERSPECTRAL BAND SELECTION USING PAIR-WISE CONSTRAINT AND BAND-WISE CORRELATION
Ting Lu, Shutao Li, Hunan University, China

WEP1.PE.3 Board PE.3
HYPERSPECTRAL BAND SELECTION BASED ON ENDMEMBER DISSIMILARITY FOR HYPERSPECTRAL UNMIXING
Mingming Xu, School of Geosciences, China University of Petroleum (East China), China; Yuxiang Zhang, Institute of Geophysics and Geomatics, China University of Geosciences, China; Jie Li, School of Geodesy and Geomatics, Wuhan University, China; Jiayi Li, School of Remote Sensing and Information Engineering, Wuhan University, China; Dongmei Song, Yanguo Fan, Ning Sun, School of Geosciences, China University of Petroleum (East China), China

WEP1.PE.4 Board PE.4
SELECTING BAND SUBSETS FROM HYPERSPECTRAL IMAGE THROUGH A NOVEL EVOLUTIONARY-BASED STRATEGY
Xuefeng Jiang, Lin Zhang, Fahong Zhang, Junrui Liu, Qi Wang, Northwestern Polytechnical University, China

WEP1.PE.5 Board PE.5
THREE-DIMENSIONAL EMPIRICAL MODE DECOMPOSITION BASED HYPERSPECTRAL BAND SELECTION METHOD
Miao Zhang, Wenbo Yu, Yi Shen, Harbin Institute of Technology, China

WEP1.PE.6 Board PE.6
TOWARDS WEAKLY PARETO OPTIMAL: AN IMPROVED MULTI-OBJECTIVE BASED BAND SELECTION METHOD FOR HYPERSPECTRAL IMAGERY
Bin Pan, Beihang University, China; Liming Wang, Institute of Information Engineering Chinese Academy of Sciences, China; Xia Xu, Zhenwei Shi, Beihang University, China

WEP1.PE.7 Board PE.7
OPTIMAL NEIGHBORING RECONSTRUCTION FOR HYPERSPECTRAL BAND SELECTION
Fahong Zhang, Qi Wang, Northwestern Polytechnical University, China; Xuelong Li, Chinese Academy of Sciences, China

WEP1.PE.9 Board PE.9
A CNN-BASED FUSION METHOD FOR SUPER-RESOLUTION OF SENTINEL-2 DATA
Massimiliano Gargiulo, Antonio Mazza, University Federico II, Italy; Raffaele Gaetano, CIRAD, France; Giuseppe Ruello, Giuseppe Scarpa, University Federico II, Italy

Wednesday, July 25 **15:50 - 16:50** **Poster Area E**
Session WEP2.PE **Poster**

Scene Classification

Session Chair: Bing Zhang, Chinese Academy of Sciences

WEP2.PE.1 Board PE.1
A NOVEL MULTIPLE KERNEL LEARNING FRAMEWORK FOR REMOTE SENSING SCENE CLASSIFICATION
Xiaoyong Bian, Yuxia Sheng, Wuhan University of Science and Technology, China; Yan Xu, Qian Du, Mississippi State University, United States

WEP2.PE.2 Board PE.2
AID++: AN UPDATED VERSION OF AID ON SCENE CLASSIFICATION
Pu Jin, Gui-Song Xia, Fan Hu, Qikai Lu, Liangpei Zhang, Wuhan University, China

WEP2.PE.3 Board PE.3
SCENE CLASSIFICATION OF HIGH RESOLUTION REMOTE SENSING IMAGES VIA SELF-PACED DEEP LEARNING
Xiwen Yao, Gong Cheng, Junwei Han, Lei Guo, Northwestern Polytechnical University, China

WEP2.PE.4 Board PE.4
LAHNET: A CONVOLUTIONAL NEURAL NETWORK FUSING LOW- AND HIGH-LEVEL FEATURES FOR AERIAL SCENE CLASSIFICATION
Yuansheng Hua, Lichao Mou, Xiao Xiang Zhu, Technical University of Munich (TUM) / German Aerospace Center (DLR), Germany

WEP2.PE.5 Board PE.5
SEMI-SUPERVISED SCENE CLASSIFICATION FOR REMOTE SENSING IMAGES BASED ON CNN AND ENSEMBLE LEARNING
Xueyuan Dai, Xiaofeng Wu, Bin Wang, Liming Zhang, Fudan University, China

WEP2.PE.6 Board PE.6
ADAPTIVE SPATIAL-SCALE-AWARE DEEP CONVOLUTIONAL NEURAL NETWORK FOR HIGH-RESOLUTION REMOTE SENSING IMAGERY SCENE CLASSIFICATION
Wei Han, Ruyi Feng, Lizhe Wang, Lang Gao, China University of Geosciences, China

WEP2.PE.7 Board PE.7
ATTENTION BASED NETWORK FOR REMOTE SENSING SCENE CLASSIFICATION
Shaoteng Liu, Qi Wang, Northwestern Polytechnical University, China; Xuelong Li, Chinese Academy of Sciences, China

WEP2.PE.8 Board PE.8
DIVERSIFYING DEEP MULTIPLE CHOICES FOR REMOTE SENSING SCENE CLASSIFICATION
Zhiqiang Gong, Ping Zhong, Jiaxin Shan, Weidong Hu, National University of Defense Technology, China

WEP2.PE.9 Board PE.9
ENHANCED INTERACTIVE REMOTE SENSING IMAGE RETRIEVAL WITH SCENE CLASSIFICATION CONVOLUTIONAL NEURAL NETWORKS MODEL
Yaakoub Boualleg, Mohamed Farah, University of Manouba, Tunisia

WEP2.PE.10 Board PE.10
GENERATIVE ADVERSARIAL NETWORKS FOR CROSS-SCENE CLASSIFICATION IN REMOTE SENSING IMAGES
Laila Bashmal, Yakoub Bazi, Haikel AlHichri, Naif Alajlan, King Saud University, Saudi Arabia

Wednesday, July 25 **10:10 - 11:10** **Poster Area F**
Session WEP1.PF **Poster**

Hyperspectral Data Processing I

Session Chair: Sebastiano Serpico, University of Genoa

WEP1.PF.1 Board PF.1 **LOW-COMPLEXITY HYPERSPECTRAL IMAGE COMPRESSION USING FOLDED PCA AND JPEG2000**
Shaohui Mei, Bakht Muhammad Khan, Yifan Zhang, Northwestern Polytechnical University, China; Qian Du, Mississippi State University, United States

WEP1.PF.2 Board PF.2 **SPARSE AND SMOOTH FEATURE EXTRACTION FOR HYPERSPECTRAL IMAGERY**
Behnood Rasti, Keilir Institute of Technology (KIT), University of Iceland, Iceland; Magnus Orn Ulfarsson, University of Iceland, Iceland; Pedram Ghamisi, German Aerospace Center (DLR), Germany

WEP1.PF.3 Board PF.3 **CROSS-SCENE FEATURE SELECTION FOR HYPERSPECTRAL IMAGES BASED ON CROSS-DOMAIN INFORMATION GAIN**
Minchao Ye, Yongqiu Xu, Huijuan Lu, Ke Yan, China Jiliang University, China; Yuntao Qian, Zhejiang University, China

WEP1.PF.5 Board PF.5 **IMPROVED RANDOM PROJECTION WITH K-MEANS CLUSTERING FOR HYPERSPECTRAL IMAGE CLASSIFICATION**
Vineetha Menon, University of Alabama in Huntsville, United States; Qian Du, Mississippi State University, United States; Sundar Christopher, University of Alabama in Huntsville, United States

WEP1.PF.6 Board PF.6 **MONTE CARLO NON-LOCAL MEANS METHOD FOR HYPERSPECTRAL IMAGE DENOISING**
Chuyin Deng, Liyan Li, Zhi He, Jun Li, Guangdong Provincial Key Laboratory of Urbanization and Geo-simulation, Center of Integrated Geographic Information Analysis, School of Geography and Planning, Sun Yat-sen University, China; Yuanhui Zhu, Center of Geographic Information Analysis for Public Security, School of Geographic Sciences, Guangzhou University, China

WEP1.PF.7 Board PF.7 **SEMI-SUPERVISED CLASSIFICATION OF HYPERSPECTRAL DATA FOR GEOLOGIC BODY BASED ON GENERATIVE ADVERSARIAL NETWORKS AT TIANSHAN AREA**
Jin Qin, Ying Zhan, Kang Wu, Wei Liu, Zhaoying Yang, Wang Yao, Yasmine Medjadba, Beijing Normal University, China; Yuanfei Zhang, China Non-ferrous Metals Resource Geological Survey, China; Xianchuan Yu, Beijing Normal University, China

WEP1.PF.8 Board PF.8 **A NOVEL DEEP LEARNING FRAMEWORK BY COMBINATION OF SUBSPACE-BASED FEATURE EXTRACTION AND CONVOLUTIONAL NEURAL NETWORKS FOR HYPERSPECTRAL IMAGES CLASSIFICATION**
Tayeb Alipourfard, Hossein Arefi, University of Tehran, Iran; Somayeh Mahmoudi, Kerman Graduate University of Advanced Technology, Iran

WEP1.PF.9 Board PF.9 **HYPERSPECTRAL IMAGE DENOISING VIA COUPLED SPECTRAL-SPATIAL TENSOR REPRESENTATION**
Lu Zhao, Yang Xu, Zhihui Wei, Nanjing University of Science and Technology, China; Renping Yu, Zhengzhou University, China; Ling Qian, Nanjing University of Science and Technology, China

WEP1.PF.10 Board PF.10 **DEEP TENSOR FACTORIZATION FOR HYPERSPECTRAL IMAGE CLASSIFICATION**
Jingzhou Chen, Wei Zhang, Yuntao Qian, Zhejiang University, China; Minchao Ye, China Jiliang Univeristy, China

Wednesday, July 25 **15:50 - 16:50** **Poster Area F**
Session WEP2.PF **Poster**

Techniques for Multi-temporal Radar Image Analysis

Session Co-Chairs: Emmanuel Trouvé, Université Savoie Mont Blanc; Caitlin Kontgis, Descartes Labs

WEP2.PF.1 Board PF.1 **A NEW NEURAL APPROACH OF SUPERVISED CHANGE DETECTION IN SAR IMAGES USING TRAINING DATA GENERATION WITH CONCURRENT SELF-ORGANIZING MAPS**
Victor-Emil Neagoe, Radu-Mihai Stoica, Polytechnic University of Bucharest, Romania

WEP2.PF.2 Board PF.2 **CHANGE DETECTION APPROACH USING FUZZY LABELED CO-OCCURRENCE MATRIX ON MULTI-TEMPORAL TERRASAR-X IMAGES**
Na Li, Tian Hui Satellite Center of China, China; Fang Liu, National University of Defense Technology, China; Lei Qiu, Beijing Institute of Tracking and Telecommunication Technology, China; Xiangchenyang Su, National University of Defense Technology, China

WEP2.PF.3 Board PF.3 **INTEGRATION OF SAR AND GEOBIA FOR THE ANALYSIS OF TIME-SERIES DATA**
Donato Amitrano, University of Napoli Federico II, Italy; Francesca Cecinati, University of Bath, United Kingdom; Gerardo Di Martino, Antonio Iodice, University of Napoli Federico II, Italy; Pierre-Philippe Mathieu, European Space Agency, Italy; Daniele Riccio, Giuseppe Ruello, University of Napoli Federico II, Italy

WEP2.PF.4 Board PF.4 **CHANGE DETECTION USING CURVELET AND CONTOURLET TRANSFORMS USING MULTITEMPORAL SAR IMAGERY**
Rizwan Ahmed Ansari, Krishna Mohan Buddhiraju, Avik Bhattacharya, Indian Institute of Technology Bombay, India

WEP2.PF.5 Board PF.5 **SAR IMAGE CHANGE DETECTION BASED ON CONDITIONAL SPATIAL AND KERNEL FUZZY C-MEANS**
Weitong Zhang, Ailing Wen, Ronghua Shang, Licheng Jiao, Xidian University, China

WEP2.PF.6 Board PF.6 **DEEP LEARNING CROP CLASSIFICATION APPROACH BASED ON SPARSE CODING OF TIME SERIES OF SATELLITE DATA**
Mykola Lavreniuk, Nataliia Kussul, Space Research Institute NASU-SSAU, Ukraine; Alexei Novikov, National Technical University of Ukraine "Igor Sikorsky Kiev Polytechnic Institute", Ukraine

Wednesday, July 25 10:10 - 11:10 Poster Area G
Session WEP1.PG Poster

Object Detection in Optical Images III

Session Chair: Bing Zhang, Chinese Academy of Sciences

WEP1.PG.1 Board PG.1 **EXPERIMENT ON THE IMPACT OF SPATIAL RESOLUTION ON BUILDING EXTRACTION ACCURACY**
Jean-Samuel Proulx-Bourque, Lucie Mathieu, Charles Papasodoro, Brad Lehrbass, Canada Center for Mapping and Earth Observation, Canada

WEP1.PG.2 Board PG.2 **RAILWAY DETECTION: FROM FILTERING TO SEGMENTATION NETWORKS**
Bertrand Le Saux, Anne Beaupère, Alexandre Boulch, ONERA, France; Jérémie Brossard, Antoine Manier, Guilhem Villemin, ALTAMETRIS, France

WEP1.PG.3 Board PG.3 **TOWARDS AUTOMATED VESSEL DETECTION AND TYPE RECOGNITION FROM VHR OPTICAL SATELLITE IMAGES**
Sergey Voinov, Detmar Krause, Egbert Schwarz, German Aerospace Center (DLR), Germany

WEP1.PG.4 Board PG.4 **FROM TRANSDUCTIVE TO INDUCTIVE SEMI-SUPERVISED ATTRIBUTES FOR SHIP CATEGORY RECOGNITION**
Quentin Oliveau, Télécom ParisTech, France; Hichem Sahbi, CNRS, University of Pierre and Marie Curie, Sorbonne University, France

WEP1.PG.5 Board PG.5 **INTEGRATING MSER INTO A FAST ICA APPROACH FOR IMPROVING BUILDING DETECTION ACCURACY**
Lipika Agarwal, K. S. Rajan, International Institute of Information Technology, Hyderabad, India

WEP1.PG.6 Board PG.6 **REAL-TIME TRAFFIC MONITORING WITH SATELLITE**
Wei Ao, Feng Xu, Ya-Qiu Jin, Fudan University, China

WEP1.PG.7 Board PG.7 **THREE APPLICATIONS OF DEEP LEARNING ALGORITHMS FOR OBJECT DETECTION IN SATELLITE IMAGERY**
Milena Napiorkowska, David Petit, Deimos Space UK Ltd, United Kingdom; Paula Marti, Deimos Engenharia S.A, Portugal

WEP1.PG.8 Board PG.8 **HOW TO QUICKLY FIND THE OBJECT OF INTEREST IN LARGE SCALE REMOTE SENSING IMAGES**
Zhina Song, Haigang Sui, Wuhan University, China; Li Hua, Huazhong Agricultural University, China

WEP1.PG.9 Board PG.9 **FAST AIRPLANE DETECTION WITH HIERARCHICAL STRUCTURE IN LARGE SCENE REMOTE SENSING IMAGES AT HIGH SPATIAL RESOLUTION**
Hao Chen, Jing Zhao, Tong Gao, Wen Chen, Harbin Institute of Technology, China

WEP1.PG.10 Board PG.10 **DEVELOPMENT OF PATTERN RECOGNITION ALGORITHMS TO DETECT INTENSE CONVECTIVE STORMS FROM MULTISPECTRAL SATELLITE IMAGERY**
Konstantin Khlopenkov, Science Systems and Applications, Inc., United States; Kristopher Bedka, NASA, United States

Wednesday, July 25 15:50 - 16:50 Poster Area G
Session WEP2.PG Poster

Surface Parameter Estimation

Session Co-Chairs: Rick Chartrand, Descartes Labs; Mathieu Fauvel, National Polytechnic Institute of Toulouse

WEP2.PG.1 Board PG.1 **THE ADDITION OF TEMPERATURE SIGNIFICANTLY IMPROVES THE DETECTION OF LAND DEGRADATION IN COLD DRYLANDS USING THE TSS-RESTREND METHODOLOGY**
Arden Burrell, Jason Evans, University of New South Wales, Australia; Yi Liu, Nanjing University of Information Science and Technology, Australia

WEP2.PG.2 Board PG.2 **ESTIMATION OF GROUND DEFORMATION OF TRANSMISSION CORRIDORS IN MOUNTAIN AREAS USING STANFORD METHOD**
Shaochun Su, Yiyu Gong, Songhai Fan, State Grid Sichuan Electric Power Research Institute, China; Hongbo Zhu, Yan Chen, Yunping Chen, University of Electronic Science and Technology of China, China

WEP2.PG.3 Board PG.3 **WATER QUALITY ANALYSIS OF REMOTE SENSING IMAGES BASED ON INVERSION MODEL**
Jinzhe Wang, Junping Zhang, Tong Li, Xiao Wang, Harbin Institute of Technology, China

WEP2.PG.4 Board PG.4 **MONITORING TEMPORAL VARIATIONS OF LAKE POOPÓ WITH LANDSAT 8 OLI IMAGES**
Jorge Centeno, Edson Mitishita, Federal University of Paraná – UFPR, Brazil

WEP2.PG.5 Board PG.5 **MEDIUM AND HIGH RESOLUTION MULTISPECTRAL DATA FROM LANDSAT-8 AND SENTINEL-2 FOR ACTIVE FIRE MONITORING AND POST-FIRE ASSESSMENT OF BURNED AREAS: A CASE STUDY ON VESUVIUS**
Luca Cicala, CIRA, The Italian Aerospace Research Center, Italy; Nicomino Fiscante, Università degli Studi del Sannio, Italy; Cesario Vincenzo Angelino, Sara Parrilli, CIRA, The Italian Aerospace Research Center, Italy

WEP2.PG.6 Board PG.6 **MODELING THE TOA BRIGHTNESS TEMPERATURE ON THE SWIR-SENSORS**
Igor Garkusha, Volodymyr Hnatushenko, EOS Data Analytics, Ukraine

Wednesday, July 25 10:10 - 11:10 Poster Area H
Session WEP1.PH Poster

SAR/InSAR Surface Evolution Analysis

Session Co-Chairs: Rick Chartrand, Descartes Labs; Yajing Yan, University of Savoie Mont Blanc

WEP1.PH.1 Board PH.1
USE OF SENTINEL-1 DATA FOR EARTHQUAKE DAMAGE ASSESSMENT IN CASES OF AMATRICE AND SARPOL-E ZAHAB
Asset Akhmadiya, Qiming Zeng, Peking University, China

WEP1.PH.2 Board PH.2
SURFACE DEFORMATION EVALUATION IN DUJIANGYAN, CHINA USING TIME-SERIES INSAR TECHNIQUE AND MULTIPLE TEMPORAL C-BAND SAR DATASETS
Ningning Xiao, Yong Wang, Yin Zhang, Zhu Zeng, University of Electronic Science and Technology of China, China

WEP1.PH.3 Board PH.3
STUDY OF LANDSLIDE CHARACTERISTICS USING TIME-SERIES INSAR TECHNIQUE
Yan Yan, University of Electronic Science and Technology of China, China; Yong Wang, East Carolina University, United States; Zhu Zeng, University of Electronic Science and Technology of China, China

WEP1.PH.4 Board PH.4
ANALYZING LANDSLIDE-PRONE LOESS AREA OF HEIFANGTAI, GANSU, CHINA USING SBAS-INSAR TECHNIQUE
Zhu Zeng, University of Electronic Science and Technology of China, China; Yong Wang, East Carolina University, United States; Yan Yan, Ningning Xiao, Dongzi Chen, University of Electronic Science and Technology of China, China

WEP1.PH.5 Board PH.5
EARTHQUAKE-INDUCED BUILDING DETECTION BASED ON CORRELATION CHANGE DETECTION METHOD INTEGRATING PCA AND MULTI TEXTURE FEATURES OF SAR IMAGE
Qiang Li, Jingfa Zhang, Institute of Crustal Dynamics, China Earthquake Administration, China

WEP1.PH.6 Board PH.6
THE INSAR SCIENTIFIC COMPUTING ENVIRONMENT 3.0: A FLEXIBLE FRAMEWORK FOR NISAR OPERATIONAL AND USER-LED SCIENCE PROCESSING
Paul A. Rosen, Eric Gurrola, Piyush Agram, Joshua Cohen, Marco Lavalle, Bryan Riel, Heresh Fattahi, Jet Propulsion Laboratory, California Institute of Technology, United States; Michael Aivazis, ParaSim Inc, United States; Mark Simons, California Institute of Technology, United States; Sean Buckley, Jet Propulsion Laboratory, California Institute of Technology, United States

WEP1.PH.7 Board PH.7
USING SENTINEL 1-SAR FOR MONITORING LONG TERM VARIATION IN BURNT FOREST AREAS
Javier Ruiz-Ramos, Armando Marino, Carl P. Boardman, The Open University, United Kingdom

WEP1.PH.8 Board PH.8
TEMPORAL DIFFERENCE AND DENSITY-BASED LEARNING METHOD APPLIED FOR DEFORESTATION DETECTION USING ALOS-2/PALSAR-2
Irene Erlyn Wina Rachmawan, Keio University, Japan; Takeo Tadono, Masato Hayashi, Japan Aerospace Exploration Agency, Japan; Yasushi Kiyoki, Keio University, Japan

WEP1.PH.9 Board PH.9
A NOVEL TOOL FOR UNSUPERVISED FLOOD MAPPING USING SENTINEL-1 IMAGES
Donato Amitrano, Gerardo Di Martino, Antonio Iodice, Daniele Riccio, Giuseppe Ruello, University of Napoli Federico II, Italy

Wednesday, July 25 15:50 - 16:50 Poster Area H
Session WEP2.PH Poster

Change Detection and Multitemporal Analysis

WEP2.PH.1 Board PH.1
BFAST EXPLORER: AN EFFECTIVE TOOL FOR TIME SERIES ANALYSIS
Alexandre Almeida, Nathalia Menini, University of Campinas, Brazil; Jan Verbesselt, Wageningen University & Research, Netherlands; Ricardo Torres, University of Campinas, Brazil

WEP2.PH.2 Board PH.2
DEEP SEMI-NONNEGATIVE MATRIX FACTORIZATION BASED UNSUPERVISED CHANGE DETECTION OF REMOTE SENSING IMAGES
Gang Yang, Heng-Chao Li, Southwest Jiaotong University, China; Wen Yang, Wuhan University, China; William J. Emery, University of Colorado Boulder, United States

WEP2.PH.3 Board PH.3
VEGETATION RECOVERY IN THE PEAT SWAMP FORESTS OF NORTHWESTERN BORNEO FOLLOWING ANTHROPOGENIC AND NATURAL DISTURBANCES
Ha Nguyen, University Of Technology Sydney, Australia; Lucy Hutyra, Boston University, United States

WEP2.PH.4 Board PH.4
USING MULTIDIMENSIONAL REMOTE SENSING TO CHARACTERIZE DEGRADED FORESTS IN THE BRAZILIAN AMAZON
Clément Bourgoin, CIRAD, France; Damien Arvor, CNRS, France; Julie Betbeder, CIRAD, France; Romain Tavenard, Johan Oszwald, CNRS, France; Lilian Blanc, CIRAD, France; Louis Reymondin, Peter Läderach, CIAT, Viet Nam; Valéry Gond, CIRAD, France

WEP2.PH.5 Board PH.5
TOWARDS UNSUPERVISED FLOOD MAPPING GENERATION USING AUTOMATIC THRESHOLDING AND CLASSIFICATION APROACHES
Rubén Iglesias, Emma Garcia-Boadas, Fernando Vicente-Guijalba, Giuseppe Centolanza, Javier Duro, Dares Technology, Spain

WEP2.PH.6 Board PH.6
ROBUST PCANET FOR HYPERSPECTRAL IMAGE CHANGE DETECTION
Zhenghang Yuan, Qi Wang, Northwestern Polytechnical University, China; Xuelong Li, Chinese Academy of Sciences, China

WEP2.PH.7 Board PH.7
MONITORING OF DROUGHT CHANGE IN THE MIDDLE REACH OF YANGTZE RIVER
Pingchuan Zhong, Na Wang, Zezhong Zheng, University of Electronic Science and Technology of China, China; Jun Xia, Liping Zhang, Xiang Zhang, Wuhan University, China; Mingcang Zhu, Yong He, Land and Resources Department of Sichuan Province, China; Ling Jiang, University of Electronic Science and Technology of China, China; Guoqing Zhou, Guangxi Key Laboratory for Spatial Information and Geomatics, China; Jiang Li, Old Dominion University, United States

WEP2.PH.9 Board PH.9
MAPPING FORESTRY LAND USE CHANGE IN CLOUDY AREAS
Guy Serbin, Stuart Green, Teagasc, Ireland

WEP2.PH.10 Board PH.10
FOREST COVER DYNAMICS: A CASE STUDY ON THE UPPER PARANA ATLANTIC FOREST IN PARAGUAY
Emmanuel Da Ponte, German Aerospace Center (DLR), Germany; Martina Fleckenstein, World Wildlife Found, Germany; Natascha Oppelt, University of Kiel, Germany; Claudia Kuenzer, German Aerospace Center (DLR), Germany

Wednesday, July 25 **10:10 - 11:10** **Poster Area I**
Session WEP1.PI **Poster**

Land Use and Land Cover Changes Analysis

Session Co-Chairs: Kostas Stamatiou, DigitalGlobe; Manuel Bertoluzza, University of Trento

WEP1.PI.2 Board PI.2
LAND-COVER AND LAND-USE CLASSIFICATION BASED ON MULTITEMPORAL SENTINEL-2 DATA
Martin Weinmann, Uwe Weidner, Karlsruhe Institute of Technology, Germany

WEP1.PI.3 Board PI.3
THE RESEARCH OF BUILDING EARTHQUAKE DAMAGE OBJECT-ORIENTED CHANGE DETECTION BASED ON ENSEMBLE CLASSIFIER WITH REMOTE SENSING IMAGE
Yan Zhao, Peking University / China Transport Telecommunications Information Center, China; Huazhong Ren, Peking University, China; Desheng Cao, China Transport Telecommunications & Information Center, China

WEP1.PI.4 Board PI.4
A NEW SEMI-AUTOMATIC SEAMLESS CLOUD-FREE LANDSAT MOSAICING APPROACH TRACKS FOREST CHANGE OVER LARGE EXTENTS
Samuel Hislop, Simon Jones, Mariela Soto-Berelov, RMIT University, Australia; Andrew K Skidmore, University of Twente, Netherlands; Andrew Haywood, European Forest Institute, Spain; Trung Nguyen, RMIT University, Australia

WEP1.PI.5 Board PI.5
DYNAMIC CHANGE MONITORING AND ASSESSMENT FOR SANDY LAND BASED ON QUANTITATIVE REMOTE SENSING
Junjun Wu, Chinese Academy of Sciences, China; Zhihai Gao, Chinese Academy of Forestry, China; Qinhuo Liu, Chinese Academy of Sciences, China; Zengyuan Li, Chinese Academy of Forestry, China; Bo Zhong, Chinese Academy of Sciences, China; Bin Sun, Chinese Academy of Forestry, China; Xiangyuan Ding, Insights value of Beijing, China; Changlong Li, State Academy of Forestry Administration, China; Hongyan Wang, Aixia Yang, Chinese Academy of Sciences, China; Xinshuang Wang, Shaanxi Geomatics Center of National Administration of Surverying, China

WEP1.PI.6 Board PI.6
A FLEXIBLE APPROACH FOR SPATIO-TEMPORAL REMOTE SENSING DATA ANALYSIS
Rudiger Gens, University of Alaska Fairbanks, United States

WEP1.PI.7 Board PI.7
EXPLOITATION OF SENTINEL-2 TIME SERIES FOR HORTICULTURE CROPS INVENTORY
Ana Navarro, João Catalão, Luís Ribeiro, Instituto Dom Luiz (IDL), Faculdade de Ciências, Universidade Lisboa, Portugal

WEP1.PI.10 Board PI.10
METEOR IMPACT DETECTION ON MARS WITH CHANGE DETECTION FRAMEWORK
Stéphane May, CNES, France

Wednesday, July 25 **15:50 - 16:50** **Poster Area I**
Session WEP2.PI **Poster**

Data Fusion IV

Session Chair: Pedram Ghamisi, German Aerospace Center (DLR) and Technical University of Munich (TUM)

WEP2.PI.1 Board PI.1
SATELLITE-BASED ESTIMATION OF TERRESTRIAL LATENT HEAT IN CHINA BASED ON FUSION ALGORITHM
Nannan Zhang, Yang Liu, Hang Zhao, Liqun Zou, Research Institute of Petroleum Exploration & Development, PetroChina, China; Yunjun Yao, Beijing Normal University, China; Wentong Dong, Hongyan Guo, Hongying Zhou, Research Institute of Petroleum Exploration & Development, PetroChina, China; Miaofen Huang, Guangdong Ocean University, China

WEP2.PI.2 Board PI.2
ELIMINATING EFFECT OF IMAGE BORDER WITH IMAGE PERIODIC DECOMPOSITION FOR PHASE CORRELATION BASED IMAGE REGISTRATION
Yunyun Dong, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences; University of Chinese Academy of Sciences, China; Tengfei Long, Weili Jiao, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China

WEP2.PI.3 Board PI.3
A UNIFIED SPATIAL-TEMPORAL-SPECTRAL LEARNING FRAMEWORK FOR RECONSTRUCTING MISSING DATA IN REMOTE SENSING IMAGES
Qiang Zhang, Qiangqiang Yuan, Huanfeng Shen, Liangpei Zhang, Wuhan University, China

WEP2.PI.4 Board PI.4
DENSE-ADD NET: AN NOVEL CONVOLUTIONAL NEURAL NETWORK FOR REMOTE SENSING IMAGE INPAINTING
Daoyu Lin, UCAS, China; Guangluan Xu, Yang Wang, Xian Sun, Kun Fu, IECAS, China

WEP2.PI.5 Board PI.5
MARINE SEDIMENT MAPPING USING MULTI-SOURCE AND MULTI-DIMENSIONAL ACOUSTIC IMAGES BASED ON EVIDENTIAL FUSION
Xi Chen, Peking University, China; Jing Li, Beijing Normal University, China; Wei Shen, Shanghai Ocean University, China; Liangliang Tao, Nanjing University of Information Science and Technology, China; Yaokui Cui, Yang Hong, Peking University, China

WEP2.PI.7 Board PI.7
JOINT ENCODING LBP FEATURES FROM INFRARED AND VISIBLE-LIGHT CLOUD IMAGE OBSERVATIONS FOR GROUND-BASED CLOUD CLASSIFICATION
Yu Wang, Shanxi University, China; Chunheng Wang, Cunzhao Shi, Baihua Xiao, State Key Laboratory of Management and Control for Complex Systems, Institute of Automation, Chinese Academy of Sciences, China

WEP2.PI.8 Board PI.8
RADAR AND OPTICAL IMAGERY FOR OIL SLICKS MONITORING IN THE OFFSHORE DOMAIN
Sébastien Angelliaume, Xavier Ceamanos, Françoise Viallefont-Robinet, Remi Baque, Philippe Déliot, ONERA, France; Véronique Miegebielle, TOTAL, France

WEP2.PI.9 Board PI.9
A MULTIVARIATE GRADIENT AND MUTUAL INFORMATION MEASURE METHOD FOR HYPERSPECTRAL IMAGE VISUALIZATION
Anthony Amankwah, Amankwah Consult, Germany

WEP2.PI.10 Board PI.10
JOINT FEATURE EXTRACTION FOR MULTISPECTRAL AND PANCHROMATIC IMAGES BASED ON CONVOLUTIONAL NEURAL NETWORK
Yi Chen, Mengmeng Zhang, Wei Li, Beijing University of Chemical Technology, China; Qian Du, Mississippi State University, United States

Wednesday, July 25 10:10 - 11:10 Poster Area J
Session WEP1.PJ Poster

Techniques for Multi-temporal Optical Image Analysis

Session Chair: Sicong Liu, Tongji University

WEP1.PJ.1 Board PJ.1 **RADIOMETRIC NORMALIZATION OF MULTI-TEMPORAL IMAGES USING KERNEL CANONICAL CORRELATION ANALYSIS WITH LINEAR, POLYNOMIAL AND GAUSSIAN KERNELS**
Yang Bai, University of Chinese Academy of Sciences/Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China; Ping Tang, Changmiao Hu, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China

WEP1.PJ.2 Board PJ.2 **AN IMPROVED SVM+GA RELEVANCE FEEDBACK MODEL IN THE REMOTE SENSING IMAGE CHANGE INFORMATION RETRIEVAL**
Caihong Ma, Fu Chen, Jianbo Liu, Jianbo Duan, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China

WEP1.PJ.3 Board PJ.3 **CHANGE DETECTION BASED ON FULLY-CONNECTED CONDITIONAL RANDOM FIELD WITH REGION POTENTIAL IN REMOTE SENSING IMAGES**
Yanfeng Shang, The Third Research Institute of Ministry of Public Security, China; Guo Cao, Youqiang Zhang, Nanjing University of Science and Technology, China

WEP1.PJ.4 Board PJ.4 **A COMPARATIVE STUDY OF FUSION-BASED CHANGE DETECTION METHODS FOR MULTI-BAND IMAGES WITH DIFFERENT SPECTRAL AND SPATIAL RESOLUTIONS**
Vinicius Ferraris, University of Toulouse, France; Naoto Yokoya, Geoinformatics Unit, Japan; Nicolas Dobigeon, Marie Chabert, University of Toulouse, France

WEP1.PJ.5 Board PJ.5 **NONLINEAR COOK DISTANCE FOR ANOMALOUS CHANGE DETECTION**
Jose A. Padrón Hidalgo, Adrián Pérez-Suay, Universitat de València, Spain; Fatih Nar, Konya Food and Agriculture University, Turkey; Gustau Camps-Valls, Universitat de València, Spain

WEP1.PJ.6 Board PJ.6 **CLOUD BASED SPATIO-TEMPORAL ANALYSIS OF CHANGE IN SEQUENCES OF SENTINEL IMAGES**
Allan Aasbjerg Nielsen, Technical University of Denmark, Denmark; Mort Canty, Research Centre Jülich, Germany; Henning Skriver, Behnaz Pirzamanbein, Knut Conradsen, Technical University of Denmark, Denmark

WEP1.PJ.7 Board PJ.7 **GROUND-MOVING TARGET INDICATION FROM OBLIQUE AERIAL RGB IMAGERY BY BACKGROUND SUBTRACTION OF A PROJECTION ON A 3-D MODEL**
Julian Fagir, Daniel Henke, University of Zürich, Switzerland

WEP1.PJ.8 Board PJ.8 **A MULTI-FEATURE FUSION POST-CLASSIFICATION CHANGE DETECTION VIA STACKED SPARSE AUTOENCODERS**
Kai Lin, Dalian University of Technology, China; Jianchao Fan, National Marine Environmental Monitoring Center, China; Min Han, Dalian University of Technology, China; Jianhua Zhao, Xinxin Wang, Bingnan Li, National Marine Environmental Monitoring Center, China

WEP1.PJ.9 Board PJ.9 **OPTICAL REMOTE SENSING CHANGE DETECTION THROUGH DEEP SIAMESE NETWORK**
Mohammed El Amin Arabi, Moussa Sofiane Karoui, Khelifa Djerriri, Centre des Techniques Spatiales, Algeria

WEP1.PJ.10 Board PJ.10 **FUZZY FUSION OF CHANGE VECTOR ANALYSIS AND SPECTRAL ANGLE MAPPER FOR HYPERSPECTRAL CHANGE DETECTION**
Sarp Erturk, University of Kocaeli, Turkey

Wednesday, July 25 15:50 - 16:50 Poster Area J
Session WEP2.PJ Poster

Geographic Information Science III

Session Co-Chairs: Xudong Kang, Hunan University; Claudio Persello, University of Twente

WEP2.PJ.1 Board PJ.1 **A SPATIAL CO-LOCATION MINING ALGORITHM BASED ON A SPATIAL CONTINUOUS FIELD WITH REFINED ROAD-NETWORK CONSTRAINTS**
Xiaojing Yao, Dacheng Wang, Liujia Chen, Shaolong Cui, Tianhe Chi, Chinese Academy of Sciences, Beijing, China

WEP2.PJ.2 Board PJ.2 **URBAN THERMAL RADIATION SIMULATION USING HIGH RESOLUTION DIGITAL SURFACE MODELS AND MULTISPECTRAL IMAGES**
Yitong Zheng, Huazhong Ren, Juan Sui, Jiaji Dong, Dingfang Tian, Peking University, China; Rongyuan Liu, China Aero Geophysical Survey and Remote Sensing Center for Land and Resources, China; Qiming Qin, Peking University, China

WEP2.PJ.3 Board PJ.3 **USING IMAGE CLASSIFICATION WITH SPACE SYNTAX MODEL TO PREDICT PEDESTRIAN VOLUMES AND VEHICULAR TRIP LENGTHS**
Vidit Kundu, Sabyasachi Purkayastha, Bindi Dave, Centre of Environmental Planning and Technology, Ahmedabad, India

WEP2.PJ.4 Board PJ.4 **URBAN FUNCTIONAL REGIONS USING SOCIAL MEDIA CHECK-INS**
Zhengqiang Guo, Key Laboratory of Urban Land Resources Monitoring and Simulation, Ministry of Land and Resources, China; Zezhong Zheng, Jiaxi Liu, Shengli Wang, Pingchuan Zhong, University of Electronic Science and Technology of China, China; Mingcang Zhu, Land and Resources Department of Sichuan Province, China; Yong He, Sichuan Institute of Geo-Environment Monitoring, China; Ling Jiang, University of Electronic Science and Technology of China, China; Guoqing Zhou, Guangxi Key Laboratory for Spatial Information and Geomatics, China; Hongsheng Zhang, University of Electronic Science and Technology of China, China; Jiang Li, Old Dominion University, United States

Wednesday, July 25 10:10 - 11:10 Poster Area K
Session WEP1.PK Poster

Hyperspectral Data Processing II

Session Chair: Jordi Inglada, CESBIO

WEP1.PK.1 Board PK.1 **HYPERSPECTRAL COMPRESSIVE SENSING ON LOW ENERGY CONSUMPTION BOARD**
Jose Nascimento, Instituto de Telecomunicações and Instituto Superior de Engenharia de Lisboa, Portugal; Gabriel Martin, Instituto de Telecomunicações, Portugal

WEP1.PK.2 Board PK.2 **A DETAILED PERFORMANCE ANALYSIS OF HYPERSPECTRAL IMAGE COMPRESSION TECHNIQUES**
Mehmetali Danışman, Ali Can Karaca, Ergün Can, Oğuzhan Urhan, Mehmet Kemal Güllü, Kocaeli University, Turkey

WEP1.PK.3 Board PK.3 **COMPRESSION OF HYPERSPECTRAL IMAGES USING LUMINANCE TRANSFORM AND 3D-DCT**
Ergün Can, Ali Can Karaca, Mehmetali Danışman, Oğuzhan Urhan, Mehmet Kemal Güllü, Kocaeli University, Turkey

WEP1.PK.4 Board PK.4 **A DATASET WITH GROUND-TRUTH FOR HYPERSPECTRAL UNMIXING**
Min Zhao, Jie Chen, Northwestern Polytechnical University, China

WEP1.PK.5 Board PK.5 **GABOR-FILTERING-BASED PROBABILISTIC COLLABORATIVE REPRESENTATION FOR HYPERSPECTRAL IMAGE CLASSIFICATION**
Yan Xu, Qian Du, Mississippi State University, United States; Wei Li, Beijing University of Chemical Technology, China; Nicolas H. Younan, Mississippi State University, United States

Wednesday, July 25 15:50 - 16:50 Poster Area K
Session WEP2.PK Poster

Microwave Remote Sensing of Snow Cover

Session Chair: Xiaolan Xu, NASA Jet Propulsion Laboratory, California Institute of Technology

WEP2.PK.1 Board PK.1 **ASSESSMENT OF PASSIVE MICROWAVE SNOW COVER MAPPING METHODS FROM FY-3C/MWRI DATA IN CHINA**
Xiaojing Liu, Lingmei Jiang, Shirui Hao, Gongxue Wang, Jianwei Yang, Beijing Normal University, China; Zhizhong Chen, China Transport Telecommunications & Information Center, China

WEP2.PK.2 Board PK.2 **IMPROVEMENT OF SNOW DEPTH ESTIMATION USING SSM/I BRIGHTNESS TEMPERATURE IN CHINA**
Jianwei Yang, Lingmei Jiang, State Key Laboratory of Remote Sensing Science, Jointly Sponsored by Beijing Normal University and Institute of Remote Sensing and Digital Earth of Chinese Academy of Sciences, Beijing Normal University, China; Shengli Wu, National Satellite Meteorological Center, China Mereorological Administration, China; Xiaojing Liu, Gongxue Wang, Shirui Hao, Jian Wang, State Key Laboratory of Remote Sensing Science, Jointly Sponsored by Beijing Normal University and Institute of Remote Sensing and Digital Earth of Chinese Academy of Sciences, Beijing Normal University, China

WEP2.PK.3 Board PK.3 **ESTIMATION OF SNOW COVER PARAMETERS BY ALOS-2 PALSAR INTERFEROMETRY**
Pavel Dagurov, Tumen Chimitdorzhiev, Aleksey Dmitriev, Institute of Physical Materials Science of SB RAS, Russian Federation; Sergey Dobrynin, Siberian State University of Telecommunications and Information Sciences, Buryat Branch, Russian Federation; Alexander Zakharov, V.A. Kotelnikov Institute of Radio Engineering and Electronics RAS, Fryazino branch, Russian Federation; Arcadiy Baltukhaev, Michail Bykov, Irina Kirbizhekova, Institute of Physical Materials Science of SB RAS, Russian Federation

WEP2.PK.4 Board PK.4 **SNOW COVER MONITORING USING MICROWAVE RADARS: DIELECTRIC CHARACTERIZATION, FABRICATION, AND TESTING OF A SYNTHETIC SNOWPACK**
Pedro Fidel Espin-Lopez, Marco Pasian, Massimiliano Barbolini, Fabio Dell'Acqua, Università degli Studi di Pavia, Italy

WEP2.PK.5 Board PK.5 **TEMPORAL SNOWPACK DENSITY ESTIMATION USING QUAD-POL TERRASAR X DATA**
Ashutosh Verma, Cybertech System and Software Ltd, India; Gulab Singh, Radar Remote Sensing and Cryospheric Sciences Laboratory, India

WEP2.PK.6 Board PK.6 **MAPPING SNOW COVER EXTENT USING OPTICAL AND SAR DATA**
Anna Wendleder, Andreas J. Dietz, Katharina Schork, German Aerospace Center (DLR), Germany

Wednesday, July 25 **10:10 - 11:10** **Poster Area L**
Session WEP1.PL **Poster**

Pansharpening and Superresolution I

Session Co-Chairs: Mauro Dalla Mura, GIPSA-lab, Grenoble Institute of Technology; Marco Chini, Luxembourg Institute of Science and Technology

WEP1.PL.1 Board PL.1 **A CNN-BASED MODEL FOR PANSHARPENING OF WORLDVIEW-3 IMAGES**
Sergio Vitale, Giampaolo Ferraioli, University Parthenope of Naples, Italy; Giuseppe Scarpa, University Federico II of Naples, Italy

WEP1.PL.2 Board PL.2 **IMPROVEMENT OF MRA-BASED PANSHARPENING METHODS THROUGH THE CONSIDERASION OF MIXED PIXELS**
Hui Li, Linhai Jing, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China

WEP1.PL.3 Board PL.3 **PAN-SHARPENING WITH HESSIAN NUCLEAR NORM INDUCED SPATIAL CONSISTENCY**
Pengfei Liu, Nanjing University of Posts and Telecommunications, China; Liang Xiao, Nanjing University of Science and Technology, China; Songze Tang, Nanjing Forest Police College, China

WEP1.PL.4 Board PL.4 **LOCAL SIMILARITY REGULARIZED SPARSE REPRESENTATION FOR HYPERSPECTRAL IMAGE SUPER-RESOLUTION**
Songze Tang, Nan Zhou, Nanjing Forest Police College, China

WEP1.PL.5 Board PL.5 **A COMPARISON OF HYPER-SHARPENING ALGORITHMS FOR FUSING VNIR AND SWIR BANDS OF WORLDVIEW-3 SATELLITE IMAGERY**
Honglyun Park, Jaewan Choi, Chungbuk National University / Republic of Korea, Republic of Korea

WEP1.PL.6 Board PL.6 **BAYESIAN SUPERRESOLUTION METHOD OF FORWARD-LOOKING IMAGING WITH GENERALIZED GAUSSIAN CONSTRAINT**
Yin Zhang, Changlin Li, Deqing Mao, Yulin Huang, Jianyu Yang, University of Electronic Science and Technology of China, China

WEP1.PL.7 Board PL.7 **SPATIAL CONSISTENCY FOR FULL-SCALE ASSESSMENT OF PANSHARPENING**
Luciano Alparone, University of Florence, Italy; Andrea Garzelli, University of Siena, Italy; Gemine Vivone, University of Salerno, Italy

WEP1.PL.8 Board PL.8 **A BAYESIAN SUPER-RESOLUTION METHOD FOR FORWARD-LOOKING SCANNING RADAR IMAGING BASED ON SPLIT BREGMAN**
Qiping Zhang, Yin Zhang, Deqing Mao, Yongchao Zhang, Yulin Huang, Jianyu Yang, University of Electronic Science and Technology of China, China

WEP1.PL.9 Board PL.9 **A MULTI-DIRECTION SUBBANDS AND DEEP NEURAL NETWORKS BASSED PAN-SHARPENING METHOD**
Wei Huang, Zhengzhou University of Light Industry, China; Xuan Fei, Henan University of Technology, China; Junru Yin, Yan Liu, Zhengzhou University of Light Industry, China

WEP1.PL.10 Board PL.10 **PAN-SHARPEN MULTISPECTRAL IMAGES USING SPARSE REPRESENTATION**
Pai-Hui Hsu, Hsiang-Lin Kuo, National Taiwan University, Taiwan

Wednesday, July 25 **15:50 - 16:50** **Poster Area L**
Session WEP2.PL **Poster**

Ice Sheets and Glaciers I

WEP2.PL.1 Board PL.1 **THE GREENLAND ICE SHEET AS A DIELECTRIC RESONATOR**
Alexander Voronovich, Scott Abbott, Paul Johnston, Richard Lataitis, Jesse Leach, Robert Zamora, NOAA/Earth System Research Laboratory, United States

WEP2.PL.2 Board PL.2 **MAPPING, MODELING AND SIMULATION OF SNOW AVALANCHE IN ALAKNANDA VALLEY, CENTRAL HIMALAYA: HAZARD ASSESSMENT**
Kunj Kishore Sethia, Pratima Pandey, Shovanlal Chattoraj, Indian Institute of Remote Sensing, India; Surendar Manickam, Friedrich-Alexander-University Erlangen- Nuremberg, Germany; Prashant K. Champati Ray, Indian Institute of Remote Sensing, India

WEP2.PL.3 Board PL.3 **LATERAL MAPPING OF GLACIER FLOW SPEED WITH A SCANNING RADAR**
Richard Norland, Rune Gundersen, ISPAS AS, Norway

WEP2.PL.4 Board PL.4 **OPTIMUM CONDITIONS FOR DIFFERENTIAL SAR INTERFEROMETRY TECHNIQUE TO ESTIMATE GLACIER VELOCITY**
Bala Nela, Gulab Singh, Indian Institute of Technology Bombay, India

WEP2.PL.5 Board PL.5 **RETRIEVAL OF NEAR-SURFACE ICE SHEET PROPERTIES USING THE GLOBAL PRECIPITATION MEASUREMENT (GPM) RADIOMETER CONSTELLATION**
Mustafa Aksoy, University at Albany, State University of New York, United States

WEP2.PL.6 Board PL.6 **POTENTIAL AND LIMITS OF SENTINEL-1 DATA FOR SMALL ALPINE GLACIERS MONITORING**
Matthias Jauvin, Yajing Yan, Emmanuel Trouvé, Université Savoie Mont Blanc, LISTIC, France; Bénédicte Fruneau, Université Paris-Est Marne-la-Vallée, LaSTIG, IGN-UPEM, France

WEP2.PL.7 Board PL.7 **LONG TERM ELEVATION CHANGE MONITORING OF ANTARCTIC ICE SHEET BY COMBINING ICESAT, ENVISAT AND CRYOSAT-2 DATA**
Huan Xie, Wenjia Du, Lei Chen, Gang Hai, Shanshan Zhang, Jiajin Chen, Yixiang Tian, Shijie Liu, Xiaohua Tong, Rongxing Li, Tongji University, China

WEP2.PL.8 Board PL.8 **OBSERVATION OF HUGE ICEBERG DETACHMENT FROM LARSEN-C ICE SHELF IN ANTARCTIC PENINSULA BY ALOS-2/PALSAR-2**
Takahiro Abe, Masato Ohki, Takeo Tadono, Japan Aerospace Exploration Agency, Japan

WEP2.PL.9 Board PL.9 **A FRAMEWORK OF FRACTURE MAPPING OF FILCHNER - RONNE ICE SHELF, ANTARCTICA, USING MULTISOURCE SATELLITE DATA**
Rongxing Li, Haifeng Xiao, Shijie Liu, Da Lv, Xiaohua Tong, Tongji University, China

WEP2.PL.10 Board PL.10 **DETECTING GLACIER SURFACE CHANGES USING OBJECT-BASED CHANGE DETECTION**
Kavita V. Mitkari, Manoj K. Arora, Punjab Engineering College, Chandigrah, India; Reet Kamal Tiwari, Indian Institute of Technology Ropar, India

Wednesday, July 25 10:10 - 11:10 Poster Area M
Session WEP1.PM Poster

Optical Remote Sensing of Snow Cover

Session Chair: Linmei Jiang, Beijing Normal University

WEP1.PM.1 Board PM.1 **THE EFFECT OF SNOW ON BOREAL FOREST ALBEDO**
Terhikki Manninen, Emmihenna Jääskeläinen, Finnish Meteorological Institute, Finland

WEP1.PM.2 Board PM.2 **SPATIO-TEMPORAL VARIABILITY OF SNOW COVER OF YAMUNOTRI CATCHMENT, INDIA**
Chetan Sharma, Chandra Shekhar Prasad Ojha, Indian Institute of Technology Roorkee, India

WEP1.PM.3 Board PM.3 **CLOUD-FREE FRACTIONAL SNOW COVER ESTIMATION FROM BLENDED MODIS AND FY-2 VISSR MEASUREMENTS**
Gongxue Wang, Lingmei Jiang, Shirui Hao, Xiaojing Liu, Jianwei Yang, Huizhen Cui, Beijing Normal University, China

WEP1.PM.4 Board PM.4 **MAPPING OF AVALANCHE HAZARD SITES USING TERRAIN, SNOW COVER AND METEOROLOGICAL CRITERIA ON WESTERN PART OF HIMALAYAN RANGE**
Mohammed Abdul Athick A.S., Hasan Raja Naqvi, Mohammed Ihtesham Hussain, Adama Science & Technology University, Ethiopia

WEP1.PM.5 Board PM.5 **ALTITUDE VARIATION OF SNOW COVER IN NEVADO HUASCARAN AND ITS RELATIONSHIP TO EL NIÑO-SOUTHERN OSCILLATION DURING THE PERIOD 2001-2016**
Rodolfo Domingo Moreno Santillán, Beihang University, China; Yang Dongkai, School of Electronics and Information Engineering, Beihang University, China; Wang Haihui, School of Mathematics and System Science, Beihang University, China

WEP1.PM.6 Board PM.6 **ASSESSMENT OF SNOW COVER PRODUCT USING GOOGLE EARTH ENGINE CLOUD COMPUTING PLATFORM**
Zhen Li, Chang Liu, Ping Zhang, Bangseng Tian, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China

WEP1.PM.7 Board PM.7 **SPATIOTEMPORAL PATTERN OF SNOW COVER ACROSS THE TIBETAN PLATEAU BASED ON OBSERVED SNOW PROBABILITY**
Muyi Li, Beijing Normal University, China; Ruiyin Dou, Xi'an University of Architecture and Technology, China; Lin Li, Yaozhong Pan, Beijing Normal University, China

WEP1.PM.8 Board PM.8 **WARM SEASON SNOW/ICE PROBABILITY MAPS FROM MODIS AND VIIRS SENSORS OVER CANADA**
Alexander Trishchenko, Calin Ungureanu, Canada Centre for Remote Sensing, Canada

WEP1.PM.9 Board PM.9 **SATELLITE OBSERVATIONS TO MONITOR SUBARCTIC RAIN-ON-SNOW EVENTS**
Ludovic Brucker, NASA Goddard Space Flight Center / USRA, United States; Stephen (Joe) Munchak, NASA Goddard Space Flight Center, United States

WEP1.PM.10 Board PM.10 **COMPARISON OF QUEBEC SNOW GRID DATA AND GLOBSNOW PRODUCTS OVER THE LA GRANDE AND MANICOUAGAN WATERSHEDS IN CANADA FROM 2006 TO 2010**
Saida Farah Badreddine, Kalifa Goïta, Université de Sherbrooke, Canada; François Vachon, Hydro-Quebec, Canada

Wednesday, July 25 15:50 - 16:50 Poster Area M
Session WEP2.PM Poster

Optical and Infrared Monitoring of Forests II

Session Co-Chairs: Chinsu Lin, National Chiayi University; Maryam Pourshamsi, University of Leicester

WEP2.PM.1 Board PM.1 **A NOVEL EFFECTIVE CHLOROPHYLL INDICATOR FOR FOREST MONITORING USING WORLDVIEW-3 MULTISPECTRAL REFLECTANCE**
Chinsu Lin, National Chiayi University, Taiwan

WEP2.PM.2 Board PM.2 **MANGROVE FOREST MAPPING USING SWIR AND PROXIMITY MEASURE BASED ON THERMAL BAND: A CASE STUDY OF MANGROVES OF PAKISTAN**
Mehwish Ghulam Zuhra, Kyoto University, Japan; Altaf Ali Siyal, Mehran University of Engineering and Technology, Pakistan

WEP2.PM.3 Board PM.3 **POTENTIAL OCCURRENCE RISK PREDICTION OF SUDDEN OAK DEATH UNDER DIFFERENT FUTURE CLIMATE SCENARIOS BASED ON SVM MODEL**
Wei Chen, Chunxiang Cao, Zhou Fang, State Key Laboratory of Remote Sensing Science, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China; Houzhi Jiang, State Key Laboratory of Remote Sensing Science, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences; University of Chinese Academy of Sciences, China; Xiaotong Fang, China Institute of Marine Technology and Economy, China; Shanning Bao, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China; Bo Xie, State Key Laboratory of Remote Sensing Science, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences; University of Chinese Academy of Sciences, China

WEP2.PM.4 Board PM.4 **EFFECT OF DEFORESTATION ON LAND SURFACE TEMPERATURE: A CASE OF FREETOWN AND BO TOWN IN SIERRA LEONE**
Musa Tarawally, Wenbo Xu, University of Electronic Science and Technology of China, China; Weiming Hou, Hebei University of Science and Technology, China; Terence Darlington Mushore, University of Zimbabwe,University of KwaZulu-Natal,, Zimbabwe; Sen Cao, University of Alberta, Canada

WEP2.PM.5 Board PM.5 **STUDIES ON THE FOREST DIEBACK PHENOMENON IN A SEMI-ARID REGION USING REMOTELY SENSED DATA**
Buho Hoshino, Takashi Sasamura, Rakuno Gakuen University, Japan; Atsuko Sugimoto, Hokkaido University, Japan; Tserenochir Tserendulam, Uuganbayar Ganbold, Hustai National Park Mongolia, Mongolia; Christopher McCarthy, Kyoto University, United States; Masami Kaneko, Rakuno Gakuen University, Japan

WEP2.PM.6 Board PM.6 **CHANGE ANALYSIS OF SUBALPINE CONIFEROUS FOREST AREA OVER THE LAST 20 YEARS USING TIME-SERIES LANDSAT IMAGES**
Eunsook Kim, Ji-sun Lee, Go-eun Park, Jong-Hwan Lim, National Institute of Forest Science, Republic of Korea

WEP2.PM.7 Board PM.7 **DETECTING VEGETATION PHENOLOGY IN VARIOUS FOREST TYPES USING LONG-TERM MODIS VEGETATION INDICES**
Bora Lee, Eunsook Kim, Jong-Hwan Lim, National Institute of Forest Science, Republic of Korea; Bumsuk Seo, Karlsruhe Institute of Technology, Germany; Jae-Min Chung, Korea National Arboretum, Republic of Korea

WEP2.PM.8 Board PM.8 **COMPARISON OF RADIOSONDE AND REMOTE SENSING DATA TO EVALUATE CONVECTIVE FOREST FIRE RISK: THE HAINES INDEX**
Maria Jesús Barberà, Raquel Niclòs, Maria José Estrela, University of Valencia, Spain

WEP2.PM.9 Board PM.9 **USING VIIRS IMAGERY TO DETECTED BURNED AREAS IN BRAZILIAN CERRADO**
Filippe Santos, Renata Libonati, Leonardo Peres, Universidade Federal do Rio de Janeiro, Brazil; Allan Pereira, Instituto Federal de Ciência e Tecnologia do Sul de Minas Gerais,, Brazil; Alberto Setzer, Instituto Nacional de Pesquisas Espaciais – INPE, Brazil

WEP2.PM.10 Board PM.10 **OPEN SOURCE PLATFORM FOR UNDERSTANDING FOREST COVER DYNAMICS-OBSERVING EARTH FROM SPACE**
Deepika Mann, Shiv Nadar University, India; Pawan Kumar Joshi, Jawaharlal Nehru University, India; Girish Agrawal, Shiv Nadar University, India

Wednesday, July 25 **10:10 - 11:10** **Poster Area N**
Session WEP1.PN **Poster**

Data Management and Systems I

Session Co-Chairs: Leland Pierce, University of Michigan; Tobias Storch, German Aerospace Center (DLR); Carlos de Cea Dominguez, University of Barcelona

WEP1.PN.1 Board PN.1 **TOWARDS A FRAMEWORK FOR OFFERING REMOTE SENSING DATA IN AN ANALYSIS-READY FORMAT**
Jianghua Zhao, Xuezhi Wang, Yuanchun Zhou, Chinese Academy of Sciences, China; Qiming Qin, Peking University, China

WEP1.PN.2 Board PN.2 **GEO-BASED IMAGE ANALYSIS SYSTEM SUPPORTING OGC-WPS STANDARD ON OPEN PAAS CLOUD PLATFORM**
Kiwon Lee, Kwangseob Kim, Hansung University, Republic of Korea

WEP1.PN.3 Board PN.3 **AUTOMATIC WATER DETECTION METHOD IN FLOODING AREA FOR GF-3 SINGLE-POLARIZATION DATA**
Deke Tang, University of Chinese Academy of Sciences, China; Feng Wang, YuMing Xiang, Hongjian You, WenChao Kang, Institute of Electronics, Chinese Academy of Sciences, China

WEP1.PN.4 Board PN.4 **RAPID ACCESS AND VISUALIZATION OF SPACEBORNE ALTIMETRY DATA FROM ICESAT AND ICESAT-2**
Viswanath Nandigam, Kai Lin, Minh Phan, Adrian Borsa, University of California, San Diego, United States; Siri Jodha Khalsa, University of Colorado Boulder, United States; Christopher Crosby, UNAVCO, United States

WEP1.PN.5 Board PN.5 **A GEOSPATIAL ONTOLOGICAL MODEL FOR REMOTE SENSING SCENE SEMANTIC KNOWLEDGE MINING FOR THE FLOOD DISASTER**
Abhishek Potnis, Surya Durbha, Kuldeep Kurte, Indian Institute of Technology Bombay, India

WEP1.PN.6 Board PN.6 **ASSESSING SUITABILITY OF SATELLITE RAINFALL DATA FOR ESTIMATION OF DAILY STREAMFLOWS OF A SMALL TROPICAL CATCHMENT IN INDIA**
Saswata Nandi, M Janga Reddy, Indian Institute of Technology Bombay, India

WEP1.PN.7 Board PN.7 **ESA-NASA MULTI-MISSION ANALYSIS PLATFORM FOR IMPROVING GLOBAL ABOVEGROUND TERRESTRIAL CARBON DYNAMICS**
Clement Albinet, European Space Agency/ESRIN, Italy; Amanda S. Whitehurst, NASA Headquarters, United States; Henri Laur, European Space Agency/ESRIN, Italy; Kevin J. Murphy, NASA Headquarters, United States; Bjorn Frommknecht, European Space Agency/ESRIN, Italy; Klaus Scipal, European Space Agency/ESTEC, Netherlands; Andrew E. Mitchell, NASA Goddard Space Flight Center, United States; Benhan Jai, NASA Jet Propulsion Laboratory, United States; Rahul Ramachandran, NASA Marshall Space Flight Center, United States

WEP1.PN.8 Board PN.8 **A FLEXIBLE DESKTOP TOOL FOR THE DEPLOYMENT OF PERIODIC DOWNSTREAM SERVICES**
Andrea Ceresi, Alessia Goffi, Luigi Ranghetti, Lorenzo Busetto, Daniela Stroppiana, Gloria Bordogna, Mirco Boschetti, Pietro Alessandro Brivio, Monica Pepe, Massimo Antoninetti, Simone Sterlacchini, CNR, Italy

WEP1.PN.9 Board PN.9 **MEASURING CONTRIBUTION OF SPATIAL INFORMATION TO ENVIRONMENTAL RESEARCH USING TEXT MINING TECHNIQUES**
Jeong-Ho Lee, Moung-Jin Lee, Korea Environment Institute, Republic of Korea

WEP1.PN.10 Board PN.10 **DATA AUGMENTATION METHOD OF SAR IMAGE DATASET**
Mingrui Zhang, Zongyong Cui, Xianyuan Wang, Zongjie Cao, University of Electronic Science and Technology of China, China

Wednesday, July 25 **15:50 - 16:50** **Poster Area N**
Session WEP2.PN **Poster**

Crop Identification and Classification using Remote Sensing II

Session Chair: Dipankar Mandal, Indian Institute of Technology Bombay

WEP2.PN.1 Board PN.1 **PADDY RICE FIELD EXTRACTION USING ALOS-2 PALSAR-2 FULL POLARIMETRIC DATA WITH AGRICULTURAL PARCEL VECTOR DATA**
Chinatsu Yonezawa, Tohoku University, Japan

WEP2.PN.2 Board PN.2 **CROPS CLASSIFICATION FROM SENTINEL-2A MULTI-SPECTRAL REMOTE SENSING IMAGES BASED ON CONVOLUTIONAL NEURAL NETWORKS**
Zhuang Zhou, Shengyang Li, Yuyang Shao, Chinese Academy of Sciences, China

WEP2.PN.3 Board PN.3 **HYPERSPECTRAL IMAGE CLASSIFICATION BASED ON SPECTRAL MIXTURE ANALYSIS FOR CROP TYPE DETERMINATION**
Yeji Kim, Yongil Kim, Seoul National University, Republic of Korea

WEP2.PN.4 Board PN.4 **DEVELOPMENT OF AN APPROACH FOR MONITORING SUGARCANE HARVESTED AND NON-HARVESTED CONDITIONS USING TIME SERIES SENTINEL-1 DATA**
Deepak Murugan, Dharmendra Singh, Indian Institute of Technology Roorkee, India

WEP2.PN.5 Board PN.5 **CROP-IDENTIFICATION USING SENTINEL-1 AND SENTINEL-2 DATA FOR INDIAN REGION**
Jitendra Singh, Umamaheswari Devi, Jagabondhu Hazra, Shivkumar Kalyanaraman, IBM, India

WEP2.PN.7 Board PN.7 **MULBERRY IDENTIFICATION BASED ON SPECTRAL DERIVATIVE AND SUPPORT VECTOR MACHINE**
Shanning Bao, Chunxiang Cao, Wei Chen, Tianyu Yang, Insitute of Remote Sensing and Digital Earth, China; Changyu Qiu, Fangrong Zhu, Guangxi Academy of Semiculture Sciences, China

WEP2.PN.8 Board PN.8 **MAPPING CROPLAND EXTENT BY ASYNCHRONOUS FUSION OF OPTICAL AND ACTIVE MICROWAVE IMAGERY**
Subit Chakrabarti, Tina Cormier, Nick Malizia, David Potere, Damien Sulla-Menashe, Kirk Zmijewski, Telluslabs, Inc., United States; Mark Friedl, Boston University, United States

WEP2.PN.9 Board PN.9 **USING STOKES PARAMETERS DERIVED FROM RADARSAT-2 DATA FOR RAPE (BRASSICA NAPUS L.) BIOMASS INVERSION**
Yue Yang, Wangfei Zhang, Southwest Forestry University, China; Zengyuan Li, Erxue Chen, Lei Zhao, Chinese Academy of Forestry, China; Yahong Zhang, Southwest Forestry University, China; Bin Sun, Chinese Academy of Forestry, China

Wednesday, July 25 **10:10 - 11:10** **Poster Area O**
Session WEP1.PO **Poster**

Forest monitoring using SAR

Session Co-Chairs: Alejandro Monsiváis Huertero, Instituto Politécnico Nacional, ESIME Ticoman; Aleksey Dmitriev, Institute of Physical Materials Science of SB RAS

WEP1.PO.1 Board P0.1 **POLARIZATION SIGNATURE OF LACUNARITY FOR HETEROGENEITY ESTIMATION OF RADAR BACKSCATTERING FROM PINE FOREST**
Aleksey Dmitriev, Tumen Chimitdorzhiev, Pavel Dagurov, Institute of Physical Materials Science of SB RAS, Russian Federation

WEP1.PO.2 Board P0.2 **SENSITIVITY OF SENTINEL-1 TO RAIN STORED IN TEMPERATE FOREST**
César Cisneros Vaca, Christiaan van der Tol, University of Twente, Netherlands

WEP1.PO.3 Board P0.3 **TROPICAL FOREST TREE HEIGHT AND ABOVE GROUND BIOMASS MAPPING IN NEPAL USING TANDEM-X AND ALOS PALSAR DATA**
Oleg Antropov, Aalto University, Finland; Yrjö Rauste, VTT Technical Research Centre of Finland Ltd, Finland; Katri Tegel, Yamuna Baral, Arbonaut, Finland; Virpi Junttila, Lappeenranta University of Technology, Finland; Tuomo Kauranne, Arbonaut, Finland; Tuomas Häme, VTT Technical Research Centre of Finland Ltd, Finland; Jaan Praks, Aalto University, Finland

WEP1.PO.4 Board P0.4 **DETECTION OF BURNED AREAS IN SOUTHERN AFRICAN SAVANNAHS USING TIME SERIES OF C-BAND SENTINEL-1 DATA**
Renaud Mathieu, Russell Main, Council of Science and Industrial Research, South Africa; David Roy, South Dakota State University, United States; Laven Naidoo, Council of Science and Industrial Research, South Africa; Hannah Yang, Princeton University, United States

WEP1.PO.5 Board P0.5 **IDENTIFYING EFFECTIVE FEATURES OF POLSAR AND HYPER-SPECTRAL IMAGES FOR TREE SPECIES CLASSIFICATION BASED CHEMICAL, STRUCTURAL AND WATER CONTENT TRAITS**
Milad Vahidi, K. N. Toosi University of Technology, Iran; Mahmod Reza Sahebi, Associate Professor of Geomatics Engineering Faculty, K. N. Toosi University of Technology, Iran; Mehrnoosh Omati, PHD. Student of Remote Sensing, K. N. Toosi University of Technology, Iran; Reza Mohammadi, K. N. Toosi University of Technology, Iran

WEP1.PO.6 Board P0.6 **A SEMI-EMPIRICAL MODEL TO ESTIMATE BIOPHYSICAL PARAMETERS IN SOUTHERN MEXICO**
Daniel Enrique Constantino Recillas, Alejandro Monsivais-Huertero, José Carlos Jiménez Escalona, Enrique Zempoaltecatl Ramirez, Instituto Politécnico Nacional, ESIME Ticoman, Mexico; Ramata Magagi, Kalifa Goïta, Université de Sherbrooke, Canada

WEP1.PO.7 Board P0.7 **POTENTIAL OF TANDEM-X POL-INSAR COHERENCE TO DETECT FOREST DISTURBANCE**
Mohamed Musthafa, Unmesh Khati, Gulab Singh, Indian Institute of Technology Bombay, India

WEP1.PO.8 Board P0.8 **CHARACTERIZATION OF DOMINANT SCATTERING MECHANISMS IN AREAS OF HIGH BURN SEVERITY WITH C-BAND RADAR**
Gordon Staples, Suzanne Brunke, MDA, Canada

WEP1.PO.9 Board P0.9 **AN IMPROVEMENT IN THE RELATION BETWEEN PALSAR-2 BACKSCATTER AND FOREST STAND VOLUME**
Min-Gee Hong, Choen Kim, Kookmin University, Republic of Korea

Wednesday, July 25 **15:50 - 16:50** **Poster Area O**
Session WEP2.PO **Poster**

Remote Sensing for Crop Growth and Yield Estimation

Session Co-Chairs: Koji Wakamori, JAMSS; Enrico Borgogno-Mondino, University of Torino

WEP2.PO.1 Board P0.1 **COMPARISON OF SURFACE AIR TEMPERATURE PRODUCTS FROM REANALYSIS OVER UNITED STATES AND UKRAINE: APPLICATION TO WHEAT YIELD FORECASTING**
Andres Santamaria-Artigas, University of Maryland, United States; Belen Franch, Pierre Guillevic, Jean-Claude Roger, Eric Vermote, NASA, United States

WEP2.PO.2 Board P0.2 **WHEAT GROWTH MONITORING USING THE RELATIONSHIP BETWEEN HEIGHT AND INTERFEROMETRIC POLARIMETRIC DATA**
Meriem Barbouchi, National Institute of Agronomic Research of Tunisia, Tunisia; Riadh Abdelfattah, Higher School of Communications of Tunis, Tunisia; Karem Chokmani, National Institute for Scientic Research, Canada; Nadhira Ben Aissa, Hatem Cheikh M'hammed, National Institute of Agronomic Research of Tunisia, Tunisia

WEP2.PO.4 Board P0.4 **RESEARCH AND PRACTICE OF REMOTE SENSING AIDED SAMPLING YIELD OF GRAIN CROPS BASED ON COUNTING PLANTS AND KERNELS**
Xingsheng Xia, Xuechang Zheng, Guofeng Xiao, Xiufang Zhu, Yaozhong Pan, Zhangli Sun, Beijing Normal University, China

WEP2.PO.5 Board P0.5 **THE EFFECTS OF SUGARCANE PRODUCTIVITY ANOMALIES ON L-BAND AND C-BAND SAR SIGNALS**
Ramses Molijn, Lorenzo Iannini, Delft University of Technology, Netherlands; Carlos Wachholz de Souza, Diego Della Justina, Jansle Vieira Rocha, State University of Campinas (Unicamp), Brazil; Ramon F. Hanssen, Delft University of Technology, Netherlands

WEP2.PO.6 Board P0.6 **ENHANCING THE USDA FAS CROP FORECASTING SYSTEM USING SMAP L3 SOIL MOISTURE OBSERVATIONS**
Iliana Mladenova, John Bolten, NASA Goddard Space Flight Center, United States; Wade Crow, USDA HRSL, United States; Curt Reynolds, USDA FAS, United States

WEP2.PO.7 Board P0.7 **AGRICULTURAL MONITORING: AN AUTOMATIC PROCEDURE FOR CROP YIELD FORECASTING IN THE GREAT RIFT VALLEY OF KENYA**
Roberto Luciani, Giovanni Laneve, Sapienza Università di Roma, Italy; Munzer Jahjah, Agenzia Spaziale Italiana, Italy

WEP2.PO.8 Board P0.8 **CROP YIELD MODELLING APPLYING LEAF AREA INDEX ESTIMATED FROM SENTINEL-2 AND PROBA-V DATA AT JECAM SITE IN POLAND**
Katarzyna Dabrowska-Zielinska, Institute of Gedoesy and Cartography, Poland; Maciej Bartold, Radoslaw Gurdak, Martyna Gatkowska, University of Warsaw, Poland; Wojciech Kiryla, Zbigniew Bochenek, Alicja Malinska, Institute of Geodesy and Cartography, Poland

WEP2.PO.9 Board P0.9 **SATELITE BASED (PRE-)SYSTEM FOR ASSESSMENT OF LOST IN AGRICULTURAL PRODUCTION DUE TO NEGATIVE OVERWINTERING PILOT STUDY FOR INSURANCE SECTOR IN POLAND**
Martyna Gatkowska, University of Warsaw, Poland; Karolina Wrobel, Institute of Geodesy and Cartography, Poland

Wednesday, July 25 10:10 - 11:10 Poster Area P
Session WEP1.PP Poster

Optical and Infrared Monitoring of Forests I

Session Co-Chairs: Martyna A. Stelmaszczuk-Górska, Friedrich-Schiller-University Jena, Germany; Susaki Junichi, Kyoto University

WEP1.PP.1 Board PP.1 **TOWARD AN OPERATIONAL FOREST MONITORING USING COPERNICUS DATA: A CASE STUDY IN CENTRAL GERMANY**
Martyna A. Stelmaszczuk-Górska, Friedrich-Schiller University Jena, Germany; Herbert Sagischewski, Sergej Chmara, ThüringenForst - Institute under Public Law, Germany

WEP1.PP.2 Board PP.2 **AN ASSESSMENT OF 3D MONTE CARLO SIMULATOR TO ESTIMATE FOREST BIDIRECTIONAL REFLECTANCE FACTOR (BRF) WITH SLOPE GROUND CONDITION**
Sheng-Ye Jin, Junichi Susaki, Ryota Miyagaki, Amane Kuriki, Kyoto University, Japan

WEP1.PP.3 Board PP.3 **USING NEAR-SURFACE OBSERVATIONS FOR OPTIMIZING THE TIMING OF OVERHEAD IMAGE ACQUISITION FOR APPLIED MAPPING OF WOODY VEGETATION SPECIES**
Gilad Weil, The Hebrew University of Jerusalem. Israel Nature and Parks Authority, Israel; Itamar Lensky, Bar Ilan University, Israel; Yehezkel Resheff, Noam Levin, The Hebrew University of Jerusalem, Israel

WEP1.PP.4 Board PP.4 **APPLYING AN OBJECT-BASED SVM CLASSIFIER TO EXPLORE CANOPY CLOSURE OF MANGROVE FOREST IN THE MEKONG DELTA USING SENTINEL-2 MULTISPECTRAL IMAGES**
Hsiao-En Ma, Chinsu Lin, National Chiayi University, Taiwan; Pham Ngoc Hai, Forest Inventory and Planning Institute, Taiwan

WEP1.PP.5 Board PP.5 **THE INFLUENCE OF SNOW COVER ON THE SEASONAL VARIATION OF GLOBAL CLUMPING INDEX PRODUCTS**
Yadong Dong, Ziti Jiao, Lei Cui, Siyang Yin, Yaxuan Chang, Xiaoning Zhang, Dandan He, Anxing Ding, Beijing Normal University, China

WEP1.PP.6 Board PP.6 **MODELING FOREST RESILIENCE IN INDIA USING GEO-INFORMATION – UTILITY OF SATELLITE DERIVED NATIONAL VEGETATION MAP**
Pulakesh Das, Mukunda Dev Behera, Nirupam Som, Indian Institute of Technology Kharagpur, India; Parth Sarathi Roy, University of Hyderabad, India

WEP1.PP.8 Board PP.8 **AN IMAGE-BASED METHOD FOR TREE STEM MODEL RECONSTRUCTION AND DIAMETER MEASUREMENTS**
Rong Fang, Bogdan Strimbu, University of Oregon, United States

WEP1.PP.9 Board PP.9 **ESTIMATION FOR A SAMPLE SIZE OF DEEP LEARNING USED IN HYPERSPECTRAL DATA APPLICATION**
Shinya Odagawa, Remote Sensing Technology Center of Japan, Japan; Tomomi Takeda, Japan Space Systems, Japan

WEP1.PP.10 Board PP.10 **MAPPING URBAN ALIEN TREES IN THE CITY OF JOHANNESBURG. THE CASE OF RANDBURG, SANDTON AND ALEXANDRA REGIONS.**
Simbarashe Jombo, Elhadi Adam, University of the Witwatersrand, South Africa

Wednesday, July 25 15:50 - 16:50 Poster Area P
Session WEP2.PP Poster

Remote Sensing for Estimation of Biophysical Parameters I

Session Co-Chairs: Craig Daughtry, U.S. Department of Agriculture; Carlos Camino, Consejo Superior de Investigaciones Cientificas (CSIC)

WEP2.PP.1 Board PP.1 **IMPROVED CROP RESIDUE COVER ESTIMATES FROM SATELITE IMAGES BY COUPLING RESIDUE AND WATER SPECTRAL INDICES**
Miguel Quemada, Universidad Politécnica de Madrid, Spain; W. Dean Hively, U.S. Geological Survey, United States; Craig S.T. Daughtry, Agriculture Research Service/USDA, United States; Brian T. Lamb, City University of New York, United States; Jacob Shermeyer, U.S. Geological Survey, United States

WEP2.PP.2 Board PP.2 **POWER AND DIFFERENCE OF THE UP–AND-DOWNWARD SUN-INDUCED CHLOROPHYLL FLUORESCENCE ON DETECTING LEAF NITROGEN CONTENT IN WHEAT AT THE LEAF SCALE**
Min Jia, Jie Zhu, Chunchen Ma, Tao Cheng, Yongchao Tian, Yan Zhu, Weixing Cao, Xia Yao, Nanjing Agricultural University, China

WEP2.PP.3 Board PP.3 **IMPROVING THE ESTIMATION OF LEAF AREA INDEX IN WINTER WHEAT AT REGIONAL SCALE**
Jiale Jiang, Tao Cheng, Nanjing Agricultural University, China; Jianxi Huang, China Agricultural University, China; Xia Yao, Yongchao Tian, Yan Zhu, Weixing Cao, Nanjing Agricultural University, China

WEP2.PP.4 Board PP.4 **USING A MODIFIED WATER CLOUD MODEL TO RETRIVE LEAF AREA INDEX (LAI) FROM RADARSAT-2 SAR DATA OVER AN AGRICULTURE AREA**
Yichuan Ma, Minfeng Xing, University of Electronic Science and Technology of China, China; Xiliang Ni, Chinese Academy of Sciences, China; Jinfei Wang, University of Western Ontario, Canada; Jiali Shang, Agriculture and Agri-Food Canada, Canada; Junjie Zhou, University of Electronic Science and Technology of China, China

WEP2.PP.5 Board PP.5 **OPTIMIZATION OF SPECTRAL INDICES FOR THE ESTIMATION OF LEAF AREA INDEX BASED ON SENTINEL-2 MULTISPECTRAL IMAGERY**
Zihao Wang, Yuanheng Sun, Tianyuan Zhang, Huazhong Ren, Qiming Qin, Peking University, China

WEP2.PP.7 Board PP.7 **ON-BOARD BIOPHYSICAL PARAMETERS ESTIMATION USING HIGH PERFORMANCE COMPUTING**
Pratyush Talreja, Surya Durbha, Abhishek Potnis, Indian Institute of Technology Bombay, India

WEP2.PP.8 Board PP.8 **ASSESSING RADIOMETRIC CORRECTIONS FOR UAS MULTI-SPECTRAL IMAGERY IN HORTICULTURAL ENVIRONMENTS**
Yu-Hsuan Tu, Stuart Phinn, The University of Queensland, Australia; Kasper Johansen, King Abdullah University of Science and Technology, Saudi Arabia; Andrew Robson, University of New England, Australia

WEP2.PP.10 Board PP.10 **ACCURACY ASSESSMENT OF A 122 CLASSES LAND COVER MAP BASED ON SENTINEL-2, LANDSAT 8 AND DEIMOS-1 IMAGES AND ANCILLARY DATA**
Vanessa Paredes Gómez, Vicente Del Blanco Medina, ITACYL, Agrotechnological Institute of Castile and León, Spain; José L. Bengoa, Junta de Castilla y León, Spain; David Alfonso Nafría García, ITACYL, Agrotechnological Institute of Castile and León, Spain

Wednesday, July 25 10:10 - 11:10 Poster Area Q
Session WEP1.PQ Poster

Remote Sensing of Vegetation II

Session Chair: Xiangzhuo Liu, University of Electronic Science and Technology of China

WEP1.PQ.1 Board PQ.1 **ESTIMATION OF WILDFIRE SPREAD RATE FROM GEOSTATIONARY SATELLITE DATA**
Xiangzhuo Liu, Binbin He, Xingwen Quan, Chongbo Wen, School of Resources and Environment, University of Electronic Science and Technology of China, China; Xiaofang Liu, School of Computer Science, Sichuan University of Science and Engineering, China

WEP1.PQ.2 Board PQ.2 **COMPARATIVE ANALYSIS OF THREE DIFFERENT REMOTE SENSING INDICES IN SPATIAL DISAGGREGATING OF THERMAL IMAGERY OVER HUMID AGRICULTURE REGIONS**
Kai Liu, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, China; Hongbo Su, Florida Atlantic University, United States; Lijun Yang, Hong Liang, Weimin Wang, Shenzhen Environmental Monitoring Center, China; Shaohui Chen, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, China; Shudong Wang, The Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China; Xueke Li, University of Connecticut, United States

WEP1.PQ.4 Board PQ.4 **NEXT GENERATION FIRE DETECTION FROM GEOSTATIONARY SATELLITES**
Simon Jones, Bryan Hally, Karin Reinke, Chathura Wickramasinghe, Luke Wallace, Chermelle Engel, RMIT University, Australia

WEP1.PQ.5 Board PQ.5 **HERBACEOUS VEGETATION HEIGHT MAP ON RIVERDIKE DERIVED FROM UAV LIDAR DATA**
Naoko Miura, The University of Tokyo, Japan; Shigehiro Yokota, Tokyo City University, Japan; Tomoyo Koyanagi, Tokyo Gakugei University, Japan; Susumu Yamada, The University of Tokyo, Japan

WEP1.PQ.6 Board PQ.6 **AN ASSESSMENT OF DROUGHT SEVERITY ON THE VEGETATION HEALTH IN THE JAGUARI-JACAREÍ WATERSHED**
Fernando Carvalho, Universidade Estadual Paulista, Brazil; Enner Alcântara, UNESP, Brazil

WEP1.PQ.7 Board PQ.7 **ESTABLISHING SHRUB POPULATION STRUCTURE USING HIGH-SPATIAL-RESOLUTION GOOGLE EARTH IMAGERY**
Yu Liu, Xin Cao, Xihong Cui, Xuehong Chen, Beijing Normal University, China

WEP1.PQ.8 Board PQ.8 **PREDICTION OF ABOVEGROUND BIOMASS APPLIED ARTIFICIAL NEURAL NETWORK OVER THREE-RIVERS HEADWATER REGIONS, QINGHAI, CHINA**
Junbang Wang, Key Laboratory of Ecosystem Network Observation and Modeling, Institute of Geographic Sciences and Natural Resources, Chinese Academy of Science, China; Guangxin Lu, Qinghai University, China; Wei Cao, Shaoqiang Wang, Quanqin Shao, Key Laboratory of Ecosystem Network Observation and Modeling, Institute of Geographic Sciences and Natural Resources, Chinese Academy of Science, China; Guicai Li, National Satellite Meteorological Center, China Meteorological Administration, China; ArshadAli Shedayi, Department of Biological Sciences, Karakoram International University Gilgit, Pakistan; Jiangwen Fan, Key Laboratory of Ecosystem Network Observation and Modeling, Institute of Geographic Sciences and Natural Resources, Chinese Academy of Science, China

WEP1.PQ.9 Board PQ.9 **EVALUATION THE CONTRIBUTION OF SCATTERING EFFECT TO THE DIRECTIONAL CANOPY EMISSIVITY AND BRIGHTNESS TEMPERATURE SIMULATION BASED ON CE-P MODEL**
Mingzhu Guo, Institute of RS and GIS, Peking University, China; Biao Cao, State Key Laboratory of Remote Sensing Science, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China; Wenjie Fan, Huazhong Ren, Yaokui Cui, Institute of RS and GIS, Peking University, China; Yongming Du, State Key Laboratory of Remote Sensing Science, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China; Qinhuo Liu, State Key Laboratory of Remote Sensing Science, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences; Joint Center for Global Change Studies (JCGCS), China

Wednesday, July 25 15:50 - 16:50 Poster Area Q
Session WEP2.PQ Poster

Earthquake, Landslide and Volcano Monitoring from Space

WEP2.PQ.1 Board PQ.1 **ALTERATION MINERALS MAPPING USING MTMF AND CEM BASED ON ASTER IN ZEDANG OREFIELD OF TIBET, CHINA**
Zhaoqiang Huang, Institute of Mineral Resources, China Metallurgical Geological Bureau, China; Jianchun Zheng, Beijing Research Center of Urban System Engineering, China

WEP2.PQ.2 Board PQ.2 **COLD BEHAVIOR OF MOON SURFACE DEMONSTRATED BY TYPICAL COPERNICAN CRATERS USING CE-2 CELMS DATA**
Zhiguo Meng, Cui Li, Jilin University, China; Tianxing Wang, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China; Zhanchuan Cai, Macau University of Science and Technology, Macao SAR of China; Jinsong Ping, National Astronomical Observatory, CAS, China

WEP2.PQ.3 Board PQ.3 **A NEW METHOD FOR LITHOLOGICAL DSCRIMINATION AND MAPPING BY USING ASTER DATA IN DONG CO AREA, NORTHERN TIBET**
Jianyu Liu, China Areo Geophysical Survey and Remote Sensing Center for Land and Resources, China; Zhibo Liu, Chinese Academy of Geological Sciences, China; Li Chen, China Areo Geophysical Survey and Remote Sensing Center for Land and Resources, China; Genhou Wang, China University of Geosciences, China; Limin Jia, Hebei Institute of Regional Geological Survey, China

WEP2.PQ.4 Board PQ.4 **REFLECTANCE SPECTROSCOPY FOR RISK MINERALS ANALYSIS**
Belgacem Dkhala, Nouha Mezned, Saadi Abdeljaouad, Sciences Faculty of Tunis, University of Tunis El Manar, Tunisia; Zouhaier Ben Rabah, National Center for Cartography and Remote Sensing, Ministry of National Defense, Tunisia

WEP2.PQ.5 Board PQ.5 **USING REFLECTANCE SPECTROSCOPY TO CHARACTERIZE SURFACE LANDFORMS AND VOLCANIC DEPOSITS ON DECEPTION ISLAND (ANTARCTICA)**
Thomas Schmid, CIEMAT, Spain; Jerónimo López-Martínez, Ana Nieto, Universidad Autónoma de Madrid, Spain; Marta Pelayo, CIEMAT, Spain; Stéphane Guillaso, GFZ German Research Center for Geosciences, Germany

WEP2.PQ.6 Board PQ.6 **MICROWAVE THERMOPHYSICAL FEATURES OF APOLLO BASIN AND ITS GEOLOGIC SIGNIFICANCE**
Zhiguo Meng, Lele Hou, Guodong Yang, Jilin University, China; Tianxing Wang, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China; Qian Huang, China University of Geosciences, China; Zhanchuan Cai, Macau University of Science and Technology, Macao SAR of China

Wednesday, July 25 10:10 - 11:10 Poster Area R
Session WEP1.PR Poster

Soil Moisture Product Evaluation and Applications

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

WEP1.PR.1 Board PR.1 **MONITORING OF SOIL MOISTURE DYNAMICS IN THE SEMI-ARID TROPICS BY MEANS OF ALOS-2/PALSAR-2 DUAL-POLARIZATION SCANSAR DATA**
Christian Koyama, Manabu Watanabe, Masanobu Shimada, Tokyo Denki University, Japan

WEP1.PR.2 Board PR.2 **SPATIO-TEMPORAL REQUIREMENTS OF A GEOSYNCHRONOUS SAR SOIL MOISTURE PRODUCT FOR HYDROLOGICAL APPLICATIONS**
Luca Cenci, Sapienza Università di Roma, Italy; Giorgio Boni, Luca Pulvirenti, Flavio Pignone, Alessandro Masoero, Valerio Basso, Simone Gabellani, CIMA Research Foundation, Italy; Nazzareno Pierdicca, Sapienza Università di Roma, Italy

WEP1.PR.3 Board PR.3 **SEASONAL ANALYSIS OF SURFACE SOIL MOISTURE DRY-DOWNS IN A LAND-ATMOSPHERE HOTSPOT AS SEEN BY LSM AND SATELLITE PRODUCTS**
Mercedes Salvia, Institue for Astronomy and Space Physics, Argentina; Romina Ruscica, Anna Sörensson, Centro de Investigaciones del Mar y la Atmosfera, Argentina; Jan Polcher, Laboratoire de Météorologie Dynamique, France; María Piles, Universitat de València, Spain; Haydee Karszenbaum, Institue for Astronomy and Space Physics, Argentina

WEP1.PR.4 Board PR.4 **VEGETATION OPTICAL DEPTH AND SOIL MOISTURE RETRIEVAL USING L-BAND RADIOMETRY OVER THE ENTIRE GROWING SEASON OF A WINTER WHEAT STAND**
Thomas Meyer, Forschungszentrum Jülich, Germany; François Jonard, Forschungszentrum Jülich, Université catholique de Louvain, Belgium; Lutz Weihermüller, Forschungszentrum Jülich, Germany

WEP1.PR.5 Board PR.5 **MULTISCALE COMPARISON OF EIGHT SATELLITE SOIL MOISTURE DATA SETS OVER TWO CALIBRATION SITES**
Jiangyuan Zeng, Kun-Shan Chen, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China; Chenyang Cui, Hohai University, China; Haiyun Bi, Institute of Geology, China Earthquake Administration, China

WEP1.PR.6 Board PR.6 **EVALUATION OF SMAP AND SMOS L3 PASSIVE SOIL MOISTURE PRODUCTS IN HENAN PROVINCE, CHINA**
Liming Zhu, Junzhi Liu, A-Xing Zhu, Nanjing Normal University, China; Yongke Yang, Nanjing University, China

WEP1.PR.7 Board PR.7 **COUPLING SENTINEL-1 AND SENTINEL-2 IMAGES FOR OPERATIONAL SOIL MOISTURE MAPPING**
Mohammad El Hajj, Nicolas Baghdadi, Irstea-UMR TETIS (National Research Institute of Science and Technology for Environment and Agriculture), France; Mehrez Zribi, CNRS, CESBIO, France; Hassan Bazzi, Irstea-UMR TETIS (National Research Institute of Science and Technology for Environment and Agriculture), France

WEP1.PR.8 Board PR.8 **EVALUATION OF SEVERAL REMOTE SENSING SOIL MOISTURE PRODUCTS ACROSS CHINA**
Jingjing Sun, Wen Wang, Hohai University, China; Dui Huang, Nanjing Hydraulic Research Institute, China; Xiaoju Wang, Yuyao Water Conservancy Bureau, China

WEP1.PR.9 Board PR.9 **JOINT ASSIMILATION OF SMOS/SMAP BRIGHTNESS TEMPERATURES WITH SATELLITE-DERIVED SKIN TEMPERATURE RETRIEVALS**
Marco L Carrera, Maziar Banishahabadi, Bernard Bilodeau, Sylvain Heilliette, Stephane Belair, Peter Houtekamer, Environment and Climate Change Canada, Canada

WEP1.PR.10 Board PR.10 **SMOS NEURAL NETWORK SOIL MOISTURE DATA ASSIMILATION**
Nemesio Rodríguez-Fernández, CNRS, France; Patricia de Rosnay, ECMWF, France; Clément Albergel, Filipe Aires, Catherine Prigent, CNRS, France; Philippe Richaume, Université Paul Sabatier, France; Yann Kerr, CNES, France; Matthias Drusch, European Space Agency, Netherlands

Wednesday, July 25 15:50 - 16:50 Poster Area R
Session WEP2.PR Poster

Science and Techniques in Atmospheric Sounding II

WEP2.PR.1 Board PR.1 **PROLONGED COLD-AIR OUTBREAKS OVER THE CHUKCHI SEA: SYNTHESIS OF MULTISENSOR SATELLITE MEASUREMENTS AND REANALYSIS DATASET**
Mikhail Pichugin, Irina Gurvich, V.I.Il`ichev Pacific Oceanological Institute, Russian Federation; Elizaveta Zabolotskikh, Russian State Hydrometeorological University, Russian Federation

WEP2.PR.2 Board PR.2 **SUDDEN STRATOSPHERIC WARMING IN 2015-2016: STUDY WITH SATELLITE PASSIVE MICROWAVE DATA AND ERA5 REANALYSIS**
Leonid Mitnik, Vladimir Kuleshov, Mikhail Pichugin, Maia Mitnik, V.I. Il'ichev Pacifc Oceanological Institute FEB RAS, Russian Federation

WEP2.PR.3 Board PR.3 **THE USE OF THE WEATHER RESEARCH AND FORECASTING MODEL TO ESTIMATE THE VERTICAL PROFILE OF METEOROLOGICAL DATA**
Bibiana Salvador Cabral da Costa, Nájila Souza da Rocha, Suzianny Cristia Salazar da Silva, Ricardo Antônio Molmann Júnior, Gabriel Bonow Münchow, Viliam Cardoso da Silveira, Silvia Beatriz Alves Rolim, Rita de Cássia Marques Alves, Adriana Coromoto Becerra-Rondón, Pâmela Suélen Käfer, Lucas Ribeiro Diaz, Federal University of Rio Grande do Sul (UFRGS), Brazil

WEP2.PR.4 Board PR.4 **ATMOSPHERIC GRAVITY WAVE FEATURES RELATED TO STRATOSPHERIC MOISTENING DURING TROPICAL CYCLONES**
Animesh Maitra, Gargi Rakshit, Soumyajyoti Jana, University of Calcutta, India

WEP2.PR.5 Board PR.5 **RAIN RADAR STUDIES OF BOUNDARY LAYER DYNAMICS AT A TROPICAL LOCATION**
Animesh Maitra, Soumyajyoti Jana, Gargi Rakshit, University of Calcutta, India

WEP2.PR.6 Board PR.6 **REMOTELY SENSED CLEAR-SKY SURFACE LONGWAVE DOWNWARD RADIATION BY USING MULTIVARIATE ADAPTIVE REGRESSION SPLINES METHOD**
Wang Zhou, Tianxing Wang, Jiancheng Shi, State Key Laboratory of Remote Sensing Science, Jointly Sponsored by Institute of Remote Sensing and Digital Earth of Chinese Academy of Sciences and Beijing Normal University, China; Bin Peng, National Center for Supercomputing Applications and Department of Natural Resources and Environmental Sciences, University of Illinois at Urbana-Champaign, Urbana, IL 61801, USA, United States; Rui Zhao, Yuechi Yu, State Key Laboratory of Remote Sensing Science, Jointly Sponsored by Institute of Remote Sensing and Digital Earth of Chinese Academy of Sciences and Beijing Normal University, China

WEP2.PR.7 Board PR.7 **MATHEMATICAL TOOL FOR A CLOSURE STUDY OF AEROSOL MICROPHYSICAL PROPERTY RETRIEVAL USING LIDAR AND PHOTOMETER DATA**
Christine Boeckmann, University of Potsdam, Germany; Christoph Ritter, Alfred Wegener Institute for Polar and Marine Research, Germany; David Cappelletti, Universita Degli Studi Di Perugia, Italy

Wednesday, July 25 **10:10 - 11:10** **Poster Area S**
Session WEP1.PS **Poster**

Ocean Surface Winds and Currents IV

Session Chair: Naoto Ebuchi, Hokkaido University

WEP1.PS.1 Board PS.1 **SPECTRAL PROPERTIES OF SURFACE OCEAN WAVES FROM REAL-APERTURE RADAR OBSERVATIONS**
Eva Le Merle, CNES, France; Danièle Hauser, CNRS, France; Céline Tison, CNES, France; Lotfi Aouf, Meteo-France, France

WEP1.PS.3 Board PS.3 **RETRIEVAL OF HIGH RESOLUTION SEA SURFACE WIND FROM SENTINEL-1A/B IW MODE DATA IN COASTAL REGION AROUND THE KOREAN PENINSULA**
Jae-Cheol Jang, Student/Seoul National University, Republic of Korea; Kyung-Ae Park, Seoul National University, Republic of Korea; Jae-Jin Park, Student/Seoul National University, Republic of Korea

WEP1.PS.4 Board PS.4 **WIND FIELD RETRIEVING FOR SCAT ONBOARD CFOSAT BASED ON PCA METHOD**
Xingou Xu, Xiaolong Dong, The CAS Key Laboratory of Microwave Remote Sensing, National Space Science Center, Chinese Academy of Sciences, China; Wenming Lin, School of Marine Sciences, Nanjing University of Information Science and Technology, China; Risheng Yun, Di Zhu, The CAS Key Laboratory of Microwave Remote Sensing, National Space Science Center, Chinese Academy of Sciences, China

WEP1.PS.5 Board PS.5 **MICROWAVE ACTIVE/PASSIVE MEASUREMENTS OF DIURNAL OCEAN WIND VECTOR FROM TRMM**
Alamgir Hossan, Central Florida remote Sensing Laboratory (CFRSL), University of Central Florida, United States; Maria Jacob, Facultad de Matematica, Astronomia y Fisica, Universidad Nacional de Cordoba, United States; W. Linwood Jones, Central Florida remote Sensing Laboratory (CFRSL), University of Central Florida, United States

WEP1.PS.6 Board PS.6 **C-BAND CROSS-POLARIZATION OCEAN SURFACE OBSERVATIONS IN HURRICANE MATTHEW**
Joseph Sapp, Zorana Jelenak, Paul Chang, National Oceanic and Atmospheric Administration/ National Environmental Satellite, Data, and Information Service, United States; Stephen Frasier, University of Massachusetts Amherst, United States

WEP1.PS.7 Board PS.7 **VALIDATION OF THE SEA SURFACE WIND MODEL AGAINST WINDSAT DATA**
Chuntao Chen, Jianhua Zhu, National Ocean Technology Center, China; Jianyong Xing, National Marine Environmental Forecasting Center, China; Qian Feng, National Satellite Ocean Application Service, State Oceanic Administration, China; Yili Zhao, Jiajia Liu, Longhao Yan, Xiaoqi Huang, National Ocean Technology Center, China

WEP1.PS.8 Board PS.8 **INTRUSION OF THE KUROSHIO INTO NORTHEAST OF TAIWAN**
Yun Chan Tsai, Ming Chee Wu, Yi Chang, National Cheng-Kung University, Taiwan

WEP1.PS.9 Board PS.9 **EONAV – COPERNICUS DATA IN SUPPORT OF MARITIME ROUTE OPTIMIZATION**
Leif E.B. Eriksson, Yufang Ye, Lars Jonasson, Waqas Qazi, Wengang Mao, Helong Wang, Chalmers University of Technology, Sweden; Joakim Möller, Molflow, Sweden; Kris Lemmens, Offshore Navigation Ltd, Anguilla; Sverre Dokken, O.M. Offshore Monitoring Ltd, Cyprus

WEP1.PS.10 Board PS.10 **HY-2A SATELLITE AND ITS APPLICATION ON MONITORING OCEAN DISASTER**
Qimao Wang, Yongjun Jia, Youguang Zhang, Xiaoqing Lu, National Satellite Ocean Application Service, China

Wednesday, July 25 **15:50 - 16:50** **Poster Area S**
Session WEP2.PS **Poster**

Ocean Temperature and Salinity II

Session Co-Chairs: David Le Vine, NASA Goddard Space Flight Center; Jacqueline Boutin, CNRS

WEP2.PS.1 Board PS.1 **NEAR-REAL TIME DETECTION OF THE RE-OPENING OF THE WEDDELL POLYNYA, ANTARCTICA, FROM SPACEBORNE INFRARED IMAGERY**
Céline Heuzé, University of Gothenburg, Sweden; Wiebke Aldenhoff, Chalmers University of Technology, Sweden

WEP2.PS.2 Board PS.2 **INTERANNUAL VARIATIONS OF SEA SURFACE TEMPERATURE IN THE BLACK SEA**
Nevin Betul Avsar, Bulent Ecevit University, Turkey; Shuanggen Jin, Chinese Academy of Sciences, China; Senol Hakan Kutoglu, Bulent Ecevit University, Turkey

WEP2.PS.3 Board PS.3 **COMPARISON OF SUOMI NPP VIIRS SST PRODUCT WITH SHIPBOARD SKIN SST MEASUREMENTS IN THE NORTHWEST PACIFIC**
Minglun Yang, Lei Guan, Liqin Qu, Kailin Zhang, Ocean University of China, China

WEP2.PS.4 Board PS.4 **TIME-SERIES REMOTELY SENSED SEA SURFACE TEMPERATURE DATA FOR THE STUDY OF MARINE ECOLOGICAL FEATURES AND MARINE ENVIRONMENTAL MANAGEMENT**
Zhi Huang, Geoscience Australia, Australia; Senyang Xie, The Sino-Australian Research Centre for Coastal Management, University of New South Wales, Canberra, Australia; Aero Leplastrier, Geoscience Australia, Australia

WEP2.PS.5 Board PS.5 **SEA SURFACE TEMPERATURE PREDICTION AND RECONSTRUCTION USING PATCH-LEVEL NEURAL NETWORK REPRESENTATIONS**
Said Ouala, IMT Atlantique, France; Cédric Herzet, IMT Atlantique, INRIA Bretagne-Atlantique, France; Ronan Fablet, IMT Atlantique, France

WEP2.PS.6 Board PS.6 **AUTONOMOUS INFRARED RADIOMETER FOR SEA SURFACE SKIN TEMPERATURE MEASUREMENTS**
Kailin Zhang, Lei Guan, Minglun Yang, Liqin Qu, Ocean University of China, China

WEP2.PS.7 Board PS.7 **BASIN SCALE PCO2 DISTRIBUTION IN CASE 1 WATERS: AN INVESTIGATION FROM BAY OF BENGAL, INDIA**
Abhishek Dixit, Lekshmi K, Rishikesh Bharti, Chandan Mahanta, Indian Institute of Technology Guwahati, India

WEP2.PS.8 Board PS.8 **REVISED MITIGATION OF SYSTEMATIC ERRORS IN SMOS SEA SURFACE SALINITY**
Jacqueline Boutin, CNRS, France; Jean-Luc Vergely, ACRI-ST, France; Stéphane Marchand, LOCEAN, France; Nicolas Kolodziejczyk, LOPS, France; Nicolas Reul, IFREMER, France

WEP2.PS.9 Board PS.9 **SEAWATER DIELECTRIC MEASUREMENTS AT L-BAND WITH LATEST IMPROVEMENTS**
Yiwen Zhou, Roger Lang, George Washington University, United States; Emmanuel Dinnat, David Le Vine, NASA Goddard Space Flight Center, United States

WEP2.PS.10 Board PS.10 **INVESTIGATING THE UTILITY AND LIMITATION OF SMAP SEA SURFACE SALINITY IN MONITORING THE ARCTIC FRESHWATER SYSTEM**
Wenqing Tang, Simon Yueh, Jet Propulsion Laboratory, United States; Daqing Yang, Environment and Climate Change Canada, United States; Alexander Fore, Akiko Hayashi, Jet Propulsion Laboratory, United States

Wednesday, July 25 15:50 - 16:50 Poster Area T
Session WEP2.PT Poster

Active Microwave Sensors and Missions

Session Chair: Venkatachalam Chandrasekar, Colorado State University

WEP2.PT.1 Board PT.1 **OBSERVATION STRATEGY AND FLIGHT CONFIGURATION FOR MONITORING EARTH DYNAMICS WITH THE TANDEM-L MISSION**
Daniela Borla Tridon, Francescopaolo Sica, Francesco De Zan, Markus Bachmann, Gerhard Krieger, German Aerospace Center (DLR), Germany

WEP2.PT.2 Board PT.2 **PERFORMANCE SIMULATOR FOR BISTATIC SAR MISSIONS**
Simone Mancon, Davide Giudici, Daniele Mapelli, Antonio Valentino, Aresys s.r.l., Italy; Björn Rommen, Bernardo Carnicero, European Space Agency/ESTEC, Netherlands

WEP2.PT.3 Board PT.3 **END-TO-END SIMULATOR OF GEOSYNCHRONOUS SAR DATA FOR SYSTEM PERFORMANCE ASSESSMENT**
Davide Giudici, Aresys s.r.l., Italy; Antonio Leanza, Andrea Monti-Guarnieri, Politecnico di Milano, Italy; Andrea Recchia, Aresys s.r.l., Italy

WEP2.PT.4 Board PT.4 **ON THE ASSIMILATION OF MULTI-SOURCE OF DIRECTIONAL WAVE SPECTRA FROM SENTINEL-1A AND 1B, AND CFOSAT IN THE WAVE MODEL MFWAM : TOWARD AN OPERATIONAL USE IN CMEMS-MFC**
Lotfi Aouf, Meteo-France, France; Danièle Hauser, LATMOS/IPSL, France; Céline Tison, CNES, France; Bertrand Chapron, IFREMER, France

WEP2.PT.5 Board PT.5 **SPACEBORNE P-BAND MIMO SAR FOR PLANETARY APPLICATIONS**
Rafael Rincon, NASA Goddard Space Flight Center, United States; Lynn Carter, University of Arizona, United States; Daniel Lu, Martin Perrine, Cornelis Du Toit, NASA Goddard Space Flight Center, United States

WEP2.PT.6 Board PT.6 **SEASTAR: A NEW MISSION FOR HIGH-RESOLUTION IMAGING OF OCEAN SURFACE CURRENT AND WIND VECTORS FROM SPACE**
Adrien Martin, Christine Gommenginger, National Oceanography Centre, United Kingdom; Bertrand Chapron, Yves Quilfen, IFREMER, France; Jose Marquez, Airbus Defence and Space, United Kingdom; Chris Buck, European Space Agency, Netherlands

WEP2.PT.7 Board PT.7 **RESEARCH ON HIGH RESOLUTION THERMAL INFRARED SATELLITE TECHNOLOGY AND APPLICATIONS**
Fan Mo, Beijing Institute of Spacecraft System Engineering, China; Hua Li, Chinese Academy of Sciences, China; Quan Jing, Xinwei Zhang, Beijing Institute of Spacecraft System Engineering, China; Biao Cao, Qinhuo Liu, Chinese Academy of Sciences, China

WEP2.PT.8 Board PT.8 **QUANTITATIVE INTER-COMPARISON BETWEEN GPM DUAL-FREQUENCY PRECIPITATION RADAR OBSERVATIONS AND POLARIMETRIC GROUND RADAR MEASUREMENTS**
Sounak Biswas, V. Chandrasekar, Colorado State University, United States

WEP2.PT.9 Board PT.9 **PRODUCTION SIMULATOR FOR TANDEM-L HIGHER LEVEL PRODUCTS**
Marie Lachaise, Birgit Schaettler, German Aerospace Center (DLR), Germany

Wednesday, July 25 15:50 - 16:50 Poster Area U
Session WEP2.PU Poster

UAV and Airborne Platforms I

Session Chair: Paolo Gamba, University of Pavia

WEP2.PU.1 Board PU.1 **3D VISUALIZATION OF LANDSLIDE AFFECTED AREA DUE TO HEAVY RAINFALL IN JAPAN FROM UAV FLIGHTS AND SFM**
Fumio Yamazaki, Shuntaro Miyazaki, Wen Liu, Chiba University, Japan

WEP2.PU.2 Board PU.2 **MODELING GLACIER TOPOGRAPHY USING UNMANNED AERIAL SURVEY IN ANTARCTICA: PRELIMINARY RESULTS**
Dmitrii Bliakharskii, St. Petersburg University, Russian Federation; Igor Florinsky, Keldysh Institute of Applied Mathematics, Russian Academy of Sciences, Russian Federation

WEP2.PU.3 Board PU.3 **ANALYSIS OF POSITIONAL AND GEOMETRIC ACCURACY OF OBJECTS IN SURVEY WITH UNMANNED AERIAL VEHICLE (UAV)**
Gabriel Soares, Leonardo Campos Inocencio, Maurício Roberto Veronez, Luiz Gonzaga da Silveira Jr., Fabiane Bordin, Fernando Pinho Marson, UNISINOS University, Brazil

WEP2.PU.4 Board PU.4 **AXIS: AN AIRBORNE X-BAND INTERFEROMETRIC FMCW SAR SYSTEM**
Carmen Esposito, Antonio Natale, Paolo Berardino, IREA-CNR, Italy; Gianfranco Palmese, Elettra Microwave S.r.l., Italy; Riccardo Lanari, IREA-CNR, Italy; Stefano Perna, Università degli Studi di Napoli "Parthenope", Italy

WEP2.PU.5 Board PU.5 **GPU ACCELERATION OF UAV IMAGE SPLICING USING ORIENTED FAST AND ROTATED BRIEF COMBINED WITH PCA**
Chia-Cheng Yeh, National Taipei University of Technology & National Science and Technology Center for Disaster Reduction, Taiwan; Yang-Lang Chang, National Taipei University of Technology, Taiwan; Pai-Hui Hsu, National Taiwan University, Taiwan; Cheng-Huan Hsien, National Taipei University of Technology, Taiwan

WEP2.PU.6 Board PU.6 **VIGNETTING CORRECTION OF POST-EARTHQUAKE UAV IMAGES**
Xiaoxiang Yuan, Xiaoqing Wang, Aixia Dou, Xiang Ding, Institute of Earthquake Forecasting, China Earthquake Administration, China

WEP2.PU.7 Board PU.7 **HIGH PRECISION CONTROL OF AN INERTIALLY STABILIZED PLATFORM FOR AERIAL REMOTE SENSING APPLICATIONS**
XiangYang Zhou, Hao Gao, Beilei Zhao, Beihang University, China; Ruifang Yu, Institute of Geophysics, China Earthquake Administration, China; Libo Zhao, Xi'an Jiaotong University, China

WEP2.PU.8 Board PU.8 **FAST 3D MAP RECONSTRUCTION USING DENSE VISUAL SIMULTANEOUS LOCALIZATION AND MAPPING BASED ON UNMANNED AERIAL VEHICLE**
Siyuan Peng, Fang Huang, University of Electronic Science and Technology of China, China; Jian Tao, Texas A&M University, United States; Bo Tie, Jun Lu, Xiaodong Zhang, University of Electronic Science and Technology of China, China

WEP2.PU.9 Board PU.9 **AN AIRBORNE LARGE SCALE FACILITY FOR GEOSCIENCE APPLICATIONS: ICTS-PAI**
José A. Gómez, Jesús Ortiz, Ana Corrales, Benito Calvo, Neves Seoane, Bartolomé Marqués, National Institute for Aerospace Technology - INTA, Spain

WEP2.PU.10 Board PU.10 **A METHOD OF RAPID DISTORTION CORRECTION FOR UAV IMAGE BASED ON GPU-CPU CO-PROCESSING TECHNOLOGY**
Penglong Li, Yi Ding, Songjiang Duan, Ding Luo, Ziwei Jiang, Yong Xiao, Chongqing Geomatics Center, China

Thursday, July 26 10:10 - 11:10 Poster Area A
Session THP1.PA Poster

Polarimetric SAR

Session Chair: Laurent Ferro-Famil, University of Rennes 1

THP1.PA.1 Board PA.1 **POLARIMETRIC PHASE DIFFERENCE AIDED NETWORK FOR POLSAR IMAGE CLASSIFICATION**
Xinlong Liu, Mingxia Tu, Yan Wang, Chu He, Electronic Information School, Wuhan University, China

THP1.PA.2 Board PA.2 **A CLASSIFICATION METHOD FOR POLSAR IMAGES USING SLIC SUPERPIXEL SEGMENTATION AND DEEP CONVOLUTION NEURAL NETWORK**
Feng Gu, Hong Zhang, Chao Wang, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences; University of Chinese Academy of Sciences, China

THP1.PA.3 Board PA.3 **REMOVING THE IMPACT OF MAN-MADE TARGETS ON TREE HEIGHT RETRIEVAL USING THREE-STAGE ALGORITHM**
Dingfeng Duan, Yong Wang, University of Electronic Science and Technology of China, China; Hong Li, East Carolina University, United States

THP1.PA.4 Board PA.4 **OBJECT-BASRD CLASSIFICATION METHOD FOR POLSAR IMAGES WITH ACTIVE LEARING AND RANDOM FOREST**
Wensong Liu, Jie Yang, Pingxiang Li, Jinqi Zhao, Hongtao Shi, Wuhan University, China

Thursday, July 26 15:50 - 16:50 Poster Area A
Session THP2.PA Poster

SAR Image Processing 1

THP2.PA.1 Board PA.1 **TWO-DIMENSIONAL SPECTRUM FOR DIVING STAGE SAR PROCESSING WITH HIGH-ORDER EQUIVALENT RANGE MODEL**
Yi Liao, University of Electronic Science and Technology of China, China; Wen-Qin Wang, UESTC, China

THP2.PA.2 Board PA.2 **NOVEL ALGORITHM FOR HIGH RESOLUTION PASSIVE RADAR IMAGING WITH ISDB-T DIGITAL TV SIGNAL**
Weike Feng, Graduate School of Environmental Studies, Tohoku University, Japan; Jean-Michel Friedt, FEMTO-ST, Time & Frequency department, France; Grigory Cherniak, Graduate School of Environmental Studies, Tohoku University, Japan; Motoyuki Sato, Center for Northeast Asian Studies, Tohoku University, Japan

THP2.PA.3 Board PA.3 **A WIDE-FIELD SAR POLAR FORMAT ALGORITHM BASED ON QUADTREE SUB-IMAGE SEGMENTATION**
Xin Nie, Shijian Shen, Hui Yu, Ying Liu, Long Zhuang, Wanming Lei, Nanjing Research Institute of Electronics Technology, China

THP2.PA.4 Board PA.4 **PROCESSING SPACEBORNE INTERRUPTED FMCW SAR DATA WITH MODIFIED APERTURE INTERPOLATION TECHNIQUE**
Ning Li, Shilin Niu, Zhengwei Guo, Lin Wu, Zhiwei Cao, Henan University, China

THP2.PA.5 Board PA.5 **FULLY FOCUSED SAR PROCESSING FOR RADAR ALTIMETER: A FREQUENCY DOMAIN APPROACH**
Michele Scagliola, Aresys s.r.l., Italy; Pietro Guccione, Politecnico di Bari, Italy; Davide Giudici, Aresys s.r.l., Italy

THP2.PA.6 Board PA.6 **THE FPGA IMPLEMENTATION OF REAL-TIME SPOTLIGHT SAR IMAGING**
Wei Li, Zhiwei Xu, Daiyin Zhu, Nanjing University of Aeronautics and Astronautics, China

THP2.PA.7 Board PA.7 **OMEGA-K ALGORITHM BASED ON SERIES REVERSION AND LEAST SQUARE FOR HIGH-RESOLUTION SPACEBORNE SAR**
Mingdong Yang, Daiyin Zhu, Fan Xu, Nanjing University of Aeronautics and Astronautics, China

THP2.PA.8 Board PA.8 **A NOVEL COMPENSATION APPROACH FOR THE RANGE-DEPENDENT MOTION ERROR BASED ON TIME SCALING**
Qianrong Lu, Yesheng Gao, Xingzhao Liu, Shanghai Jiao Tong University, China; Qi Chen, China Centre for Resources and Satellite Data and Application, China

THP2.PA.9 Board PA.9 **EFFICIENT SIMULATION OF EXTENDED-SCENE SAR RAW SIGNALS WITH ANY ACQUISITION MODE**
Domenico Dell'Aglio, Gerardo Di Martino, Antonio Iodice, Daniele Riccio, Giuseppe Ruello, University of Naples Federico II, Italy

THP2.PA.10 Board PA.10 **SAR IMAGE SIMULATION AND SIMILARITY EVALUATION BASED ON BASIC STRUCTURE OF BUILDINGS**
Miaomiao Ren, University of Chinese Academy of Sciences, Institute of Electronics of Chinese Academy of Sciences, China; Zhuo Pan, Institute of Electronics, Chinese Academy of Sciences, China; Zelong Wang, University of Chinese Academy of Sciences, Institute of Electronics of Chinese Academy of Sciences, China; Xianghui Xu, Xin Fang, Institute of Electronics, Chinese Academy of Sciences, China

Thursday, July 26 **10:10 - 11:10** **Poster Area B**
Session THP1.PB **Poster**

Tomography and 3D Mapping I

Session Co-Chairs: Andrea Buono, Universita di Napoli Parthenope; Maria Sanjuan-Ferrer, German Aerospace Center (DLR)

THP1.PB.2 Board PB.2 **L-BAND UAVSAR TOMOGRAPHIC IMAGING IN DENSE FOREST: AFRISAR RESULTS**
Ibrahim Moussawi, Dinh Ho Tong Minh, Nicolas Baghdadi, Irstea, France; Chadi Abdallah, CNRS-L, Lebanon; Jalal Jomaah, Lebanese University, Lebanon; Olivier Strauss, University of Montpellier, France

THP1.PB.3 Board PB.3 **EXPERIMENTAL VALIDATION OF COMPACT TOMOSAR FOR VEGETATION CHARACTERIZATION**
Naveen Ramachandran, Onkar Dikshit, Indian Institute of Technology Kanpur, India

THP1.PB.4 Board PB.4 **VERTICAL REFLECTIVITY PROFILE VARIATION AND SCATTERING CHARACTERISTICS IN BOREAL FOREST WITH TOMOSAR**
Wenmei Li, Nanjing University of Posts and Telecommunications, China; Erxue Chen, Zengyuan Li, Chinese Academy of Forestry, China

THP1.PB.5 Board PB.5 **HEIGHT ESTIMATION OF ELECTRIC POWER TRANSMISSION TOWER BASED ON TOMOGRAPHY SAR IMAING METHOD USING STARING SPOTLIGHT MODE TERRASAR-X DATA**
Shaochun Su, Yiyu Gong, Songhai Fan, State Grid Sichuan Electric Power Research Institute, China; Baolong Wu, Yan Chen, Ling Tong, University of Electronic Science and Technology of China, China

THP1.PB.7 Board PB.7 **FEATURE DESIGN FOR CLASSIFICATION FROM TOMOSAR DATA**
Olivier D'Hondt, Ronny Hänsch, Olaf Hellwich, Technische Universität Berlin, Germany

THP1.PB.8 Board PB.8 **PHASE ERROR COMPENSATION IN MULTI-BASELINE SAR TOMOGRAPHY**
Hossein Aghababaee, Alessandra Budillon, Giampaolo Ferraioli, Università di Napoli Parthenope, Italy; Gianfranco Fornaro, Electromagnetic Sensing of the Environment (IREA), Italy; Vito Pascazio, Gilda Schirinzi, Università di Napoli Parthenope, Italy

THP1.PB.9 Board PB.9 **STATISTICAL ANALYSIS FOR IMPROVEMENT OF DOUBLE PERSISTENT SCATTERERS DETECTION IN SAR TOMOGRAPHY**
Cosmin Danisor, University Politehnica of Bucharest, Romania; Gianfranco Fornaro, Antonio Pauciullo, National Research Council of Italy (CNR), Italy; Mihai Datcu, German Aerospace Center (DLR), Germany

THP1.PB.10 Board PB.10 **ANALYSIS OF THE PERFORMANCE OF THREE-DIMENSIONAL SAR SATELLITE SYSTEM**
Zhenyu Ding, Shaobo Wang, Peng Lv, DFH satellite company, China

Thursday, July 26 **15:50 - 16:50** **Poster Area B**
Session THP2.PB **Poster**

Tomography and 3D Mapping II

Session Chair: Matteo Pardini, German Aerospace Center (DLR)

THP2.PB.1 Board PB.1 **FAST STEREO MATCHING FOR DSM GENERATION FROM ZY-3 SATELLITE IMAGERY**
Wenhuan Yang, Xin Li, Bo Yang, Wuhan University, China

THP2.PB.3 Board PB.3 **CHINA DSM GENERATION AND ACCURACY ACESSMENT USING ZY3 IMAGES**
Xinming Tang, Qingxing Yue, Xiaoming Gao, Satellite Surveying and Mapping Application Center, NASG, China

THP2.PB.4 Board PB.4 **RADARGRAMMETRIC DSM GENERATION IN MOUNTAINOUS AREAS THROUGH ADAPTIVE-WINDOW LEAST SQUARES MATCHING CONSTRAINED BY ENHANCED EPIPOLAR GEOMETRY**
Yuting Dong, Lu Zhang, Timo Balz, Heng Luo, Mingsheng Liao, Wuhan University, China

Thursday, July 26 10:10 - 11:10 Poster Area C
Session THP1.PC Poster

Subsurface Sensing and Ground Penetrating Radar I

Session Chair: Lu Qi, Jilin University

THP1.PC.1 Board PC.1 **DISTRIBUTED RADAR SOUNDER SYSTEM: A NOVEL APPROACH TO ACROSS-TRACK RESOLUTION ENHANCEMENT AND CLUTTER REDUCTION**
Leonardo Carrer, Christopher Gerekos, Lorenzo Bruzzone, University of Trento, Italy

THP1.PC.3 Board PC.3 **DETECTION AND IDENTIFICATION OF BURIED EXPLOSIVE HAZARDS USING HIGH FREQUENCY EMI SENSING**
Fridon Shubitidze, Dartmouth College, United States; Benjamin Barrowes, USA Army ERDC-CRREL, United States; Irma Shamatava, Dartmouth College/WRT.inc, United States

THP1.PC.4 Board PC.4 **GROUND PENETRATING RADAR SIGNAL ENHANCEMENT BY SURFACE COVERING METHOD**
Alper Genc, Murat Koray Akkaya, ASELSAN INC., Turkey; Asim Egemen Yilmaz, Ankara University, Turkey

THP1.PC.5 Board PC.5 **P-BAND RADAR RETRIEVAL OF PERMAFROST ACTIVE LAYER PROPERTIES: TIME-SERIES APPROACH AND VALIDATION WITH IN-SITU OBSERVATIONS**
Richard Chen, Alireza Tabatabaeenejad, Mahta Moghaddam, University of Southern California, United States

THP1.PC.6 Board PC.6 **ESTIMATING THE INFLUENCE OF SATURATION ON INVESTIGATING FOULED RAILWAY BALLASTS USING GROUND-PENETRATING-RADAR**
Chihping Kuo, Tzushan Shen, Meichun Liu, Shengbing Yang, Zhiyuan Ji, Minghsin University of Science and Technology, Taiwan

THP1.PC.7 Board PC.7 **ESTIMATING AZIMUTH OF SUBSURFACE LINEAR TARGETS BY POLARIMETRIC GPR**
Hai Liu, Guangzhou Unviersity, China; Xiaoyun Huang, Bangan Xing, Xiamen Unviersity, China; Jie Cui, Guangzhou Unviersity, China; Billie Spencer, University of Illinois at Urbana-Champaign, United States; Qing-Huo Liu, Duke University, United States

THP1.PC.8 Board PC.8 **THE SPATIOTEMPORAL DISTRIBUTION OF MICROWAVE BRIGHTNESS TEMPERATURE IN THE VON KÁRMÁN CRATER BASED ON FILED THEORY**
Yi Lian, Long He, Tianjin Normal University, China; Jinsong Ping, National Astronomical Observatories Of China, China; Zhiguo Meng, Jilin University, China; Xiaoming Zeng, Pengfei Chen, Tiejun Cui, Tianjin Normal University, China

THP1.PC.9 Board PC.9 **EXTRACTION OF STATISTICAL FEATURES FOR IMPROVED AUTOMATIC DETECTION OF SUBGLACIAL LAKES IN RADAR SOUNDER DATA**
Ana-Maria Ilisei, Mahdi Khodadadzadeh, Lorenzo Bruzzone, University of Trento, Italy

Thursday, July 26 15:50 - 16:50 Poster Area C
Session THP2.PC Poster

Subsurface Sensing and Ground Penetrating Radar II

Session Chair: Hai Liu, Xiamne University

THP2.PC.1 Board PC.1 **A THREE-DIMENSIONAL INTEGRAL METHOD FOR COMPUTING THE RELAXATION FREQUENCIES OF EDDY CURRENTS IN CONDUCTING MEDIA**
Jonathan Gabbay, Waymond Scott, Georgia Institute of Technology, United States

THP2.PC.2 Board PC.2 **QUANTIFYING SUBSURFACE PROPAGATION LOSSES FOR VHF RADAR SOUNDING WAVES IN HYPER-ARID TERRAINS**
Giovanni Scabbia, HBKU-Qatar Foundation / University of Southern California, Qatar; Essam Heggy, University of Southern California / NASA Jet Propulsion Laboratory, United States

THP2.PC.3 Board PC.3 **BURIED OBJECT DETECTION FROM B-SCAN GROUND PENETRATING RADAR DATA USING FASTER-RCNN**
Minh-Tan Pham, Sébastien Lefèvre, Université Bretagne Sud - IRISA, France

THP2.PC.4 Board PC.4 **MEASURING COMPLEX PERMITTIVITY OF SOILS BY COAXIAL TRANSMISSION LINE METHOD AND FDTD**
Kazunori Takahashi, OYO Corporation, Japan; Markus Loewer, Jan Igel, Leibniz Institute for Applied Geophysics, Germany; Chisato Konishi, OYO Corporation, Japan

THP2.PC.5 Board PC.5 **A RANDOM MODELING APPROACH FOR THE DESCRIPTION OF UNDERGROUND LAYERS**
Murat Koray Akkaya, Alper Genç, ASELSAN INC., Turkey; Asim Egemen Yilmaz, Ankara University, Turkey

THP2.PC.6 Board PC.6 **TARGET ENHANCEMENT BY ANTENNA-TARGET POLARIZATION FOR GPR DETECTION OF LNAPL CONTAMINATED SOILS**
Qi Lu, Yan Wang, Cai Liu, Xuan Feng, Sixin Liu, Zhaofa Zeng, Songsheng She, Jilin University, China

THP2.PC.7 Board PC.7 **COMPARATIVE STUDY OF CLASSIFICATION ALGORITHMS TO DETECT INTERLAYER DEBONDINGS WITHIN PAVEMENT STRUCTURES FROM STEP-FREQUENCY RADAR DATA**
Shreedhar Savant Todkar, Cédric Le Bastard, Centre d'études et d'expertise sur les risques, l'environnement, la mobilité et l'aménagement (CEREMA), France; Vincent Baltazart, Institut français des sciences et technologies des transports, de l'aménagement et des réseaux (IFSTTAR), France; Amine Ihamouten, Centre d'études et d'expertise sur les risques, l'environnement, la mobilité et l'aménagement (CEREMA), France; Xavier Dérobert, Institut français des sciences et technologies des transports, de l'aménagement et des réseaux (IFSTTAR), France

THP2.PC.8 Board PC.8 **TRANSFER LEARNING ON GPR DATA**
Mehmet Oturak, TUBITAK UZAY, Turkey; Seniha Esen Yüksel, Hacettepe University, Turkey

Thursday, July 26 10:10 - 11:10 Poster Area D
Session THP1.PD Poster

Data Analysis Methods II

Session Chair: Andrea Garzelli, Università di Siena

THP1.PD.1 Board PD.1 **PRELIMINARY ASSESSMENT OF FACTORS AFFECTING ACCURACY OF SNOW LAYER THICKNESS ESTIMATION USING BI-STATIC, UP-LOOKING RADARS IN AN AVALANCHE RISK ASSESSMENT CONTEXT**
Farzana Kulsoom, Fabio Dell'Acqua, Marco Pasian, University of Pavia, Italy

THP1.PD.2 Board PD.2 **SAR IMAGE MATCHING IMPROVEMENT USING IMAGE TEXTURE ANALYSIS**
Mohammad Amin Ghannadi, Mohammad Saadatseresht, Mahdi Hasanlou, University of Tehran, Iran

THP1.PD.3 Board PD.3 **SENTINEL-1 GLOBAL COVERAGE FORESHORTENING MASK EXTRACTION: AN OPEN SOURCE IMPLEMENTATION BASED ON GOOGLE EARTH ENGINE**
Mohammad Kakooei, Babol Noshirvani University of Technology, KTH Royal Institute of Technology, Iran; Andrea Nascetti, Yifang Ban, KTH Royal Institute of Technology, Sweden

THP1.PD.4 Board PD.4 **THE SARPTICAL DATASET FOR JOINT ANALYSIS OF SAR AND OPTICAL IMAGE IN DENSE URBAN AREA**
Yuanyuan Wang, Technical University of Munich (TUM), Germany; Xiao Xiang Zhu, German Aerospace Center (DLR) / Technical University of Munich (TUM), Germany

THP1.PD.5 Board PD.5 **VERY HIGH RESOLUTION IMAGE SCENE CLASSIFICATION WITH SEMANTIC FISHER VECTORS**
Souleyman Chaib, Yanfeng Gu, Hongxun Yao, Harbin Institute of Technology, China; Khaled Belkadi, University of Science and Technology of Oran Mohamed Boudiaf (USTO-MB), Algeria

THP1.PD.6 Board PD.6 **AN ALTERNATIVE PARAMEYER OF ALPHA IN CLOUDE-POTTIER DECOMPOSITION**
Jiehong Chen, Lin Zheng, Key Laboratory of Poyang Lake Wetland and Watershed Research, Ministry of Education, Jiangxi Normal University / School of Geography and Environment, Jiangxi Normal University / Jiangxi Provincial Key Laboratory of Poyang Lake Comprehensive Management and Resource Development, Jiangxi Normal University, China; Junsong Jia, Key Laboratory of Poyang Lake Wetland and Watershed Research, Ministry of Education, Jiangxi Normal University / School of Geography and Environment, Jiangxi Normal University, China; Yuhua Ye, Jiangxi Normal University, China; Xi Yan, Key Laboratory of Poyang Lake Wetland and Watershed Research, Ministry of Education, Jiangxi Normal University / School of Geography and Environment, Jiangxi Normal University, China

THP1.PD.7 Board PD.7 **WAVELET BASED TEXTURAL FEATURES FOR OBJECT EXTRACTION FROM HIGH RESOLUTION SATELLITE IMAGES**
Kuldeep Chaurasia, Pradeep Kumar Garg, Rahul Dev Garg, Indian Institute of Technology Roorkee, India

THP1.PD.8 Board PD.8 **ADVANCED LOCAL BINARY PATTERNS FOR REMOTE SENSING IMAGE RETRIEVAL**
Issayas Tekeste, University of Trento, Italy; Begum Demir, Technische Universität Berlin, Germany

THP1.PD.9 Board PD.9 **SENTINEL-2 CHANGE DETECTION BASED ON DEEP FEATURES**
Andrea Pomente, Matteo Picchiani, Fabio Del Frate, Tor Vergata University, Italy

THP1.PD.10 Board PD.10 **WINTER WHEAT YIELD ESTIMATION WITH GROUND BASED SPECTRAL INFORMATION**
Yao Zhang, Qiming Qin, Institute of Remote Sensing and Geographic Information System, School of Earth and Space Sciences, Peking University, China

Thursday, July 26 15:50 - 16:50 Poster Area D
Session THP2.PD Poster

Data Analysis Methods IV

Session Co-Chairs: Yuei-An Liou, National Central University; Jose Bioucas Dias, Universidade de Lisboa

THP2.PD.1 Board PD.1 **PRECISE EXTRACTION OF BUILT-UP AREA USING DEEP FEATURES**
Yihua Tan, Shengzhou Xiong, Yaming Li, Huazhong University of Science and Technology, China

THP2.PD.2 Board PD.2 **SEMI-SUPERVISED DEEP ATTRIBUTE NETWORKS FOR FINE-GRAINED SHIP CATEGORY RECOGNITION**
Quentin Oliveau, Télécom ParisTech, France; Hichem Sahbi, CNRS, University of Pierre and Marie Curie, Sorbonne University, France

THP2.PD.3 Board PD.3 **USE OF SENTINEL-1 AND SENTINEL-2 FOR MONITORING ILLEGAL FISHING OFF GHANA**
Andrey Kurekin, Benjamin Loveday, Oliver Clements, Graham Quartly, Peter Miller, Plymouth Marine Laboratory, United Kingdom; George Wiafe, Kwame Adu Agyekum, University of Ghana, Ghana

THP2.PD.4 Board PD.4 **CLEAR-AIR ANOMALY DETECTION USING MODIFIED KALMAN TEMPORAL FILTER FROM GEOSTATIONARY MULTISPECTRAL DATA**
Luca Milani, Sapienza Università di Roma, Italy; Mauro Arcorace, Roberto Cuccu, Giancarlo Rivolta, Progressive Systems Srl, Italy; Frank S. Marzano, Sapienza Università di Roma, Italy

THP2.PD.5 Board PD.5 **EXTRACTION OF AURORAL OVAL REGIONS USING SUPPRESSED FUZZY C MEANS CLUSTERING**
Yu Lei, Jiao Shi, Ying Zhou, Mingliang Tao, Northwestern Polytechnical University, China; Jiaji Wu, Xidian University, China

THP2.PD.6 Board PD.6 **OCEAN EDDY IDENTIFICATION AND TRACKING USING NEURAL NETWORKS**
Katharina Franz, Ribana Roscher, Andres Milioto, Susanne Wenzel, Jürgen Kusche, University of Bonn, Germany

THP2.PD.7 Board PD.7 **A NOVEL MULTI-SENSOR IMAGE SEGMENTATION FRAMEWORK BASED ON FUZZY COLLABORATIVE CLUSTERING**
Tauqir Moughal, Allama Iqbal Open University, Pakistan; Fusheng Yu, Beijing Normal University, China; Abeer Mazher, Commonwealth Scientific and Industrial Research Organization, Australia

THP2.PD.8 Board PD.8 **ON THE EXTRACTION OF TRAINING IMAGERY FROM VERY LARGE REMOTE SENSING DATASETS FOR DEEP CONVOLUTIONAL SEGMENATATION NETWORKS**
Bohao Huang, Daniel Reichman, Leslie Collins, Kyle Bradbury, Jordan Malof, Duke University, United States

THP2.PD.9 Board PD.9 **DEEP CONVOLUTIONAL SEGMENTATION OF REMOTE SENSING IMAGERY: A SIMPLE AND EFFICIENT ALTERNATIVE TO STITCHING OUTPUT LABELS**
Bohao Huang, Leslie Collins, Kyle Bradbury, Jordan Malof, Duke University, United States

THP2.PD.10 Board PD.10 **DEEP LEARNING HYPERSPECTRAL IMAGE CLASSIFICATION USING MULTIPLE CLASS-BASED DENOISING AUTOENCODERS, MIXED PIXEL TRAINING AUGMENTATION, AND MORPHOLOGICAL OPERATIONS**
John Ball, Pan Wei, Mississippi State Univeristy, United States

Thursday, July 26 **10:10 - 11:10** **Poster Area E**
Session THP1.PE **Poster**

Processing and Analysis of Optical Images

Session Chair: Nathan Longbotham, Descartes Labs

THP1.PE.1 Board PE.1
ROAD EXTRACTION FROM REMOTE SENSING IMAGES BY MULTIPLE FEATURE PYRAMID NETWORK
Xun Gao, Xian Sun, Menglong Yan, Hao Sun, Kun Fu, Yue Zhang, Zhipeng Ge, Institute of Electronics, Chinese Academy of Sciences, China

THP1.PE.2 Board PE.2
SHIPNET FOR SEMANTIC SEGMENTATION ON VHR MARITIME IMAGERY
Shihao Sun, Zexin Lu, Wenjie Liu, Wei Hu, Ruirui Li, Beijing University of Chemical Technology, China

THP1.PE.3 Board PE.3
A NOVEL HARBOR DETECTION METHOD BASED ON PATTERN CODING ALGORITHM
Guanqun Wang, Yin Zhuang, He Chen, Liang Chen, Beijing Institute of Technology, China

THP1.PE.4 Board PE.4
THE EFFECT OF FOCAL LOSS IN SEMANTIC SEGMENTATION OF HIGH RESOLUTION AERIAL IMAGE
Kento Doi, Akira Iwasaki, The University of Tokyo, Japan

THP1.PE.5 Board PE.5
RECOGNITION OF WINDMILLS IN REMOTE SENSING IMAGE BY SVM AND MORPHOLOGICAL ATTRIBUTE FILTERS
Hongbo Li, Jian Zhao, Yun Zhang, Harbin Institute of Technology, China; Yunling Zhang, Highway Engineering Consulting Corporation, China

THP1.PE.6 Board PE.6
STACKED ENCODER-DECODERS FOR ACCURATE SEMANTIC SEGMENTATION OF VERY HIGH RESOLUTION SATELLITE DATASETS
Maria Papadomanolaki, National Technical University of Athens, Greece; Maria Vakalopoulou, Nikos Paragios, CentraleSupélec, Inria, Université Paris-Saclay, France; Konstantinos Karantzalos, National Technical University of Athens, Greece

THP1.PE.7 Board PE.7
MULTILEVEL SEMANTIC LABELING OF MOBILE HOMES FROM OVERHEAD IMAGERY
Dalton Lunga, Matthew Seals, Budhendra Bhaduri, Oak Ridge National Laboratory, United States

THP1.PE.8 Board PE.8
ROAD SEGMENTATION OF UAV RS IMAGE USING ADVERSARIAL NETWORK WITH MULTI-SCALE CONTEXT AGGREGATION
Bo Peng, Yuxia Li, University of Electronic Science and Technology of China, China; Lei He, Chengdu University of Information Technology, China; Kunlong Fan, Ling Tong, University of Electronic Science and Technology of China, China

THP1.PE.9 Board PE.9
CLOUD DETECTION FROM RGB COLOR REMOTE SENSING IMAGES WITH DEEP PYRAMID NETWORKS
Savas Ozkan, Mehmet Efendioglu, Caner Demirpolat, TUBITAK UZAY, Turkey

THP1.PE.10 Board PE.10
A COMPARISON OF DEEP LEARNING ARCHITECTURES FOR SEMANTIC MAPPING OF VERY HIGH RESOLUTION IMAGES
Qinghui Liu, Norwegian Computer Center, Norway; Arnt-Børre Salberg, Norwegian Computing Center, Norway; Robert Jenssen, UiT The Arctic University of Norway, Norway

Thursday, July 26 **15:50 - 16:50** **Poster Area E**
Session THP2.PE **Poster**

Classification

THP2.PE.1 Board PE.1
LARGE-SCALE SEMANTIC CLASSIFICATION: OUTCOME OF THE FIRST YEAR OF INRIA AERIAL IMAGE LABELING BENCHMARK
Bohao Huang, Duke University, United States; Kangkang Lu, NUS, Singapore; Nicolas Audebert, ONERA, France; Andrew Khalel, Raisa energy, Egypt; Yuliya Tarabalka, UCA, Inria, France; Jordan Malof, Duke University, United States; Alexandre Boulch, Bertrand Le Saux, ONERA, France; Leslie Collins, Kyle Bradbury, Duke University, United States; Sébastien Lefèvre, University of Bretagne-Sud, IRISA, France; Motaz El-Saban, Raisa energy, Egypt

THP2.PE.2 Board PE.2
MAPPING HIGHLY HETEROGENEOUS IMPERVIOUS SURFACE IN THE URBAN-RURAL FRINGE USING INTEGRATED HARD AND SOFT CLASSIFICATION FROM INCORPORATING SPECTRAL AND TEXTURE FEATURES
Shuang Zhu, Beijing Polytechnic College, China; Jinshui Zhang, State Key Laboratory of Earth Surface Processes and Resource Ecology, Beijing Normal University, China; Xiaohe Gu, Beijing Research Center for Information Technology in Agriculture, China; Junwen Yang, State Key Laboratory of Earth Surface Processes and Resource Ecology, Beijing Normal University, China; Baolin Xian, Ningxia University, China

THP2.PE.3 Board PE.3
BAG-OF-VISUAL WORDS AND ERROR-CORRECTING OUTPUT CODES FOR MULTILABEL CLASSIFICATION OF REMOTE SENSING IMAGES
Anamaria Radoi, University Politehnica of Bucharest, Romania; Mihai Datcu, German Aerospace Center (DLR), Germany

THP2.PE.4 Board PE.4
EXTENDING K-MEANS TO PRESERVE SPATIAL CONNECTIVITY
Sampriti Soor, Aditya Challa, Sravan Danda, Daya Sagar B. S., Indian Statistical Institute, India; Laurent Najman, University Paris-Est, France

THP2.PE.5 Board PE.5
AUTOMATED SPECTRAL MAPPING AND SUB-PIXEL CLASSIFICATION (ASMPC) IN THE PART OF THAR DESERT USING EO-1 SATELLITE HYPERION DATA
Keshav Dev Singh, University of California, United States

THP2.PE.6 Board PE.6
TABULAR K-MEANS CLUSTERING ON REMOTE SENSING IMAGES
Victor J. D. Tsai, C. K. Tsui, National Chung Hsing University, Taiwan

THP2.PE.8 Board PE.8
HUMAN GAIT CLASSIFICATION USING MICRO-MOTION AND ENSEMBLE LEARNING
Li Sun, Yan-Xin Yuan, Qun Zhang, Air Force Engineering University, China; Yi-cheng Wu, Air Force Early Warning Academy, China

THP2.PE.9 Board PE.9
AN OPTIMUM LAND COVER MAPPING ALGORITHM FOR CLOUD-CONTAMINATED REMOTE SENSING IMAGES
Teerasit Kasetkasem, Sorasak Khoomboon, Kasetsart University, Thailand; Preesan Rakwatin, Digital Economy Promotion Agency, Thailand

THP2.PE.10 Board PE.10
HIGH RESOLUTION IMAGE CLASSIFICATION BASED ON SPATIO-TEMPORAL CONTEXT MODEL OF CRF
Aiying Zhang, Ping Tang, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China

Thursday, July 26 10:10 - 11:10 **Poster Area F**
Session THP1.PF **Poster**

Processing and Analysis of SAR Data

THP1.PF.2 Board PF.2 **A GEOMETRIC ACTIVE CONTOUR MODEL USING SYMMETRICAL KULLBACK-LEIBLER DISTANCE FOR SAR IMAGE SEGMENTATION**
Na Li, Tian Hui Satellite Center of China, China; Fang Liu, National University of Defense Technology, China; Lei Qiu, Beijing Institute of Tracking and Telecommunication Technology, China; Xiangchenyang Su, National University of Defense Technology, China

THP1.PF.3 Board PF.3 **RELAXATION LABELLING BASED LAND MASKING IN SAR IMAGES**
Zongxu Pan, Lei Liu, Bin Lei, Institute of Electronics, Chinese Academy of Sciences, China

THP1.PF.4 Board PF.4 **NOVEL METHODS OF SPECKLE REDUCTION AND ENHANCEMENT FOR SAR IMAGE**
Han Liu, Yanmei Zhang, Wenjie Tie, Chao Ji, Beijing Institute of Technology, China; Liangyu Dai, Beijing Insititute of Technology, China

THP1.PF.5 Board PF.5 **COMPARATIVE STUDY OF FEATURE EXTRACTION APPROACHES FOR SHIP CLASSIFICATION IN MODERATE-RESOLUTION SAR IMAGERY**
Shreya Sharma, Kenta Senzaki, Hirofumi Aoki, NEC Corporation, Japan

THP1.PF.6 Board PF.6 **A FAST SPARSE REPRESENTATION METHOD FOR SAR TARGET CONFIGURATION RECOGNITION**
Ming Liu, Shaanxi Normal University, China; Shichao Chen, Fugang Lu, Jun Wang, Xi'an Modern Control Technology Research Institute, China; Jie Wu, Shaanxi Normal University, China; Taoli Yang, University of Electronic Science and Technology of China, China

THP1.PF.7 Board PF.7 **FEATURE LEARNING FOR SAR IMAGES USING CONVOLUTIONAL NEURAL NETWORK**
Qi Liu, Shaojie Li, Shaohui Mei, Ruoqiao Jiang, Northwestern Polytechnical University, China; Jieqi Li, China Academy of Launch Vehicle Technology, China

THP1.PF.8 Board PF.8 **FEATURE MODELING OF SAR IMAGES FOR AIRCRAFTS BASED ON TYPICAL STRUCTURES**
Yueting Zhang, Chibiao Ding, Bin Lei, Fangfang Li, Xiaolan Qiu, Institute of Electronics, Chinese Academy of Sciences, China

Thursday, July 26 15:50 - 16:50 **Poster Area F**
Session THP2.PF **Poster**

Data Fusion III

Session Co-Chairs: Florence Tupin, Télécom ParisTech; Pedram Ghamisi, German Aerospace Center (DLR) and Technical University of Munich (TUM)

THP2.PF.1 Board PF.1 **A NEW REGISTRATION ALGORITHM FOR MULTIMODAL REMOTE SENSING IMAGES**
Xunwei Xie, Yongjun Zhang, Xiao Ling, Xiang Wang, School of Remote Sensing and Information Engineering, China

THP2.PF.2 Board PF.2 **THE USE OF MULTIFREQUENCY SAR DATA FOR ASSESSING LEVELS OF FOREST DISTURBANCE IN BAJO CALIMA COLOMBIA**
Ana María Pacheco-Pascagaza, University of Leicester, United Kingdom; Mariano Garcia, University of Alcalá, Spain; Pedro Rodríguez-Veiga, Heiko Balzter, University of Leicester, United Kingdom

THP2.PF.3 Board PF.3 **CAN SAR IMAGES AND OPTICAL IMAGES TRANSFER WITH EACH OTHER?**
Lei Liu, Bin Lei, Institute of Electronics, Chinese Academy of Sciences, China

THP2.PF.4 Board PF.4 **A COMPARISON OF TWO SPATIO-TEMPORAL DATA FUSION SCHEMES TO INCREASE THE SPATIAL RESOLUTION OF MAPPING ACTUAL EVAPOTRANSPIRATION**
Tong Wang, Ronglin Tang, State Key Laboratory of Resources and Environment Information System, China; Zhao-Liang Li, Key Laboratory of Agri-informatics, China; Bo-Hui Tang, Hua Wu, State Key Laboratory of Resources and Environment Information System, China; Yazhen Jiang, University of Chinese Academy of Sciences, China; Meng Liu, State Key Laboratory of Resources and Environment Information System, China

THP2.PF.5 Board PF.5 **A DEEP FUSION NETWORK FOR CLASSIFYING HR REMOTE SENSING IMAGES**
Yunfeng Zhang, Mingmin Chi, Fudan University, China

THP2.PF.6 Board PF.6 **A REMOTE SENSING SPATIOTEMPORAL FUSION MODEL OF LANDSAT AND MODIS DATA VIA DEEP LEARNING**
Peiyu Dai, Hongyan Zhang, Liangpei Zhang, Huanfeng Shen, Wuhan University, China

THP2.PF.7 Board PF.7 **HYPERSPECTRAL AND MULTISPECTRAL IMAGE FUSION WITH DUAL-SOURCE SPATIAL-SPECTRAL DICTIONARY**
Jin Tian, Yifan Zhang, Yang Lu, Shaohui Mei, Northwestern Polytechnical University, China

THP2.PF.8 Board PF.8 **MULTITEMPORAL MID-INFRARED IMAGERY BASED CALIBRATION AND SUPER RESOLUTION FOR GAOFEN-4**
Feng Li, Lei Xin, Qian Xuesen Laboratory of Space Technology, China; Yi Guo, Western Sydney University, Australia; Xiuping Jia, University of New South Wales, Australia

THP2.PF.9 Board PF.9 **GENERATIVE ADVERSARIAL NETWORK BASED THIN CLOUD REMOVAL FOR REMOTE SENSING IMAGES**
Zhengming Wang, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China; Lizhe Wang, China Univ. of Geosciences (CUG), Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China; Peng Liu, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China

THP2.PF.10 Board PF.10 **PAN-SHARPENING BASED ON MULTILEVEL COUPLED DEEP NETWORK**
Wanting Cai, Yang Xu, Zebin Wu, Nanjing University of Science and Technology, China; Hongyi Liu, School of Science, China; Ling Qian, Zhihui Wei, Nanjing University of Science and Technology, China

Thursday, July 26 10:10 - 11:10 Poster Area G
Session THP1.PG Poster

Object Detection Methods

THP1.PG.1 Board PG.1
AN AUTOMATIC DETECTION METHOD FOR TENSILE DEFORMATIONS IN OPTICAL SATELLITE ORTHOPHOTO
Penglong Li, Yan Hu, Yi Ding, Chongqing Geomatics Center, China; Yichu Dong, Chongqing Center for Productivity Development, China; Ding Luo, Ziwei Jiang, Chongqing Geomatics Center, China

THP1.PG.2 Board PG.2
OBJECT DETECTION IN REMOTE SENSING IMAGES WITH CENTER ONLY
Adrien Chan-Hon-Tong, Nicolas Audebert, ONERA, France

THP1.PG.3 Board PG.3
OBJECT-BASED POSTPROCESSING METHOD FOR CROP CLASSIFICATION MAPS
Mykola Lavreniuk, Nataliia Kussul, Andrii Shelestov, Space Research Institute NASU-SSAU, Ukraine; Olena Dubovyk, Center for Remote Sensing of Land Surfaces (ZFL), Germany; Fabian Löw, MapTailor Geospatial Consulting GbR, Germany

THP1.PG.4 Board PG.4
BRIDGING THE GAP: SIMULTANEOUS FINE TUNING FOR DATA RE-BALANCING
John McKay, Isaac Gerg, Vishal Monga, Pennsylvania State University, United States

THP1.PG.5 Board PG.5
A WEAK MOVING POINT TARGET DETECTION METHOD BASED ON HIGH FRAME RATE IMAGE SEQUENCES
Yong Wu, University of Chinese Academy of Sciences, China; Zheng Yang, National Space Science Center, Chinese Academy of Sciences, China; Wenlong Niu, University of Chinese Academy of Sciences, China; Wei Zheng, National Space Science Center, Chinese Academy of Sciences, China

THP1.PG.6 Board PG.6
A GRAPH BASED MODEL FOR SUB-PIXEL OBJECTS RECOGNITION
Bouthayna Msellmi, National School of Computer Science, Tunisia; Zouhaier Ben Rabah, National Center of Mapping and Remote sensing, Tunisia; Imed Riadh Farah, National School of Computer Science, Tunisia

THP1.PG.7 Board PG.7
AN EFFECTIVE ZOOM-IN APPROACH FOR DETECTING DIM AND SMALL TARGET PROPOSALS IN SATELLITE IMAGERY
Junpeng Zhang, Xiuping Jia, Jiankun Hu, The University of New South Wales, Australia

THP1.PG.8 Board PG.8
A NOVEL VISUAL TRACKING ALGORITHM FOR BACKGROUND ORIENTED SCHLIEREN SYSTEM
Han Liu, Yanmei Zhang, Haichao Guo, Yulong An, Wei Song, Liangyu Dai, Beijing Institute of Technology, China

THP1.PG.9 Board PG.9
GAUSSIAN ATTRACTIVE FORCE-BASED ALTERNATIVE PARAMETRIC ACTIVE CONTOUR MODEL FOR 3D LUNAR CRATER DETECTION
Shangbin Huang, Jihao Yin, Hongmei Zhu, Beihang University, China; Zhe Cao, Beijing Institute of Spacecraft System Engineering, China

THP1.PG.10 Board PG.10
DIM MOVING TARGET DETECTION USING SPATIO-TEMPORAL ANOMALY DETECTION FOR HYPERSPECTRAL IMAGE SEQUENCES
Yang Li, Jinshen Wang, Beihang University, China; Xiang Liu, Aerospace Control Technology Institute, China; Ning Xian, Beihang University, China; Changsheng Xie, Aerospace Control Technology Institute, China

Thursday, July 26 15:50 - 16:50 Poster Area G
Session THP2.PG Poster

Sea Ice II

THP2.PG.1 Board PG.1
BIAS ASSESSMENT OF NASA TEAM AND ASI SUMMER SEA ICE CONCENTRATIONS IN THE CHUKCHI SEA USING KOMPSAT-5 SAR
Hyangsun Han, Hyun-Cheol Kim, Korea Polar Research Institute, Republic of Korea

THP2.PG.2 Board PG.2
RETRIEVAL AND VALIDATION OF SEA ICE CONCENTRATION FROM AMSR-E/AMSR2 IN POLAR REGIONS
Qian Shi, Jie Su, Physical Oceanography Laboratory/CIMST, Ocean University of China and Qingdao National Laboratory for Marine Science and Technology, China

THP2.PG.3 Board PG.3
A COMPARISON OF ICE FREEBOARD MEASUREMENT BY ICESAT AND ENVISAT ALTIMETERS
Weiya Ye, Jonathan Li, University of Waterloo, Canada

THP2.PG.4 Board PG.4
SEA-ICE IMAGE CLASSIFICATION FOR CHANNEL NAVIGATION IN POLAR APPLICATION
Nan Su, Chunming Zhang, Yiming Yan, Chunhui Zhao, Zhichao Tan, Harbin Engineering University, China

THP2.PG.5 Board PG.5
PASSIVE MICROWAVE REMOTE SENSING OF LAKE ICE FREEZING IN HIGH ASIA
Yubao Qiu, Huadong Guo, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China; Juha Lemmetyinen, Finnish Meteorological Institute, Finland; Xingxing Wang, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China

THP2.PG.6 Board PG.6
EFFECT OF A THIN DRY SNOW LAYER ON THE LAKE ICE THICKNESS MEASUREMENT USING WIDEBAND AUTOCORRELATION RADIOMETRY
Seyedmohammad Mousavi, Roger De Roo, Kamal Sarabandi, University of Michigan, Ann Arbor, United States; Anthony W. England, University of Michigan, Dearborn, United States

THP2.PG.7 Board PG.7
POTENTIAL OF COMPACT POLARIMETRY FOR OPERATIONAL SEA ICE MONITORING OVER ARCTIC AND ANTARCTIC REGION
Suman Singha, German Aerospace Center (DLR), Germany

THP2.PG.8 Board PG.8
ANALYSIS OF RADAR BACKSCATTERING FROM FIRST-YEAR SEA ICE WITH C-SHAPED PROFILES
Xu Xu, Camilla Brekke, Anthony Paul Doulgeris, Frank Melandsø, UiT The Arctic University of Norway, Norway

THP2.PG.9 Board PG.9
SEA-ICE SCENE CLASSIFICATION USING AERIAL IMAGES IN ARCTIC BASED ON TRANSFER LEARNING
Yiming Yan, Zhichao Tan, Nan Su, Harbin Engineering University, China

THP2.PG.10 Board PG.10
SEA ICE CLASSIFICATION WITH CONVOLUTIONAL NEURAL NETWORKS USING SENTINEL-1 SCANSAR IMAGES
Chao Wang, Hong Zhang, Yuanyuan Wang, Bo Zhang, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China

Thursday, July 26 **10:10 - 11:10** **Poster Area H**
Session THP1.PH **Poster**

Machine Learning

THP1.PH.1 Board PH.1 **INVERSION OF DEEP NETWORKS FOR MODELLING VARIATIONS IN SPATIAL DISTRIBUTIONS OF LAND COVER CLASSES ACROSS SCALES**
Arun P. V., Krishna Mohan Buddhiraju, Alok Porwal, Indian Institute of Technology Bombay, India

THP1.PH.2 Board PH.2 **A MACHINE LEARNING EVALUATION OF AERIAL LIDAR FOR CLASSIFICATION OF TERRESTRIAL AND URBAN STRUCTURES**
Kaleb E. Smith, Florida Institute of Technology, United States; Benjamin Drebing, Hamilton College, United States; Michael Sokolich, College of Wooster, United States; Chelsea Bulthuis, Boise Sate University, United States; Joshua Nuez, Whitworth College, United States

THP1.PH.3 Board PH.3 **CLASSIFYING HIGH RESOLUTION REMOTE SENSING IMAGES BY FINE-TUNED VGG DEEP NETWORKS**
Xuan Liu, Mingmin Chi, Yunfeng Zhang, Yiqing Qin, Fudan University, China

THP1.PH.4 Board PH.4 **ACCELERATING THE TRAINING PROCESS OF CONVOLUTIONAL NEURAL NETWORKS FOR CLASSIFICATION BY DROPPING TRAINING SAMPLES OUT**
Naisen Yang, Hong Tang, Jianwei Yue, Xin Yang, Beijing Normal University, China; Zhihua Xu, China University of Mining and Technology, Beijing, China

THP1.PH.6 Board PH.6 **WIDE CONTEXTUAL RESIDUAL NETWORK WITH ACTIVE LEARNING FOR REMOTE SENSING IMAGE CLASSIFICATION**
Shengjie Liu, Haowen Luo, Ying Tu, Zhi He, Jun Li, Sun Yat-sen University, China

THP1.PH.7 Board PH.7 **SYNTACTIC PATTERN RECOGNITION FOR WAVELET CLUSTERING IN SEISMOGRAM**
Kou-Yuan Huang, National Chiao Tung University, Taiwan; Dar-Ren Leu, University of Houston, United States Virgin Islands

THP1.PH.8 Board PH.8 **AN APPROACH FOR ROAD MATERIAL IDENTIFICATION BY DUAL-STAGE CONVOLUTIONAL NETWORKS**
Wei Xia, Transport Telecommunications & Information Center, China; Zhao Chen, Donghua University, China; Yuze Zhang, Jian Liu, Transport Telecommunications & Information Center, China

Thursday, July 26 **15:50 - 16:50** **Poster Area H**
Session THP2.PH **Poster**

Permafrost I

Session Chair: Juha Lemmetyinen, Finnish Meteorological Institute

THP2.PH.1 Board PH.1 **MONITORING FREEZING AND THAWING OF SHALLOW LAKES IN NORTHERN ALASKA USING SENTINEL-1 DATA**
Hiroyuki Wakabayashi, Kazushige Motohashi, Nihon University, Japan

THP2.PH.2 Board PH.2 **RESEARCH ON THE IMPROVEMENT OF PASSIVE MICROWAVE FREEZING AND THAWING DISCRIMINANT ALGORITHMS FOR COMPLICATED SURFACE CONDITIONS**
Xiaokang Kou, Shijiazhuang Tiedao University, China; Lingmei Jiang, Beijing Normal University, China; Shuang Yan, Hebei Academy of Sciences, China; Jian Wang, Beijing Normal University, China; Liyou Gao, Shijiazhuang Institute of Railway Technology, China

THP2.PH.3 Board PH.3 **THE HIGH TEMPORAL DETECTION OF LAND SURFACE FREEZE AND THAW STATES VIA A COMBINATION OF PASSIVE MICROWAVE ESTIMATES**
Hamid Norouzi, The City University of New York - City Tech, United States; Satya Prakash, Indian Institute of Science, India; Marzi Azarderakhsh, Fairleigh Dickinson University, United States; Christopher Beale, Reginald Blake, The City University of New York - City Tech, United States

THP2.PH.4 Board PH.4 **VERIFICATION OF DOWNSCALING METHOD FOR NEAR-SURFACE FREEZE/THAW STATE MONITORING IN GENHE AREA OF CHINA**
Jian Wang, Lingmei Jiang, Beijing Normal University, China; Xiaokang Kou, Shijiazhuang Tiedao University, China; Huizhen Cui, Shirui Hao, Beijing Normal University, China

THP2.PH.5 Board PH.5 **FREEZE/THAW MAPPING USING SMAP DATA OVER THE CANADIAN TUNDRA: TURJUSUK PARK**
Chaima Touati, Tahiana Ratsimbazafy, Monique Bernier, National Institute of Scientific Research, Canada; Ralf Ludwig, Ludwig-Maximilian University of Munich, Germany; Jimmy Poulin, National Institute of Scientific Research, Canada

THP2.PH.6 Board PH.6 **SIGNATURES OF SENTINEL-1 RADAR AND SMAP RADIOMETER DEPENDING ON THE TEMPERATURE OF FROZEN ARCTIC SOIL IN THE COOLING AND HEATING PROCESS OF THE ACTIVE LAYER**
Konstantin Muzalevskiy, Zdenek Ruzicka, Kirensky Institute of Physics, Russian Federation

THP2.PH.7 Board PH.7 **DIELECTRIC MODEL FOR THAWED AND FROZEN ORGANIC SOILS AT 1.4 GHZ**
Valery Mironov, Liudmila Kosolapova, Sergey Fomin, Igor Savin, Konstantin Muzalevskiy, Kirensky Institute of Physics, Russian Federation

Thursday, July 26 **10:10 - 11:10** **Poster Area I**
Session THP1.PI **Poster**

Pansharpening and Superresolution II

Session Co-Chairs: Begum Demir, University of Trento; Andrea Garzelli, Università di Siena

THP1.PI.1 Board PI.1 **PANSHARPENING BASED ON JOINT GAUSSIAN GUIDED UPSAMPLING**
Xu Li, Yu Pan, Ang Gao, Lixin Li, Shaohui Mei, Northwestern Polytechnical University, China; Shigang Yue, University of Lincoln, United Kingdom

THP1.PI.2 Board PI.2 **MULTIVARIATE REGRESSION-BASED PAN-SHARPENING WITH LOW RANK REGULARIZATION**
Yufei Zhang, Heng Li, Liang Xiao, Nanjing University of Science and Technology, China

THP1.PI.3 Board PI.3 **HYPERSPECTRAL PANSHARPENING VIA MULTITASK JOINT SPARSE REPRESENTATION**
Jianjun Liu, Jiangnan University, China; Zebin Wu, Nanjing University of Science and Technology, China; Zhiyong Xiao, Jinlong Yang, Jiangnan University, China

THP1.PI.4 Board PI.4 **A NEW HYPERSPECTRAL PANSHARPENING METHOD WITH INTRISIC IMAGE DECOMPOSITION**
Wenqian Dong, Song Xiao, Jiahui Qu, Xidian University, China

THP1.PI.5 Board PI.5 **EFFECTS OF PANSHARPENING METHODS ON DISCRIMINATION OF TROPICAL CROP AND FOREST USING VERY HIGH-RESOLUTION SATELLITE IMAGERY**
Mohamed Abadi, ICAM Engineering School, France; Enguerran Grandchamp, Université des Antilles et Guyane, France; Artur Gil, University of the Azores, Portugal

THP1.PI.6 Board PI.6 **FUSION OF HYPERSPECTRAL AND PANCHROMATIC IMAGES BASED ON MATTING MODEL**
Wenqian Dong, Xiao Song, Jiahui Qu, Hongping Gan, Xidian University, China

THP1.PI.7 Board PI.7 **A SIMPLE FUSION APPROACH OF CHLOROPHYLL IMAGES AND SEA SURFACE TEMPERATURE IMAGES FOR IMPROVING THE DETECTION OF MOROCCAN COASTAL UPWELLING**
Zineb Elabidi, Khalid Minaoui, Mohammed V University, Morocco; Ayoub Tamim, Higher Institute of Marine Fisheries, Morocco; Hicham Laanaya, Mohammed V University, Morocco

THP1.PI.8 Board PI.8 **INCREMENT INFORMATION ACQUISITION TECHNOLOGY FOR REMOTE SENSING**
Zhiang Peng, Xingquan Zheng, Jiping Wang, Kaizhi Wang, Shanghai Jiao Tong Univercity, China

THP1.PI.9 Board PI.9 **FUSION OF HYPERSPECTRAL AND PANCHROMATIC IMAGES USING STRUCTURE TENSOR**
Jiahui Qu, Yunsong Li, Wenqian Dong, Xidian University, China

THP1.PI.10 Board PI.10 **COMPARATIVE ANALYSIS OF SINGLE AND MULTI FRAME SUPER RESOLUTION IN SATELLITE IMAGERY**
Shubham Rana, Hemant Singh, Anil Kumar, Indian Institute of Remote Sensing, India

Thursday, July 26 **15:50 - 16:50** **Poster Area I**
Session THP2.PI **Poster**

Remote Sensing Data and Policy Decisions II

Session Co-Chairs: Sandro Martinis, German Aerospace Center (DLR); Jill Smyth, Canadian Space Agency

THP2.PI.1 Board PI.1 **DEVELOPMENT OF POPULATION DISTRIBUTION MAP AND AUTOMATED HUMAN SETTLEMENT MAP USING HIGH RESOLUTION REMOTE SENSING IMAGES**
Uttam Dwivedi, Zhiling Guo, Hiroyuki Miyazaki, Mohamed Batran, Ryosuke Shibasaki, University of Tokyo, Japan

THP2.PI.2 Board PI.2 **REMOTE SENSING AND GIS BASED WATERSHED PRIORITIZATION**
Manish Pandey, Anoop Kumar Shukla, Indian Institute of Technology Roorkee, India

THP2.PI.3 Board PI.3 **TRAFFIC FLOW PREDICTION BASED ON CASCADED ARTIFICIAL NEURAL NETWORK**
Shaokun Zhang, Zejian Kang, Zhiyou Hong, Zhemin Zhang, Cheng Wang, Jonathan Li, Xiamen University, China

THP2.PI.4 Board PI.4 **TRENDS IN SATELLITE-BASED CRISIS MANAGEMENT IN GERMANY**
Iris Heine, Guido Riembauer, Michael Hovenbitzer, Federal Agency for Cartography and Geodesy, Germany

THP2.PI.5 Board PI.5 **ENRICHMENT OF THE SATELLITESCENEONTOLOGY WITH HYPERSPECTRAL IMAGES/ CROPS AND FEATURE VECTORS OF RADIOMETRIC INDICES**
Khitem Amiri, Mohamed Farah, SIIVT, Tunisia

Thursday, July 26 10:10 - 11:10 Poster Area J
Session THP1.PJ Poster

Data Fusion V

Session Co-Chairs: Claudio Persello, University of Twente; Begum Demir, University of Trento

THP1.PJ.1 Board PJ.1 **CLASSIFICATION OF HIGH RESOLUTION URBAN REMOTE SENSING IMAGES USING DEEP NETWORKS BY INTEGRATION OF SOCIAL MEDIA PHOTOS**
Yiqing Qin, Mingmin Chi, Xuan Liu, Yunfeng Zhang, Fudan University, China; Yijian Zeng, University of Twente, Netherlands; Zhiming Zhao, University of Amsterdam, Netherlands

THP1.PJ.2 Board PJ.2 **ASSESSMENT OF PREDICTIVE ABILITY OF STARFM BASED ON DIFFERENT MODIS-LANDSAT IMAGE PAIR DATE**
Donghui Xie, Beijing Normal University, China; Feng Gao, USDA, United States; Linyuan Li, Beijing Normal University, China

THP1.PJ.3 Board PJ.3 **URBAN TANDEM-X RAW DEM FUSION BASED ON TV-L1 AND HUBER MODELS**
Hossein Bagheri, Michael Schmitt, Xiao Xiang Zhu, Technical University of Munich (TUM), Germany

THP1.PJ.4 Board PJ.4 **A NEW SELF-ADAPTIVE APPROACH FOR PRODUCING CLEAR-SKY VIIRS COMPOSITES AT CONTINENTAL SCALE FOR THE STUDIES OF BELT AND ROAD INITIATIVE**
Jinhu Bian, Ainong Li, Guangbin Lei, Institute of Mountain Hazards and Environment, Chinese Academy of Sciences, China

THP1.PJ.5 Board PJ.5 **A NOVEL SPECTRUM ELABORATION METHOD FOR MOVING TARGETS BASED ON EMPIRICAL MODE DECOMPOSITION**
Miao Zhang, Ruilin Yuan, Yi Shen, Harbin Institute of Technology, China

THP1.PJ.6 Board PJ.6 **GENERATION OF TRAINING EXAMPLES USING OSM DATA APPLIED FOR REMOTE SENSED LANDCOVER CLASSIFICATION**
Gisela Häufel, Dimitri Bulatov, Melanie Pohl, Lukas Lucks, Fraunhofer Institute of Optronics, System Technologies and Image Exploitation (IOSB), Germany

THP1.PJ.7 Board PJ.7 **OUTLINE RECONSTRUCTION FOR RADAR FORWARD-LOOKING IMAGING BASED ON TOTAL VARIATION FUNCTIONAL DECONVLOUTION METHOD**
Yang Wu, Yin Zhang, Yongchao Zhang, Yulin Huang, Jianyu Yang, University of Electronic Science and Technology of China, China

THP1.PJ.8 Board PJ.8 **FENGYUN-3 SATELLITE MICROWAVE DATA REMAP AND ITS APPLICATION**
Xiaoqing Li, Chengli Qi, Qifeng Lu, Ruixia Liu, Hui Liu, Yang Guo, Chunqiang Wu, National Satellite Meteorological Center, China Meteorological Administration, China

THP1.PJ.9 Board PJ.9 **MULTISTATIC SAR INFORMATION FUSION BASED ON IMAGE REGISTRATION AND FAKE COLOR SYNTHESIS**
Wenjing Wang, Junjie Wu, Xiaqing Yang, Yuxuan Miao, Jianyu Yang, Haiguang Yang, University of Electronic Science and Technology of China, China

THP1.PJ.10 Board PJ.10 **FOREST STAND EXTRACTION: WHICH OPTIMAL REMOTE SENSING DATA SOURCE(S)?**
Clément Dechesne, Clément Mallet, Arnaud Le Bris, Valérie Gouet, IGN-ENSG, Univ. Paris Est, France

Thursday, July 26 15:50 - 16:50 Poster Area J
Session THP2.PJ Poster

Disaster Monitoring and Early Warning

Session Chair: Christian Bignami, Istituto Nazionale di Geofisica e Vulcanologia

THP2.PJ.1 Board PJ.1 **THE INTRAPLATE 2016 MW 6.0 AUSTRALIA EARTHQUAKE STUDIED BY INSAR DATA**
Marco Polcari, Matteo Albano, Simone Atzori, Christian Bignami, Salvatore Stramondo, Istituto Nazionale di Geofisica e Vulcanologia, Italy

THP2.PJ.2 Board PJ.2 **APPLICATION OF LANDSAT-8 AND SENTINEL-1 IMAGES FOR DROUGHT MONITORING OVER THE KOREAN PENINSULA**
Dalgeun Lee, Jongpil Kim, Mi Hee Lee, Soo Bong Lee, Jinyoung Kim, NDMI, Republic of Korea

THP2.PJ.3 Board PJ.3 **CHARACTERISTICS OF THE DISTRIBUTION OF TEXTURES IN THE RECONSTRUCTION OF DAMAGED BUILDINGS IN THE KUMAMOTO EARTHQUAKE**
Masashi Sonobe, Hideki Hashiba, Nihon University, Japan

THP2.PJ.4 Board PJ.4 **APPLICATION OF THE GF SATELLITE DATA IN FLOOD DISASTER MONITORING**
Xiaotao Li, Jingxuan Lu, China Institute of Water Resources and Hydropower Research, China; Xiaoning Song, University of Chinese Academy of Sciences, China; Yayong Sun, Lin Li, Tianjie Lei, Wei Qu, China Institute of Water Resources and Hydropower Research, China

THP2.PJ.5 Board PJ.5 **EARLY WARNING OF CONSTRUCTION LAND IN VILLAGES AND TOWNS BASED ON FUZZY EXTENSION MATTER ELEMENT MODEL**
Hongga Li, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences; University of Chinese Academy of Sciences, China; Ze Liu, Ministry of Housing and Urban-Rural Development of the People's Republic of China, China; Xiaoxia Huang, Xia Li, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences; University of Chinese Academy of Sciences, China

THP2.PJ.6 Board PJ.6 **THE WHOLE PROCESS REMOTE SENSING MONITORING OF RIVER BASIN FLOOD-TAKING THE 2013 HEILONGJIANG RIVER FLOOD AS AN EXAMPLE**
Lin Li, Xiaotao Li, Jingxuan Lu, Tianjie Lei, Tao Sun, Wei Qu, China Institute of Water Resources and Hydropower Research, China

THP2.PJ.7 Board PJ.7 **QUANTITATIVE TYPICAL LAND COVER REMOTE SENSING AND ITS APPLICATION IN EARTHQUAKE EVALUATION**
Dan Yin, Xiuwan Chen, Peking University, China; Shihu Zhao, Satellite Surveying and Mapping Center, China

THP2.PJ.8 Board PJ.8 **DROUGHT IMPACT AND RECOVERY: A CASE STUDY OF RAINFED AREA OF PUNJAB, PAKISTAN**
Shoaib Jamro, Zaki Zaidi, Saima Awan, Arjumand Zaidi, Mehran University of Engineering and Technology, Pakistan

THP2.PJ.9 Board PJ.9 **COMPARISON OF LAND COVER MAPS USING HIGH RESOLUTION MULTISPECTRAL AND HYPERSPECTRAL IMAGERY**
Javier Marcello, Dionisio Rodríguez-Esparragón, Daniel Moreno, Universidad de Las Palmas de Gran Canaria, Spain

THP2.PJ.10 Board PJ.10 **LAND-USE CLASSIFICATION USING FINITE ELEMENT MACHINES**
Danillo Pereira, Joao Papa, Sao Paulo State University, Brazil; Luciene Papa, Faculty Southwest Paulista, Brazil; Rodrigo Pisani, University of Alfenas, Brazil

Thursday, July 26 10:10 - 11:10 Poster Area K
Session THP1.PK Poster

Sea Ice I

THP1.PK.1 Board PK.1 **SEA ICE CHANGE DETECTION IN SAR IMAGES BASED ON COLLABORATIVE REPRESENTATION**
Yunhao Gao, Feng Gao, Junyu Dong, Shengke Wang, Ocean University of China, China

THP1.PK.2 Board PK.2 **SEA ICE CLASSIFICATION FROM HYPERSPECTRAL IMAGES BASED ON SELF-PACED BOOST LEARNING**
Dong Wang, Feng Gao, Junyu Dong, Yang Yang, Shengke Wang, Ocean University of China, China

THP1.PK.3 Board PK.3 **AUTOMATED SEA ICE CLASSIFICATION OVER THE BALTIC SEA USING MULTIPARAMETRIC FEATURES OF TANDEM-X INSAR IMAGES**
Marjan Marbouti, University of Helsinki, Finland; Oleg Antropov, Aalto University, Finland; Patrick Eriksson, Finnish Meteorological Institute, Finland; Jaan Praks, Vahid Arabzadeh, Aalto University, Finland; Eero Rinne, Finnish Meteorological Institute, Finland; Matti Leppäranta, University of Helsinki, Finland

THP1.PK.5 Board PK.5 **UP-SCALING FROM QUAD-POLARIMETRIC TO DUAL-POLARIMETRIC SAR DATA USING MACHINE LEARNING GAUSSIAN PROCESS REGRESSION**
Katalin Blix, Martine M. M. Espeseth, Torbjørn Eltoft, UiT The Arctic University of Norway, Norway

THP1.PK.6 Board PK.6 **COMPARISON OF RETRIEVAL METHODS OF ARCTIC POLYNYA AREA**
Xiaolei Xie, Yongliang Wei, Yu Zhang, Shanghai Ocean University, China

THP1.PK.7 Board PK.7 **MULTI–POLARIZATION SAR MEASUREMENTS TO OBSERVE COASTAL AREAS IN ANTARCTICA**
Ferdinando Nunziata, Andrea Buono, Università di Napoli Parthenope, Italy; M Moctezuma, Universidad Nacional Autonoma de Mexico, Mexico; Flavio Parmiggiani, Consiglio Nazionale delle Ricerche (CNR), Italy; Maurizio Migliaccio, Università di Napoli Parthenope, Italy

THP1.PK.8 Board PK.8 **VERIFICATION OF SEA ICE DRIFT DATA OBTAINED FROM REMOTE SENSING INFORMATION**
Ruslan May, Krylov State Research Centre, Russian Federation

THP1.PK.9 Board PK.9 **THRESHOLD VALUES FOR WEATHER FILTERS IN AMSR2 SEA ICE CONCENTRATION RETRIEVAL ALGORITHMS**
Elizaveta Zabolotskikh, RSHU, Russian Federation; Bertrand Chapron, IFREMER, France

THP1.PK.10 Board PK.10 **ASSESSMENT OF SEASONAL SEA ICE TYPE AND ROUGHNESS REGIME DISCRIMINATION USING A UNIQUE C- AND L-BAND SAR DATABASE**
Randall Scharien, Torsten Geldsetzer, Sasha Nasonova, Silvie Cafarella, Aikaterini Tavri, University of Victoria, Canada

Thursday, July 26 15:50 - 16:50 Poster Area K
Session THP2.PK Poster

Remote Sensing of Crop and Soil Parameters

THP2.PK.1 Board PK.1 **A MODIFIED RATIO VEGETATION INDEX: A NOVEL METHOD FOR REMOTE ESTIMATION OF LEAF CHLOROPHYLL CONTENT FOR WINTER WHEAT**
Juan Sui, Qiming Qin, Huazhong Ren, Yuanheng Sun, Hui Yuan, Tianyuan Zhang, Peking University, China

THP2.PK.3 Board PK.3 **MULTITEMPORAL MONITORING OF FRUIT ORCHARD VITALITY WITH HIGH RESOLUTION REMOTE SENSING DATA**
Stephanie Delalieux, Flemish Institute for Technological Research, Belgium; Yasmin Vanbrabant, Catheline Pieters, Katholieke Universiteit Leuven, Belgium; Laurent Tits, Flemish Institute for Technological Research, Belgium; Somers Ben, Katholieke Universiteit Leuven, Belgium

THP2.PK.4 Board PK.4 **SPECTRA-BASED ESTIMATION OF WINTER WHEAT PHOTOSYNTHESIS TRAIT**
Huiling Long, Beijing Research Center for Information Technology in Agriculture, China

THP2.PK.5 Board PK.5 **USING A COSMIC-RAY NEUTRON SENSOR (CRNS) TO MONITOR VEGETATION**
Kaitlin Togliatti, Brian K. Hornbuckle, Iowa State University, United States

THP2.PK.6 Board PK.6 **EVALUATION OF SENTINEL-1A C-BAND SYNTHETIC APERTURE RADAR FOR CITRUS CROP CLASSIFICATION IN FLORIDA, UNITED STATES**
Claire Boryan, Zhengwei Yang, National Agricultural Statistics Service, United States; Barry Haack, George Mason University, United States

THP2.PK.7 Board PK.7 **EARTH OBSERVATION BASED EVAPOTRANSPIRATION IN THAILAND**
Chaolei Zheng, Li Jia, Guangcheng Hu, Jing Lu, Jie Zhou, Qiting Chen, Kun Wang, State Key Laboratory of Remote Sensing Science, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China

THP2.PK.8 Board PK.8 **CANOPY TEMPERATURE PROFILE OF SOYBEAN CROPS IN BRAZIL**
Aníbal Gusso, Silvia Rolim, Institute of Geosciences, Brazil

THP2.PK.9 Board PK.9 **SEBAL BASED EVAPOTRANSPIRATION ESTIMATION FOR UPPER TAPI BASIN (INDIA)**
Lalit Pal, Indian Institute of Technology Roorkee, India; Amit Kumar, National Institute of Hydrology Roorkee, India; Csp Ojha, Indian Institute of Technology Roorkee, India; Surendra Kumar Chandniha, National Institute of Hydrology, India

THP2.PK.10 Board PK.10 **A NOVEL APPROACH TO SELECT ANCHOR PIXELS IN SEBAL MODEL BY USING INPUTS FROM SAR IMAGES**
Prakash Mohan M M, Rajitha K, Murari R R Varma, BITS Pilani Hyderabad Campus, India

Thursday, July 26 **10:10 - 11:10** **Poster Area L**
Session THP1.PL **Poster**

Data Management and Systems II

Session Co-Chairs: Leland Pierce, University of Michigan; Tobias Storch, German Aerospace Center (DLR)

THP1.PL.1 Board PL.1
OPPORTUNITIES HIGHLIGHTED BY THE NSOSA STUDY
Karen St. Germain, Frank Gallagher, National Oceanic and Atmospheric Administration, United States; Mark Maier, The Aerospace Corporation, United States

THP1.PL.2 Board PL.2
THE DATA PREPARATION RESEARCH ON GLOBAL MULTI-SOURCE SYNERGIZED QUANTITATIVE REMOTE SENSING PRODUCTION SYSTEM
Hongyi Li, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China; Ling Ding, Institute of Earthquake Forecasting, China Earthquake Administration, China; Wei Zhang, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China

THP1.PL.3 Board PL.3
SPECTRAL LIBRARY: A PROPOSAL FOR DATA MODEL
Carlos Alberto Stelle, Brazilian Army Geographic Service, Brazil; Francisco Javier Ariza-López, Manuel Antonio Ureña-Cámara, University of Jaén, Spain

THP1.PL.4 Board PL.4
SCIENTIFIC OPPORTUNITIES AND CHALLENGES FOR MULTI-PLATFORM REMOTE SENSING
Pedro Jurado, MOLTEK C/O ESA/ESTEC, Netherlands; Amanda Regan, European Space Agency/ESTEC, Netherlands

THP1.PL.5 Board PL.5
TOWARDS AN INTEGRAL MODEL-BASED SIMULATOR FOR AUTONOMOUS EARTH OBSERVATION SATELLITE NETWORKS
Joan Adria Ruiz-de-Azúa, Carles Araguz, Anna Calveras, Eduard Alarcón, Adriano Camps, Technical University of Catalonia - UPC BarcelonaTech, Spain

THP1.PL.6 Board PL.6
CEOS ANALYSIS READY DATA FOR LAND (CARD4L) OVERVIEW
Adam Lewis, Geoscience Australia, Australia; Jennifer Lacey, USGS EROS, United States; Susanne Mecklenburg, European Space Agency, Italy; Jonathon Ross, Andreia Siqueira, Geoscience Australia, Australia; Brian Killough, NASA Langley Research Center, United States; Zoltan Szantoi, European Commission, Joint Research Centre (JRC), Italy; Takeo Tadono, Japan Aerospace Exploration Agency, Japan; Ake Rosenqvist, solo Earth Observation, Japan; Philippe Goryl, Nuno Miranda, Steven Hosford, European Space Agency, Italy

Thursday, July 26 **15:50 - 16:50** **Poster Area L**
Session THP2.PL **Poster**

Surface Characterization and Mineral Mapping from Remote Sensing

THP2.PL.1 Board PL.1
STUDY AND ANALYSIS OF THE DRAINAGE NETWORK IN THE EASTERN ANTI-TLAS AND THE ROLE OF GEOLOGY AND GEOMORPHOLOGY ON ITS EVOLUTION USING REMOTE SENSING AND GIS DATA
Tarik Bouramtane, Ilias Kacimi, Mohammed V University, Morocco; Amal Saidi, Scientific Institut, Mohammed V University, Morocco; Abdessamad El Adraoui, Moad Morarech, Mohammed V University, Morocco; Abdelfatah Tahiri, Scientific Institut, Mohammed V University, Morocco

THP2.PL.2 Board PL.2
AN INVESTIGATION OF THE FLUVIAL GEOMORPHOLOGY AND ASSOCIATED MINERALS IN THE SYRTIS MAJOR, MARS
Vidhya Ganesh Rangarajan, Rishikesh Bharti, Subashisa Dutta, Indian Institute of Technology Guwahati, India

THP2.PL.3 Board PL.3
RURAL ROAD NETWORKS MATCHING VIA EXTENDING LINE
Xiaofang Wang, Yu Zang, Yiping Chen, Cheng Wang, Jonathan Li, Xiamen University, China

THP2.PL.4 Board PL.4
GIS MODELING OF GROUNDWATER CONTAMINANT PATH ANALYSIS
Devanu Bhatnagar, Institute of Town Planners, India, New Delhi, India, India; Sandeep Goyal, M. P. council of science & technology, Bhopal, India; Sanjay Tignath, D.K. Deolia, Model Science College, Rani Durgavati University, Jabalpur, India

THP2.PL.5 Board PL.5
FAST AND EASY INTEGRATION AND CLASSIFICATION OF HYPERSPECTRAL OPTICAL AND THERMAL DATA: A MINERAL MAPPING CASE STUDY
Veronika Kopačková, Lucie Koucká, Jan Jelének, Czech Geological Survey, Czech Republic; Jan Hanuš, Global Change Research Institute CAS CzechGlobe, Czech Republic

THP2.PL.6 Board PL.6
THE NEED FOR MULTI-SOURCE, MULTI-SCALE HYPERSPECTRAL IMAGING TO BOOST NON-INVASIVE MINERAL EXPLORATION.
Richard Gloaguen, Helmholtz-Zentrum Dresden-Rossendorf, Germany; Pedram Ghamisi, German Aerospace Center (DLR), Germany; Sandra Lorenz, Moritz Kirsch, Robert Zimmermann, Helmholtz-Zentrum Dresden-Rossendorf, Germany; René Booysen, University of the Witwatersrand, South Africa; Louis Andreani, Robert Jackisch, Erik Hermann, Laura Tusa, Gabriel Unger, Cecilia Contreras, Mahdi Khodadadzadeh, Margret Fuchs, Helmholtz-Zentrum Dresden-Rossendorf, Germany

THP2.PL.7 Board PL.7
APPLICATION OF MULTI-SOURCE DATA ON STRUCTURAL FRAMEWORK STUDY IN THE WESTERN BEISHAN OROGENIC BELT, NORTHWEST CHINA
Jianyu Liu, China Areo Geophysical Survey and Remote Sensing Center for Land and Resources, China; Ling Chen, Wei Li, China Aero Geophysical Survey and Remote Sensing Center for Land and Resources, China; Genhou Wang, China University of Geosciences, China; Xiao Xiao, Pengxin International Mining Co., LTD., China

THP2.PL.8 Board PL.8
DERIVATION OF RELIABLE SURFACE ELEVATION MEASUREMENTS FROM ICESAT/GLAS WAVEFORMS BY INCORPORATING SPATIAL CONTEXTUAL INFORMATION
Hongxing Liu, Song Shu, University of Cincinnati, United States

THP2.PL.9 Board PL.9
FILLING SRTM VOID DATA VIA CONDITIONAL ADVERSARIAL NETWORKS
Guoshuai Dong, Fang Chen, Peng Ren, China University of Petroleum (East China), China

Thursday, July 26 | 10:10 - 11:10 | Poster Area M
Session THP1.PM | Poster

Vegetated Area and Ecological Applications

Session Co-Chairs: Joao Papa, Sao Paulo State University; Dušan Gleich, University of Maribor

THP1.PM.1 Board PM.1 **HYPERSPECTRAL IMAGE REFINED PLANT CLASSIFICATION BY GRAPH_BASED COMPOSITE KERNEL**
Yanling Liu, Ye Zhang, Harbin Institute of Technology, China

THP1.PM.2 Board PM.2 **DEVELOPMENT OF FUSION APPROACH FOR ESTIMATION OF VEGETATION FRACTION COVER WITH DRONE AND SENTINEL-2 DATA**
Ajay Kumar Maurya, Dharmendra Singh, Indian Institute of Technology Roorkee, India; K P Singh, Indian Institute of Technology (BHU) Varanasi, India

THP1.PM.3 Board PM.3 **ANALYZING LAND USE LAND COVER AND DEFORESTATION IN REDD+ AREA, CENTRAL KALIMANTAN PROVINCE, INDONESIA**
Norida Maryantika, Chinsu Lin, National Chiayi University, Indonesia

THP1.PM.4 Board PM.4 **CROP CLASSIFICATION USING FULLY POLARIMETRIC SAR IMAGERY**
Gangqiang An, Minfeng Xing, University of Electronic Science and Technology of China, China; Xiliang Ni, Chinese Academy of Sciences, China; Junjie Zhou, University of Electronic Science and Technology of China, China

THP1.PM.5 Board PM.5 **DENSE FULLY CONVOLUTIONAL NETWORKS FOR CROP RECOGNITION FROM MULTITEMPORAL SAR IMAGE SEQUENCES**
Laura Elena Cué La Rosa, Patrick Nigri Happ, Raul Queiroz Feitosa, Pontifical Catholic University of Rio de Janeiro, Brazil

THP1.PM.6 Board PM.6 **BIODIVERSITY FUNCTION ASSESSMENT OF TYPICAL COUNTY - A CASE STUDY OF QINGCHUAN COUNTY**
Yanling Chen, Adu Gong, Jingmei Wang, Tingting Zeng, Yuqing Yang, Jing Li, Yunhao Chen, Beijing Normal University, China; Xingling Wang, Tianrong Yang, Information Center of Ministry of Civil Affairs of the People's Republic of China, China

THP1.PM.7 Board PM.7 **CONSTRUCTION OF ECOLOGICAL SECURITY PATTERNS BASED ON ECOLOGICAL PTOTECTION REDLINES IN JIANGXI PROVINCE, CHINA**
Changxin Zou, Xin Ye, Nanjing Institute of Environmental Sciences, Ministry of Environmental Protection, China; Shanshan Yang, Nanjing University of Information Science and Technology, China

THP1.PM.8 Board PM.8 **EVALUATION AND CALIBRATION OF AN AGENT BASED LAND USE MODEL USING REMOTELY SENSED LAND COVER AND PRIMARY PRODUCTIVITY DATA**
Bumsuk Seo, Calum Brown, Mark Rounsevell, Karlsruhe Institute of Technology, Germany

THP1.PM.9 Board PM.9 **OBJECT-ORIENTED CLASSIFICATION FOR ECOLOGICALLY SOUND LAND BASED ON HIGH-RESOLUTION IMAGES**
Jing Wang, Wuhan University, China; Xiaoxiang Zhang, Hohai University, China; Yingkun Du, Wuhan University, China; Xue Jia, Hohai University, China; Yifan Lin, Peking University, China

THP1.PM.10 Board PM.10 **RELATIONSHIP BETWEEN BISTATIC RADAR SCATTERING CROSS SECTIONS AND GPS REFLECTOMETRY DELAY-DOPPLER MAPS OVER VEGETATED LAND IN SUPPORT OF SOIL MOISTURE RETRIEVAL**
Amir Azemati, Mahta Moghaddam, University of Southern California, United States; Arvind Bhat, Intelligent Automation INC. (IAI), United States

Thursday, July 26 | 15:50 - 16:50 | Poster Area M
Session THP2.PM | Poster

Soil Parameters from Microwave and other Frequencies II

THP2.PM.1 Board PM.1 **SOIL MOISTURE RETRIEVAL FOR PERIODIC FIELDS BY THE USE OF RADARSAT-2 POLARIMETRIC SAR IMAGERY**
Lingli Zhao, Jie Yang, Pingxiang Li, Wuhan University, China; Wenjun Han, State Grid, China; Xiaoli Ding, The Hong Kong Polytechnic University, China; Weidong Sun, Lei Shi, Wuhan University, China

THP2.PM.2 Board PM.2 **SOIL MOISTURE RETRIEVAL BY COMBINING USING ACTIVE AND PASSIVE MICROWAVE DATA**
Shangnan Li, Jilin University, China; Tianjie Zhao, Jiancheng Shi, Lu Hu, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China; Rui Zhao, Jilin University, China

THP2.PM.3 Board PM.3 **UNMIXING OF MINERALOGICAL CLAY INTIMATE MIXTURES WITH LABORATORY HYPERSPECTRAL IMAGES**
Etienne Ducasse, ONERA, France; Audrey Hohmann, BRGM, France; Karine Adeline, Rosa Oltra-Carrió, ONERA, France; Anne Bourguignon, BRGM, France; Philippe Déliot, Xavier Briottet, ONERA, France; Gilles Grandjean, BRGM, France

THP2.PM.4 Board PM.4 **HYPERSPECTRAL SIGNATURES PROPERTIES OF A NEWLY DISCOVERED ANHYDRITE SOIL IN UNITED ARAB EMIRATES AND ACCEPTED BY USDA SOIL TAXONOMY**
Abderrazak Bannari, Arabian Gulf University, Bahrain; Shabbir Shahid, Abdulla Alshankiti, International Center for Biosaline Agriculture (ICBA), United Arab Emirates; Ali El-Battay, Nadir Hameid, Arabian Gulf University, Bahrain

THP2.PM.5 Board PM.5 **THE SPATIOTEMPORAL VARIATION OF SOIL MOISTURE IN THE AGRICULTURE REGION BASED ON THE TEMPERATURE VEGETATION DRYNESS INDEX (TVDI)**
Sung-Ho Chae, Jeong-Ho Lee, Moung-Jin Lee, Korea Environment Institute, Republic of Korea

THP2.PM.6 Board PM.6 **SYNERGISTIC USE OF MICROWAVE AND OPTICAL SATELLITE OBSERVATIONS FOR HIGH RESOLUTION SOIL MOISTURE DATA PRODUCTS**
Xiwu Zhan, Li Fang, Jicheng Liu, NOAA/NESDIS, United States; Christopher Hain, NASA Marshall Space Flight Center, United States; Jifu Yin, Mitch Schull, NOAA/NESDIS, United States; Jeffrey Walker, Monash University, Australia

THP2.PM.7 Board PM.7 **ESTIMATING POTENTIAL ANNUAL SOIL LOSS OF WATERSHED IN NIGERIA USING RULSE IN A GIS AND REMOTE SENSING ENVIRONMENT**
Akintunde Vincent Akinmolayan, Obafemi Awolowo University, Nigeria; Kayode Adepoju, Samuel Adelabu, University of the Free State, QwaQwa Campus, South Africa; Abiodun Osunmadewa, Obafemi Awolowo University, Nigeria

THP2.PM.8 Board PM.8 **ESTIMATING THE SOIL MOISTURE PROFILE BY ASSIMILATING ASAR AND ASTER OBSERVATIONS INTO A HYDROLOGIC MODEL**
Fan Yu, Chinese Academy of Surveying and Mapping, China; Yousong Zhao, Yongmin Xu, Yu Dang, National Quality Inspection and Testing Center for Surveying and Mapping Products, China

THP2.PM.9 Board PM.9 **INTERCOMPARISON OF MULTIPLY SOIL SURFACE ROUGHNESS DATA SETS OVER THE TIBETAN PLATEAU**
Menglei Han, Hui Lu, Kun Yang, Tsinghua University, China

THP2.PM.10 Board PM.10 **POTENTIAL OF SENTINEL-1 FOR ESTIMATING THE SOIL ROUGHNESS OVER AGRICULTURAL SOILS**
Nicolas Baghdadi, Mohammad El Hajj, Mohammad Choker, IRSTEA, University of Montpellier, France; Mehrez Zribi, CNRS, CESBIO, France; Hassan Bazzi, IRSTEA, University of Montpellier, France; Emmanuelle Vaudour, Jean-Marc Gilliot, AgroParisTech, France; Safa Bousbih, CESBIO, France; Dav Ebengo Mwampongo, AgroParisTech, France

Thursday, July 26 10:10 - 11:10 Poster Area N
Session THP1.PN Poster

Forest monitoring using LIDAR I

Session Co-Chairs: Shihua Li, University of Electronic Science and Technology of China; Antonio Ferraz, NASA Jet Propulsion Laboratory, California Institute of Technology

THP1.PN.1 Board PN.1 **SEGMENTATION OF INDIVIDUAL TREES BASED ON A POINT CLOUD CLUSTERING METHOD USING AIRBORNE LIDAR DATA**
Shihua Li, Lian Su, Yuhan Liu, Ze He, University of Electronic Science and Technology of China, China

THP1.PN.2 Board PN.2 **A MULTILEVEL SLICING BASED CODING METHOD FOR TREE DETECTION**
Chien-Yu Lin, University of Maryland, Baltimore County, United States; Chinsu Lin, National Chiayi University, Taiwan; Chein-I Chang, University of Maryland, Baltimore County, United States

THP1.PN.3 Board PN.3 **PREDICTION OF FOREST ATTRIBUTES WITH MULTISPECTRAL LIDAR DATA**
Dalponte Michele, Fondazione Edmund Mach, Italy; Liviu Theodor Ene, Swiss Federal Research Institute WSL, Switzerland; Terje Gobakken, Erik Næsset, Norwegian University of Life Sciences, Norway; Damiano Gianelle, Fondazione Edmund Mach, Italy

THP1.PN.4 Board PN.4 **FUSION OF MULTIPLE LOW-RESOLUTION NASA AIRBORNE SNOW OBSERVATORY (ASO) LIDAR DATA FOR FOREST VEGETATION STRUCTURE CARACTERIZATION**
Antonio Ferraz, Sassan Saatchi, Kat J. Bormann, Thomas H. Painter, NASA Jet Propulsion Laboratory, United States

THP1.PN.5 Board PN.5 **RETRIEVING THE LEAF AREA INDEX OF INDIVIDUAL TREES AND STANDS USING SINGLE-SCAN DATA FROM A TERRESTRIAL LASER SCANNER**
Yumei Li, Qinghua Guo, Yanjun Su, Institute of Botany, Chinese Academy of Sciences, China

THP1.PN.6 Board PN.6 **ASSESSMENT OF FOREST STRUCTURAL DIVERSITY DIFFERENCES IN MEDITERRANEAN LANDSCAPES AFFECTED BY FIRES USING ALS DATA**
Pere Joan Gelabert, Antonio Luis Montealegre, Universidad de Zaragoza, Spain; María Teresa Lamelas, Centro Universitario de la Defensa de Zaragoza, Spain; Darío Domingo, Universidad de Zaragoza, Spain

THP1.PN.7 Board PN.7 **TOWARDS EXTRACTION OF LIANAS FROM TERRESTRIAL LIDAR SCANS OF TROPICAL FORESTS**
Yunfei Bao, BISME, China; Sruthi Moorthy, Hans Verbeeck, University Gent, Belgium

THP1.PN.8 Board PN.8 **DECTION AND HEALTH ANALYSIS OF INDIVIDUAL TREE IN URBAN ENVIRONMENT WITH MULTI-SENSOR PLATFORM**
Yunhe Feng, Chenglu Wen, Pengdi Huang, Cheng Wang, Jonathan Li, Xiamen University, China

THP1.PN.9 Board PN.9 **ESTIMATING FOREST RESIDUAL BIOMASS IN MEDITERRANEAN PINUS HALEPENSIS FOREST USING LOW POINT DENSITY ALS DATA**
Darío Domingo, Antonio Luis Montealegre, University of Zaragoza, Spain; María Teresa Lamelas, Alberto García-Martín, Academia General Militar, Spain; Juan de la Riva, University of Zaragoza, Spain

Thursday, July 26 15:50 - 16:50 Poster Area N
Session THP2.PN Poster

Aerosols and Atmospheric Chemistry I

Session Co-Chairs: David Diner, NASA Jet Propulsion Laboratory, California Institute of Technology; Pierre-Yves Foucher, ONERA

THP2.PN.1 Board PN.1 **ESTIMATE OF ATMOSPHERIC COLUMNAR AEROSOL COMPOSITION BASED ON REMOTE SENSING MEASUREMENTS**
Yisong Xie, Zhengqiang Li, Donghui Li, Kaitao Li, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China

THP2.PN.2 Board PN.2 **AEROSOL RETRIEVALS OVER BRIGHT URBAN SURFACES USING LANDSAT 8 IMAGES**
Muhammad Bilal, Zhongfeng Qiu, Nanjing University of Information Science and Technology, China

THP2.PN.3 Board PN.3 **INTEGRATED AEROSOL EXTINCTION PROFILES FROM CEILOMETER AND SUNPHOTOMETER COMBINATION AGAINST SUNPHOTOMETER MEASUREMENTS AT VARIOUS HEIGHTS**
Marcos Herreras, Roberto Román, Atmospheric Optics Group (GOA), University of Valladolid, Spain; Alberto Cazorla, Department of Applied Physics, University of Granada, Spain; Carlos Toledano, Atmospheric Optics Group (GOA), University of Valladolid, Spain; Hassan Lyamani, Department of Applied Physics, University of Granada, Spain; Benjamín Torres, Laboratoire d'Optique Atmosphérique, University of Lille 1, France, France; Victoria Cachorro, Atmospheric Optics Group (GOA), University of Valladolid, Spain; Francisco Jose Olmo, Lucas Alados-Arboledas, Department of Applied Physics, University of Granada, Spain; Ángel Maximo de Frutos, Atmospheric Optics Group (GOA), University of Valladolid, Spain

THP2.PN.4 Board PN.4 **STUDY OF HAZE POLLUTION DURING WINTER IN WUHAN, CHINA**
Boming Liu, Yingying Ma, Wei Gong, Tianhao Zhang, Yifan Shi, State Key Laboratory of Information Engineering in Surveying, Mapping and Remote Sensing (LIESMARS), Wuhan University, China

THP2.PN.5 Board PN.5 **CÆLIS: A SYSTEM FOR AEROSOL MEASUREMENT NETWORK**
David Fuertes, Carlos Toledano, Ramiro Gonzalez, Alberto Berjon, Group of Atmospheric Optics, Spain; Benjamín Torres, GRASP SAS, France; Victoria Cachorro, Ángel Maximo de Frutos, Group of Atmospheric Optics, Spain

THP2.PN.6 Board PN.6 **A STUDY OF THE OCEAN ATMOSPHERIC INTERACTION FROM 12 YEAR OF CALIPSO OBSERVATIONS**
Yongxiang Hu, NASA Langley Research Center, United States

THP2.PN.7 Board PN.7 **NEW EXPERIMENTS ON AEROSOL HYGROSCOPIC GROWTH IN A TROPICAL ENVIRONMENT**
Li Tan, Daniel M. Kalbermatter, Santo V. Salinas, National University of Singapore, Singapore

THP2.PN.8 Board PN.8 **DEEP LEARNING FOR GROUND-LEVEL PM2.5 PREDICTION FROM SATELLITE REMOTE SENSING DATA**
Tongwen Li, Huanfeng Shen, Qiangqiang Yuan, Liangpei Zhang, Wuhan University, China

THP2.PN.9 Board PN.9 **ESTIMATING PM 2.5 IN BRITISH COLUMBIA BEFORE AND AFTER WILDFIRES USING 3 KM MODIS AOD PRODUCTS FROM FEBRUARY TO AUGUST 2017**
Mengge Chen, Yue Gu, Ming Liu, Jonathan Li, University of Waterloo, Canada

Thursday, July 26 **10:10 - 11:10** **Poster Area O**
Session THP1.PO **Poster**

Microwave Remote Sensing of Vegetation

Session Chair: Pasquale Imperatore, Institute for the Electromagnetic Sensing of the Environment (IREA), National Research Council (CNR)

THP1.PO.2 Board P0.2 **EXPLOITATION OF COPERNICUS SENTINELS DATA FOR SENSING FIRE-DISTURBED VEGETATED AREAS**
Antonio Pepe, Daniela Stroppiana, Fabiana Calò, Pasquale Imperatore, Institute for the Electromagnetic Sensing of the Environment (IREA), National Research Council (CNR),, Italy; Luigi Boschetti, University of Idaho, United States; Christian Bignami, INGV, Italy; Pietro Alessandro Brivio, Institute for the Electromagnetic Sensing of the Environment (IREA), National Research Council (CNR), Italy; Riccardo Lanari, Institute for the Electromagnetic Sensing of the Environment (IREA), National Research Council (CNR),, Italy

THP1.PO.3 Board P0.3 **STUDY OF SENTINEL-1 DATA FOR MONITORING VEGETATED AREAS ASSISTED WITH LANDSAT 8 DATA**
Shiyu Luo, Kamal Sarabandi, University of Michigan, United States

THP1.PO.4 Board P0.4 **VEGETATION WATER CONTENT ESTIMATION FOR CORN BY MEANS OF INVERSE MODELING FROM SIMULATIONS OF THE FIRST-ORDER SCATTERING MODEL**
Wenxing Hu, Linna Chai, Shaojie Zhao, Beijing Normal University, China

THP1.PO.5 Board P0.5 **AN EXTENSION OF MICROWAVE VEGETATION INDICES FOR SHORT VEGETATION COVERED SURFACES USING FY-3B/MWRI DATA**
Yunqing Li, Jiancheng Shi, Beijing City University, China

Thursday, July 26 **15:50 - 16:50** **Poster Area O**
Session THP2.PO **Poster**

Ocean Altimetry II

THP2.PO.2 Board P0.2 **HY-2A SATELLITE PRECISE ORBIT DETERMINATION METHODS AND VALIDATION**
Hailong Peng, Mingsen Lin, Xiaohui Wang, Juhong Zou, National Satellite Ocean Application Service, China

THP2.PO.3 Board P0.3 **CALIBRATION AND VALIDATION OF HY-2A DERIVED SIGNIFICANT WAVE HEIGHT USING TRIPLE COLLOCATION**
He Wang, National Ocean Technology Center, China; Jing Wang, Zhejiang Ocean University, China; Jianhua Zhu, Chuntao Chen, Xiaoqi Huang, Wanlin Zhai, National Ocean Technology Center, China

THP2.PO.4 Board P0.4 **DOPPLER AMBIGUITIES MASKING FOR ALTIMETER WAVEFORMS: A MODEL BASED APPROACH**
Lisa Recchia, Michele Scagliola, Davide Giudici, Aresys s.r.l., Italy

THP2.PO.5 Board P0.5 **VALIDATION OF WAVE AND WIND PRODUCT OF THE NEW PHASE SARAL USING BUOYS DATA**
Chuntao Chen, Yili Zhao, Jianhua Zhu, He Wang, Xiaoqi Huang, Weiwei Yang, Wanlin Zhai, National Ocean Technology Center, China; Chaofei Ma, National Satellite Ocean Application Service, State Oceanic Administration, China

THP2.PO.6 Board P0.6 **EFFECTS OF SEA STATE BIAS ON GLOBAL MEAN SEA LEVEL TREND**
Yongcun Cheng, Shanghai Ocean University, China; Qing Xu, Hohai University, China; Xiaofeng Li, GST Inc., NESDIS/NOAA, United States

THP2.PO.7 Board P0.7 **THE ENHANCEMENT OF UPPER OCEAN NUTRIENTS CONCENTRATION IN THE PERIPHERIES OF TWO ANTI-CYCLONIC EDDIES**
Tao Wang, Jue Ning, Qing Xu, Hohai University, China

THP2.PO.8 Board P0.8 **THE VALIDATION OF WET ZENITH DELAY OF GROUND GPS STATIONS BASED ON JASON-2 AMR**
Wanlin Zhai, Jianhua Zhu, Chuntao Chen, He Wang, Xiaoqi Huang, Longhao Yan, National Ocean Technology Center, China

THP2.PO.9 Board P0.9 **INTERCOMPARISON AND ANOMALY ANALYSIS OF WET TROPOSPHERIC CORRECTIONS FROM JASON-3 AND SARAL**
Xiaoqi Huang, National Ocean Technology Center, China; Xinyue Liu, Tianjin University of Technology and Education, China; Jianhua Zhu, Chuntao Chen, He Wang, Wanlin Zhai, National Ocean Technology Center, China

Thursday, July 26 10:10 - 11:10 Poster Area P
Session THP1.PP Poster

Remote Sensing of Vegetation III

THP1.PP.1 Board PP.1
RECONSTRUCTING THE VEGETATION DISTURBANCE HISTORY OF A BIODIVERSITY HOTSPOT IN CENTRAL CHILE USING LANDSAT, BFAST AND LANDTRENDR
Julián Cabezas, Fabian Ewald Fassnacht, Karlsruhe Institute of Technology, Germany

THP1.PP.2 Board PP.2
MODELLING LANDSURFACE TIME-SERIES WITH RECURRENT NEURAL NETS
Markus Reichstein, Simon Besnard, Nuno Carvalhais, Fabian Gans, Martin Jung, Basil Kraft, Miguel Mahecha, Max Planck Institute for Biogeochemistry, Germany

THP1.PP.3 Board PP.3
WILDFIRE RISK ASSESSMENT USING MULTI-SOURCE REMOTE SENSE DERIVED VARIABLES
Chongbo Wen, Binbin He, Xingwen Quan, Xiangzhuo Liu, University of Electronic Science and Technology of China, China; Xiaofang Liu, School of Computer Science, Sichuan University of Science and Engineering, China

THP1.PP.4 Board PP.4
A GLOBAL MULTIMODEL ANALYSIS OF PREDICTED CHANGES IN PLANT WATER USE EFFICIENCY AND PRIMARY PRODUCTIVITY IN THE 21ST CENTURY
Sergio Bernardes, University of Georgia, United States

THP1.PP.5 Board PP.5
ESTIMATION OF VEGETATION FUNCTIONING IN A DROUGHT EPISODE FROM OPTICAL AND THERMAL REMOTE SENSING
Bagher Bayat, Christiaan van der Tol, Wouter Verhoef, University of Twente, Netherlands

THP1.PP.7 Board PP.7
MONITORING EVAPOTRANSPIRATION WITH REMOTE SENSING DATA AND GROUND DATA USING ENSEMBLE MODEL AVERAGING
Albert Olioso, INRA, France; Aubin Allies, Gilles Boulet, Emilie Delogu, Jérome Demarty, IRD, France; Belen Gallego Elvira, Maria Mira, Olivier Marloie, INRA, France; Philippe Chauvelon, Olivier Boutron, Tour du Valat, France; Samuel Buis, Marie Weiss, Cecile Velluet, Malik Bahir, INRA, France

THP1.PP.8 Board PP.8
RETRIEVAL OF FUEL MOISTURE CONTENT FROM HIMAWARI-8 PRODUCT: TOWARDS REAL-TIME WILDFIRE RISK ASSESSMENT
Xingwen Quan, Binbin He, University of Electronic Science and Technology of China, China; Marta Yebra, The Australian National University, Australia; Xiangzhuo Liu, University of Electronic Science and Technology of China, China; Xiaofang Liu, School of Computer Science, Sichuan University of Science and Engineering, China; Xiaodong Zhang, University of Electronic Science and Technology of China, China; Hui Cao, School of Computer Science, Sichuan University of Science and Engineering, China

THP1.PP.9 Board PP.9
AUTOMATIC FOREST EXTRACTION METHOD BASED ON SELF-ORGANIZING MAP ALGORITHM USING GF-2 IMAGES
Qian Zhan, Shufang Tian, China University of Geosciences Beijing, China

Thursday, July 26 15:50 - 16:50 Poster Area P
Session THP2.PP Poster

Ocean Altimetry III

THP2.PP.1 Board PP.1
HY-2A SATELLITE ALTIMETRY ADVANCED WAVEFORM PROCESSING OFFSHORE HONG KONG
Xi-Yu Xu, Ke Xu, NSSC, CAS, China; Florence Birol, LEGOS, France; Shuang-Bao Yang, NSSC, CAS, China

THP2.PP.2 Board PP.2
ANALYSIS OF THE DEPENDENCE ON RETRACKERS OF THE JASON SATELLITES ALTIMETRY PRODUCTS
He-Guang Liu, Xi-Yu Xu, NSSC, CAS, China; Le Yang, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China

THP2.PP.3 Board PP.3
COASTAL APPLICATION OF SEA SURFACE HEIGHT MEASUREMENT USING DIRECT BROADCAST SATELLITE SIGNALS
Rashmi Shah, Jet Propulsion Laboratory, California Institute of Technology, United States; James Garrison, Purdue University, United States; Zhijin Li, Jet Propulsion Laboratory, California Institute of Technology, United States; Soon Chye Ho, Purdue University, United States

THP2.PP.4 Board PP.4
MOUNTAINTOP OCEAN REFLECTOMETRY WITH DUAL FREQUENCY GPS SIGNALS: EXPERIMENT AND PRELIMINARY RESULTS
Yunxiang Liu, Ian Collett, Yu Morton, Sara Hrbek, Dennis Akos, University of Colorado Boulder, United States

THP2.PP.5 Board PP.5
ANALOG DATA ASSIMILATION FOR ALONG-TRACK NADIR AND SWOT ALTIMETRY DATA IN THE WESTERN MEDITERRANEAN SEA
Manuel Lopez-Radcenco, IMT Atlantique, France; Ananda Pascual, Mediterranean Institute for Advanced Studies, Spain; Laura Gomez-Navarro, Université Grenoble Alpes, France; Abdeldjalil Aissa-El-Bey, Ronan Fablet, IMT Atlantique, France

THP2.PP.6 Board PP.6
CURRENT STATUS OF THE HY-2A SATELLITE RADAR ALTIMETER AND ITS PROSPECT
Yongjun Jia, Mingsen Lin, Youguang Zhang, National Satellite Ocean Application Service, China

Thursday, July 26 10:10 - 11:10 **Poster Area Q**
Session THP1.PQ **Poster**

Remote Sensing for Estimation of Biophysical Parameters III

Session Co-Chairs: Vern Vanderbilt, NASA; Mehrez Zribi, CNRS

THP1.PQ.1 Board PQ.1 **MONITORING RICE PHENOLOGY BASED ON FREEMAN-DURDEN DECOMPOSITION OF MULTI-TEMPORAL RADARSAT-2 DATA**
Ze He, Shihua Li, Sen Lin, Leiyu Dai, University of Electronic Science and Technology of China, China

THP1.PQ.2 Board PQ.2 **USING SINGLE- AND MULTI-TARGET REGRESSION FOR BIOPHYSICAL PARAMETERS RETRIEVAL USING POLSAR DATA**
Z. Meltem Sahin, Esra Erten, D. Ekin Canbay, Istanbul Technical University, Turkey

THP1.PQ.3 Board PQ.3 **QUANTITATIVE MONITORING OF COMPLETE RICE GROWING SEASONS USING SENTINEL 2 TIME SERIES IMAGES**
Emma Madigan, Yiqing Guo, Mark Pickering, The University of New South Wales, Australia; Alex Held, Commonwealth Scientific and Industrial Research Organisation, Australia; Xiuping Jia, The University of New South Wales, Australia

THP1.PQ.4 Board PQ.4 **REGRESSION BASED POLYNOMIAL CHAOS EXPANSION FOR CROP PHENOLOGY ESTIMATION COUPLED WITH POLSAR IMAGERY**
Mehmet Furkan Celik, Istanbul Technical University, Turkey; Onur Yuzugullu, Agricircle AG, Switzerland; Esra Erten, Istanbul Technical University, Turkey

THP1.PQ.5 Board PQ.5 **THE INTEGRATED USE OF LANDSAT, SENTINEL-2 AND PLANETSCOPE SATELLITE DATA FOR CROP MONITORING**
Dorj Ichikawa, Koji Wakamori, Japan Manned Space Systems Corporation, Japan

THP1.PQ.6 Board PQ.6 **HEIGHT AND BIOMASS INVERSION OF WINTER WHEAT BASED ON CANOPY HEIGHT MODEL**
Haikuan Feng, Li Pan, Fan Yang, Haojie Pei, Beijing Research Center for Information Technology In Agriculture, China; Huifang Wang, Beijing Municipal Climate Center, China; Guijun Yang, Mingxing Liu, Zhichao Wu, Beijing Research Center for Information Technology In Agriculture, China

THP1.PQ.7 Board PQ.7 **THE COMBINED USE OF SENTINEL-1, SENTINEL-2 AND LANDSAT 7&8 DATA FOR ESTIMATING HEADING DATE OF PADDY RICE**
Koji Wakamori, Dorj Ichikawa, JAMSS, Japan

THP1.PQ.8 Board PQ.8 **SORGHUM BIOMASS PREDICTION USING UAV-BASED REMOTE SENSING DATA AND CROP MODEL SIMULATION**
Ali Masjedi, Purdue University Civil Engineering, United States; Jieqiong Zhao, Addie Thompson, Kai-Wei Yang, John Flatt, Melba Crawford, David Ebert, Mitchell Tuinstra, Purdue University, United States; Graeme Hammer, Scott Chapman, The University of Queensland, Australia

THP1.PQ.9 Board PQ.9 **CROP LODGING ANALYSIS FROM UAS ORTHOPHOTO MOSAIC, SENTINEL-2 IMAGE AND CROP YIELD MONITOR DATA**
Teemu Kumpumäki, Petri Linna, Tarmo Lipping, Tampere University of Technology, Finland

THP1.PQ.10 Board PQ.10 **RESEARCH ON THE OPTIMAL THRESHOLDS FOR CROP START AND END OF SEASON RETRIEVAL FROM REMOTELY SENSED TIME-SERIES DATA BASED ON GROUND OBSERVATIONS**
Xin Huang, Jianhong Liu, Northwest University, China; Clement Atzberger, University of Natural Resources and Life Sciences, Austria; Qiufeng Liu, National Climate Center, China

Thursday, July 26 15:50 - 16:50 **Poster Area Q**
Session THP2.PQ **Poster**

Optical Sensors and Missions

Session Co-Chairs: Takeo Tadono, JAXA; Kory Priestley, NASA

THP2.PQ.1 Board PQ.1 **IMAGE SIMULATIONS FOR THE ADVANCED OPTICAL SATELLITE (ALOS-3)**
Takeo Tadono, Ayano Oka, Hidenori Watarai, Japan Aerospace Exploration Agency, Japan; Junichi Takaku, Fumi Ohgushi, Masanori Doutsu, Remote Sensing Technology Center of Japan, Japan

THP2.PQ.2 Board PQ.2 **SENTINEL-2 LEVEL-1 RADIOMETRY VALIDATION USING VICARIOUS METHODS FROM DIMITRI DATABASE**
Bahjat Alhammoud, Jan Jackson, Sebastien Clerc, Manuel Arias, ARGANS Ltd., United Kingdom; Catherine Bouzinac, CSSI, France; Ferran Gascon, Enrico G. Cadau, Rosario Iannone, European Space Agency/ESRIN, Italy

THP2.PQ.3 Board PQ.3 **CERES FM-6 ON NOAA-20 ENABLING CONTINUITY OF EARTH RADIATION BUDGET MEASUREMENTS INITIAL RESULTS**
Kory Priestley, NASA Langley Research Center, United States; Susan Thomas, Lou Smith, Science Systems and Applications, Inc, United States

THP2.PQ.4 Board PQ.4 **LEVERAGING THE STRENGTHS OF DEDICATED, GRUAN AND CONVENTIONAL RADIOSONDES FOR SATELLITE HYPERSPECTRAL GEOPHYSICAL SOUNDING ASSESSMENT**
Bomin Sun, IMSG at NOAA/NESDIS/Center for Satellite Applications and Research, United States; Anthony Reale, NOAA/NESDIS/Center for Satellite Applications and Research, United States; Michael Pettey, Ryan Smith, Nicholas R. Nalli, IMSG at NOAA/NESDIS/Center for Satellite Applications and Research, United States; Lihang Zhou, NOAA/NESDIS/Center for Satellite Applications and Research, United States

THP2.PQ.5 Board PQ.5 **FLEX/S3 TANDEM MISSION PERFORMANCE ASSESSMENT: EVOLUTION OF THE END-TO-END SIMULATOR FLEX-E**
Carolina Tenjo, Antonio Ruiz-Verdú, Neus Sabater, Universitat de València, Spain; Jorge Vicent, Magellium S.A.S., France; Juan Pablo Rivera-Caicedo, Universidad Autónoma de Nayarit, Mexico; Luis Alonso, Jochem Verrelst, Universitat de València, Spain; Raffaella Franco, European Space Agency, Netherlands; Ana María Sanchez, GMV Aerospace and Defence Space S.A.U., Spain; Sofia Freitas, Deimos Engenharia S.A, Portugal; José Moreno, Universitat de València, Spain

THP2.PQ.6 Board PQ.6 **MONITORING ATMOSPHERIC COMPOSITION BY GEO-KOMPSAT-2 : GOCI-2, AMI AND GEMS**
Jhoon Kim, Myungje Choi, Mijin Kim, Hyungwang Lim, Seoyoung Lee, Yonsei University, Republic of Korea; Kyung Jung Moon, Won Joon Choi, Jong Min Yoon, Sang-kyoon Kim, National Institute of Environmental Research, Republic of Korea; Dai Ho Ko, Seung Hoon Lee, Korea Aerospace Research Institute, Republic of Korea; Young-Je Park, Korea Institute of Ocean Science and Technology, Republic of Korea; Chu-Yong Chung, Korea Meteorological Administration, Republic of Korea; GEMS Science Team, NIER, Yonsei Univ, Ewha Womans Univ, GIST, Gangneung Wonju Nat'l Univ, Pusan Nat'l Univ, Pukyong Nat'l Univ, Seoul Nat'l Univ, UNIST, Republic of Korea

THP2.PQ.7 Board PQ.7 **CALIBRATION OF THE ENMAP HYPERSPECTRAL INSTRUMENT**
Richard Wachter, Matthias Lettner, Bernhard Sang, Martin Mücke, OHB System AG, Germany

THP2.PQ.8 Board PQ.8 **VENμS: PERFORMANCES AND FIRST RESULTS AFTER 11 MONTHS IN ORBIT**
Gérard Dedieu, Olivier Hagolle, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Arnon Karnieli, Ben-Gurion University of the Negev, Israel; Pierric Ferrier, Philippe Crébassol, Philippe Gamet, Camille Desjardins, Centre National d'Etudes Spatiales, France; Moti Yakov, Merav Cohen, Ehud Hayun, Israel Aircraft Industries Ltd., Israel

THP2.PQ.9 Board PQ.9 **PRELIMINARY EVALUATION OF SENTINEL-2 BOTTOM OF ATMOSPHERE REFLECTANCE USING THE 6SV CODE IN BEIJING AREA**
Jing Chen, Yingjie Li, Qingmiao Ma, Xiaoqi Shen, Anjing Zhao, Jiasheng Li, Jiangsu Normal University, China

THP2.PQ.10 Board PQ.10 **ENMAP-BOX 3 A FREE AND OPEN SOURCE PYTHON PLUG-IN FOR QGIS**
Andreas Rabe, Benjamin Jakimow, Fabian Thiel, Patrick Hostert, Sebastian van der Linden, Humboldt-Universität zu Berlin, Germany

Thursday, July 26 10:10 - 11:10 Poster Area R
Session THP1.PR Poster

Hydrology Applications with Remotely Sensed Soil Moisture

Session Chair: Rajat Bindlish, NASA Goddard Space Flight Center

THP1.PR.1 Board PR.1 **DATA DRIVEN APPROACH FOR DROUGHT MONITORING USING L-BAND MICROWAVE**
Ahmad Al Bitar, Nemesio Rodríguez-Fernández, Marie Parrens, Yann Kerr, CESBIO CNRS, France; Sekhar Muddu, Indian Institute of Science, India; Susanne Mecklenburg, European Space Agency/ESRIN, Italy

THP1.PR.2 Board PR.2 **FIRST-ORDER WATER BALANCE STUDIES USING SMAP SOIL MOISTURE**
Ruzbeh Akbar, Daniel Short Gianotti, Massachusetts Institute of Technology, United States; Kaighin A. McColl, Harvard University, United States; Erfan Haghighi, Massachusetts Institute of Technology, United States; Guido D. Salvucci, Boston University, United States; Dara Entekhabi, Massachusetts Institute of Technology, United States

THP1.PR.3 Board PR.3 **INTEGRATED SURFACE DROUGHT INDEX (ISDI) APPLICATION IN CHINA FOR DROUGHT MONITORING**
Lei Zhou, Jiayun Fu, Beijing University of Civil Engineering and Architecture, China; Jianjun Wu, Xinyi Han, Beijing Normal University, China; Qiang Chen, Mingyi Du, Changfeng Jing, Beijing University of Civil Engineering and Architecture, China

THP1.PR.4 Board PR.4 **ANALYSIS OF SOIL FREEZE/THAW SIGNATURES DURING SLAPEX F/T CAMPAIGN**
Edward Kim, NASA Goddard Space Flight Center, United States; Tracy Rowlandson, Aaron Berg, University of Guelph, Canada; Alexandre Roy, University of Sherbrooke, Canada; Renato Pardo, University of Guelph, Canada; Jarrett Powers, Agriculture and Agri-Food Canada, Canada; Paul Houser, George Mason University, United States; Kyle McDonald, City College of New York, United States; Peter Toose, Environment and Climate Change Canada, Canada; Albert Wu, Eugenia De Marco, NASA and ATA Aerospace, United States; Chris Derksen, Environment and Climate Change Canada, Canada; Yiwen Zhou, Roger Lang, George Washington University, United States; Jared Entin, Kristin Lewis, NASA Headquarters, United States

THP1.PR.5 Board PR.5 **SOIL PERMITTIVITY AND SOIL FROST RETRIEVALS USING A SYNERGISTIC METHOD FOR ACTIVE AND PASSIVE MICROWAVE INSTRUMENTS**
Tuomo Smolander, Juha Lemmetyinen, Kimmo Rautiainen, Finnish Meteorological Institute, Finland; Mike Schwank, Gamma Remote Sensing, Switzerland; Jouni Pulliainen, Finnish Meteorological Institute, Finland

THP1.PR.6 Board PR.6 **TEMPORAL AND SPATIAL DYNAMICS OF SOIL EROSION IN NORTH-SOUTH PAN RIVER WATERSHED IN 2000-2010**
Wei Cao, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, China; Lulu Liu, Chengdu University, China; Dan Wu, Nanjing Institute of Environmental Sciences, Ministry of Environmental Protection, China; Jun Zhai, Satellite Environment Center, MEP, China; Yunfeng Hu, Duanyang Xu, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, China

THP1.PR.7 Board PR.7 **INVESTIGATING THE RELATIONSHIP BETWEEN SHALLOW GROUNDWATER, SOIL MOISTURE AND LAND SURFACE TEMPERATURE USING REMOTELY SENSED DATA**
Saeid Hamzeh, Mohammad Mehrabi, Seyed Kazem Alavipanah, Majid Kiavar Moghadam, University of Tehran, Iran

THP1.PR.8 Board PR.8 **TOWARDS MONITORING GROUNDWATER TABLE DEPTH IN PEATLANDS FROM SENTINEL-1 RADAR DATA**
Tina Asmuß, Johann Heinrich von Thünen Institute, Germany; Michel Bechtold, KU Leuven (University of Leuven), Belgium; Bärbel Tiemeyer, Johann Heinrich von Thünen Institute, Germany

THP1.PR.9 Board PR.9 **VALIDATION AND COMPARISON OF PHYSICAL MODELS FOR SOIL SALINITY MAPPING OVER KUWAIT TERRITORY USING LANDSAT-OLI AND FIELD DATA**
Zahraa Alali, Abderrazak Bannari, Asma Abahussain, Ali El-Battay, Nadir Hameid, Abdelhadi Abdelwahab, Arabian Gulf University, Bahrain

THP1.PR.10 Board PR.10 **MULTIPLE MODEL APPROACH TO ESTIMATE SEDIMENT YIELD AND TRANSPORT CAPACITY IN HIGHLAND WATERSHED, ETHIOPIA**
Hasan Raja Naqvi, Mohammed Abdul Athick A.S., Adama Science & Technology University, Ethiopia

Thursday, July 26 15:50 - 16:50 Poster Area R
Session THP2.PR Poster

Clouds and Precipitation: Radar Techniques

Session Chair: Evan Zaugg, ARTEMIS, Inc.

THP2.PR.1 Board PR.1 **MONTE CARLO ANALYSIS OF ORBITAL STATION MOTION PARAMETER ERRORS INFLUENCE ON SAR AZIMUTH RESOLUTION DEGRADATION**
Xiaoyu Yan, Jie Chen, Wei Yang, Beihang University, China

THP2.PR.2 Board PR.2 **DOPPLER ESTIMATION WITH "NON-STOP-AND-GO" ASSUMPTION IN MOON-BASED SAR IMAGING**
Zhen Xu, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences; University of Chinese Academy of Sciences, China; Kun-Shan Chen, Huadong Guo, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China

THP2.PR.3 Board PR.3 **IMPACTS OF AZIMUTH ANTENNA STEERING ANGLE QUANTIZATION ON TOPS AND SLIDING SPOTLIGHT SAR IMAGE**
Hong-Cheng Zeng, Jie Chen, Wei Yang, Beihang University, China; Hao-Jie Zhang, Beijing Institute of Electronic System Engineering, China

THP2.PR.4 Board PR.4 **MULTI-CAPABILITY SAR FOR GEOSCIENCE RESEARCH**
Evan Zaugg, Joshua Bradley, ARTEMIS, Inc., United States

THP2.PR.5 Board PR.5 **DEVELOPMENT AND EXPERIMENT OF L-BAND SAR FOR RANGING AND IMAGING TARGET**
Kyeong-Rok Kim, Ajou University, Republic of Korea; Sang Burm Ryu, Hyeon-Cheol Lee, Sang-Gyu Lee, Korea Aerospace Research Institute, Republic of Korea; Jae-Hyun Kim, Ajou University, Republic of Korea

THP2.PR.6 Board PR.6 **DEVELOPMENT AND PRELIMINARY RESULTS OF SMALL-SIZE UAV-BORNE FMCW SAR**
Xiangkun Zhang, Zelong Shao, Jiawei Ren, Yingsong Li, Jingshan Jiang, Key Laboratory of Microwave Remote Sensing, National Space Science Center, China

THP2.PR.7 Board PR.7 **CROSSTALK ESTIMATION AND CORRECTION USING QUEGAN AND AINSWORTH METHODS**
Abdullah Algafsh, KACST, Saudi Arabia

THP2.PR.8 Board PR.8 **DESIGN OF A FORWARD LOOKING SYNTHETIC APERTURE RADAR FOR AN AUTONOMOUS CRYOBOT FOR SUBSURFACE EXPLORATION OF EUROPA**
Omkar Pradhan, Srikumar Sandeep, Albin J. Gasiewski, University of Colorado Boulder, United States; William Stone, Stone Aerospace, United States

THP2.PR.9 Board PR.9 **GICAL: GEO-MORPHOMETRIC INVERSE CYLINDRICAL METHOD FOR RADIOMETRIC CALIBRATION OF SAR IMAGES**
Pasquale Imperatore, Riccardo Lanari, Antonio Pepe, National Research Council of Italy (CNR), Italy

Thursday, July 26 10:10 - 11:10 Poster Area S
Session THP1.PS Poster

Remote Sensing of Coastal Areas I

Session Co-Chairs: Olga Lavrova, Space Research Institute of Russian Academy of Sciences; Paul Hwang, NRL

THP1.PS.1 Board PS.1
UAV-BASED PHOTOGRAMMETRY FOR THE APPLICATION ON GEOMORPHIC CHANGE- THE CASE STUDY OF PENGHU KUIBISHAN GEOPARK, TAIWAN
Cheng-Hao Lu, National Penghu University, Taiwan

THP1.PS.2 Board PS.2
GENERATION OF A TSUNAMI HAZARD MAP FOR THE COAST OF MANZANILLO, COLIMA IN MEXICO USING NUMERICAL SIMULATION AND WAVE MODELING
Yair Evangelista, César Castrejón, Daniela Villa, Katia Trujillo, Alejandro Monsivais-Huertero, Alejandro Mendoza, Instituto Politécnico Nacional, Mexico

THP1.PS.3 Board PS.3
DOMESTIC SATELLITE IMAGERY FAST ORTHO-RECTIFICATION METHOD BASED ON DYNAMIC REMOTE SENSING MONITORING IN THE SEA AREA
Jialan Chu, Jianhua Zhao, Ning Gao, Derui Song, Jianchao Fan, Xinxin Wang, National Marine Environmental Monitoring Center, China

THP1.PS.4 Board PS.4
DISTRIBUTION OF SEDIMENTS ASSOCIATED WITH DREDGING ACTIVITIES ON SOUTH CHINA SEA DETECTED BY VIIRS ON SUOMI-NPP
Ichio Asanuma, Jonggeol Park, Takashi Yamaguchi, Daisuke Hasegawa, Kenneth Mackin, Tokyo University of Information Sciences, Japan

THP1.PS.5 Board PS.5
PHYSICAL WATERS SUITABILITY FOR FLOATING NET CAGES CULTIVATION MAPPING USING LANDSAT 8 OLI AND WORLDVIEW-2 IMAGERY IN PART OF HURUN BAY, BANDAR LAMPUNG PROVINCE, INDONESIA
Wirastuti Widyatmanti, Andiyanti Putri Estigade, Ariani Puji Astuti, Arief Wicaksono, Tika Maitela, Dea Nadia, Mousafi Dimas Afrizal, Muhammad Hilmy Aziz, Universitas Gadjah Mada, Indonesia

THP1.PS.6 Board PS.6
MARINE FLOATING RAFT AQUACULTURE BACKSCATTER FEATURE ANALYSIS BASED ON ISAR IMAGERY
Deyi Wang, Dalian University of Technology, China; Jianchao Fan, National Marine Environmental Monitoring Center, China; Min Han, Dalian University of Technology, China; Derui Song, Xiang Wang, Jialan Chu, National Marine Environmental Monitoring Center, China

THP1.PS.7 Board PS.7
WATER DEPTH ESTIMATION FROM WORLDVIEW-2 IMAGE WITH BACK PROPAGATION NEURAL NETWORK IN COASTAL AREA
Hsuan Ren, Shin-Ya Huang, National Central University, Taiwan

THP1.PS.8 Board PS.8
DETECTION THE EXPANSION OF MARINE AQUACULTURE IN SANSHA BAY BY REMOTE SENSING
Mei Xue, YunZhi Chen, Fuzhou University, China; Xin Tian, Min Yan, ZhaoPeng Zhang, Chinese Academy of Forestry, China

THP1.PS.9 Board PS.9
APPLICATION OF ENVISAT-ASAR WAVE MODE DATA IN ANALYSIS OF FISHING SHIPWRECK ACCIDENTS
Zeyan Tang, East China Sea Prediction Center, State Oceanic Administration of China, China; Zhiyi Gao, National Marine Environmental Forecasting Center of China, China; Yongliang Wei, Shanghai Ocean University, China; Yindong Zeng, Fujian Marine Forecasts, China

THP1.PS.10 Board PS.10
RETRIEVAL OF SUSPENDED SOLIDS FROM LANDSAT-8 AND SENTINEL-2: A TOOL FOR COASTAL MONITORING IN EXTREMELY TURBID WATERS
Isabel Caballero, Gabriel Navarro, Institute of Marine Sciences of Andalusia (ICMAN), Spain

Thursday, July 26 15:50 - 16:50 Poster Area S
Session THP2.PS Poster

UAV and Airborne Platforms II

THP2.PS.1 Board PS.1
GEODETIC IMAGING OF FAULT SYSTEMS FROM AIRBORNE PLATFORMS
Andrea Donnellan, Joseph Green, Adnan Ansar, Ronald Muellerschoen, Jay Parker, Alan Tanner, Yunling Lou, Michael Heflin, Jet Propulsion Laboratory, California Institute of Technology, United States; Ramon Arrowsmith, Arizona State University, United States; John Rundle, University of California, Davis, United States; Yehuda Ben-Zion, University of Southern California, United States; Stephen DeLong, United States Geological Survey, United States; Lisa Grant Ludwig, University of California, Irvine, United States

THP2.PS.2 Board PS.2
AN EXPERIMENT OF GEOTHERMAL EXPLORATION WITH AN UAS-TIR IN XIAOYOUKENG AREA OF TATUN VOLCANOES, TAIWAN
Chun-Jung Lai, Jin-King Liu, Wei-Chen Hsu, LIDAR Technology, Taiwan; Ke-Shu Li, ITRI RAISE project at LIDAR Technology Co., Ltd., Taiwan; Ming Chee Wu, National Cheng-Kung University, Taiwan; Kuan-Tsung Chang, Minghsin University of Science and Technology, Taiwan

THP2.PS.3 Board PS.3
MODELING MORPHODYNAMIC PROCESSES IN MEANDERING RIVERS WITH UAV-BASED MEASUREMENTS
Orkan Ozcan, Istanbul Technical University, Turkey; Semih Sami Akay, Istanbul Arel University, Turkey

THP2.PS.4 Board PS.4
SPATIAL NULL ESTIMATION IN BEAM-SPACE POST-DOPPLER STAP FOR AIRBORNE COLLOCATED MIMO RADAR
Xiang Zhao, Zishu He, Xu Wang, Jun Li, Wen Sun, University of Electronic Science and Technology of China, China

THP2.PS.5 Board PS.5
THE INFLUENCE OF REDUNDANT IMAGES IN UAV PHOTOGRAMMETRY APPLICATIONS
Edson Mitishita, Niarkios Graça, Federal University of Paraná – UFPR, Brazil

THP2.PS.6 Board PS.6
UAV-BASED INTEGRATED MULTISENSOR PAYLOAD FOR HIGH RESOLUTION IMAGING
K. Olaf Niemann, Afzal Suleman, University of Victoria, Canada; Roger Stephen, Fabio Visintini, CARMS Inc., Canada; Geoffrey Quinn, University of Victoria, Canada

THP2.PS.7 Board PS.7
RADAR SOUNDER PLATFORMS AND SENSORS AT CRESIS
Emily Arnold, Mark Ewing, Richard Hale, Shawn Keshmiri, Carl Leuschen, Jilu Li, John Paden, Fernando Rodriguez-Morales, Victor Berger, University of Kansas, United States

THP2.PS.8 Board PS.8
IDENTIFICATION AND CLASSIFICATION OF DROP ZONES AND HELICOPTER LANDING ZONES IN IMAGES OBTAINED BY SMALL SIZE REMOTELY PILOTED AIRCRAFT SYSTEMS
Marielcio Lacerda, Angelo Paulino, Elcio Shiguemori, Alvaro Damiao, Lamartine Guimaraes, Institute for Advanced Studies (IEAv), Brazil; Camila Anjos, Federal Institute of Education, Science and Technology of South of Minas Gerais - IFSULDEMINAS, Brazil

THP2.PS.9 Board PS.9
AIRBORNE RADAR FORWARD-LOOKING SUPER-RESOLUTION IMAGING USING AN ITERATIVE ADAPTIVE APPROACH
Changlin Li, Yongchao Zhang, Yin Zhang, Yulin Huang, Jianyu Yang, University of Electronic Science and Technology of China, China

THP2.PS.10 Board PS.10
USE OF DRONES FOR REMOTE MANAGEMENT OF THE CLOSE MEASURE OF RADIOACTIVITY SOURCES
Juan Baeza, David Valencia, Antonio Baeza, LARUEX, Spain

Thursday, July 26 **10:10 - 11:10** **Poster Area T**
Session THP1.PT **Poster**

Remote Sensing of Coastal Areas II

Session Chair: Samantha Ballard, University of Miami

THP1.PT.1 Board PT.1 **ESTIMATION OF SEDIMENT TRANSPORT AND SHORELINE CHANGE ALONG CENTRAL WEST COAST OF INDIA USING A COMPREHENSIVE SEDIEMNT TRANSPORT MODEL AND SATELLITE IMAGERY**
Piyali Chowdhury, Manasa Ranjan Behera, Indian Institute of Technology Bombay, India

THP1.PT.2 Board PT.2 **SPATIO-TEMPORAL CHANGE ANALYSIS AND CARRYING CAPACITY EVALUATION OF COASTAL REGION UTILIZATION IN LIAODONG BAY, CHINA FROM 1993 TO 2015**
Jingping Xu, Fang Li, Anning Suo, Jianhua Zhao, Xiu Su, National Marine Environmental Monitoring Center, China

THP1.PT.3 Board PT.3 **OIL SLICKS FROM NATURAL HYDROCARBON SEEPS IN THE SOUTHEASTERN BLACK SEA, THEIR DRIFT AND FATE AS OBSERVED VIA REMOTE SENSING**
Marina Mityagina, Olga Lavrova, Space Research Institute of Russian Academy of Sciences, Russian Federation

THP1.PT.4 Board PT.4 **RESEARCH ON THE WATER DEPTH RETRIEVAL BASED ON BAND RATIO USING WORLDVIEW-2 IMAGERY**
Chao Liang, Yarong Zou, National Satellite Ocean Application Service, China; Longlong Li, Twenty First Century Aerospace Technology Co. Ltd (21AT), China

THP1.PT.5 Board PT.5 **ADAPTATION AND VALIDATION OF THE SWIRE ALGORITHM FOR SENTINEL-3 OVER COMPLEX WATERS OF PEARL RIVER ESTUARY**
Huizeng Liu, Qiming Zhou, Hong Kong Baptist University, China; Guofeng Wu, Shuibo Hu, Qingquan Li, Shenzhen University, China

THP1.PT.6 Board PT.6 **INTERNAL WAVES ON RIVER PLUMES**
Olga Lavrova, Ksenia Nazirova, Space Research Institute of Russian Academy of Sciences, Russian Federation; Dmitry Soloviev, Marine Hydrophysical Institute of Russian Academy of Science, Russian Federation

THP1.PT.7 Board PT.7 **COMPARISON OF X-BAND SAR AND COAMPS MODEL WIND FIELDS AND OTHER AIR-SEA INTERACTION PARAMETERS IN MONTEREY BAY**
Samantha Ballard, Hans Graber, Michael Caruso, Roland Romeiser, University of Miami, United States

THP1.PT.8 Board PT.8 **EVALUATION OF GF-3 QUAD-POLARIZED SAR IMAGERY FOR COASTAL ZONE OBSERVATION**
Xiaochen Wang, Yun Shao, Wei Tian, Zhongke Academy of Satellite Applications in Deqing, China; Yue Duan, Marine Environmental Monitoring Centre of Ningbo, State Oceanic Administration, China; Kun Li, Long Liu, Zhongke Academy of Satellite Applications in Deqing, China

THP1.PT.9 Board PT.9 **TOPOGRAPHIC MAPPING OF THE SUBEI BANK TIDAL FLATS USING SENTINEL-1A SAR IMAGES**
Shuangshang Zhang, Qing Xu, Zheng Gong, Hohai University, China; Kaiguo Fan, Linyi University, China

THP1.PT.10 Board PT.10 **TIME SERIES SENTINEL-1 SAR DATA FOR THE MAPPING OF AQUACULTURE PONDS IN COASTAL ASIA**
Marco Ottinger, Kersten Clauss, University of Wuerzburg, Germany; Juliane Huth, Christina Eisfelder, Patrick Leinenkugel, Claudia Kuenzer, German Aerospace Center (DLR), Germany

Thursday, July 26 **15:50 - 16:50** **Poster Area T**
Session THP2.PT **Poster**

Ground Based Systems I

THP2.PT.3 Board PT.3 **OPTICAL FIBER FIELD PASSIVE VIBRATION SENSOR**
Francisco Smolka, OptoLink, Brazil

THP2.PT.4 Board PT.4 **COMPARISON OF IN SITU LAND SURFACE TEMPERATURES MEASURED WITH RADIOMETERS AND PYRGEOMETERS: CONSEQUENCES FOR CALIBRATION AND VALIDATION OF THERMAL INFRARED SENSORS**
Enric Valor, University of Valencia, Spain; Juan Manuel Sánchez, University of Castilla-La Mancha, Spain; Raquel Niclòs, University of Valencia, Spain; Rubén Moya, Cranfield University, United Kingdom; Maria Jesús Barberà, Vicente Caselles, Cesar Coll, University of Valencia, Spain

THP2.PT.5 Board PT.5 **MICROWAVE IMAGING OF NON-RIGID MOVING TARGET USING 2D SPARSE MIMO ARRAY**
Zhanyu Zhu, Feng Xu, Haipeng Wang, Fudan University, China

THP2.PT.6 Board PT.6 **OCEAN COLOR ALGORITHM DEVELOPMENT ENVIRONMENT FOR HIGH-SPEED DATA PROCESSING OF GOCI-II**
Hyun Yang, Hee-Jeong Han, Jae-Moo Heo, Jaehoon Jeong, Korea Institute of Ocean Science and Technology, Republic of Korea; Taekyung Lee, Woong Hu, Sunghee Kwak, Satrec Initiative, Republic of Korea

THP2.PT.7 Board PT.7 **ANALYSIS OF DIFFERENTIAL CORRECTION TECHNIQUES FOR ORBIT DETERMINATION INTERFEROMETRY**
Marc Fernandez, Roger M. Fuster, Antoni Broquetas, Universitat Politècnica de Catalunya, Spain

THP2.PT.8 Board PT.8 **ALIGNMENT OF SPACE RADAR WITH INDIAN GROUND RADAR**
Srinivas Ramanujam Kannan, Alok Sharma, Indian Institute of Technology Bhubaneswar, India

THP2.PT.9 Board PT.9 **NASA D3R: 2.0, ENHANCED RADAR WITH NEW DATA AND CONTROL FEATURES**
Mohit Kumar, Shashank Joshil, Colorado State University, United States; Manuel A. Vega, NASA Goddard Space Flight Center, United States; V. Chandrasekar, Colorado State University, United States; John Zebley, NASA Goddard Space Flight Center, United States

THP2.PT.10 Board PT.10 **STRUCTURAL HEALTH MONITORING WITH 94 GHZ RADAR**
Antoni Broquetas, Albert Aguasca, Arturo Martínez, Universitat Politècnica de Catalunya, Spain; Roberto Tomás, Universidad de Alicante (UA), Spain

Thursday, July 26 **10:10 - 11:10** **Poster Area U**
Session THP1.PU **Poster**

New Remote Sensing Techniques and Methods VII

Session Co-Chairs: Abel Calle, University of Valladolid; José A. Sobrino, University of Valencia

THP1.PU.1 Board PU.1
AUTOMATIC MAPPING OF IRRIGATED AREAS IN MEDITERANEAN CONTEXT USING LANDSAT 8 TIME SERIES IMAGES AND RANDOM FOREST ALGORITHM
Zouhair Benbahria, Royal Center for Remote Sensing, Morocco; Imane Sebari, Hicham Hajji, School of Geomatic Sciences and Surveying Engineering, Morocco; Mohamed Faouzi Smiej, Royal Center for Remote Sensing, Morocco

THP1.PU.2 Board PU.2
IMPROVING THE SPATIAL RESOLUTION OF IMAGING INSTRUMENTS USING SOFTWARE
Manohar Mareboyana, Bowie State University and ASRC at NASA Goddard Space Flight Center, United States; Jacqueline Le Moigne, Philip Dabney, NASA Goddard Space Flight Center, United States

THP1.PU.3 Board PU.3
PROGRESS ON A NEW ANALYTICAL ALGORITHM TO RETRIEVE INHERENT OPTICAL PROPERTIES FROM OCEAN COLOR REMOTE SENSING
Michael Twardowski, Harbor Branch Oceanographic Institute, United States; Alberto Tonizzo, Sunstone Scientific LLC, United States

THP1.PU.4 Board PU.4
ROBUST SENSOR LOCALIZATION BASED ON EUCLIDEAN DISTANCE MATRIX
Dehong Liu, Hassan Mansour, Petros Boufounos, Mitsubishi Electric Research Laboratories, United States; Ulugbek Kamilov, Washington University in St. Louis, United States

THP1.PU.5 Board PU.5
GEOSTATIONARY MICROWAVE IMAGING USING COMPRESSIVE REFLECTOR ANTENNA
Jiwen Geng, Ze Yu, Liwei Sun, Chunsheng Li, Beihang University, China

THP1.PU.6 Board PU.6
MULTI-CHANNNEL AND MIMO SAR ANTI-JAMMING ANALYSIS
Ruijia Wang, Air Force Engineering University, China; Sun Bing, Beihang University, China; Chengsi Yi, Air Force Engineering University, China; Jie Chen, Beihang University, China; Zhou Yipeng, Air Force Engineering University, China

THP1.PU.7 Board PU.7
MEASUREMENT REQUIREMENTS FOR ORBITAL FORWARD-SCATTER BISTATIC RADAR OBSERVATIONS OF PLANETARY SURFACES
Elizabeth Palmer, Western Michigan University, United States; Essam Heggy, University of Southern California / NASA Jet Propulsion Laboratory, California Institute of Technology, United States

THP1.PU.8 Board PU.8
SINGLE FRAME SUPER RESOLUTION WITH CONVOLUTIONAL NEURAL NETWORK FOR REMOTE SENSING IMAGERY
Jie Fu, YuHong Liu, Lanzhou Jiaotong University, China; Feng Li, Qian Xuesen Laboratory of Space Technology, China

THP1.PU.9 Board PU.9
THE RECOVERY ALGORITHM OF SATURATED SAR RAW DATA BASED ON COMPRESSED SENSING
Wenjiao Chen, Beihang University, China; Peng Xiao, Qian Xuesen Laboratory of Space Technology, China; Ze Yu, Chunsheng Li, Beihang University, China

THP1.PU.10 Board PU.10
BEAM SHAPING BY ORBITAL ANGULAR MOMENTUM
Yihan Zhang, Kaizhi Wang, Shanghai Jiao Tong University, China

Thursday, July 26 **15:50 - 16:50** **Poster Area U**
Session THP2.PU **Poster**

New Remote Sensing Techniques and Methods VIII

Session Co-Chairs: José A. Sobrino, University of Valencia; Abel Calle, University of Valladolid

THP2.PU.1 Board PU.1
FEASIBILITY OF PASSIVE BISTATIC GEOSYNCHRONOUS RADAR USING COMSAT TRANSMISSIONS
Stephen Hobbs, Carlo Convenevole, Cranfield University, United Kingdom; Marina Gashinova, Mikhail Cherniakov, Scott Cassidy, University of Birmingham, United Kingdom

THP2.PU.2 Board PU.2
SNOW DEPTH ESTIMATION WITH GNSS-R DUAL-RECEIVER OBSERVATION
Shuyao Wang, School of Geodesy and Geomatics and Collaborative Innovation Center for Geospatial Technology,Wuhan University, China; Kegen Yu, School of Environmental Science and Spatial Informatics, China University of Mining and Technology,Xuzhou, China

THP2.PU.3 Board PU.3
HYPERSPECTRAL MIXED DENOISING VIA SUBSPACE LOW RANK LEARNING AND BM4D FILTERING
Le Sun, Nanjing University of Information Science and Technology, China; Byeungwoo Jeon, Sungkyunkwan University, Republic of Korea

THP2.PU.4 Board PU.4
NEAR REAL-TIME SAR IMAGE FOCUSING ONBOARD SPACECRAFT
Yohei Sugimoto, Satoru Ozawa, Noriyasu Inaba, Japan Aerospace Exploration Agency, Japan

THP2.PU.5 Board PU.5
TOWARDS THE OPERATIONAL SPATIALIZATION OF THE SINGLE BAND THERMAL ATMOSPHERIC CORRECTION. APPLICATION TO LANDSAT 7 ETM+
J. M. Galve, Juan Manuel Sánchez, Julio Villodre, José González-Piqueras, University of Castilla-La Mancha, Spain; Cesar Coll, University of Valencia, Spain

Friday, July 27 10:10 - 11:10 Poster Area A
Session FRP1.PA Poster

SAR Image Processing II

Session Chair: Florence Tupin, Télécom ParisTech

FRP1.PA.2 Board PA.2 **CURVED-PATH SAR GEOLOCATION ERROR ANALYSIS BASED ON BP ALGORITHM**
Junbin Liu, University of Chinese Academy of Sciences, China; Xiaolan Qiu, Lijia Huang, Chibiao Ding, Institute of Electronics, Chinese Academy of Sciences, China; Ming Liu, National Disaster Reduction Center of the Ministry of Civil Affairs, NDRCC, China

FRP1.PA.3 Board PA.3 **POTENTIAL OF THE REVERSE SYNTHESIS METHOD FOR THE HIGH-QUALITY SAR IMAGE SYNTHESIS**
Evgeny Shiro, Independent researcher, Canada

FRP1.PA.4 Board PA.4 **AN ITERATIVE ADAPTIVE REWEIGHTED NORM MINIMIZATION SPARSITY AUTOFOCUS ALGORITHM VIA BAYESIAN RECOVERY FOR ARRAY SAR IMAGING**
Bokun Tian, Xiaoling Zhang, Shunjun Wei, Jun Shi, Liwei Dang, University of Electronic Science and Technology of China, China

FRP1.PA.5 Board PA.5 **OPTRONIC HIGH-RESOLUTION SAR PROCESSING WITH THE CAPABILITY OF FULL-RESOLUTION IMAGING**
Lei Liu, Yesheng Gao, Xingzhao Liu, Shanghai Jiao Tong University, China

FRP1.PA.6 Board PA.6 **HIGHLY SQUINTED IMAGING FOR DIVING SAR WITH 3-D ACCELERATION**
Huang Bang, University of Electronic Science and Technology of China, China; Zhao Xin, Du Dunwei, Beijing Electro-Mechanical Engineering Institute, China; Zhang Shunsheng, Wang Wen-Qin, University of Electronic Science and Technology of China, China

FRP1.PA.7 Board PA.7 **FPGA-BASED MULTI-CORE RECONFIGURABLE SYSTEM FOR SAR IMAGING**
Wei Di, Changlin Chen, Yongxiang Liu, National University of Defense Technology, China

FRP1.PA.8 Board PA.8 **DOPPLER CENTROID ESTIMATION FOR DOPPLER BEAM SHARPENING IMAGING BASED ON THE MORPHOLOGICAL EDGE DETECTION METHOD**
Deqing Mao, Yongchao Zhang, Yin Zhang, Changlin Li, Yulin Huang, Jianyu Yang, University of Electronic Science and Technology of China, China

FRP1.PA.9 Board PA.9 **DESNET: DEEP RESIDUAL NETWORKS FOR DESCALLOPING OF SCANSAR IMAGES**
Shangliang Xu, East China Normal University, China; Xiaolan Qiu, Insititute of Electrics, Chinese Academy of Sciences, Suzhou, China; Changbo Wang, East China Normal University, China; Lihua Zhong, Insititute of Electrics, Chinese Academy of Sciences, Suzhou, China; Xinzhe Yuan, National Satellite Ocean Application Service, China

FRP1.PA.10 Board PA.10 **PROCESSING OF ULTRA-HIGH RESOLUTION SPACEBORNE SPOTLIGHT SAR DATA BASED ON ONE-STEP MOTION COMPENSATION**
Tianshun Xiang, Daiyin Zhu, Fan Xu, Nanjing University of Aeronautics and Astronautics, China

Friday, July 27 10:10 - 11:10 Poster Area B
Session FRP1.PB Poster

Land Use Applications I

Session Chair: Bruce Chapman, NASA Jet Propulsion Laboratory, California Institute of Technology

FRP1.PB.1 Board PB.1 **ASSESSMENT OF LANDSCAPE MULTIFUNCTIONALITY IN INNER MONGOLIA, CHINA**
Yi'na Hu, Peking University, China; Tao Hu, Huazhong Agricultural University, China; Kun Qi, Peking University, China

FRP1.PB.2 Board PB.2 **ENVIRONMENTAL MONITORING USING DRONE IMAGES AND CONVOLUTIONAL NEURAL NETWORKS**
Rogerio Thomazella, Jose Castanho, Fabio Dotto, Sao Paulo State University, Brazil; Oswaldo Rodrigues Junior, Corumba Concessoes S.A, Brazil; Gustavo Rosa, Aparecido Marana, Joao Papa, Sao Paulo State University, Brazil

FRP1.PB.3 Board PB.3 **LAND SURFACE TEMPERATURE RETRIEVAL FROM LANDSAT-8 DATA: A COMPARISON USING A QUARTZ SPECTRAL LIBRARY BASED ON TEMPERATURES**
Pâmela Suélen Käfer, Silvia Beatriz Alves Rolim, María Luján Iglesias, Luíza Vargas de Oliveira Heinz, Nájila Souza da Rocha, Adriana Coromoto Becerra-Rondón, Bibiana Salvador Cabral da Costa, Suzianny Cristia Salazar da Silva, Federal University of Rio Grande do Sul (UFRGS), Brazil

FRP1.PB.4 Board PB.4 **RETRIEVAL OF SURFACE ALBEDO BASED ON BRDF MODEL**
Zihao Wang, Qiming Qin, Yuanheng Sun, Guhuai Han, Huazhong Ren, Peking University, China

FRP1.PB.5 Board PB.5 **CIRCULAR RELEVANCE FEEDBACK FOR REMOTE SENSING IMAGE RETRIEVAL**
Xu Tang, Xiangrong Zhang, Fang Liu, Licheng Jiao, Key Laboratory of Intelligent Perception and Image Understanding of Ministry of Education, Xidian University, China

FRP1.PB.6 Board PB.6 **SPATIAL ASSESSMENT OF MINING DATA IN THE SOUTHWEST REGION OF THE STATE OF PARÁ, BRAZIL.**
Jefferson Jesus de Souza, Jeremias Vitório Pinto Feitosa, Arlesson Antônio de Almeida Souza, Nelton Cavalcante da Luz, Foundation for Science, Technology and Space Applications, Brazil; Laís Freitas Moreira Santos, University of Brasília, Brazil; Igor da Silva Narvaes, National Institute of Space Research, Brazil; Roberto Wilson Oliveira Dias, Douglas Rafael Vidal de Moraes, Mírian Corrêa Dias, Camila Barata Quadros, Magda Valéria Corrêa Miranda, Ronise Rafaelle Mendonça Arraes, Foundation for Science, Technology and Space Applications, Brazil; Marcos Adami, Alessandra Rodrigues Gomes, National Institute of Space Research, Brazil

FRP1.PB.7 Board PB.7 **INVESTIGATION OF SEASONAL SEPARATION IN MINE AND NON MINE WATER BODIES USING LOCAL FEATURE ANALYSIS OF LANDSAT 8 OLI/TIRS IMAGES**
Jit Mukherjee, Jayanta Mukhopadhyay, Debashish Chakravarty, Indian Institute of Technology Kharagpur, India

FRP1.PB.8 Board PB.8 **RS AND GIS STUDY ON THE MEGA THERMAL HEAT ISLAND LANDSCAPE**
Huifang Wang, Xiaoyi Fang, Beijing Municipal Climate Center, China; Wei Guo, Henan Agriculture University, China; Yonghong Liu, Shuo Zhang, Qingzu Luan, Yanhu Gao, Beijing Municipal Climate Center, China

FRP1.PB.9 Board PB.9 **DETAILED LULC CLASSIFICATION USING SENTINEL DATA AND GOOGLE EARTH ENGINE - CASE STUDY OF CHITWAN, NEPAL**
Varun Tiwari, Mir Abdul Matin, Nabin Yadav, Faisal M Qamer, Birendra Bajracharya, International Centre for Integrated Mountain Development, Kathmandu, Nepal

FRP1.PB.10 Board PB.10 **SAR PATCH CATEGORIZATION USING STACKED SPARSE CODING**
Dušan Gleich, Danijel Šipoš, University of Maribor, Slovenia

Friday, July 27 **10:10 - 11:10** **Poster Area C**
Session FRP1.PC **Poster**

Biodiversity and Remote Sensing II

Session Chair: Richard Lucas, University of New South Wales

FRP1.PC.1 Board PC.1 **MEASURING LEAF ANGLE DISTRIBUTION USING TERRESTRIAL LASER SCANNING IN A EUROPEAN BEECH FOREST**
Jing Liu, Andrew K Skidmore, Tiejun Wang, Xi Zhu, University of Twente, Netherlands; Joe Premier, Marco Heurich, Burkhard Beudert, Bavarian Forest National Park, Germany

FRP1.PC.2 Board PC.2 **CHANGE DETECTION IN (SEMI-) NATURAL GRASSLAND ECOSYSTEMS FOR BIODIVERSITY MONITORING USING OPEN DATA**
Cristina Tarantino, Maria Adamo, National Research Council of Italy (CNR), Italy; Richard Lucas, The University of New South Wales, Australia; Palma Blonda, National Research Council of Italy (CNR), Italy

FRP1.PC.3 Board PC.3 **THE EARTH OBSEVATION DATA ECOSYSTEM MONITORING (EODESM) SYSTEM**
Richard Lucas, Aberystwyth University, United Kingdom; Anthea Mitchell, University of New South Wales, Australia; Ioannis Manakos, Information Technologies Institute, Greece; Palma Blonda, CNR, Greece

Friday, July 27 **10:10 - 11:10** **Poster Area D**
Session FRP1.PD **Poster**

Forest Mornitoring by Optical Remote Sensing

Session Chair: Antonio Ferraz, NASA Jet Propulsion Laboratory, California Institute of Technology

FRP1.PD.1 Board PD.1 **MONITORING THE SPATIO-TEMPORAL VARIATIONS OF C3/C4 GRASS SPECIES USING MULTISPECTRAL SATELLITE DATA**
Onisimo Mutanga, Cletah Shoko, University of KwaZuluy Natal, South Africa

FRP1.PD.2 Board PD.2 **ESTIMATING LEAF AND CANOPY BIOCHEMISTRY VARIABLES IN MEDITERRANEAN HOLM OAK (QUERCUS ILEX) FROM PROXIMAL AND AIRBORNE HYPERSPECTRAL DATA**
Rosario González-Cascón, INIA, Spain; Javier Pacheco-Labrador, Max Planck Institute for Biogeochemistry, Germany; Gerardo Moreno, University of Extremadura, Spain; Mirco Migliavacca, Max Planck Institute for Biogeochemistry, Germany; Maria Pilar Martín, Spanish National Research Council, Spain

FRP1.PD.3 Board PD.3 **SPATIAL AND TEMPORAL VARIABILITY IN THE NET PRIMARY PRODUCTIVITY OF FUJIAN PROVINCE, CHINA**
Zhenyu Yang, Xinlong Zhang, Fei Li, Ting Yang, Peking University, China

FRP1.PD.4 Board PD.4 **TROPICAL FOREST TREE SPECIES CLASSIFICATION USING METER-SCALE IMAGE DATA**
Matthew Cross, University of Colorado Denver, United States; Ted Scambos, University of Colorado Boulder, United States

FRP1.PD.6 Board PD.6 **DRONE-BASED FOREST VARIABLES MAPPING OF ICOS TOWER SURROUNDINGS**
Jörgen Wallerman, Jonas Bohlin, Mats B. Nilsson, Johan E.S. Fransson, Swedish University of Agricultural Sciences, Sweden

FRP1.PD.8 Board PD.8 **IMPLICATIONS OF DIURNAL CHANGES IN LEAF PRI ON REMOTE MEASUREMENTS OF LIGHT USE EFFICIENCY**
Matti Mõttus, VTT Technical Research Centre of Finland Ltd, Finland; Juho Aalto, University of Helsinki, Finland; Luiz Aragão, National Institute for Space Research - INPE, Brazil; Jaana Bäck, University of Helsinki, Finland; Rocío Hernández-Clemente, University of Swansea, Finland; Eduardo Eiji Maeda, University of Helsinki, Finland; Vincent Markiet, VTT Technical Research Centre of Finland Ltd, Finland; Caroline J. Nichol, University of Edinburgh, United Kingdom; Raimundo Cosme Oliveira Jr., Brazilian Agricultural Research Corporation - Embrapa, Brazil; Natalia Restrepo-Coupe, Scott R. Saleska, University of Arizona, United States

FRP1.PD.9 Board PD.9 **DETECTION OF FOREST CHANGES WITH MULTI-TEMPORAL LIDAR DATA**
Michele Dalponte, Fondazione Edmund Mach, Italy; Sicong Liu, Tongji University, China; Damiano Gianelle, Fondazione Edmund Mach, Italy

FRP1.PD.10 Board PD.10 **ESTIMATION OF THE PLOT-LEVEL FOREST PARAMETERS FROM TERRESTRIAL LASER SCANNING DATA**
Junjie Zhou, Guiyun Zhou, Hongqiang Wei, Xiaodong Zhang, University of Electronic Science and Technology of China, China

Friday, July 27 10:10 - 11:10 Poster Area E
Session FRP1.PE Poster

Estimation of Above Ground Vegetation Parameters

Session Co-Chairs: Haipeng Wang, Fudan University; Manabu Watanabe, Tokyo Denki University

FRP1.PE.1 Board PE.1 **THE SYNERGETIC ESTIMATION APPROACH OF FOREST ABOVE GROUND BIOMASS BASED ON X-BAND INSAR AND P-BAND POLSAR DATA**
Lei Zhao, Erxue Chen, Zengyuan Li, Institute of Forest Resource Information Techniques,Chinese Academy of Forestry, China; Wangfei Zhang, College of Forestry, Southwest Forestry University, China; Yaxiong Fan, Xiangxing Wan, Institute of Forest Resource Information Techniques,Chinese Academy of Forestry, China

FRP1.PE.2 Board PE.2 **ANALYSIS OF P-BAND REPEAT-PASS SAR TOMOGRAPHY UNDER CHANGING WEATHER CONDITIONS**
Yu Bai, Stefano Tebaldini, Politecnico di Milano, Italy; Dinh Ho Tong Minh, Institut national de Recherche en Sciences et Technologies pour l'Environnement et l'Agriculture, France; Wen Yang, Wuhan University, China

FRP1.PE.3 Board PE.3 **FOREST ABOVEGROUND BIOMASS ESTIMATION USING A COMBINATION OF SENTINEL-1 AND SENTINEL-2 DATA**
Agata Hoscilo, Aneta Lewandowska, Dariusz Ziolkowski, Institute of Geodesy and Cartography, Poland; Krzysztof Sterenczak, Marek Lisanczuk, Forest Research Institute, Poland; Christiane Schmullius, Carsten Pathe, Friedrich-Schiller University Jena, Germany

FRP1.PE.4 Board PE.4 **THE POTENTIAL OF SENTINEL SATELLITES FOR LARGE AREA ABOVEGROUND FOREST BIOMASS MAPPING**
Andrew Haywood, Royal Melbourne Institute of Technology, Australia; Christine Stone, New South Wales Department of Industry, Australia; Simon Jones, Royal Melbourne Institute of Technology, Australia

FRP1.PE.5 Board PE.5 **RELATING SAR TOMOGRAPHY TO TROPICAL FOREST BIOMASS VIA LIDAR DATA**
Xinwei Yang, Wuhan University, China; Mauro Mariotti D'Alessandro, Stefano Tebaldini, Politecnico di Milano, Italy; Mingsheng Liao, Wuhan University, China

FRP1.PE.6 Board PE.6 **SMOS L-BAND VEGETATION OPTICAL DEPTH IS HIGHLY SENSITIVE TO ABOVEGROUND BIOMASS**
Nemesio Rodríguez-Fernández, CNRS, France; Arnaud Mialon, Stephane Mermoz, Alexandre Bouvet, Philippe Richaume, Ahmad Al Bitar, CESBIO, France; Amen Al Yaari, INRA, France; Martin Brandt, Thomas Kaminski, Inversion Lab, Denmark; Thuy Le Toan, CNRS, France; Yann Kerr, CNES, France; Jean-Pierre Wigneron, INRA, France

FRP1.PE.7 Board PE.7 **USE OF L-BAND GROUND-BASED RADIOMETERS FOR FREEZE/THAW RETRIEVAL IN A BOREAL FOREST SITE**
Alexandre Roy, Université de Montréal, Canada; Peter Toose, Environment and Climate Change Canada, Canada; Alex Mavrovic, Université de Sherbrooke, Canada; Christoforos Pappas, Université de Montréal, Canada; Aaron Berg, Tracy Rowlandson, University of Guelph, Canada; Chris Derksen, Environment and Climate Change Canada, Canada; Alain Royer, Mariam El-Amine, Université de Sherbrooke, Canada; Warren Helgason, University of Saskatchewan, Canada; Alan Barr, Environment and Climate Change Canada, Canada; Oliver Sonnentag, Université de Montréal, Canada

FRP1.PE.8 Board PE.8 **FREQUENCY-DEPENDENCE OF VEGETATION OPTICAL DEPTH-DERIVED ISOHYDRICIY ESTIMATES**
Alexandra Konings, Mostafa Momen, Stanford University, United States

FRP1.PE.9 Board PE.9 **INTEGRATING EDDY COVARIANCE INFORMATION WITH BEPS MODEL USING A VARIATIONAL ASSIMILATION SCHEME FOR IMPROVING TEMPORALLY CONTINUOUS GPP ESTIMATION**
Xinyao Xie, University of Chinese Academy of Sciences,Research Center for Digital Mountain and Remote Sensing Application, Institute of Mountain Hazards and Environment, Chinese Academy of Sciences, China; Ainong Li, Gaofei Yin, Jinhu Bian, Research Center for Digital Mountain and Remote Sensing Application, Institute of Mountain Hazards and Environment, Chinese Academy of Sciences, China

FRP1.PE.10 Board PE.10 **GPP ESTIMATION IN THE HEIHE RIVER BASIN BASED ON A LIGHT USE EFFICIENCY MODEL**
Li Li, Xiaozhou Xin, State Key Laboratory of Remote Sensing Science, Institute of Remote Sensing and Digital Earth, China; Yanhua Gao, Satellite Environment Center (SEC), China; Hailong Zhang, Yongming Du, Yong Tang, Bo Zhong, Jianguang Wen, Baocheng Dou, Qinhuo Liu, State Key Laboratory of Remote Sensing Science, Institute of Remote Sensing and Digital Earth, China

Friday, July 27 10:10 - 11:10 Poster Area F
Session FRP1.PF Poster

Remote Sensing for Crop and Soil Parameters II

Session Chair: Dipankar Mandal, Indian Institute of Technology Bombay

FRP1.PF.1 Board PF.1 **MODELING WATER STRESS AS AN INDICATOR OF RED PALM WEEVIL INFESTATION USING FIELD SAMPLING, WORLDVIEW-3 REFLECTANCE, AND LABORATORY ANALYSIS**
Abderrazak Bannari, Arabian Gulf University, Bahrain; Thuraya Almansoori, University of Bahrain, Bahrain; Abdulaziz Mohamed, Ali El-Battay, Nadir Hameid, Arabian Gulf University, Bahrain

FRP1.PF.2 Board PF.2 **USING SENTINEL-2 IMAGERY TO TRACK CHANGES PRODUCED BY XYLELLA FASTIDIOSA IN OLIVE TREES**
Alberto Hornero, Rocío Hernández-Clemente, Swansea University, United Kingdom; Pieter S.A. Beck, European Commission, Joint Research Centre (JRC), Italy; Juan A. Navas-Cortés, Instituto de Agricultura Sostenible (IAS), Consejo Superior de Investigaciones Científicas (CSIC), Spain; Pablo Jesús Zarco-Tejada, European Commission, Joint Research Centre (JRC), Italy

FRP1.PF.3 Board PF.3 **DEEP LEARNING-BASED METHODOLOGICAL APPROACH FOR VINEYARD EARLY DISEASE DETECTION USING HYPERSPECTRAL DATA**
Jonáš Hruška, University of Trás-os-Montes e Alto Douro, Portugal; Telmo Adão, University of Trás-os-Montes e Alto Douro, INESC Technology and Science (INESC-TEC), Portugal; Luís Pádua, Pedro Marques, University of Trás-os-Montes e Alto Douro, Portugal; Emanuel Peres, António Sousa, Raul Morais, Joaquim João Sousa, University of Trás-os-Montes e Alto Douro, INESC Technology and Science (INESC-TEC), Portugal

FRP1.PF.4 Board PF.4 **DVDI: A NEW REMOTELY SENSED INDEX FOR MEASURING VEGETATION DAMAGE CAUSED BY NATURAL DISASTERS**
Liping Di, Eugene Yu, Ranjay Shrestha, Li Lin, George Mason University, United States

FRP1.PF.5 Board PF.5 **MONITORING RICE CROPS IN PIEMONTE (ITALY): TOWARDS AN OPERATIONAL SERVICE BASED ON FREE SATELLITE DATA**
Gianmarco Corvino, Andrea Lessio, Enrico Borgogno Mondino, University of Torino, Italy

FRP1.PF.7 Board PF.7 **EVALUATION OF COVARIATES TO UNDERSTAND THE INTERACTIVE FEEDBACK BETWEEN SOIL-LANDSCAPE PARAMETER AND CHANGES OF SOIL-CLIMATIC CONDITIONS**
Gaurav Shukla, Rahul Dev Garg, Indian Institute of Technology Roorkee, India; Hari Shanker Srivastava, IIRS, Indian Space Research Organization (ISRO), India; Pradeep Kumar Garg, Indian Institute of Technology Roorkee, India

FRP1.PF.8 Board PF.8 **A FFT-BASED APPROACH TO EXPLORE PERIODICITY OF VINES/SOIL PROPERTIES IN VINEYARD FROM TIME SERIES OF SATELLITE-DERIVED SPECTRAL INDICES**
Enrico Borgogno-Mondino, Andrea Lessio, University of Torino, Italy

FRP1.PF.9 Board PF.9 **ASSESSING THE PERFORMANCE OF DIFFERENT IRRIGATION METHODS BY SATELLITE INDICATORS IN SOUTHERN ITALY**
Juan Miguel Ramírez-Cuesta, Centro de Edafología y Biología Aplicada del Segura (CEBAS-CSIC), Spain; Daniela Vanella, Università degli Studi di Catania Italy, Italy; Diego Sebastiano Intrigliolo Molina, Centro de Edafología y Biología Aplicada del Segura (CEBAS-CSIC), Spain; Giancarlo Roccuzzo, Fiorella Stagno, Consiglio per la Ricerca in Agricoltura e l'Analisi dell'Economia Agraria (CREA), Italy; Simona Consoli, Università degli Studi di Catania Italy, Italy

FRP1.PF.10 Board PF.10 **USING COPERNICUS DATA AND GROWTH MODELLING TO GLOBALLY ASSESS VIRTUAL WATER FLOWS IN AGRICULTURAL PRODUCTION – THE VIWA CONCEPT**
Tobias Hank, Ludwig-Maximilian University of Munich, Germany; Heike Bach, VISTA Remote Sensing in Geosciences GmbH, Germany; Tom Jaksztat, Ludwig-Maximilian University of Munich, Germany; Philipp Klug, VISTA Remote Sensing in Geosciences GmbH, Germany; Florian Zabel, Ludwig-Maximilian University of Munich, Germany; Lena Brueggemann, VISTA Remote Sensing in Geosciences GmbH, Germany; Elisabeth Probst, Francesca Perosa, Ludwig-Maximilian University of Munich, Germany; Tobias Ruf, VISTA Remote Sensing in Geosciences GmbH, Germany; Christoph Heinzeller, Wolfram Mauser, Ludwig-Maximilian University of Munich, Germany

Friday, July 27 | 10:10 - 11:10 | Poster Area G
Session FRP1.PG | Poster

Microwave Algorithms for Soil Moisture III

Session Chair: Andreas Colliander, NASA Jet Propulsion Laboratory, California Institute of Technology

FRP1.PG.1 Board PG.1 **SOIL MOISTURE RETRIEVAL WITH BACKSCATTER MODELING AND SATELLITE DATASETS IN ZOIGE WETLAND, CHINA**
Yuanyuan Yang, Yong Wang, Xinyi Miao, University of Electronic Science and Technology of China, China; Hong Li, East Carolina University, United States

FRP1.PG.3 Board PG.3 **THREE-DIMENSIONAL FINITE DIFFERENCE TIME DOMAIN SIMULATION FOR SCATTERING COMPUTATION FROM SOIL SURFACE**
Ming Li, Ling Tong, Yu Li, Xun Yang, University of Electronic Science and Technology of China, China

FRP1.PG.4 Board PG.4 **MOISTURE RETRIEVAL USING MONOSTATIC RADAR DOUBLE BOUNCE.**
Orian Couderc, Laetitia Thirion-Lefevre, Régis Guinvarc'h, CentraleSupélec, France

FRP1.PG.5 Board PG.5 **SOIL MOISTURE RETRIEVAL USING MODIFIED VEGETATION BACKSCATTERING MODEL BASED ON RADARSAT-2 DATA**
Liangliang Tao, Guojie Wang, Nanjing University of Information Science and Technology, China; Shi He, Henan Polytechnic University, China; Xi Chen, Peking University, China

FRP1.PG.6 Board PG.6 **ESTIMATING HI-RESOLUTION SOIL MOISTURE DATA USING THE HP MODEL COUPLED WITH LANDSAT-8 AND SMAP DATASETS**
Xinyi Miao, Yong Wang, Yuanyuan Yang, University of Electronic Science and Technology of China, China; Hong Li, East Carolina University, United States

FRP1.PG.7 Board PG.7 **INVERSION OF SURFACE SOIL MOISTURE FROM RADAR ALTIMETRY BACKSCATTERING IN SEMI-ARID ENVIRONMENTS**
Fabien Blarel, Frédéric Frappart, Eric Mougin, Observatoire Midi-Pyrénées, France; Catherine Ottlé, IPSL, France; Manuela Grippa, Guillaume Ramillien, Observatoire Midi-Pyrénées, France; Nina Raoult, IPSL, France

FRP1.PG.8 Board PG.8 **SENSITIVITY OF MULTI-TEMPORAL L-BAND RADAR BACKSCATTERING POWER TO SOIL MOISTURE FOR TWO CROPS WITH CONTRASTING FEATURES**
Matias Barber, CONICET-Universidad de Buenos Aires, Instituto de Astronomia y Fisica del Espacio, Argentina; Carlos López-Martínez, Luxembourg Institute of Science and Technology, Luxembourg; Francsico Grings, CONICET-Universidad de Buenos Aires, Instituto de Astronomia y Fisica del Espacio, Argentina

FRP1.PG.9 Board PG.9 **DOWNSCALING OF QP MODEL WITH DUAL-CHANNEL SOIL MOISTURE RETRIEVALS OVER GENHE AREA IN CHINA**
Huizhen Cui, Lingmei Jiang, Beijing Normal University, China; Zhuang Zhou, Chinese Academy of Sciences, China; Shirui Hao, Jian Wang, Gongxue Wang, Beijing Normal University, China

FRP1.PG.10 Board PG.10 **UPSCALING GROUND SOIL MOISTURE TO VALIDATE REMOTE SENSING ESTIMATIONS: IS THE SIMPLE SPATIAL AVERAGE A SUITABLE APPROACH?**
Nilda Sánchez, Ángel González-Zamora, José Martínez-Fernández, Miriam Pablos, University of Salamanca, Spain

Friday, July 27 | 10:10 - 11:10 | Poster Area H
Session FRP1.PH | Poster

Aerosols and Atmospheric Chemistry II

FRP1.PH.1 Board PH.1 **EVALUATION OF MODIS C6 COMBINED AEROSOL PRODUCT AT GLOBAL SCALE**
Muhammad Bilal, Zhongfeng Qiu, Nanjing University of Information Science and Technology, China

FRP1.PH.2 Board PH.2 **VALIDATION OF MODIS AEROSOL OPTICAL DEPTH OVER SOUTH CHINA SEA**
Xiaojing Shen, Zhongfeng Qiu, Muhammad Bilal, NUIST, China

FRP1.PH.3 Board PH.3 **LONG TERM VARIATION ANALYSIS OF SATELLITE-DERIVED AIR POLLUTION COMPONENTS OVER EAST CHINA**
Yingjie Li, Qingmiao Ma, Jing Chen, Ruyi Li, Boyan Liu, Meihan Qian, Zhaoxian Wang, Jiangsu Normal University, China

FRP1.PH.4 Board PH.4 **AEROSOL OPTICAL DEPTH CHARACTERIZATION IN MIDDLE AND POLAR LATITUDES**
Abel Calle, David Mateos, Victoria Cachorro, Carlos Toledano, Cistian Velasco, Andrés Benito, Ramiro González, Ángel Maximo de Frutos, Juan Carlos Antuña-Sánchez, Roberto Román, University of Valladolid, Spain

FRP1.PH.5 Board PH.5 **ASSESSMENT OF SATELLITE AEROSOL OPTICAL DEPTH TO ESTIMATE PARTICULATE MATTER DISTRIBUTION IN VALENCIA CITY**
Represa Natacha Soledad, Universidad Nacional de La Plata, Spain; Alfonso Fernández-Sarría, Universitat Politècnica de València, Spain; Andrés Porta, Universidad Nacional de La Plata, Argentina; Jesús Palomar Vázquez, Universitat Politècnica de València, Spain

FRP1.PH.6 Board PH.6 **ATMOSPHERIC CORRECTION AND CIRRUS CLOUDS REMOVAL FROM MSI SENTINEL 2A IMAGES**
Mauro Antonio Homem Antunes, Isadora Ferreira Bolpato, Federal Rural University of Rio de Janeiro, Brazil

Friday, July 27 10:10 - 11:10 Poster Area I
Session FRP1.PI Poster

Passive Microwave Sensors and Missions

FRP1.PI.2 Board PI.2 **IMPROVING THE SPATIAL BIAS CORRECTION ALGORITHM IN THE SMOS LEVEL 1 IMAGE RECONSTRUCTION PROCESSOR**
Ali Khazaal, François Cabot, Eric Anterrieu, Yann Kerr, CESBIO, France

FRP1.PI.3 Board PI.3 **SUPERCONDUCTING SUBMILLIMETER-WAVE LIMB-EMISSION SOUNDER, SMILES-2, FOR MIDDLE AND UPPER ATMOSPHERIC STUDY**
Satoshi Ochiai, Philippe Baron, Yoshihisa Irimajiri, National Institute of Information and Communications Technology, Japan; Yoshinori Uzawa, National Astronomical Observatory of Japan, Japan; Toshiyuki Nishibori, Makoto Suzuki, Japan Aerospace Exploration Agency, Japan; Akinori Saito, Masato Shiotani, Kyoto University, Japan

FRP1.PI.5 Board PI.5 **VALIDATION RESULTS OF NMF2 DERIVED FROM BEIDOU NAVIGATION SATELLITE SYSTEM RADIO OCCULTATION OBSERVED BY GNOS ON FY3C SATELLITE**
Weihua Bai, National Space Science Center, Chinese Academy of Sciences, China; Guanglin Yang, National Satellite Meteorological Center, China Meteorological Administration, China; Yueqiang Sun, Junming Xia, Guangyuan Tan, National Space Science Center, Chinese Academy of Sciences, China; Cheng Cheng, State Intellectual Property Office of the P.R.C, China; Yingqiang Wang, College of Meteorology and Oceanology, National University of Defense Technology, China; Xianyi Wang, Dongwei Wang, National Space Science Center, Chinese Academy of Sciences, China

FRP1.PI.6 Board PI.6 **PRELIMINARY IN-ORBIT EVALUATION OF GNOS ON FY3D SATELLITE**
Wang Dongwei, Tian Yusen, Sun Yueqiang, Du Qifei, Wang Xianyi, Bai Weihua, Meng Xiangguang, Cai Yuerong, Wu Chunjun, Liu Cheng, Xia Junming, Zhao Danyang, Li Wei, Li Fu, Qiao Hao, National Space Science Center, China

Friday, July 27 10:10 - 11:10 Poster Area J
Session FRP1.PJ Poster

Current Developments in Active Microwave and Optical Missions

Session Chair: Caiyun Wang, Chinese Academy of Sciences

FRP1.PJ.1 Board PJ.1 **DEVELOPMENT AND PRE-LAUNCH TEST OF A RETURN SIGNAL SIMULATOR FOR HY-2B ALTIMETER**
Wei Guo, Caiyun Wang, Peng Liu, National Space Science Center, Chinese Academy of Sciences, China

FRP1.PJ.2 Board PJ.2 **DEVELOPMENT AND PERFORMANCE ANALYSIS OF A FULLY FUNCTIONAL RETURN SIGNAL SIMULATOR FOR HY-2B SCATTEROMETER**
Caiyun Wang, Wei Guo, Shuang-Bao Yang, Peng Liu, Chinese Academy of Sciences, China

FRP1.PJ.3 Board PJ.3 **PRELIMINARY QUALITY ANALYSIS OF THE TRIPLE LINEAR-ARRAY AND MULTISPECTRAL IMAGES OF ZY-3 02 SATELLITE**
Tao Zhang, Bing Lei, Jingjing Wang, Satellite Surveying and Mapping Application Center, National Administration of Surveying, Mapping and Geoinformation, China; Yunqing Li, School of Urban Construction, Beijing City University, China; Ke Liu, Tao Li, Satellite Surveying and Mapping Application Center, National Administration of Surveying, Mapping and Geoinformation, China

FRP1.PJ.4 Board PJ.4 **FIRST-PRINCIPLE DYNAMIC ELECTRO-THERMAL NUMERICAL MODEL OF A SCANNING RADIOMETER FOR EARTH RADIATION BUDGET APPLICATIONS**
Anum Ashraf, Kory Priestley, NASA Langley Research Center, United States; James Mahan, Virginia Polytechnic Institute and State University, United States

FRP1.PJ.5 Board PJ.5 **PLANIMETRIC POSITIONAL ACCURACY EVALUATION OF MSI SENTINEL-2A ORTHOIMAGE: A CASE STUDY OF MUNICIPALITY OF DOM PEDRITO-BRAZIL**
Mariane dos Santos Pessanha, Mauro Antonio Homem Antunes, Universidade Federal Rural do Rio de Janeiro, Brazil; Aline Lopes Coelho, Instituto Brasileiro de Geografia e Estatística, Brazil

FRP1.PJ.6 Board PJ.6 **DEPLOYABLE CRUCIFORM REFLECTOR ANTENNA WITH CROSSED-DIPOLE ARRAY FEED FOR L-BAND REMOTE SENSING**
Lawrence Lee, Ivan Frasure, Trevor Nartker, Ronald Marhefka, Joseph Sugrue, Andrew Terzuoli, Raymond Wasky, IEEE, United States

Friday, July 27 **10:10 - 11:10** **Poster Area K**
Session FRP1.PK **Poster**

Sensors and Calibration

FRP1.PK.1 Board PK.1 **A DESIGN OF THE COMPLETE POLARIZATION CONVERTER USING DIELECTRIC PERIODIC STRUCTURES**
Yueting Zhang, Chibiao Ding, Bin Lei, Institute of Electronics, Chinese Academy of Sciences, China; Weihai Fang, Beijing General Institute of Electronic Engineering, China

FRP1.PK.2 Board PK.2 **REDUCTION OF THE GROUND REFLECTION EFFECT ON AN L-BAND POLARIMETIC ACTIVE RADAR CALIBRATOR FOR AIRBORNE AND SPACEBORNE CALIBRATION**
Mostafa Zaky, Mani Kashanianfard, Kamal Sarabandi, University of Michigan, United States

FRP1.PK.3 Board PK.3 **UNCERTAINTY QUANTIFICATION IN SYNTHETIC APERTURE RADAR REMOTE SENSING DATA PROCESSING**
Salvatore Savastano, Raffaella Guida, University of Surrey, United Kingdom

FRP1.PK.4 Board PK.4 **DOPPLER SENSITIVITY ANALYSIS AND OTHOGONAL WAVEFORM DESIGN BY USING MULTIPLE FREQUENCY SLOPES**
Zhulin Zong, Shunsheng Zhang, University of Electronic Science and Technology of China, China

FRP1.PK.5 Board PK.5 **AN INTERNAL INSTRUMENT CALIBRATION SIMULATOR FOR MULTI-CHANNEL SAR**
Marwan Younis, Felipe Queiroz de Almeida, Sigurd Huber, Christopher Laux, Michele Martone, Michelangelo Villano, Gerhard Krieger, German Aerospace Center (DLR), Germany

FRP1.PK.6 Board PK.6 **REMOTE PROGRAMMABLE TEMPERATURE STABILIZED POLARIMETRIC ACTIVE RADAR CALIBRATOR WITH RCS AGILITY FOR AIRBORNE AND SPACEBORNE SAR CALIBRATION**
Mani Kashanianfard, Kamal Sarabandi, Adib Nashashibi, Arya Sarabandi, University of Michigan, United States; Xueyang Duan, Bruce Chapman, Jet Propulsion Laboratory, United States

FRP1.PK.7 Board PK.7 **DETERMINISTIC CRAMÉR-RAO BOUND FOR SCANNING RADAR SENSING**
Yongchao Zhang, Yin Zhang, Yulin Huang, Jianyu Yang, Xiaobo Yang, University of Electronic Science and Technology of China, China

FRP1.PK.8 Board PK.8 **SWE RETRIEVAL PERFORMANCE USING ACTIVE AND PASSIVE MICROWAVE OBSERVATIONS BY USING NASA SNOWEX CAMPAIGNS**
Dohyuk Kang, University of Maryland /NASA GSFC, United States; Shurun Tan, Jiyue Zhu, University of Michigan, Ann Arbor, United States; Weihui Gu, Leung Tsang, University of Michigan, United States; Edward Kim, NASA Goddard Space Flight Center, United States

Friday, July 27 **10:10 - 11:10** **Poster Area L**
Session FRP1.PL **Poster**

Ground Based Systems III

FRP1.PL.1 Board PL.1 **3D DATA ACQUISITION USING STEREO CAMERA**
Evandro Kirsten, Leonardo Campos Inocencio, Maurício Roberto Veronez, Luiz Gonzaga da Silveira Jr., Fabiane Bordin, Fernando Pinho Marson, UNISINOS University, Brazil

FRP1.PL.2 Board PL.2 **ACCELERATED CODE GENERATOR FOR PROCESSING OCEAN COLOR REMOTE SENSING DATA ON GPU**
Jae-Moo Heo, Korea Institute of Ocean Science and Technology, Republic of Korea; Gangwon Jo, Seoul National University and ManyCoreSoft Co., Ltd., Republic of Korea; Hee-Jeong Han, Hyun Yang, Korea Institute of Ocean Science and Technology, Republic of Korea

FRP1.PL.3 Board PL.3 **EVALUATION THE SPATIAL-TEMPORAL AVERAGE METHOD IN THE MULTI-ANGLE INFORMATION EXTRACTION BASED ON NEAR SURFACE OBSERVATION SENSORS**
Biao Cao, Zunjian Bian, Qing Xiao, Junyong Fang, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China; Huaguo Huang, Beijing Forestry University, China; Junhua Bai, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China; Wenjie Fan, Institute of RS and GIS, Peking University, China; Yongming Du, Hua Li, Qinhuo Liu, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China

FRP1.PL.4 Board PL.4 **EFFECT OF NON-UNIFORM AZIMUTH SAMPLING ON SAR IMAGE FORMATION EVALUATED AT 79GHZ**
Man Chung Chim, Daniele Perissin, Purdue University, United States; Lei Zhang, Hongyu Liang, The Hong Kong Polytechnic University, Hong Kong SAR of China

Friday, July 27 10:10 - 11:10 Poster Area M
Session FRP1.PM Poster

Remote Sensing of Wetlands I

Session Chair: Dong Liu, Nanjing Institute of Environmental Sciences

FRP1.PM.1 Board PM.1 **DYNAMIC CHANGES OF THE ALPINE WETLANDS IN TIBET, CHINA**
Dong Liu, Mengjia Xu, Nanjing Institute of Environmental Sciences, Ministry of Environmental Protection, China

FRP1.PM.2 Board PM.2 **A NEW HIERARCHICAL OBJECT-BASED CLASSIFICATION ALGORITHM FOR WETLAND MAPPING IN NEWFOUNDLAND, CANADA**
Fariba Mohammadimanesh, C-CORE and Department of Electrical Engineering, Memorial University of Newfoundland, St. John's, Newfoundland, Canada, A1B 3X5., Canada; Bahram Salehi, C-CORE, Canada; Masoud Mahdianpari, PhD Candidate, C-CORE and Department of Electrical Engineering, Memorial University of Newfoundland, St. John's, Newfoundland, Canada, A1B 3X5., Canada; Mahdi Motagh, Institute of Photogrammetry and GeoInformation, Leibniz Universität Hannover, Germany

FRP1.PM.3 Board PM.3 **WATER VOLLUME CHANGES OF THE TONLE SAP LAKE BASED-ON REMOTE SENSING DATA**
Wei Qu, Jingxuan Lu, June Fu, Lin Li, Zhiguo Pang, Tianjie Lei, Xiaotao Li, Ying Wang, China Institute of Water Resources and Hydropower Research, China

FRP1.PM.4 Board PM.4 **ESTIMATING THE ABOVEGROUND BIOMASS OF PHRAGMITES AUSTRALIS (COMMON REED) BASED ON MULTI-SOURCE DATA**
Yingkun Du, Jing Wang, Wuhan University, China; Yifan Lin, Peking University, China; Zhengjun Liu, Chinese Academy of Surveying and Mapping, China; Haiying Yu, the Fourth Institute of Anhui Surveying and Mapping, China; Haiyan Yi, Chinese Academy of Sciences, China

FRP1.PM.5 Board PM.5 **A MULTISCALE BASED APPROACH FOR RIVER EXTRACTION FROM SAR IMAGES USING ATTRIBUTE FILTERS**
Moslem Ouled Sghaier, Samuel Foucher, Computer Research Institute of Montreal, Canada; Richard Lepage, École de technologie supérieure (ÉTS), Canada; Tom Landry, Computer Research Institute of Montreal, Canada

FRP1.PM.6 Board PM.6 **WETLAND CLASSIFICATION USING DEEP CONVOLUTIONAL NEURAL NETWORK**
Masoud Mahdianpari, C-CORE and Department of Electrical Engineering, Memorial University of Newfoundland, St. John's, Newfoundland, Canada; Mohammad Rezaee, Yun Zhang, CRC-Laboratory in Advanced Geomatics Image Processing, Canada; Bahram Salehi, C-CORE, Canada

FRP1.PM.7 Board PM.7 **CARBON DIOXIDE AND WATER VAPOUR FLUXES OF A ALKALINE FEN AND THEIR DEPENDENCE ON REFLECTANCE**
Wojciech Cieżkowski, Warsaw University of Life Sciences, Poland; Tomasz Berezowski, Gdansk University of Technology, Poland; Małgorzata Kleniewska, Jarosław Chormański, Warsaw University of Life Sciences, Poland

FRP1.PM.8 Board PM.8 **WATER STRESS INDEX FOR BOGS AND MIRES BASED ON UAV LAND SURFACE MEASUREMNTS AND ITS DEPENDENCY ON AIRBORNE HYPERESPECTRAL DATA**
Wojciech Cieżkowski, Jacek Jóźwiak, Sylwia Szporak-Wasilewska, Piotr Dąbrowski, Małgorzata Kleniewska, Maciej Góraj, Jarosław Chormański, Warsaw University of Life Sciences, Poland

FRP1.PM.9 Board PM.9 **A NEW METHOD TO ESTIMATE SURFACE STORAGE VARIATIONS FROM SATLLITE IMAGES AND RADAR ALTIMETRY**
Frédéric Frappart, Observatoire Midi-Pyrénées, France; Vincent Marieu, Cassandra Normandin, Bertrand Lubac, EPOC, France

FRP1.PM.10 Board PM.10 **INVESTIGATING WATERFOWL HABITAT-USE PATTERNS WITH MULTI-SOURCE REMOTE SENSING DATA**
Ruobing Zheng, University of Chinese Academy of Sciences, China; Ze Luo, Baoping Yan, Computer Network Information Center, Chinese Academy of Sciences, China

Friday, July 27 10:10 - 11:10 Poster Area N
Session FRP1.PN Poster

Remote Sensing of Inland Waters I

Session Co-Chairs: Marcela Pereira-Sandoval, University of Valencia; Qi Gao, isardSAT

FRP1.PN.1 Board PN.1 **REMOTE SENSING INVERSION OF WATER QUALITY PARAMETERS IN LONGQUAN LAKE BASED ON PSO-SVR ALGORITHM**
Yuxia Li, University of Electronic Science and Technology of China, China; Lei He, Chengdu University of Information Technology, China; Bo Peng, Kunlong Fan, Ling Tong, University of Electronic Science and Technology of China, China

FRP1.PN.2 Board PN.2 **A MULTI-CLOUD CYBER INFRASTRUCTURE FOR MONITORING GLOBAL PROLIFERATION OF CYANOBACTERIAL HARMFUL ALGAL BLOOMS**
Deepak Mishra, Lakshmish Ramaswamy, Abhishek Kumar, Suchendra Bhandarkar, Vinay Kumar, University of Georgia, United States; Sunil Narumalani, University of Nebraska, United States

FRP1.PN.3 Board PN.3 **CALIBRATION AND VALIDATION OF ALGORITHMS FOR THE ESTIMATION OF CHLOROPHYLL-A IN INLAND WATERS WITH SENTINEL-2**
Marcela Pereira-Sandoval, Antonio Ruiz-Verdú, Carolina Tenjo, Jesús Delegido, Patricia Urrego, Ramón Peña, University of Valencia, Spain; Eduardo Vicente, Institut Cavanilles de Biodiversitat i Biología Evolutiva, Spain; Juan Soria, Departament de Microbiologia i Ecologia, Spain; Javier Soria, Institut Cavanilles de Biodiversitat i Biología Evolutiva, Spain; José Moreno, University of Valencia, Spain

FRP1.PN.4 Board PN.4 **COMPARING LANDSAT 8 AND SENTINEL-2 IN MAPPING WATER QUALITY AT VAAL DAM**
Prosper Bande, Elhadi Adam, University of The Witwatersrand, Johannesburg, South Africa; Mohamed Abd Elbasit, Agricultural Research Council, South Africa; Samuel Adelabu, University of the Free State, South Africa, South Africa

FRP1.PN.5 Board PN.5 **AN ENSEMBLE APPROACH TO RETRIEVING WATER QUALITY PARAMETERS FROM MULTISPECTRAL SATELLITE IMAGERY**
Hongxing Liu, Min Xu, Richard Beck, University of Cincinnati, United States

FRP1.PN.6 Board PN.6 **HUMAN ACTIVITIES IMPACT ON LAKE CHANGE IN TIBETAN PLATEAU DURING THE PERIOD 1990-2015**
Bo Ma, Dingfang Tian, Huazhong Ren, Wenjie Fan, Peking University, China; Yanjuan Yao, Ministry of Environmental Protection, China

FRP1.PN.7 Board PN.7 **SPATIAL ALGAL BLOOM CHARACTERIZATION BY LANDSAT 8-OLI AND FIELD DATA ANALYSIS**
Andrea Guachalla Alarcón, Instituto de Investigaciones Farmaceuticas y Bioquimicas, Universidad Mayor de San Andres, Bolivia; Alba Germán, Secretaría de Recursos Hídricos de la provincia de Cordoba, Argentina; Alejandro Aleksinká, Secretaria de Recursos Hidricos, Argentina; María Fernanda García Ferreyra, Carlos Marcelo Scavuzzo, Anabella Ferral, Instituto Gulich, Argentina

FRP1.PN.8 Board PN.8 **COMPARISION OF RETRACKERS' PERFORMANCES OVER INLAND WATER BODIES**
Qi Gao, Eduard Makhoul Varona, Maria Jose Escorihuela, isardSAT, Spain; Mehrez Zribi, CESBIO, France; Pere Quintana-Segui, Observatori de l'Ebre, Spain

FRP1.PN.9 Board PN.9 **PERFORMANCE ANALYSIS OF THE C2RCC PROCESSOR IN ESTIMATE THE WATER QUALITY PARAMETERS IN INLAND WATERS USING OLCI/ SENTINEL-3A IMAGES**
Enner Alcântara, Caroline Andrade, Ana Carolina Gomes, Nariane Bernardo, Alisson Carmo, Thanan Rodrigues, Fernanda Watanabe, Sao Paulo State University - Unesp, Brazil

FRP1.PN.10 Board PN.10 **ESTIMATING RIVER DISCHARGES IN THE OGOOUÉ RIVER BASIN USING SATELLITE ALTIMETRY DATA**
Sakaros Bogning, Frédéric Frappart, Fabien Blarel, Fernando Niño, Observatoire Midi-Pyrénées, Cameroon; Gil Mahé, Frédérique Seyler, Jean-Jacques Braun, IRD, France; Raphaël Onguéné, Jacques Etamé, Université de Douala, Cameroon

Friday, July 27	10:10 - 11:10	Poster Area O
Session FRP1.PO		Poster-Invited

Global Precipitation Measurement Instruments and Algorithms I

Session Chair: Chandra V Chandrasekar, Colorado State University

FRP1.PO.1 Board P0.1 **EVALUATION OF SPACEBORNE PRECIPITATION RADAR BY USING HIGH DENSITY OBSERVATION DURING THE TRMM END-OF-MISSION EXPERIMENT**
Nobuhiro Takahashi, Nagoya University, Japan

FRP1.PO.2 Board P0.2 **TRMM AND GPM BASED TROPICAL CYCLONE PRECIPITATION FEATURE DATABASES AND THEIR USAGE ON RAPID INTENSIFICATION STUDY**
Haiyan Jiang, Florida International University, United States

FRP1.PO.3 Board P0.3 **VALIDATION OF INSAT-3D DERIVED RAINFALL PRODUCTS WITH THE RAIN GAUGE DATA**
Suman Goyal, Chinmay Khadke, India Meteorological Department, India

FRP1.PO.4 Board P0.4 **VALIDATION OF THE GLOBAL PRECIPITATION MEASUREMENT MISSION CORE OBSERVATORY OVER GREAT BRITAIN AND IRELAND**
Daniel Watters, Alessandro Battaglia, Kamil Mroz, Frederic Tridon, University of Leicester, United Kingdom

FRP1.PO.5 Board P0.5 **VALIDATION OF THE RELATION BETWEEN RAIN RATE AND MASS-WEIGHTED MEAN DIAMETERS ASSUMED IN THE DPR ALGORITHM**
Shinta Seto, Nagasaki University, Japan

FRP1.PO.6 Board P0.6 **EXPLOITATION OF GPM/CLOUDSAT COINCIDENCE DATASET FOR GLOBAL SNOWFALL RETRIEVAL**
Giulia Panegrossi, Jean-François Rysman, Institute of Atmospheric Sciences and Climate, Italy; Daniele Casella, SERCO S.p.A., Italy; Paolo Sanò, Anna Cinzia Marra, Stefano Dietrich, Institute of Atmospheric Sciences and Climate, Italy; Mark Kulie, Michigan Technological University, United States

FRP1.PO.7 Board P0.7 **DPR MEASUREMENTS OF HAIL BEARING COLUMNS**
Kamil Mroz, Alessandro Battaglia, NCEO, United Kingdom; Timothy Lang, NASA Marshall Space Flight Center, United States; Simone Tanelli, Gian Franco Sacco, NASA Jet Propulsion Laboratory, United States

Author and Session Chair Index

A

B

C

D

E

F

G

H

I

J

K

L

M

N

O

P

Q

R

S

T

U

V

W

X

Y

Z

Notes

Notes

Notes

Notes

CALL FOR PAPERS
IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing

Special Issue on
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The IEEE 2018 International Geoscience and Remote Sensing Symposium (IGARSS 2018) is being held in Valencia, Spain, on July 22-27, 2018. This is the premier symposium of the IEEE Geoscience and Remote Sensing Society (GRSS). IGARSS is a major scientific and technical event in remote sensing.

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Sept 15, 2018: Full paper submission deadline
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W
E
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