Contents

Welcome from the General Chairs

Four years ago, scientists from Belgium and the Netherlands sat together to submit a bid to jointly host the IGARSS 2021 conference in Brussels, united in a strong belief that science transcends nationality. Hence the overall conference theme they chose: Crossing Borders. Borders not only between countries and research institutes but also between types of platforms (from satellites to drones), data sources and disciplines.

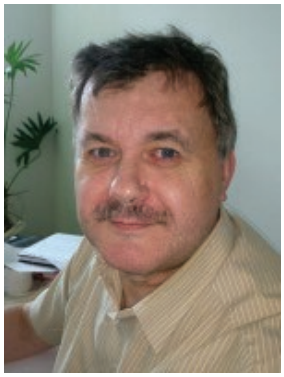
This was reflected in the special scientific themes put forward:

- UAV and Miniaturised Remote Sensing Capabilities and Applications
- GPS, GNSS and Galileo for Earth Observation
- Geo-Information and Integration for Smart and Green Cities
- Advanced Monitoring and Assessment of Hazards (natural, anthropogenic and pandemic)

Four years on, a lot has happened. The bid was selected, but the unabating global COVID-19 crisis forced us to rethink the conference. Instead of having a live conference in the heart of Europe, where the future of remote sensing is being shaped, we had to turn the event into a fully virtual one that was nevertheless no less interesting and exciting. We believe we met this challenge. The remote sensing and geoscience community rose to the occasion, and we were able to programme over 2400 very diverse papers and 118 interesting invited sessions, many of them addressing the COVID-19 pandemic, all accessible via a new and enticing virtual platform.

We invite you to rediscover in detail the rich tapestry of IGARSS 2021 science. Enjoy the proceedings.

Ramon Hanssen and Joost Vandenabeele
General Chairs IGARSS 2021



Sponsors & Exhibitors

Exhibitors

	ESA - European Space Agency The European Space Agency (ESA) 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. https://www.esa.int/Applications/Observing_the_Earth
	NASA National Aeronautics and Space Administration NASA's Earth Science Division (ESD) missions help us to understand our planet's interconnected systems, from a global scale down to minute processes. ESD delivers the technology, expertise, and global observations that help us to map the myriad connections between our planet's vital processes and the effects of ongoing natural and human-caused changes. NASA Earth Science data are freely and openly available to anyone. https://science.nasa.gov/ https://twitter.com/NASASocial https://twitter.com/NASA_NCCS https://twitter.com/#!/NASA360 http://www.facebook.com/pages/NASA-360/33527980284 https://twitter.com/NASA_develop https://www.facebook.com/developnationalprogram https://twitter.com/NASASTEM
	BELSPO, the Belgian Science Policy Office BELSPO, the Belgian Science Policy Office is a main actors of scientific research in Belgium. It brings together many prestigious research programs and manages ten federal scientific institutes. These institutes managed by BELSPO are full of assets. They offer exceptional environment and research materials for scientists but also world-class artistic and historical collections. Thanks to its research programs, its federal scientific institutes and with 2300 employees, BELSPO brings together a range of expertise in fields such as astronomy, astrophysics, meteorology, history, paleontology, meteorology, mineralogy, musicology, seismology, gravimetry, climatology, anthropology, earth sciences, archivistics, conservation, restoration, information sciences, codicology, aquatic and terrestrial ecology, cartography, molecular biology... BELSPO also manages STEREO, the national remote sensing flagship research programme. This programme offers to universities, public scientific institutions and non-profit research institutions opportunities and tools for the development of an expertise in Earth observation and a maximized scientific use of satellite and airborne data. http://www.belspo.be/belspo/index_en.stm https://twitter.com/belspo https://www.linkedin.com/company/belgian-science-policy-office/ https://www.facebook.com/belspo
	Royal Belgian Institute for Space Aeronomy (BIRA-IASB) The Royal Belgian Institute for Space Aeronomy (BIRA-IASB) is a Belgian federal scientific research institute. Its main tasks are research and public service in space aeronomy, which is the physics and chemistry of the atmosphere of the Earth and other planets, and of outer space. It is the only centre of knowledge in Belgium that has the required competences to elaborate all elements of a space mission to perform a complete study of an aeronomic problem. https://www.aeronomie.be/ https://twitter.com/BIRA_IASB https://www.facebook.com/IASB.BIRA (French) https://www.facebook.com/BIRA.IASB (Dutch) https://www.youtube.com/channel/UC5zMdZ_xAwijOjr5jwiJntw https://www.linkedin.com/company/98733 https://www.instagram.com/bira_iasb/
	European Facility for Airborne Research (EUFAR) EUFAR, the European Facility for Airborne Research in Environmental and Geosciences brings together infrastructure operators of both instrumented research aircraft and remote-sensing instruments with the scientific user community, both expert and early-stage researchers, other data users and stakeholders. EUFAR has existed since 2000 for the purpose of linking the airborne environmental research community (both facility operators and scientific users) in Europe. Around 120 flight campaigns, funded by EU Research Infrastructures programmes, have been supported where the users did not normally have access to appropriate airborne observing facilities through their national research funding. Other successful outcomes have included joint research activities focussed on the development of improved data quality and standards, the organization of summer schools where student groups have obtained hands-on experience in airborne research topics and the publication of a textbook on airborne measurements for environmental research. In 2018, EUFAR was established as an AISBL – an international not-for-profit association under Belgian law. This is supported by its member organisations (currently 13 from 9 countries) with the leading objective to maintain EUFAR as a central point of contact for scientists who require airborne observations to support their research. Its membership includes organisations that are leaders in the operation and use of research aircraft and instrumentation, both in terms of in-situ atmospheric measurements and the use of imaging and other remote-sensing techniques for the study of the Earth's surface. https://www.eufar.net/ https://twitter.com/EUFAR_science https://www.linkedin.com/groups/8158851/

JAXA Japan Aerospace Exploration Agency	Japan Aerospace Exploration Agency (JAXA) The Japan Aerospace Exploration Agency (JAXA), as the national space agency of Japan, conducts integrated space activities from basic research and development, to utilization, to support the Japanese government. The JAXA Earth Observation Research Center (EORC) carries out the calibration and validation of satellite data, as well as earth science and applied research using the data. The research in the EORC is spread in the field of earth science, such as global climate change, water cycle, atmospheric environment and crustal movements from developing calibration & validation and analysis methods to improve data accuracy of sensors onboard earth observation satellites. https://www.eorc.jaxa.jp/en/ https://earth.jaxa.jp/en.html https://twitter.com/satellite_jaxa https://www.instagram.com/gcom_jaxa/
MDPI Academic Open Access Publishing since 1996	MDPI A pioneer in scholarly open access publishing, MDPI has supported academic communities since 1996 and is dedicated to fostering open scientific exchange in all forms, across all disciplines. We have published the research of more than 330,000 individual authors, and our journals have received more than 14 million monthly webpage views. Here are some represented journals: Remote Sensing; Atmosphere; Water; Sustainability; Data; Soil Systems; IJGI; Drones. Remote Sensing (ISSN 2072-4292; IF 4.509) is a peer-reviewed, open access journal about the science and application of remote sensing technology and is published semimonthly online by MDPI. The Remote Sensing Society of Japan (RSSJ) and the Japan Society of Photogrammetry and Remote Sensing (JSPRS) are affiliated with Remote Sensing, and their members receive a discount on the article processing charge. http://www.mdpi.com/ https://twitter.com/RemoteSens_MDPI https://www.linkedin.com/company/remote-sensing-mdpi/
Netherlands Space Office	Netherlands Space Office (NSO) The Netherlands Space Office (NSO) is the space agency of the Dutch government. NSO's task is to advise upon and realize Dutch space policy. We aim to realize the maximum potential for society, science and economy. We do that by 1) stimulating new discoveries and possibilities in space; 2) promoting the use of satellite data in the Netherlands; 3) strengthening the international position of the Dutch space sector and 4) communicating about the benefits of space for society, science and economy. These activities are executed by a diverse team of 30 dedicated professionals. The Netherlands is a member state of the European Space Agency (ESA) and NSO is representing the Netherlands in the ESA program boards. We are also in close contact with the European Commission and other international entities. http://www.spaceoffice.nl/ https://twitter.com/NLSpaceOffice https://www.linkedin.com/company/nso—netherlands-space-office https://www.instagram.com/nl_spaceoffice/
TELOPS	Telops Located in Quebec City, Canada, Telops designs and manufactures high-performance hyperspectral imaging systems and infrared cameras for defence, industrial, and academic research applications. Telops also offers R&D services for optical systems technology development in order to respond to the specific needs of its customers. Since its beginnings in 2000, Telops has distinguished itself with the quality of its personnel and its innovative approach to the technological challenges of the optics and photonics field. Today, the expertise of its scientists, engineers and technicians and the performance of its infrared cameras and hyperspectral imagers are internationally recognized. While being headquartered in Canada, Telops caters to an international market using an efficient network of distribution and representation. https://telops.com/ https://www.linkedin.com/company/telops/ https://www.facebook.com/Telops/ https://www.youtube.com/Telops
TERRA SCOPE	Terrascope Terrascope is the Belgian online platform for Earth observation data. With the Terrascope online platform, VITO makes open-source satellite images of the EC's Copernicus programme easily accessible to all users, free of charge and certainly until 2030. These data are particularly valuable for authorities to formulate better policies and for companies to develop new information products. Good for more accurate analyses, improved predictions and sound decisions. Discover some operational use cases at www.terrascope.be. https://www.terrascope.be/ https://twitter.com/Terrascope_BE
vito remote sensing	VITO Remote Sensing VITO is an independent leading international research and service center in the area of cleantech and sustainable development. Its goal is to accelerate the transition to a sustainable world though applying knowledge and technological innovations in the domains of chemistry, materials, health, energy and land use. VITO Remote Sensing has more than 20 years of experience in transforming raw Earth observation data into objective consumable information. Remote Sensing has grown to a powerful tool in search of true information about our environment, society and economy, and has become a key element in reaching a sustainable balance on our planet. https://remotesensing.vito.be/ https://twitter.com/VITO_RS

VK - Innovations Empowering Social Development	VK Innovations VK Innovations is a Social Enterprise organization that works with women in the townships of South Africa to produce different textile products such as conference bags and masks.VK Innovations provides women with the skills to establish and run independent sewing co-operatives within their communities. Each co-op receives intensive sewing, accounting and business training and, after six months, becomes an autonomous entity registered with the Department of Trade and Industry. There are currently 4 co-ops – in Khayelitsha and Cape Flats (South Africa)– providing work for around 60 women and positively affecting 8 to 10 people for every job created. Importantly, the women are able to work in a professional and safe environment, close to their families, saving on the time and money they would usually spend commuting. http://www.vk-innovations.co.za/ https://www.youtube.com/watch?v=EzDNRH0QMAs&t=3s
UCLouvain GPRLouvain	Georadar Research Centre of the Université catholique de Louvain The Georadar Research Centre of the Earth and Life Institute - Environmental Siences at the Université catholique de Louvain (UCLouvain) develops and integrates cutting-edge electromagnetic modeling and hydrogeophysical methods in both fundamental and applied research projects to enhance non-destructive imaging and characterization of subsurface and material properties using ultra-wideband ground-penetrating radar (GPR). Research focuses in particular on full-wave radar modeling and inversion for non-destructive characterization of soils and materials and mapping of the soil hydrogeophysical properties to support precision agriculture and environmental research and engineering. Our latest development is a drone-borne GPR for field-scale, high-resolution soil moisture mapping to support, e.g., precision irrigation for more efficient water use. https://sites.uclouvain.be/gprlouvain/
GHGSAT	GHGSAT GHGSat provides actionable greenhouse gas emissions data and insights to businesses, governments, financial markets, and regulators worldwide. The firm is the first to combine its own satellite and aircraft sensors, offering greater data accuracy and facilitate timely strategic decision-making insights at a fraction of the cost of other technologies. With proprietary remote-sensing capabilities and patented technology, GHGSat can monitor emissions from individual facilities. These high resolutions, frequent measurements are complemented by industry-specific analytics services to deliver valuable emission data and predictive insights to support business profitability, operational agility, environmental imperatives as well as health and safety objectives. GHGSat's mission is to become the global reference for remote sensing of greenhouse gas (GHG), air quality gas, and other trace gas emissions from any source in the world. https://www.ghgsat.com/en/who-we-are https://www.linkedin.com/company/ghgsat-inc/ https://twitter.com/ghgsat
Journal of Remote Sensing A SCIENCE PARTNER JOURNAL	Journal of Remote Sensing, a Science Partner Journal Journal of Remote Sensing is an online-only, Open Access Science Partner Journal published in affiliation with Aerospace Information Research Institute, Chinese Academy of Sciences and distributed by the American Association for the Advancement of Science. The journal publishes high-quality research on the theory, science, and technology of remote sensing, as well as interdisciplinary research with earth science and information science to benefit the earth observation community. https://spj.sciencemag.org/remotesensing https://twitter.com/SPJournals https://www.facebook.com/SPJournals
ReSe APPLICATIONS	ReSe Applications LLC ReSe Applications LLC is a specialized Swiss company focused on high-end processing of optical and thermal remote sensing data. The company is dedicated to the development of remote sensing software applications for pre-processing of multispectral and hyperspectral images. Over the last twenty years, ReSe has continued to advance the development of its premium range of software applications, delivering top-performing off-the-shelf solutions: for direct orthorectification with PARGE, for atmospheric correction with ATCOR and for radiometric processing with MODO. A special focus is on imaging spectroscopy including both, satellite and airborne imagery. With the software application DROACOR, the company goes one step ahead in the area of drone imagery. DROACOR is a new fully automatic drone based atmospheric correction and reflectance retrieval package suited for multispectral and hyperspectral image data sets. ReSe Applications LLC stands ready as ever to address new challenges and to deliver powerful solutions for processing improvements. http://www.rese-apps.com/
TerraQuanta	TerraQuanta TerraQuanta is an industry leading satellite imagery analytics company based in Beijing, China. At TerraQuanta, using creative AI techniques to extract information from data on the scale of 10 PB is what we do everyday. We predict global agriculture yields; trace global water pollution; monitor civil constructions; calculate oil reserve, and all the cool stuff. TerraQuanta aspires to build a digital earth engine, that can trace what happened, knows what's happening and predict what will happen on earth's surface. We help enterprises make better decisions on insights from satellites. https://www.terraqt.com/site https://twitter.com/Terra_Quanta https://www.linkedin.com/company/yeegen/

Monday, July 12, 14:00 - 16:00

Opening Ceremony and Keynote Presentations

Welcome by the 2021 Local Organizing Committee

Welcome by David Kunkee, 2021 IEEE-GRSS President

"TROPOMI Methane Observations – Guiding a New Era in Methane Observations from Space in Support of Emission Reductions"

Ilse Aben, Senior scientist and Co-Principal Investigator and co-initiator of TROPOMI, SRON Netherlands Institute for Space Research

"Vehicular Robotics for Responsive Environmental Monitoring"

Sjreeja Nag, Senior Research Scientist and Principal Investigator of BAERI, NASA

"European Innovation and Space Initiatives Making a Difference at a Global Scale"

Patrick Child, Deputy Director General, DG Research and Innovation, European Commission

Major Awards and Recognitions

Master of Ceremony: Alberto Moreira

2021IEEE Fellows

2021 IEEE GRSS Education Award

2021 IEEE GRSS Outstanding Service Award

2021 IEEE GRSS Industry Leader Award

2021 IEEE GRSS Distinguished Achievement Award

Information about the Virtual Event Platform

Plenary Speakers

Ilse Aben

Senior scientist and Co-Principal Investigator and co-initiator of TROPOMI, SRON Netherlands Institute for Space Research

Ilse Aben is a senior scientist in the Earth group at SRON Netherlands Institute for Space Research. She is the Dutch Co-Principal Investigator and co-initiator of the TROPOMI instrument on the Sentinel-5 Precursor mission. She leads the SRON TROPOMI team responsible for safeguarding the scientific performance of the TROPOMI SWIR channel measuring CO and CH4. The team has in the past defined the SWIR science requirements, instrument requirements, provided support to instrument development and trade-offs, calibration of the SWIR channel, and development of the SWIR L2 algorithms. Since the launch in October 2017 she focuses on the scientific data exploitation for CO and CH4 from TROPOMI. As such she is responsible for a number of projects in her group focusing on detection and emission quantification of CH4 and CO localised sources funded through different funding agencies (NWO, UNEP, EDF, ESA), and several projects for the delivery of CO2 and CH4 products from different satellites (ECMWF CAMS and C3S, ESA CCI+). One of the goals here is to localise large CH4 point sources for example related to the Oil and Gas industry with the aim to get these large 'leakages' fixed.

She also served/serves as a member of the ESA/EUMETSAT GOME(-2) and ESA SCIAMACHY Science Advisory Groups, ESA S5P Mission Advisory Group, and the EDF Methanesat Science Advisory Group.

Aben is adjunct professor in Physics and Chemistry of the Earth's atmosphere at the Vrije Universiteit in Amsterdam

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Sjreeja Nag

Senior Research Scientist and Principal Investigator of BAERI, NASA

Sreeja Nag is a Senior Research Scientist at NASA Ames Research Center, contracted by BAER Institute, where she serves as the PI on "D-SHIELD: Distributed Spacecraft with Heuristic Intelligence to Enable Logistical Decisions".

D-SHIELD comprises innovative methods and software tools to schedule payload operations of a large, inter-connected, heterogeneous constellation for environmental monitoring applications that benefit from spacecraft responsiveness and agility.

Sreeja also leads Autonomy Systems Engineering at Nuro, a Silicon Valley start-up that is building and deploying safe, self-driving robotic fleets for public roads. She completed her PhD from the Department of Aeronautics and Astronautics at Massachusetts Institute of Technology, Cambridge, USA. Her research interests include distributed space systems, space robotics for Earth observation, space traffic management, and vehicular robotics validation.

Patrick Child

Deputy Director General, DG Research and Innovation, European Commission

Patrick Child is Deputy Director General in DG Research and Innovation at the European Commission. He leads the policy for implementation, impact & sustainable investment strategies. As a member of the Board of DG Research and Innovation, he follows in particular research and innovation into climate action and clean energy and mobility technologies, and is the Commission representative of Mission Innovation (a coalition of 23 countries and the European Union, committed to doubling research in clean energy by 2020) and in the International Group of Earth Observations (GEO).

Until April 2016, Patrick Child was Managing Director of the European External Service with responsibility for administration and finance, covering human resources policy, security and the budget. Before he took up this post in 2011, he was director in the External Relations Directorate General in the European Commission responsible for the management of the network of Commission delegations. He has previously served as head of cabinet for External Relations Commissioners Benita Ferrero-Waldner and before that Chris Patten from 1999-2004.

With a background in the UK Finance Ministry, he joined the European Commission in 1994, where he started in the Economic and Monetary affairs Directorate General before becoming Commission press spokesman for economic and monetary union from 1995-1999. Mr Child studied mathematics at Cambridge University. He is married with two children.

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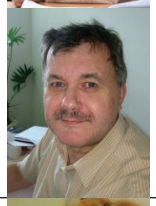
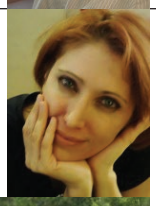
	Joost Vandenabeele, BELSPO	
Technical Programme Chair	Michal Shimoni, RMA	
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Technical Program Committee

Theme Coordinators

Data Analysis Methods (Optical, Multispectral, Hyperspectral, SAR)	Sidharth Misra	A.1 - Electromagnetic Modelling
	Irena Hajnsek	A.2 - SAR Interferometry: Along and Across A.3 - Differential SAR Interferometry
	Ronny Hänsch	A.4 - SAR Imaging Techniques A.5 - POL and POLInSAR
	Michael Schmitt	A.6 - Bistatic and digital beamforming SAR A.7 - Tomography and 3D mapping A.8 - Subsurface Sensing / Ground Penetrating Radar
	Gabriele Moser	A.9 - Feature Extraction and Reduction A.12 - Classification and Clustering
	Michal Shimoni	A.10 - Image Segmentation
	Fabio Pacifici	A.11 - Object Detection and Recognition
	Gustau Camps-Valls	A.13 - Estimation and Regression
	Bertrand Le Saux	A.14 - Change Detection and Multi-Temporal Analysis
	Andrea Marinoni	A.15 - Target Detection and Unmixing
	Naoto Yokoya	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	Ils Reusen	D.1 - Data Management and Systems D.2 - Remote Sensing Data and Policy Decisions D.3 - Education and Remote Sensing
Land Applications	Michal Shimoni	L.1 - Land Use Applications
	Francesca Bovolo	L.2 - Land Cover Dynamics
	Bruce Chapman	L.3 - Forest and Vegetation: Application and Modelling L.4 - Forest and Vegetation: Biomass and Carbon Cycle
	Jasmeet Judge	L.5 - Agriculture L.8 - Soils and Soil Moisture L.9 - Wetlands L.10 - Inland Waters
	Paolo Gamba	L.6 - Urban and Built Environment
	Andrew Skidmore	L.7 - Topography, Geology and Geomorphology
Atmosphere Applications	David Kunkee	M.1 - Precipitation and Clouds M.2 - Numerical Weather Prediction and Data Assimilation
	Sindy Sterckx	M.3 - Atmospheric Sounding M.4 - Aerosols and Atmospheric Chemistry
Oceans	David M. Le Vine	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	Nathan Longbotham	S.1 - Satellite Missions S.2 - Small Satellite Technology
	Marwan Younis	S.3 - SAR Instrument and Calibration
	Saibun Tjuatja	S.4 - Scatterometer, Cloud and Rain Radar S.5 - Microwave Radiometer Instruments and Calibration
	Adriano Camps	S.6 - GNSS-R Sensors
	Stefania Matteoli	S.7 - Mission, Sensors and Calibration – Lidar Sensors S.8 - Mission, Sensors and Calibration – Passive Optical, Hyperspectral Sensors and Calibration
	Farid Melgani	S.9 - Mission, Sensors and Calibration – UAV and Airborne Platforms S.10 - Mission, Sensors and Calibration – Ground based Systems S.11 - Mission, Sensors and Calibration – UAV Sensors
Special Themes	Farid Melgani	ST.1 - UAV and Miniaturised Remote Sensing Capabilities and Applications ST.2 - GPS, GNSS and Galileo for Earth Observation ST.3 - Geo Information and Integration for Smart and Green Cities ST.4 - Advanced Monitoring and Assessment of Hazards (natural, anthropogenic and pandemic)
Student Paper Competition	Francesca Bovolo	All

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Edson Sano
Emanuele Santi
Maurizio Santoro
Kamal Sarabandi
Arun Saranathan
Akira Sasagawa
Makoto Satake
Dinesh Sathyamoorthy
Motoyuki Sato
Ryoichi Sato
Andrew Sayer
Giuseppe Scarpa
Mathias Schardt
Rolf Scheiber
Bernd Scheuchl
Paul Scheunders
Stephen Schiller
Gilda Schirinzi
Romy Schlögel
Michael Schmitt
Martin Schneebeli
Dustin Schroeder
Dustin Schroeder
Guy J.-P. Schumann
Marcus Schwaebisch
Gabriele Schwaizer
Gottfried Schwarz
Jean-Christophe Schyns
Klaus Scipal
Andrea Scott
Michael Seablom
Monica Sebillo
Monica Sebillo
Evan Seed
Maximilian Semmling
Michael Seymour
Mahesh Kumar Sha
Rashmi Shah
Syed Aziz Shah
Tao Shan
Fang Shang
Jiali Shang
Yun Shao
Aurelie Shapiro
Nimmi C. Parikh Sharma
Andrii Shelestov
Huangfeng Shen
Jake Shermeyer
Yilei Shi
Yosio Edemir Shimabukuro
Masanobu Shimada
Michal Shimoni
Gustavo H X. Shiroma
Robert Shroll
Fridon Shubitidze
Francescopaolo Sica
Claudionor Silva
Stefan Simis
Ingo Simonis
Mark Simons
Steven Simske
Aditya Singh
Dharmendra Singh
Gulab Singh
K. P. Singh
Rajkumar Kamaljit Singh
Ramesh Singh
Sartajvir Singh
Andreia Siqueira
Paul Siqueira
Ramesh Sivanpillai
Bill Sjoberg
Sergii Skakun
Andrew Skidmore
Niels Skou
Mark Sletten
Richard Sliuzas
David Small
Benoît Smets
Ben Smith
Delphine Smittarello
Jose A. Sobrino
Shinichi Sobue
Uwe Soergel
Raymond Soffer
Yady Tatiana Solano Correa
Yan Soldo
Chiara Solimini
Domenico Solimini
Giorgos Somarakis
Ben Somers
SeungHyun Son
Tony Song
Vishakha Sood
Jesus Soria-Ruiz
Boularbah Souissi
Joaquim Sousa
Niels Souverijns
Claudia Spinetti
Gordon Staples
Michael Starek
Mattia Stasolla
Alfred Stein
Nathalie Stéphenne
Sindy Sterckx
Jordan Stern
James Stiles
Dr. Uwe Stilla
Ad Stoffelen
Thomas Stone
Atticus Stovall
Craig Stringham
Tazio Strozzi
Hongbo Su
Jia Su
Lihong Su
Josaphat Tetuko Sumantyo
Donato Summa
Ziheng Sun
Robert Sundberg
Junichi Susaki
Kei Suwa

Nicolas Svacina
William Swartz
Else Swinnen
Elias Symeonakis
Zoltan Szantoi
John J Szymanski
Kaoru Tachiiri
Takeo Tadono
Tetsuya Tagawa
Nobuhiro Takahashi
Wataru Takeuchi
Haifa Tamiminia
Bingxiang Tan
Shojiro Tanaka
Radu Tanase
Xu Tang
Mingliang Tao
Deodato Tapete
Hannes Taubenboeck
Stefano Tebaldini
Ana Claudia Teodoro
Everton Tetila
Praveen K. Thakur
Jérome Théau
James Theiler
Nicolas Theys
Christian Thiel
Laetitia Thirion-Lefevre
Christian Thom
Werner Peter Thomas
David Thompson
Bangsen Tian
Laurent Tits
Reet Kamal Tiwari
Saibun Tjuatja
David Tobin
Simon Tolszczuk-Leclerc
Konstantinos Topouzelis
Ramón Torres
Yuri Torres
Jorge Torres-Sánchez
Christian Tøttrup
Jean Tournadre
Ridha Touzi
Trung Tran
Robert Treuhaft
Emmanuel Trouvé
Leung Tsang
Nandin-Erdene Tsendbazar
Yi-Hsing Tseng
Devis Tuia
Florence Tupin
Caroline Turcotte
Antonio Turiel
Ahmet Serdar Turk
Kalum Udagepola
Lars Ulander
Silvia Ullo
Kuniaki Uto
Corina Vaduva
Rajesh Kumar Vaidyanathan
Maria Vakalopoulou
Chris Valenta
Mercedes Vall-llossera
Jan Van Aardt
Ruben Van De Kerchove
Christiaan van der Tol
Harald van der Werff
Jeroen van Gent
Willem van Leeuwen
Michel Van Roozendael
Kristof Van Tricht
Bas Van Wesemael
Douglas Vandemark
Deborah Vane
Jeroen Vangent
Sabine Vanhuysse
Astrid Vannoppen
Raian Vargas Maretto
Costas VAROTSOS
Gabriel Vasile
Emmanuelle Vaudour
Jorge Vazquez
Hans Verbeeck
Aleixandre Verger
Niko E.C. Verhoest
Eric Vermote
Jochem Verrelst
Stefano Vignudelli
Ivan E. Villalon-Turrubiates
Michelangelo Villano
Grégoire Vincent
Sergio Vitale
Gemine Vivone
Alina-Mihaela Vizireanu
Anthony Vodacek
Peter Voelger
Michele Volpi
Thomas von Deak
Monica Wachowicz
Alexandre Wadoux
Julia Wagemann
Christian Waldschmidt
Jeff Walker
Ingo Walterscheid
Bella Wang
Feng Wang
Haipeng Wang
He Wang
Jinfei Wang
Lingxiao Wang
Menghua Wang
Wenhui Wang
Xin Wang
Yanting Wang
Yong Wang
Timothy Warner
Bjoern Waske
Manabu Watanabe
Hidenori Watarai
Peter Watson
Shimon Wdowinski
Ron Weaver
Vanessa Weber
Urs Wegmüller
Jan Dirk Wegner
Yaxing Wei
Marie Weiss
Matthias Weiß
Fuzhong Weng
Qihao Weng
Katherine Wentz
James West
Johanna Wetterlind
H. Peter White
lori White
Sebastian Wieneke
Werner Wiesbeck
Jean-Pierre Wigneron
Paul Wilson
Alexander Wineteer
Stephanie Wingo
Charlotte Wirion
Dennis Wittich
David Wolff
Erwin Wolters
Emma Woolliams
Guo-Qing Wu
Hao Wu
Lixin Wu
Wan Wu
XiaoLiang Wu
Zebin Wu
George Xian
Xia Xiang Gen
Porcasi Ximena
Xiaoxiong Xiong
Feng Xu
Qing Xu
Yong Xue
Yoshio Yamaguchi
Hirokazu Yamamoto
Fumio Yamazaki
Banghua Yan
Wai Yeung Yan
Feifei Yang
Jian Yang
Jinxin Yang
Michael Yang
Ping Yang
Ronghao Yang
Xiaofeng Yang
Xiaohui Yang
Xiguang Yang
Yun Yang
Zhengwei Yang
Zhiqiang Yang
Tian Yao
Wei Yao
Xiwen Yao
Godwin Yeboah
Herve Yesou
Donghui Yi
Zhuang-Fang Yi
Jifu Yin
Junjun Yin
Naoto Yokoya
Chinatsu Yonezawa
Chinatsu Yonezawa
Hiroki Yoshioka
Marwan Younis
Qian Yu
Yongan Yu
Jinchun Yuan
Dong-Xiao Yue
Peng Yue
Simon Yueh
Simon Yueh
Zohreh Zahiri
Igor Zakharov
Evan Zaugg
Valery Zavorotny
Howard Zebker
Yijian Zeng
Fengli Zhang
Guoqing Zhang
Hongsheng Zhang
Junping Zhang
Peng Zhang
Xiaoyang Zhang
Xinxuan Zhang
Ying Zhang
Yongqin Lisa Zhang
Yun Zhang
Kaiguang Zhao
Qing Zhao
Tianjie Zhao
Wufan Zhao
Yindi Zhao
Yongqiang Zhao
Yujie Zheng
Guoqing Zhou
Ji Zhou
Jun Zhou
Xiran Zhou
Yaping Zhou
Yuyu Zhou
Zheng-Shu Zhou
Jianhua Zhu
Xiao Xiang Zhu
Amanda Ziemann
Ivana Zinno
Zolti Zoltan
Maciel Zortea
Juhong Zou
Weibao Zou
Mehrez Zribi
Simon Zwieback

Student Paper Competition

All IEEE student members were invited and encouraged to enter the IGARSS Student Paper Competition. Ten finalists have been selected by a committee to present their papers during a special session at the symposium in Yokohama, on Tuesday afternoon, July 13. 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. The ten finalists are listed below.

TU2.MM-26.1: A Machine Learning Approach to Mass-Conserving Ice Thickness Interpolation
Thomas Teisberg, Dustin Schroeder, Emma MacKie, Stanford University, United States

TU2.MM-26.2: ROTATION CONSISTENCY-PRESERVED GENERATIVE ADVERSARIAL NETWORKS FOR CROSS-DOMAIN AERIAL IMAGE SEMANTIC SEGMENTATION
Te Shi, Yansheng Li, Yongjun Zhang, School of Remote Sensing and Information Engineering, Wuhan University, China

TU2.MM-26.3: SEMANTIC SEGMENTATION OF REMOTE SENSING IMAGES COMBINING HIERARCHICAL PROBABILISTIC GRAPHICAL MODELS AND DEEP CONVOLUTIONAL NEURAL NETWORKS
Martina Pastorino, Gabriele Moser, Sebastiano Serpico, Università degli Studi di Genova, Italy; Josiane Zerubia, Université Cote d'Azur, France

TU2.MM-26.4: TOWARDS OUT-OF-DISTRIBUTION DETECTION FOR REMOTE SENSING
Jakob Gawlikowski, German Aerospace Center (DLR), Germany; Sudipan Saha, Anna Kruspe, Xiao Xiang Zhu, Technical University of Munich, Germany

TU2.MM-26.5: POSSIBLE EVIDENCE OF EARTHQUAKE PRECURSORS OBSERVED IN IONOSPHERIC SCINTILLATION EVENTS OBSERVED FROM SPACEBORNE GNSS-R DATA
Carlos Molina, Badr-Eddine Boudriki Semlali, Hyuk Park, Adriano Camps, Universitat Politècnica de Catalunya, Spain

TU2.MM-26.1: REAL-TIME, DEEP SYNTHETIC APERTURE SONAR (SAS) AUTOFOCUS
Isaac Gerg, Vishal Monga, Penn State University, United States

TU2.MM-26.2: Quantifying Spatial Relationships in Ice Penetrating Radar Measurement Uncertainty through Clutter Simulation
Emma MacKie, Dustin Schroeder, Gregor Steinbrugge, Riley Culberg, Stanford University, United States

TU2.MM-26.3: AN INNOVATIVE PUSH-TO-TALK (PTT) SYNCHRONIZATION SCHEME FOR FUTURE DISTRIBUTED SAR
Yanyan Zhang, Robert Wang, Aerospace Information Reasearch Institute, Chinese Academy of Sciences, China

TU2.MM-26.4: SATELLITE PASSIVE MICROWAVE REMOTE SENSING FOR SEISMIC THERMAL ANOMALY: PHENOMENA AND MECHANISMS
Yuan Qi, Lixin Wu, Wenfei Mao, Yifan Ding, Yingjia Liu, Central South University, China

TU2.MM-26.5: Proposal of a ground penetrating radar system utilizing polarization information by using phasor-quaternion self-organizing map
Yicheng Song, Akira Hirose, University of Tokyo, Japan

Monday, July 12 16:30 - 18:00 Oral Room 1
Session MO1.O-1 Oral-Invited

Honoring Dr. Jakob van Zyl - Innovator and Mentor in Geoscience and Remote Sensing

Session Co-Chairs: Howard Zebker, Stanford University; Paul Rosen, Jet Propulsion Laboratory / California Institute of Technology; Wanghao Xiao, Universiteit Gent

MO1.O-1.1 JAKOB VAN ZYL: LIFE AND LEGACY
Charles Elachi, California Institute of Technology, United States

MO1.O-1.4 THE EIGENVECTOR-EIGENVALUE IDENTITY AND RADAR POLARIMETRY
Scott Hensley, NASA Jet Propulsion Laboratory, California Institute of Technology, United States

MO1.O-1.5 MAKING SAR ACCESSIBLE: EDUCATION & TRAINING IN PREPARATION FOR NISAR
Franz J. Meyer, University of Alaska Fairbanks, United States; Paul Rosen, NASA Jet Propulsion Laboratory, California Institute of Technology, United States; Africa Flores, Eric R. Anderson, Emil A. Cherrington, NASA / SERVIR Science Coordination Office, United States

MO1.O-1.6 FOREST STRUCTURE ESTIMATION BY MEANS OF POL-INSAR TECHNIQUES: ACTUAL STATUS AND CHALLENGES
Konstantinos P. Papathanassiou, Matteo Pardini, Jun-Su Kim, Roman Guliaev, Alberto Alonso-Gonzalez, Victor Cazcarra-Bes, German Aerospace Center (DLR), Germany

Monday, July 12 16:30 - 18:00 Oral Room 2
Session MO1.O-2 Oral-Invited

The Contributions of José Manuel Bioucas-Dias to Remote Sensing Data Processing

Session Co-Chairs: Antonio Plaza, Hyperspectral Computing Laboratory, University of Extremadura; Jun Li, Sun Yat-Sen University; Fangli Guan, Universiteit Gent

MO1.O-2.1 AN OVERVIEW OF THE CONTRIBUTIONS OF JOSÉ MANUEL BIOUCAS-DIAS TO REMOTE SENSING IMAGE PROCESSING
Antonio Plaza, University of Extremadura, Spain; Jun Li, Sun Yat-Sen University, China; Mário A. T. Figueiredo, Instituto Superior Técnico, Universidade de Lisboa, Portugal

MO1.O-2.3 ON HYPERSPECTRAL UNMIXING
Wing-Kin Ma, Chinese University of Hong Kong, China

MO1.O-2.4 SPARSE UNMIXING OF HYPERSPECTRAL DATA: THE LEGACY OF SUNSAL
Mario Parente, University of Massachusetts Amherst, United States; Marian-Daniel Iordache, VITO, Belgium

MO1.O-2.5 SPARSE REPRESENTATIONS AND DICTIONARY LEARNING: FROM IMAGE FUSION TO MOTION ESTIMATION
Jean-Yves Tourneret, Adrian Basarab, University of Toulouse, France; Nora Ouzir, University of Paris Saclay, France; Qi Wei, J. P. Morgan, United States

MO1.O-2.6 ON HYPERSPECTRAL SUPER-RESOLUTION
Jocelyn Chanussot, Université Grenoble Alpes, France

Monday, July 12 16:30 - 18:00 Oral Room 3
Session MO1.O-3 Oral-Invited

Toward a More Gender-balanced Geoscience and Remote Sensing World

Session Co-Chairs: Nathalie Stéphenne, Service Public de Wallonie; Monica Sebillo, Università degli Studi di Salerno; Chenchen Xu, Universiteit Gent

MO1.O-3.1 WOMEN IN COPERNICUS: RECOMMENDATIONS FROM WOMEN TESTIMONIALS
Nathalie Stephenne, Publc Service of Wallonia, Belgium; Barbara Riedler, University of Salzburg, Austria; Estefania Aguilar Moreno, Universitat Jaume I, Spain; Marie Jagaille, GIS Bretel - Brittany Remote Sensing Group, France; Aida Monfort-Muriach, Universitat Jaume I, Spain; Grazia Fiore, EURISY - European Association of Space Agencies, France; Natassa Antoniou, EARSC - European Association of Remote Sensing Companies, Belgium

MO1.O-3.3 WOMEN IN GEOGRAPHIC INFORMATION SECTOR
Marion Murphy, Mallon Technology, Ireland; Monica Sebillo, University of Salerno, Italy; Annelies Van Alphen, Geo Solutions, Belgium

MO1.O-3.4 GEOCHICAS, IMPROVING HOW OPEN MAPPING REPRESENTS THE WORLD
Miriam Gonzalez, Geochicas, UP42 and Humanitarian OpenStreetMap, Germany

MO1.O-3.5 SPACE GIRLS SPACE WOMEN – A UNIQUE EXHIBITION TOURS NEREUS-REGIONS AND PROMOTES FEMALE ROLE MODELS IN SPACE
Roya Ayazi, NEREUSaisbl, Belgium

MO1.O-3.6 WOMEN IN GEOSPATIAL+ - CHANGING THE STATUS QUO BY CREATING A STRONG NETWORK OF WOMEN+ LEADERS AND CHANGEMAKERS
Alina-Mihaela Vizireanu, British Cartographic Society, United Kingdom; Julia Wagemann, Julia Wagemann Consulting, Germany; Sabrina H. Szeto, Sabrina Szeto Consulting, Germany; Cristina-Andra Vrinceanu, Nottingham University, United Kingdom

Monday, July 12 16:30 - 18:00 Oral Room 4
Session MO1.O-4 Oral-Invited

UAV and Low-cost Sensor Networks for Land Monitoring and Cal/Val

Session Co-Chairs: Benjamin Brede, Wageningen University & Research; Fabrizio Niro, Serco for European Space Agency (ESA); Cai Wu, University of Twente

MO1.O-4.1 REACHING STAGE 4 OF VEGETATION PRODUCT VALIDATION BY EXPLOITING THE SYNERGY BETWEEN UAV, HR SATELLITES AND IOT MEASUREMENTS
Marie Weiss, INRAE, France; Wenjuan Li, HIPHEN, France; Sylvain Jay, INRAE, France; Fernando Camacho, EOLAB, Spain; Hongliang Fang, LREIS, China; Frédéric Baret, INRAE, France

MO1.O-4.3 POTENTIAL OF AUTOMATED DIGITAL HEMISPHERICAL PHOTOGRAPHY AND WIRELESS QUANTUM SENSORS FOR ROUTINE CANOPY MONITORING AND SATELLITE PRODUCT VALIDATION
Luke Brown, Harry Morris, University of Southampton, United Kingdom; Erika Albero, Ernesto Lopez-Baeza, University of Valencia, Spain; Frank Tiedemann, Lukas Siebicke, Alexander Knohl, University of Göttingen, Germany; Carolina da Silva Gomes, Gabriele Bai, Christophe Lerebourg, ACRI-ST, France; Nadine Gobron, Christian Lanconelli, Marco Clerici, European Commission, Joint Research Centre, Italy; Darius Culvenor, Environmental Sensing Systems, Australia; Jadunandan Dash, University of Southampton, United Kingdom

MO1.O-4.4 UAV-BASED HYPERSPECTRAL DATA FOR SURFACE REFLECTANCE FIDUCIAL REFERENCE MEASUREMENTS (FRM)
Niall Origo, Rosalinda Morrone, Morven Sinclair, Chris Maclellan, Joanne Nightingale, National Physical Laboratory, United Kingdom; Javier Gorrono, Universitat Politècnica de València, Spain; Eija Honkavaara, Teemu Hakala, National Land Survey Finland, Finland; Olli Nevalainen, Finnish Meteorological Institute, Finland

MO1.O-4.5 COMPARISON OF CALIBRATION PANELS FROM FIELD SPECTROSCOPY AND UAV HYPERSPECTRAL IMAGERY ACQUIRED UNDER DIFFUSE ILLUMINATION
J. Pablo Arroyo-Mora, National Research Council of Canada, Canada; Margaret Kalacska, McGill University, Canada; Raymond J. Soffer, National Research Council of Canada, Canada; Oliver Lucanus, McGill University, Canada

MO1.O-4.6 CLASSIFICATION OF AN INTERTIDAL REEF BY MACHINE LEARNING TECHNIQUES USING UAV BASED RGB AND MULTISPECTRAL IMAGERY
Débora Borges, Interdisciplinary Centre of Marine and Environmental Research of the University of Porto, Portugal; Luís Pádua, University of Trás-os-Montes e Alto Douro/Centre for Robotics in Industry and Intelligent Systems, Portugal; Isabel Costa Azevedo, Joelen Silva, Interdisciplinary Centre of Marine and Environmental Research of the University of Porto, Portugal; Joaquim J. Sousa, University of Trás-os-Montes e Alto Douro/Centre for Robotics in Industry and Intelligent Systems, Portugal; Isabel Sousa-Pinto, Interdisciplinary Centre of Marine and Environmental Research of the University of Porto/Faculty of Science of the University of Porto, Portugal; José Alberto Gonçalves, Faculty of Science of the University of Porto, Portugal

Monday, July 12 16:30 - 18:00 Oral Room 5
Session MO1.O-5 Oral-Invited

The EOxposure Project: Building a Processing Framework to Track Human External Exposome using Earth Observation and Ground-based Data

Session Co-Chairs: Anabella Ferral, Mario Gulich Institute; Fabio Dell'Acqua, University of Pavia; Stella Gachoki, University of Twente

MO1.O-5.1 BIG EARTH DATA AND ADVANCED PROCESSING TECHNIQUES FOR MONITORING WATER QUALITY
Alba German, Anabella Ferral, Mario Gulich Institute, Argentina; Carlos Marcelo Scavuzzo, Comisión Nacional de Actividades Espaciales, Argentina; Michal Shimoni, Royal Military Academy, Argentina

MO1.O-5.3 ALERT SYSTEM FOR ALGAE BLOOM DETECTION IN INLAND WATERS OF LATIN AMERICA: AN ONGOING PROJECT
Felipe Lobo, Federal University of Pelotas, Brazil; Gustavo Nagel, Daniel Maciel, National Institute for Space Research, Brazil; Anabella Ferral, Alba German, Comisión Nacional de Actividades Espaciales, Argentina; Lino Carvalho, Federal University of Rio de Janeiro, Brazil; Vitor Martins, Michigan State University, United States; Claudio Barbosa, Evlyn Novo, National Institute for Space Research, Brazil; Martin Fernandez, Dirección Nacional de Medio Ambiente, Uruguay; Virginia Fernandez, Universidad de la República, Uruguay; João Yunes, Federal University of Rio Grande, Brazil; Gilberto Collares, Federal University of Pelotas, Brazil; Steve Greb, University of Wisconsin, United States; Giuliana Beltramone, Comisión Nacional de Actividades Espaciales, Argentina; Liliana Piedra-Castro, Universidad Nacional, Costa Rica; Waterloo Pereira Filho, Federal University of Santa Maria, Brazil; Elizabeth Montoya, Universidad Nacional Autónoma de México, Mexico; Carlos Marcelo Scavuzzo, Comisión Nacional de Actividades Espaciales, Argentina; Marisol Sanchez, Universidad de Antioquia, Colombia; Michal Shimoni, Royal Military Academy, Belgium

MO1.O-5.4 SPATIO-TEMPORAL ANALYSIS OF WATER SURFACE TEMPERATURE IN A RESERVOIR AND ITS RELATION WITH WATER QUALITY IN A CLIMATE CHANGE CONTEXT
Anabella Ferral, Alba German, Giuliana Beltramone, Matias Bonansea, Maximiliano Burgos, CONICET (Consejo Nacional de Investigaciones Cientificas y Tecnicas), Argentina; Lino Saunders de Carvalho, Universidad Federal de Rio de Janeiro, Argentina; Michal Shimoni, Royal Academy of Belgym, Argentina; Mariana Roque, APRHI, Argentina; Carlos Marcelo Scavuzzo, Comisión Nacional de Actividades Espaciales, Argentina

MO1.O-5.5 SEMI-AUTOMATIC TOOL TO COUNT MOSQUITO EGGS IN OVITRAP STICK IMAGES
Charles Beumier, Belgian Royal Military Academy, Belgium; Jorge Rubio, Instituto de Altos Estudios Espaciales, Argentina; Verónica Andreo, CONICET (Consejo Nacional de Investigaciones Cientificas y Tecnicas), Argentina; Claudio Guzman, Direccion de Epidemiologia de Cordoba, Argentina; Ximena Porcasi, Instituto de Altos Estudios Espaciales, Argentina; Carlos Marcelo Scavuzzo, Comisión Nacional de Actividades Espaciales, Argentina; Michal Shimoni, Belgian Royal Military Academy, Belgium

MO1.O-5.6 PREDICTING AEDES AEGYPTI EGGS COUNT USING REMOTE SENSING DATA AND A GENERALIZED LINEAR MODEL
Oladimeji Mudele, University of Pavia, Italy; Verónica Andreo, Ximena Porcasi, Instituto de Altos Estudios Espaciales, Argentina; Carlos Marcelo Scavuzzo, Comisión Nacional de Actividades Espaciales, Argentina; Laura Lopez, Ministerio de Salud de la Provincia de Córdoba., Argentina; Paolo Gamba, University of Pavia, Italy

Monday, July 12 16:30 - 18:00 Oral Room 6
Session MO1.O-6 Oral-Invited

Remote Sensing of Wetlands: The AI and Big Data Era

Session Co-Chairs: Masoud Mahdianpari, Memorial University of Newfoundland, NL, Canada; Brian Brisco, NRCan Canada; Max Felius

MO1.O-6.1 MONITORING OF 30 YEARS WETLAND CHANGES IN NEWFOUNDLAND, CANADA
Masoud Mahdianpari, C-CORE and Memorial University of Newfoundland, Canada; Hamid Jafarzadeh, University of Tehran, Canada; Jean Granger, Fariba Mohammadimanesh, C-CORE, Canada; Brian Brisco, NRCan Canada, United States; Bahram Salehi, ESF University, United States; Saeid Homayouni, INRS University, United States; Qihao Weng, Indiana State University, United States

MO1.O-6.3 IMPROVING PEATLAND MAPPING AND MONITORING CAPABILITY ACROSS BROAD REGIONS USING SAR IN CLOUD COMPUTING PLATFORMS
Laura Bourgeau-Chavez, Michael Battaglia, Andrew Poley, Dorthea Leisman, Jeremy Graham, Sarah Grelik, Michigan Technological University, United States

MO1.O-6.4 WETLAND MAPPING OF NORTHERN PROVINCES OF IRAN USING SENTINEL-1 AND SENTINEL-2 IN GOOGLE EARTH ENGINE
MohammadAli Hemati, Mahdi Hasanlou, University of Tehran, Iran; Masoud Mahdianpari, C-CORE and Memorial University of Newfoundland, Canada; Fariba Mohammadimanesh, C-CORE, Canada

MO1.O-6.5 WETLAND CLASSIFICATION USING SIMULATED NISAR DATA: A CASE STUDY IN LOUISIANA
Sarina Adeli, Bahram Salehi, State University of New York, College of Environmental Science and Forestry, United States; Masoud Mahdianpari, C-CORE and Memorial University of Newfoundland, Canada; Lindi J. Quackenbush, State University of New York, College of Environmental Science and Forestry, United States; Bruce Chapman, NASA Jet Propulsion Laboratory, United States

MO1.O-6.6 CLASSIFICATION OF OPEN WATER FEATURES USING OBIA AND DEEP LEARNING
Michael Merchant, Ducks Unlimited Canada, Canada

Monday, July 12 16:30 - 18:00 Oral Room 7
Session MO1.O-7 Oral-Invited

International Spaceborne Imaging Spectroscopy Missions: Updates and News of Planned Mission

Session Co-Chairs: Uta Heiden, German Aerospace Center (DLR); Mar Ariza, Wageningen University & Research; Cindy Ong, CSIRO

MO1.O-7.1 COPERNICUS HYPERSPECTRAL IMAGING MISSION FOR THE ENVIRONMENT (CHIME)
Michael Rast, Jens Nieke, European Space Agency (ESA), Italy; Jennifer Adams, RHEA Group Spa, Italy; Claudia Isola, Ferran Gascon, European Space Agency (ESA), Netherlands

MO1.O-7.3 NASA'S SURFACE BIOLOGY AND GEOLOGY CONCEPT STUDY: STATUS AND NEXT STEPS
David Thompson, David Bearden, NASA Jet Propulsion Laboratory, California Institute of Technology, United States; Ian Brosnan, NASA Ames Research Center, United States; Kerry Cawse-Nicholson, NASA Jet Propulsion Laboratory, California Institute of Technology, United States; Jonathan Chrone, NASA Langley Research Center, United States; Robert Green, NASA Jet Propulsion Laboratory, California Institute of Technology, Australia; Nancy Glenn, University of New South Wales, Australia; Liane Guild, NASA Ames Research Center, United States; Raymond Kokaly, United States Geological Survey, United States; Christine Lee, NASA Jet Propulsion Laboratory, California Institute of Technology, United States; Jeffrey Luvall, NASA Marshall Space Flight Center, United States; Charles Miller, Jamie Nastal, Ryan Pavlick, NASA Jet Propulsion Laboratory, California Institute of Technology, United States; Benjamin Poulter, NASA Goddard Space Flight Center, United States; David Schimel, Fabian Schneider, NASA Jet Propulsion Laboratory, California Institute of Technology, United States; Stephanie Schollaert Uz, NASA Goddard Space Flight Center, United States; Amit Sen, NASA Jet Propulsion Laboratory, California Institute of Technology, United States; Shawn Serbin, Brookhaven National Laboratory, United States; Natasha Stavros, NASA Jet Propulsion Laboratory, California Institute of Technology, United States; Kurtis Thome, NASA Goddard Space Flight Center, United States; Philip Townsend, University of Wisconsin-Madison, United States; Woody Turner, National Aeronautics and Space Administration (NASA), United States; Kevin Turpie, NASA Goddard Space Flight Center, University of Maryland Baltimore County, United States; Weile Wang, NASA Ames Research Center, United States

MO1.O-7.4 THE FLUORESCENCE EXPLORER (FLEX) MISSION: FROM SPECTRAL MEASUREMENTS TO HIGH-LEVEL SCIENCE PRODUCTS
Jose Moreno, University of Valencia, Spain

MO1.O-7.5 NASA'S EARTH SURFACE MINERAL DUST SOURCE INVESTIGATION: AN EARTH VENTURE IMAGING SPECTROMETER SCIENCE MISSION
Robert Green, David Thompson, NASA Jet Propulsion Laboratory, California Institute of Technology, United States

MO1.O-7.6 THE ENMAP SATELLITE – MISSION STATUS AND SCIENCE PREPARATORY ACTIVITIES
Sabine Chabrillat, Maximilian Brell, Karl Segl, Saskia Foerster, Helmholtz Center Potsdam, GFZ German Research Center for Geosciences, Germany; Luis Guanter, Universitat Politècnica de València, Spain; Anke Schickling, Space Administration, German Aerospace Center (DLR), Germany; Tobias Storch, Earth Observation Center (EOC), German Aerospace Center (DLR), Germany; Hans-Peter Honold, OHB System AG, Germany; Sebastian Fischer, Space Administration, German Aerospace Center (DLR), Germany

Monday, July 12 16:30 - 18:00 Oral Room 8
Session MO1.O-8 Oral-Invited

Integrating Information from Optical and Thermal Wavelengths for geologic Information

Session Co-Chairs: Christoph Hecker, University of Twente; Harald van der Werff, University of Twente; Samer Karam, University of Twente

MO1.O-8.1 CHARACTERISATION OF MASSIVE SULPHIDE DEPOSITS IN THE IBERIAN PYRITE BELT BASED ON THE INTEGRATION OF DIGITAL OUTCROPS AND MULTI-SCALE, MULTI-SOURCE HYPERSPECTRAL DATA
Moritz Kirsch, Sandra Lorenz, Samuel Thiele, Richard Gloaguen, Helmholtz-Zentrum Dresden-Rossendorf (HZDR), Germany

MO1.O-8.2 NUMERICAL MODELING OF LAND SURFACE TEMPERATURE AND NEW INSIGHTS FOR GEOLOGICAL APPLICATIONS
Saeid Asadzadeh, Carlos Roberto Souza Filho, University of Campinas, Brazil

MO1.O-8.3 MULTISCALE HYPERSPECTRAL IMAGING OF HYDROTHERMAL ALTERATION IN YELLOWSTONE NATIONAL PARK, USA
Todd Hoefen, Raymond Kokaly, U.S. Geological Survey, United States; Eric Livo, U.S. Geological Survey, Emeritus, United States; John Meyer, Colorado School of Mines - U.S. Geological Survey, United States; JoAnn Holloway, U.S. Geological Survey, United States

MO1.O-8.4 TEMPORAL STABILITY OF MINERAL INDICES IN A SEMI-ARID AREA
Harald van der Werff, Janneke Ettema, Akhil Sampatirao, Rob Hewson, University of Twente, Netherlands

Monday, July 12 16:30 - 18:00 Oral Room 9
Session MO1.O-9 Oral-Invited

Global Navigation Satellite Systems reflectometry (GNSS-R) and Signals of Opportunity (SoOp) Applications

Session Co-Chairs: Rashmi Shah, Jet Propulsion Laboratory/ California Institute of Technology; Estel Cardellach, Institut de Ciencies de l'Espai (ICE/CSIC-IEEC); Gladys Villegas, Universiteit Gent

MO1.O-9.1 GNSS-REFLECTED SIGNALS FOR PERMAFROST MONITORING
Kimmo Rautiainen, Finnish Metereological Institute, Finland; Davide Comite, Sapienza University of Rome, Italy; Juval Cohen, Finnish Metereological Institute, Finland; Martin Unwin, Surrey Satellite Technology Ltd, United Kingdom; Nazzareno Pierdicca, Sapienza University of Rome, Italy

MO1.O-9.3 THE IMPORTANT ROLE OF ANTENNA PATTERN CHARACTERIZATION IN THE ABSOLUTE CALIBRATION OF GNSS-R MEASUREMENTS
Tianlin Wang, Christopher Ruf, University of Michigan, United States; Andrew O'Brien, The Ohio State University, United States; Scott Gleason, University Corporation for Atmospheric Research, United States; Darren McKague, Anthony Russel, University of Michigan, United States

MO1.O-9.4 GNSS-R SOIL MOISTURE RETRIEVAL WITH A DEEP LEARNING APPROACH
T. Maximillian Roberts, Ian Colwell, Rashmi Shah, Stephen Lowe, NASA Jet Propulsion Laboratory, California Institute of Technology, United States; Clara Chew, University Corporation For Atmospheric Research, United States

MO1.O-9.5 GLOBAL SURFACE ROUGHNESS EFFECT RETRIEVED FROM CYGNSS
Xiaolan Xu, Rashmi Shah, Simon Yueh, NASA Jet Propulsion Laboratory, United States

MO1.O-9.6 RETRIEVAL OF ROOT-ZONE SOIL MOISTURE PROFILES FROM MULTI-FREQUENCY SIGNALS OF OPPORTUNITY: A SIMULATION STUDY
Seho Kim, James L. Garrison, Purdue University, United States

Monday, July 12 16:30 - 18:00 Oral Room 10
Session MO1.O-10 Oral-Invited

Future technology Demonstration through Compact Instruments on CubeSat and SmallSat

Session Co-Chairs: Sachidananda Babu, NASA; Michelangelo Villano, German Aerospace Center (DLR); Petia Malasheva, National Institute of Meteorology and Hydrology

MO1.O-10.1 NASA EARTH SCIENCE TECHNOLOGY DEMONSTRATIONS ON CUBESATS
Pamela Millar, Sachidananda Babu, NASA, United States

MO1.O-10.3 HYPERSCOUT 2 AND PHISAT IN-ORBIT DEMONSTRATION
Marco Esposito, cosine Remote Sensing B.V., Netherlands

MO1.O-10.4 MULTI-FREQUENCY MILLIMETER-WAVE RADIOMETER ON A CUBESAT PROVIDING GLOBAL ON-ORBIT OBSERVATIONS FOR MORE THAN TWO YEARS: TEMPORAL EXPERIMENT FOR STORMS AND TROPICAL SYSTEMS – DEMONSTRATION (TEMPEST-D)
Steven C. Reising, Colorado State University, United States; Todd C. Gaier, Shannon T. Brown, NASA Jet Propulsion Laboratory, California Institute of Technology, United States; Wesley Berg, V. Chandrasekar, Christian D. Kummerow, Colorado State University, United States; Sharmila Padmanabhan, Boon H. Lim, Cate Heneghan, NASA Jet Propulsion Laboratory, California Institute of Technology, United States; Richard Schulte, Chandrasekar Radhakrishnan, Yuriy Goncharenko, Colorado State University, United States; Matthew Pallas, Doug Laczkowski, Nancy Gaytan, Austin Bullard, Blue Canyon Technologies, United States

MO1.O-10.5 SNOOPI: DEMONSTRATING P-BAND REFLECTOMETRY FROM ORBIT
James L. Garrison, Purdue University, United States; Rashmi Shah, NASA Jet Propulsion Laboratory, United States; Benjamin Nold, Justin Mansell, Purdue University, United States; Manuel Vega, Juan Raymond, Rajat Bindlish, NASA Goddard Space Flight Center, United States; Mehmet Kurum, Mississippi State University, United States; Jeffrey Piepmeier, NASA Goddard Space Flight Center, United States; Seho Kim, Purdue University, United States; Roger Banting, NASA Goddard Space Flight Center, United States; Kameron Larsen, NASA Jet Propulsion Laboratory, United States

MO1.O-10.6 EO-ALERT: A SATELLITE ARCHITECTURE FOR DETECTION AND MONITORING OF EXTREME EVENTS IN REAL TIME
Murray Kerr, Stefania Tonetti, Stefania Cornara, Juan Bravo, Robert Hinz, Antonio Latorre, Francisco Membibre, Alexis Ramos, DEIMOS Space, Spain; Stefan Wiehle, German Aerospace Center (DLR), Germany; Otto Koudelka, TUGRAZ, Austria; Enrico Magli, Politecnico di Torino, Italy; Riccardo Freddi, OHB-I, Italy; Silvia Fraile, DEIMOS Imaging, Spain; Cecilia Marcos, Agencia Estatal de Meteorología (AEMet), Spain

Monday, July 12 16:30 - 18:00 Oral Room 11
Session MO1.O-11 Oral-Invited

Advanced Remote Sensing Data Analysis for Sustainable Development

Session Co-Chairs: Andrea Marinoni, The Arctic University of Norway; Claudia Paris, University of Trento; Alessia Giarola, Università degli Studi di Pavia

MO1.O-11.1 SPACEBORNE EARTH OBSERVATION FOR OFFSHORE WIND ENERGY APPLICATIONS
Ioanna Karagali, Merete Badger, Charlotte Hasager, Technical University of Denmark, Denmark

MO1.O-11.3 STRUCTURAL HEALTH MONITORING ON URBAN AREAS BY USING MULTI TEMPORAL INSAR AND DEEP LEARNING.
Gabriel Martin Hernandez, Sivasakthy Selvakumaran, University of Cambridge, United Kingdom; Andrea Marinoni, UiT the Arctic University of Norway, Norway; Zahra Sadeghi, University of Leeds, United Kingdom; Campbell Middleton, University of Cambridge, United Kingdom

MO1.O-11.4 GLOBAL CROPLAND YIELD MONITORING WITH GAUSSIAN PROCESSES
Maria Piles, Anna Mateo-Sanchís, Jordi Muñoz-Marí, Gustau Camps-valls, Universitat de València, Spain; François Waldner, Felix Rembold, Michele Meroni, European Commission, Italy

MO1.O-11.5 FULLY UNSUPERVISED BI-TEMPORAL CHANGE DETECTION FRAMEWORK FOR VHR SAR
Shaunak De, Lloyd Hughes, Davide Castelletti, Ganesh Yalla, Capella Space Corporation, United States

MO1.O-11.6 GEO-DATA FOR MAPPING SCENIC BEAUTY: EXPLORING THE POTENTIAL OF REMOTE SENSING AND SOCIAL MEDIA
Ilan Havinga, Diego Marcos, Wageningen University, Netherlands; Patrick Bogaart, Statistics Netherlands, Netherlands; Lars Hein, Wageningen University, Netherlands; Devis Tuia, École Polytechnique Fédérale de Lausanne, Switzerland

Monday, July 12 16:30 - 18:00 Oral Room 12
Session MO1.O-12 Oral-Invited

Advances in observing and modelling carbon cycle and phenology

Session Co-Chairs: Manuela Balzarolo, University of Antwerp; Fabienne Maignan, Atomic Energy and Alternative Energies Commission; Dragomir Atanasov, National Institute of Meteorology and Hydrology

MO1.O-12.1 SEASONAL VARIABILITY OF GPP AND PHENOLOGY IN REMOTE SENSED OBSERVATIONS AND LAND SURFACE MODELS
Jan De Pue, Royal Meteorological Institute, Belgium; Sebastian Wieneke, University of Leipzig, Germany; José Miguel Barrios, Royal Meteorological Institute, Belgium; Liyang Lui, Atomic Energy and Alternative Energies Commission, France; Maral Maleki, University of Antwerp, Belgium; Philippe Ciais, Atomic Energy and Alternative Energies Commission, France; Alirio Arboleda, Rafiq Hamdi, Royal Meteorological Institute, Belgium; Ana Bastos, Max Planck Institute for Biogeochemistry, Germany; Ivan Janssens, University of Antwerp, Belgium; Fabienne Maignan, Atomic Energy and Alternative Energies Commission, France; Françoise Gellens-Meulenberghs, Royal Meteorological Institute, Belgium; Manuela Balzarolo, University of Antwerp, Belgium

MO1.O-12.2 INTEGRATING SATELLITE-DERIVED VEGETATION VARIABLES INTO THE ISBA MODEL: A SEQUENTIAL DATA ASSIMILATION APPROACH
Jean-Christophe Calvet, Bertrand Bonan, Anthony Mucia, Daniel Shamambo, Yongjun Zheng, Meteo-France, France; Clément Albergel, European Space Agency (ESA), United Kingdom

MO1.O-12.3 ACCOUNTING THE DROUGHT INTO THE IN SITU VEGETATION INDICES IN HEATHLAND ECOSYSTEM
Maral Maleki, University of Antwerp, Belgium; Nicola Arriga, European Commission, Joint Research Centre, Italy; Marilyn Roland, Sebastian Wieneke, University of Antwerp, Belgium; José Miguel Barrios, Royal Meteorological Institute, Belgium; Roel Van Hoolst, Vito, Flemish Institute for Technological Research, Belgium; Ivan Janssens, Manuela Balzarolo, University of Antwerp, Belgium

MO1.O-12.4 MEASURING AND UNDERSTANDING THE DYNAMICS OF SOLAR-INDUCED FLUORESCENCE (SIF) AND ITS RELATION TO PHOTOCHEMICAL AND NON-PHOTOCHEMICAL ENERGY DISSIPATION – SCALING LEAF LEVEL REGULATION TO CANOPY AND ECOSYSTEM REMOTE SENSING
Uwe Rascher, Kelvin Acebron, Juliane Bendig, Julie Krämer, Vera Krieger, Juan Quirós-Vargas, Bastian Siegmann, Onno Muller, Forschungszentrum Jülich, Germany

MO1.O-12.5 RELATIONSHIP BETWEEN SIF AND GPP AT SUB-SEASONAL TIME-SCALES FROM DIFFERENT SATELLITE PRODUCTS
Sebastian Wieneke, University of Leipzig, Germany; Ana Bastos, Max Planck Institute for Biogeochemistry, Germany; José Miguel Barrios, Royal Meteorological Institute, Belgium; Ivan Janssens, Manuela Balzarolo, University of Antwerp, Belgium

MO1.O-12.6 NIRV MULTIPLIED BY PAR AS A ROBUST STRUCTURAL PROXY OF SUN-INDUCED CHLOROPHYLL FLUORESCENCE.
Benjamin Dechant, Youngryel Ryu, Seoul National University, Korea (South); Grayson Badgley, Black Rock Forest, United States; Philipp Köhler, California Institute of Technology, United States; Uwe Rascher, Forschungszentrum Jülich, Germany; Mirco Migliavacca, Max Planck Institute for Biogeochemistry, Germany; Yongguang Zhang, Nanjing University, China; Giulia Tagliabue, University of Milano - Bicocca, Italy; Kaiyu Guan, University of Urbana-Champaign, United States; Micol Rossini, University of Milano - Bicocca, Italy; Yves Goulas, Ecole Polytechnique, France; Yelu Zeng, Carnegie Institution for Science at Stanford, United States; Christian Frankenberg, California Institute of Technology, United States; Joseph A. Berry, Carnegie Institution for Science at Stanford, United States

Monday, July 12 16:30 - 18:00 Oral Room 13
Session MO1.O-13 Oral-Invited

Automation of Image Analysis Tasks for Operational Geospatial Services

Session Co-Chairs: Vasileios Kalogirou, European Union Satellite Centre; Emanuele Angiuli, European Union Satellite Centre; Yue Ying, University of Twente

MO1.O-13.1 OPERATIONAL REQUIREMENTS OF AUTOMATION OF IMAGE ANALYSIS TASKS: THE CASE OF EU SATCEN
Alexis Letulier, Vasileios Kalogirou, EU SATCEN, Spain

MO1.O-13.3 TRACKING HUMANITARIAN CRISIS – AN AI-DRIVEN CHANGE ANALYSIS APPROACH
Kristin Fleischer, Peter Schauer, Elke Krätzschmar, Jörg Ullrich, Industrieanlagen Betriebsgesellschaft mbH, Germany

MO1.O-13.4 IMPROVING PERFORMANCE OF AIRCRAFT DETECTION IN SATELLITE IMAGERY WHILE LIMITING THE LABELLING EFFORT: HYBRID ACTIVE LEARNING.
Julie Imbert, Gohar Dashyan, Alex Goupilleau, Tugdual Ceillier, Marie-Caroline Corbineau, Preligens (ex-Earthcube), France

MO1.O-13.5 A NEAR REAL TIME CFAR APPROACH FOR SHIP DETECTION ON SAR DATA BASED ON A GENERALISED-K DISTRIBUTED CLUTTER ESTIMATION
Corrado Avolio, Massimo Zavagli, Giuliano Paterino, Paola Nicolosi, Mario Costantini, e-GEOS, Italy

MO1.O-13.6 MULTIMODAL DATA FUSION OF SOCIAL MEDIA AND SATELLITE IMAGES FOR EMERGENCY RESPONSE AND DECISION-MAKING
Ilias Gialampoukidis, Stelios Andreadis, Stefanos Vrochidis, Ioannis Kompatsiaris, Centre for Research and Technology Hellas, Greece

Monday, July 12 16:30 - 18:00 Oral Room 14
Session MO1.O-14 Oral-Invited

Avalanche Mapping with Satellites

Session Co-Chairs: Fatima Karbou, Univ. Grenoble Alpes, Univ. de Toulouse, Météo-France, CNRS, CNRM, Centre d'Etudes de la Neige; Yves Bühler, WSL Institute for Snow and Avalanche Research SLF; Areej Alwahas, King Abdullah University of Science and Technology

MO1.O-14.1 MAPPING AVALANCHES WITH SATELLITES - THE VISION OF MORE COMPLETE AVALANCHE DATASETS
Yves Bühler, Elisabeth Hafner, Frank Techel, WSL Institute for Snow and Avalanche Research SLF, Switzerland

MO1.O-14.3 NORWAY'S OPERATIONAL AVALANCHE ACTIVITY MONITORING SYSTEM USING SENTINEL-1
Karsten Mueller, NVE - Norwegian Water and Energy Resource Directorate, Norway; Markus Eckerstorfer, Jakob Grahn, Eirik Malnes, NORCE - Norwegian Research Centre, Norway; Rune Engeset, NVE - Norwegian Water and Energy Resource Directorate, Norway; Tore Humstad, Norwegian Public Roads Administration, Norway; Aron Widforss, NVE - Norwegian Water and Energy Resource Directorate, Norway

MO1.O-14.4 SNOW AVALANCHE BACKSCATTER CHARACTERISTICS AND THEIR BENEFIT FOR AVALANCHE MAPPING WITH LOCAL RESOLUTION WEIGHTING
Cedric Tompkin, Silvan Leinss, ETH Zurich, Switzerland

MO1.O-14.5 MONITORING SNOW AVALANCHES ACTIVITIES INFERRED FROM SENTINEL-1 SAR IMAGES AT REGIONAL SCALE
Anna Karas, Fatima Karbou, Université Grenoble Alpes, Université de Toulouse, Météo-France, CNRS, CNRM, Centre d'Etudes de la Neige, France; Nicolas Eckert, UR ETNA, INRAE, Univ. de Grenoble Alpes, France; Sophie Giffard-Roisin, ISTerre, Univ. de Grenoble Alpes, France; Philippe Durand, CNES, France

MO1.O-14.6 MANUAL AND AUTOMATIC DETECTION OF DRY SNOW AVALANCHES IN SENTINEL-1 SAR IMAGES
Markus Eckerstorfer, NORCE - Norwegian Research Centre, Norway; Karsten Mueller, NVE - Norwegian Water and Energy Resource Directorate, Norway; Eirik Malnes, NORCE - Norwegian Research Centre, Norway; Hilde Daugstad Oterhals, University of Oslo, Norway

Monday, July 12 16:30 - 18:00 Oral Room 15
Session MO1.O-15 Oral-Invited

Combining EO, Crowdsourcing and AI to Make the Most of the Data

Session Co-Chairs: Bertrand Le Saux, ESA - European Space Agency; Nicolas Longepe, ESA; Derick Boateng, University of Twente

MO1.O-15.1 ESA'S AI4EO INITIATIVE – BRIDGING THE GAP BETWEEN THE AI & EARTH OBSERVATION COMMUNITIES
Annekatrien Debien, SpaceTec Partners, Belgium; Mauro Casaburi, Planetek Italia, Italy; Grega Milcinski, Sinergise, Slovenia; Marcello Maranesi, GMATICS, Italy

MO1.O-15.3 CROWDSOURCING IN-SITU DATA COLLECTION USING GAMIFICATION
Steffen Fritz, Tobias Sturn, Mathias Karner, Santosh Karanam, Linda See, Juan Carlos Bayas, Ian McCallum, IIASA, Austria

MO1.O-15.4 AI OPPORTUNITIES AND CHALLENGES FOR CROP TYPE MAPPING USING SENTINEL-2 AND DRONE DATA
Artur Nowakowski, Dario Spiller, Noelle Cremer, European Space Agency (ESA), Italy; Rogerio Bonifacio, World Food Programme, Italy; Michael Marszalek, European Space Agency (ESA), Italy; Manuel Garcia-Herranz, UNICEF, United States; Pierre Philippe Mathieu, European Space Agency (ESA), Italy; Do-Hyung Kim, UNICEF, United States

MO1.O-15.5 A NEW USER ORIENTED PLATFORM TO DEVELOP AI FOR THE ESTIMATION OF BIO-GEOPHYSICAL PARAMETERS FROM EO DATA
Leonardo De Laurentiis, Davide De Santis, University of Rome, Italy; Daniele Latini, GEO-K, Italy; Giovanni Schiavon, University of Rome, Italy; Alessandro Marin, Gaetano Pace, Kevin Rossini, Cesare Rossi, Stefano Marra, CGI Italia, Italy; Sveinung Loekken, ESA / ESRIN, Italy; Fabio Del Frate, University of Rome, Italy

MO1.O-15.6 A NOVEL GRAPH-THEORETIC DEEP REPRESENTATION LEARNING METHOD FOR MULTI-LABEL REMOTE SENSING IMAGE RETRIEVAL
Gencer Sumbul, Begüm Demir, Faculty of Electrical Engineering and Computer Science, Technische Universität Berlin, Germany

Monday, July 12 16:30 - 18:00 Oral Room 16
Session MO1.O-16 Oral-Invited

Data Fusion: The AI Era

Session Co-Chairs: Yokoya Naoto, RIKEN; Ronny Hänsch, German Aerospace Center; Jie Zhao, Luxembourg Institute of Science and Technology

MO1.O-16.1 FROM LOCAL ALGORITHMS TO GLOBAL RESULTS: HUMAN-MACHINE COLLABORATION FOR ROBUST ANALYSIS OF GEOGRAPHICALLY DIVERSE IMAGERY
Nebojsa Jojic, Microsoft Research, United States; Nikolay Malkin, Yale University, United States; Caleb Robinson, Anthony Ortiz, Microsoft AI for Good Research Lab, United States

MO1.O-16.3 ROOFTOPS OR FOOTPRINTS? RELIABLE BUILDING FOOTPRINT EXTRACTION FROM HIGH-RESOLUTION SATELLITE IMAGES
Jean-Philippe Bauchet, LuxCarta Technology, France; Willard Mapurisa, LuxCarta Capetown, South Africa; Arno Gobbin, Sebastien Tripodi, Yuliya Tarabalka, Liuyun Duan, Lionel Laurore, LuxCarta Technology, France

MO1.O-16.4 SPECTRAL AND SPATIAL RESIDUAL ATTENTION NETWORK FOR JOINT HYPERSPECTRAL AND LIDAR DATA CLASSIFICATION
Jing Wang, Commonwealth Scientific and Industrial Research Organisation (CSIRO), Australia; Jun Zhou, Griffith University, Australia; Xinwen Liu, University of Queensland, Australia; Farah Jahan, University of Chittagong, Bangladesh

MO1.O-16.5 MULTIMODAL CONVOLUTIONAL NEURAL NETWORKS WITH CROSS-CHANNEL RECONSTRUCTION
Danfeng Hong, German Aerospace Center (DLR), Germany; Xin Wu, Beijing Institute of Technology, China; Jing Yao, Lianru Gao, Bing Zhang, Chinese Academy of Sciences, China; Jocelyn Chanussot, Université Grenoble Alpes, INRIA, CNRS, Grenoble INP, LJK, France

MO1.O-16.6 SURFACE WATER DETECTION FROM SENTINEL-1
Brookie Guzder-Williams, Hamed Alemohammad, Radiant Earth Foundation, United States

Monday, July 12 16:30 - 18:00 Oral Room 17
Session MO1.O-17 Oral-Invited

e-shape and EuroGEO Regional Initiative: Developing a Conducive Environment to Develop Earth Observation Operational Services

Session Co-Chairs: Thierry RANCHIN, MINES ParisTech, PSL University; Erwin GOOR, EASME; Arvind Gauns, University of Twente

MO1.O-17.1 EUROGEO – THE EUROPEAN COMPONENT OF GEO
Erwin Goor, European Commission - EASME, Belgium; Jean Dusart, Marjan Van Meerloo, Gilles Ollier, Jan Ramboer, European Commission - DG RTD, Belgium; Izabela Freytag, Gaëlle Le Bouler, European Commission - EASME, Belgium

MO1.O-17.3 E-SHAPE – EUROGEO SHOWCASES: APPLICATION POWERED BY EUROPE CONTRIBUTION TO EUROGEO AND TO THE DEVELOPMENT OF THE EO INDUSTRY
Thierry Ranchin, Lionel Menard, Nicolas Fichaux, MINES ParisTech - PSL University / ARMINES, France; Mathieu Reboul, ARMINES, France

MO1.O-17.4 EXPANDING USAGES OF EARTH OBSERVATION DATA: A CO-DESIGN APPROACH TO GROW AN ECOSYSTEM OF EFFICIENT SERVICE DESIGNERS
Raphaëlle Barbier, Skander Ben Yahia, Pascal Le Masson, Benoit Weil, MINES ParisTech - PSL University / ARMINES, France

MO1.O-17.5 LOOKING FOR REPRODUCIBILITY FOR EARTH OBSERVATION APPLICATIONS AT THE ABSTRACT LEVEL
Marie-Francoise Voidrot-Martinez, Ingo Simonis, OGCE, Belgium; Raphaëlle Barbier, Pascal Le Masson, Nicolas Fichaux, Thierry Ranchin, MINES ParisTech - PSL University / ARMINES, France

MO1.O-17.6 UPSCALING EUROPEAN EARTH OBSERVATION SOLUTIONS THROUGH A COMPREHENSIVE PORTFOLIO OF TOOLS – THE CASE OF E-SHAPE
Eleftherios Mamais, Evenflow, Belgium; Francesca Piatto, EARSC, Belgium; Daire Boyle, Stefka Domuzova, Evenflow, Belgium; Emmanuel Pajot, EARSC, Belgium; Nico Thom, Evenflow, Belgium

Monday, July 12 16:30 - 18:00 Oral Room 18
Session MO1.O-18 Oral-Invited

GRSS/ISPRS joint Session: Mapping at the National and Regional Scale

Session Co-Chairs: Christian Heipke, Leibnitz Universitaet Hannover (LUH); David Kunkee, The Aerospace Corporation; Yuting Yang, Universiteit Gent

MO1.O-18.1 SCIENTIFIC COOPERATION BETWEEN IEEE GRSS AND ISPRS
David Kunkee, The Aerospace Corporation, United States; Christian Heipke, Leibnitz Universitaet Hannover (LUH), Germany

MO1.O-18.2 REGIONAL MAPPING OF CROP SEQUENCES AND CROP ROTATIONS
Georg Bareth, Constanze Curdt, Christoph Hütt, Ulrike Lussem, Marina Herbrecht, Dirk Hoffmeister, Georg Bareth, University of Cologne, Germany

MO1.O-18.3 GLOBAL UPSCALING OF THE MODIS LAND COVER WITH GOOGLE EARTH ENGINE AND LANDSAT DATA
Emma Izquierdo-Verdiguier, University of Natural Resources and Life Sciences (BOKU), Austria; Alvaro Moreno-Martínez, Jose Adsuara, University of Valencia, Spain; Jordi Muñoz-Marí, Gustau Camps-Valls, Universitat de València, Spain; Marco P. Maneta, John Kimball, University of Montana, United States; Nicholas Clinton, Google, Inc, United States; Steven W Running, University of Montana, United States

MO1.O-18.4 AN APPROACH BASED ON LOW RESOLUTION LAND-COVER-MAPS AND DOMAIN ADAPTATION TO DEFINE REPRESENTATIVE TRAINING SETS AT LARGE SCALE
Iwona Podsiadlo, Claudia Paris, Lorenzo Bruzzone, University of Trento, Italy

MO1.O-18.5 NASA'S GLOBAL ASSETS FOR DISASTER RISK ASSESSMENT
Batuhan Osmanoglu, NASA Goddard Space Flight Center, United States; M. J. Jo, NASA Goddard Space Flight Center / Universities Space Research Association, United States; Lori Schultz, NASA Marshall Space Flight Center, United States; D. Kirschbaum, NASA Goddard Space Flight Center, United States; T. Yao, NASA Goddard Space Flight Center / SSAI, United States; Jordan Bell, NASA Marshall Space Flight Center, United States; S. H. Yun, NASA Jet Propulsion Laboratory, United States; M. Roman, Universities Space Research Association, United States; Franz J. Meyer, University of Alaska-Fairbanks, United States; Andrew L Molthan, NASA Marshall Space Flight Center, United States

Tuesday, July 13 10:30 - 12:00 Oral Room 1
Session TU1.O-1 Oral

SAR Interferometry: Missions, Applications and Methods

Session Co-Chairs: Pau Prats, German Aerospace Center (DLR); Paco López-Dekker, Delft University of Technology; Matthieu Gallet, Université Savoie Mont Blanc

TU1.O-1.1 THE BIOMASS DEM PROTOTYPE PROCESSOR: OVERVIEW AND FIRST RESULTS
Muriel Pinheiro, German Aerospace Center (DLR), Germany; Simone Mancon, Aresys s.r.l., Italy; Mauro Mariotti d'Alessandro, Polimi, Italy; Pau Prats, Joel Amao-Oliva, Nida Sakar, Gustavo Martin del Campo Becerra, Matteo Nannini, Rolf Scheiber, Alberto Alsonso, Marc Jaeger, Nestor Yague-Martinez, German Aerospace Center (DLR), Italy; Francesco Banda, Davide Giudici, Aresys s.r.l., Italy; Stefano Tebaldini, Polimi, Italy; Konstantinos P. Papathanassiou, German Aerospace Center (DLR), Germany; Klaus Scipal, European Space Agency (ESA), Italy

TU1.O-1.2 CHANGE DETECTION WITHIN THE PROCESSING OF THE TANDEM-X CHANGE DEM
Barbara Schweisshelm, Marie Lachaise, Thomas Fritz, German Aerospace Center (DLR), Germany

TU1.O-1.3 WIDE-SWATH OCEAN TOPOGRAPHY USING FORMATION FLYING UNDER SQUINTED GEOMETRIES: THE HARMONY MISSION CASE
Andreas Theodosiou, Marcel Kleinherenbrink, Paco López-Dekker, TU Delft, Netherlands

TU1.O-1.4 SENTINEL-1 AZIMUTH SUBBANDING FOR MULTIPLE APERTURE INTERFEROMETRY - TEST CASE OVER THE ROI BAUDOUIN ICE SHELF, EAST ANTARCTICA
Murielle Kirkove, Université de Liège, Belgium; Quentin Glaude, Université libre De Bruxelles, Belgium; Dominique Derauw, Universidad Nacional De Rio Negro, Argentina; Christian Barbier, Université de Liège, Belgium; Frank Pattyn, Université libre De Bruxelles, Belgium; Anne Orban, Université de Liège, Belgium

TU1.O-1.5 THE GEOWAM CAMPAIGN: AN UPDATE
Joel Amao-Oliva, Muriel Pinheiro, Marc Jaeger, Rolf Scheiber, Ralf Horn, Andreas Reigber, German Aerospace Center (DLR), Germany

TU1.O-1.6 A KU-BAND AIRBORNE INSAR FOR SNOW CHARACTERIZATION AT TRAIL VALLEY CREEK
Paul Siqueira, Max Adam, Simon Kraatz, Dustin Lagoy, Marc Closa Tarres, University of Massachusetts, United States; Leung Tsang, Jiyue Zhu, University of Michigan, United States; Chris Derksen, Joshua King, Environment and Climate Change Canada, Canada

Tuesday, July 13 10:30 - 12:00 Oral Room 2
Session TU1.O-2 Oral

Deep Learning Based Feature Extraction

Session Co-Chairs: Liangpei Zhang, Wuhan University; Alexandru Neculai, German Aerospace Center (DLR); Luis Gòmez-Chova, Universidad de València

TU1.O-2.1 GENERALIZED SCALABLE NEIGHBORHOOD COMPONENT ANALYSIS FOR SINGLE AND MULTI-LABEL REMOTE SENSING IMAGE CHARACTERIZATION
Jian Kang, School of Electronic and Information Engineering, Soochow University, China; Ruben Fernandez-Beltran, Institute of New Imaging Technologies, University Jaume I, Spain; Antonio Plaza, Hyperspectral Computing Laboratory, University of Extremadura, Spain

TU1.O-2.2 MOATNET: REGISTRATION FOR MULTI-TEMPORAL OPTICAL REMOTE SENSING IMAGES USING DEEP CONVOLUTIONAL FEATURES
Chao Li, Yanan You, Jingyi Cao, Wenli Zhou, Beijing University of Posts and Telecommunications, China

TU1.O-2.3 HYPERSPECTRAL IMAGE DENOISING BASED ON MULTI-STREAM DENOISING NETWORK
Yan Gao, Feng Gao, Junyu Dong, Ocean University of China, China

TU1.O-2.4 LSTM-ADVERSARIAL AUTOENCODER FOR SPECTRAL FEATURE LEARNING IN HYPERSPECTRAL ANOMALY DETECTION
Tongbin Ouyang, Jinshen Wang, Xinyue Zhao, Shujie Wu, Beihang University, China

TU1.O-2.5 GRAPH REGULARIZED AUTOENCODER BASED FEATURE EXTRACTION FOR HYPERSPECTRAL IMAGE CLASSIFICATION
Xiaotian Fan, Jingzhou Chen, Yuntao Qian, Zhejiang University, China

TU1.O-2.6 HYPERSPECTRAL IMAGE SUPER-RESOLUTION BASED ON MULTISCALE RESIDUAL BLOCK AND MULTILEVEL FEATURE FUSION
Gang Yu, Feng Zhang, Ting Hu, Wei Li, Ran Tao, Beijing Institute of Technology, China

Tuesday, July 13 10:30 - 12:00 Oral Room 3
Session TU1.O-3 Oral

Novel Segmentation Methods of Roads and Buildings

Session Co-Chairs: Dan López-Puigdollers, Universitat de València; Benhadj Iskander, VITO; Sylvain Lobry, Université de Paris

TU1.O-3.1 SUB-PIXEL WIDTH ROAD NETWORK EXTRACTION USING SENTINEL-2 IMAGERY
Christian Ayala, Carlos Aranda, Tracasa Instrumental, Spain; Mikel Galar, Public University of Navarre, Spain

TU1.O-3.2 JOINT SUPERPIXEL SEGMENTATION AND GRAPH CONVOLUTIONAL NETWORK ROAD EXTRATION FOR HIGH-RESOLUTION REMOTE SENSING IMAGERY
Fumin Cui, Ruyi Feng, Lizhe Wang, China University of Geosciences, China; Lifei Wei, Hubei University, China

TU1.O-3.3 ROAD EXTRACTION FROM SATELLITE IMAGE VIA AUXILIARY ROAD LOCATION PREDICTION
Jingtao Hu, Qi Wang, Xuelong Li, Northwestern Polytechnical University, China

TU1.O-3.4 DID-LINKNET: POLISHING D-BLOCK WITH DENSE CONNECTION AND ITERATIVE FUSION FOR ROAD EXTRACTION
Haotian Yan, Chuang Zhang, Junli Yang, Ming Wu, Jinyu Chen, Beijing University of Posts and Telecommunications, China

TU1.O-3.5 SPD-LINKNET: UPGRADED D-LINKNET WITH STRIP POOLING FOR ROAD EXTRACTION
Yutao Deng, Junli Yang, Chenyi Liang, Yinuo Jing, Beijing University of Posts and Telecommunications, China

TU1.O-3.6 POST-DISASTER CLASSIFICATION OF BUILDING DAMAGE USING TRANSFER LEARNING
Chang Liu, Linlin Ge, Samad M. E. Sepasgozar, University of New South Wales, Australia

Tuesday, July 13 10:30 - 12:00 Oral Room 4
Session TU1.O-4 Oral

Advanced Target Detection Method in SAR/PolSAR Images

Session Co-Chairs: Xavier Neyt, Royal Military Academy; María Culman, KU Leuven; Tao Zhang, Tsinghua University

TU1.O-4.1 REAL TIME SAR SHIP DETECTION USING NOVEL SARNEDE METHOD
Anil Raj J, Sumam Mary Idicula, Binu Paul, Cochin University of Science and Technology, India

TU1.O-4.2 A FALSE ALARM SUPPRESSION METHOD VIA SELECTIVE ANCHOR GENERATOR FOR SHIP DETECTION IN SAR IMAGES
Yu Tian, Zongyong Cui, Zongjie Cao, Yiming Pi, University of Electronic Science and Technology of China, China

TU1.O-4.3 CROSS-DOMAIN TRANSFER FOR SHIP INSTANCE SEGMENTATION IN SAR IMAGES
Chunbo Zhu, Danpei Zhao, Beihang University, China; Jing Qi, DFH Satellite Co., Ltd., China; Xinhu Qi, Space Star Technology Co., Ltd., China; Zhenwei Shi, Beihang University, China

TU1.O-4.4 VEHICLE DETECTION VIA POLARIMETRIC SAR IMAGE
Dai Xiaokang, Yin Junjun, University of Science and Technology Beijing, China; Yang Jian, Tsinghua University, China; Zhou Liangjiang, Chinese Academy of Sciences, China

TU1.O-4.5 SIMPLIFIED POWER-BASED DETECTORS FOR SHIP DETECTION OF POLSAR IMAGERY
Tao Zhang, Tsinghua University, China; Hongping Gan, Northwestern Polytechnical University, China; Zhen Yang, Jiangxi Science and Technology Normal University, China; Bing Zeng, University of Electronic Science and Technology of China, China; Jian Yang, Tsinghua University, China

TU1.O-4.6 SMALL VESSEL DETECTION BASED ON ADAPTIVE DUAL-POLARIMETRIC SAR FEATURE FUSION AND ATTENTION-ENHANCED FEATURE PYRAMID NETWORK
Feixiang Zhang, Yongsheng Zhou, Fan Zhang, Qiang Yin, Fei Ma, Beijing University of Chemical Technology, China

Tuesday, July 13 10:30 - 12:00 Oral Room 5
Session TU1.O-5 Oral

Deep Learning for Hyperspectral Image Classification I

Session Co-Chairs: Xinyang Deng, Northwestern Polytechnical University; Robbe Neyns, Vrije Universiteit Brussel; Gabriele Cavallaro, Forschungszentrum Jülich

TU1.O-5.1 **SPATIAL-SPECTRAL TENSOR GRAPH CONVOLUTIONAL NETWORK FOR HYPERSPECTRAL IMAGE CLASSIFICATION**
Jin-Yu Yang, Heng-Chao Li, Ze-Chen Li, Tian-Yu Ma, Southwest Jiaotong University, China

TU1.O-5.2 **CASCADE NETWORK FOR HYPERSPECTRAL IMAGE CLASSIFICATION**
Shuai Fang, Wen Zhang, Jing Zhang, Hefei University of Technology, China; Yang Cao, University of Science and Technology of China, China; Weikai Shi, Macau University of Science and Technology, China

TU1.O-5.3 **SELF-ATTENTION AND MUTUAL-ATTENTION FOR FEW-SHOT HYPERSPECTRAL IMAGE CLASSIFICATION**
Kai Huang, Xinyang Deng, Jie Geng, Wen Jiang, Northwestern Polytechnical University, China

TU1.O-5.4 **AUTOMATIC DESIGN RECURRENT NEURAL NETWORK FOR HYPERSPECTRAL IMAGE CLASSIFICATION**
Jie Feng, Gaiqin Bai, Zizhuo Gao, Xiangrong Zhang, Xu Tang, Xidian University, China

TU1.O-5.5 **A NOVEL CLASSIFICATION FRAMEWORK FOR HYPERSPECTRAL IMAGE CLASSIFICATION BASED ON MULTI-SCALE DENSE NETWORK**
Hao Zhang, Haoyang Yu, Zhen Xu, Dalian Maritime University, China; Ke Zheng, Lianru Gao, Chinese Academy of Sciences, China

TU1.O-5.6 **WATER RETRIEVAL EMBEDDED DEEP NETWORK FOR HYPERSPECTRAL IMAGE REFINED CLASSIFICATION**
Xuejian Liang, Ye Zhang, Junping Zhang, Xinyuan Miao, Xinyu Zhou, Harbin Institute of Technology, China

Tuesday, July 13 10:30 - 12:00 Oral Room 6
Session TU1.O-6 Oral

Registration and Matching

Session Co-Chairs: Louise Delhaye, The AfricaMuseum; Liangjian Deng, University of Electronic Science and Technology of China; Sebastien Lefèvre, Université Bretagne du Sud

TU1.O-6.1 **A REMOTE SENSING IMAGE REGISTRATION BENCHMARK FOR OPERATIONAL SENTINEL-2 AND SENTINEL-3 PRODUCTS**
Damian Ibañez, Ruben Fernandez-Beltran, Filiberto Pla, University Jaume I, Spain

TU1.O-6.2 **A FEATURE DECOMPOSITION FRAMEWORK FOR MULTI-MODAL IMAGE PATCH MATCHING**
Baorui Duan, Dou Quan, Yi Li, Ruiqi Lei, Shuang Wang, Biao Hou, Licheng Jiao, Xidian University, China

TU1.O-6.3 **ROBUST FEATURE MATCHING USING MOTION CONSISTENCY AND GEOMETRICAL CONSTRAINT FOR UAV IMAGES**
Tong Qiao, Hanjiang Xiong, Xianwei Zheng, State Key Laboratory of Information Engineering in Surveying, Mapping and Remote Sensing, China

Tuesday, July 13 10:30 - 12:00 Oral Room 7
Session TU1.O-7 Oral

Recent Analysis Methods of Forest

Session Co-Chairs: Hugo Costa, Direção-Geral do Território; Xingyan Cao, Universiteit Gent; André Duarte, Forest and Paper Research Institute (RAIZ)

TU1.O-7.1 EVALUATION OF XGBOOST AND LGBM PERFORMANCE IN TREE SPECIES CLASSIFICATION WITH SENTINEL-2 DATA
Helena Łoś, Goncalo Sousa Mendes, David Cordeiro, Nuno Grosso, Deimos Engenharia, Portugal; Hugo Costa, Pedro Benevides, Mário Caetano, Direção Geral do Território, Portugal

TU1.O-7.2 EXPLORING THE POTENTIAL OF SENTINEL-2 DATA FOR TREE CROWN MAPPING IN OAK AGRO-FORESTRY SYSTEMS
Hugo Costa, Inês Machado, Francisco D. Moreira, Pedro Benevides, Daniel Moraes, Mário Caetano, Direção-Geral do Território, Portugal

TU1.O-7.3 RESEARCH ON THE DIRECTIONAL DEPENDENCE OF THE SAMPLING SCALE OF CANOPY CLUMPING INDEX
Yidong Tong, Ziti Jiao, Lei Cui, Siyang Yin, Xiaoning Zhang, Jing Guo, Rui Xie, Zidong Zhu, Sijie Li, Beijing Normal University, China

TU1.O-7.4 SPRUCE CROWN TRANSPARENCY LEVELS DETECTED FROM SENTINEL-2 USING GOOGLE EARTH ENGINE
Carsten Montzka, Bagher Bayat, Andreas Tewes, David Mengen, Harry Vereecken, Forschungszentrum Jülich, Germany

TU1.O-7.5 A MACHINE LEARNING APPROACH TO DETECT DEAD TREES CAUSED BY LONGHORNED BORER IN EUCALYPTUS STANDS USING UAV IMAGERY
André Duarte, Nuno Borralho, Forest and Paper Research Institute (RAIZ), Portugal; Mário Caetano, NOVA Information Management School (NOVAIMS) Universidade Nova de Lisboa, Portugal

Tuesday, July 13 10:30 - 12:00 Oral Room 8
Session TU1.O-8 Oral

Crop Mapping and Monitoring using Optical Spaceborne Imagery

Session Co-Chairs: Jochem Verrelst, University of Valencia; Ioannis Papoutsis, National Observatory of Athens; Anna Mateo-Sanchis, Universitat de València

TU1.O-8.1 TOWARDS QUANTIFYING NON-PHOTOSYNTHETIC VEGETATION FOR AGRICULTURE USING SPACEBORNE IMAGING SPECTROSCOPY
Katja Berger, Ludwig-Maximilians-Universitaet Muenchen (LMU), Germany; Andrej Halabuk, Slovak Academy of Sciences, Slovakia; Jochem Verrelst, University of Valencia, Spain; Matej Mojses, Katarina Gerhátová, Slovak Academy of Sciences, Slovakia; Giulia Tagliabue, University of Milano - Bicocca, Italy; Matthias Wocher, Tobias Hank, Ludwig-Maximilians-Universitaet Muenchen (LMU), Germany

TU1.O-8.2 OLIVE TREE WATER STRESS DETECTION USING DAILY MULTISPECTRAL IMAGERY
James Brinkhoff, University of New England, Australia; Alex Schultz, NSW Department of Primary Industries, Australia; Luz Angelica Suarez, Andrew Robson, University of New England, Australia

TU1.O-8.3 SEN4AGRINET: A HARMONIZED MULTI-COUNTRY, MULTI-TEMPORAL BENCHMARK DATASET FOR AGRICULTURAL EARTH OBSERVATION MACHINE LEARNING APPLICATIONS
Dimitris Sykas, Ioannis Papoutsis, Dimitrios Zografakis, National Observatory of Athens, Greece

TU1.O-8.4 3D FULLY CONVOLUTIONAL NEURAL NETWORKS WITH INTERSECTION OVER UNION LOSS FOR CROP MAPPING FROM MULTI-TEMPORAL SATELLITE IMAGES
Sina Mohammadi, Mariana Belgiu, Alfred Stein, University of Twente, Netherlands

TU1.O-8.5 ANNUAL CROP CLASSIFICATION EXPERIMENTS IN PORTUGAL USING SENTINEL-2
Pedro Benevides, Hugo Costa, Francisco D. Moreira, Daniel Moraes, Mário Caetano, Direção-Geral do Território, Portugal

TU1.O-8.6 PHENOLOGY-BASED CLASSIFICATION OF CROP FIELDS USING CROSS-CORRELATION: A CASE STUDY
Roberto Luciani, Giovanni Laneve, Riccardo Orsi, Sapienza University of Rome, Italy

Tuesday, July 13 10:30 - 12:00 Oral Room 9
Session TU1.O-9 Oral

Extreme and Coastal Winds

Session Co-Chairs: Ad Stoffelen, Royal Netherlands Meteorological Institute (KNMI); Wenming Lin, Nanjing University of Information Science and Technology; Thimm Zwiener, The AfricaMuseum

TU1.O-9.1 HURRICANE OCEAN SURFACE WIND RETRIEVAL FROM ALOS-2 PALSAR-2 CROSS-POLARIZED MEASUREMENTS
Osamu Isoguchi, Remote Sensing Technology Center of Japan, Japan; Takeo Tadono, Masato Ohki, Japan Aerospace Exploration Agency (JAXA), Japan; Udai Shimada, Munehiko Yamaguchi, Masahiro Hayashi, Wataru Yanase, Meteorological Research Institute, Japan

TU1.O-9.2 THE RETRIEVAL OF HURRICANE WIND SPEED BASED ON THE SUPPORT VECTOR MACHINE
Shanshan Mu, Xiaofeng Li, Institute of Oceanography, Chinese Academy of Sciences, China

TU1.O-9.3 A FURTHER EVALUATION OF THE QUALITY INDICATOR JOSS FOR KU-BAND WIND SCATTEROMETRY IN TROPICAL REGIONS
Xingou Xu, Key Laboratory of Microwave Remote Sensing, National Space Science Center, China; Ad Stoffelen, Royal Netherlands Meteorological Institute KNMI , Netherlands

TU1.O-9.4 COASTAL SEA WIND FIELD: WRF VERSUS SAR WIND ANALYSIS IN THE GULF OF NAPLES
Haroon Akhtar Qureshi, Andrea Buono, Diana Di Luccio, Ferdinando Nunziata, Guido Benassai, Maurizio Migliaccio, Università degli Studi di Napoli Parthenope, Pakistan

TU1.O-9.5 TOWARDS QUIKSCAT-DERIVED COASTAL WINDS
Giuseppe Grieco, Marcos Portabella, Barcelona Expert Center (BEC) Institute of Marine Sciences (ICM-CSIC), Spain; Ad Stoffelen, Jur Vogelzang, Anton Verhoef, Royal Netherlands Meteorological Institute, Netherlands

TU1.O-9.6 ON RETRIEVAL OF THE ATMOSPHERIC BOUNDARY LAYER DYNAMIC PARAMETERS BASED ON COLLOCATED MEASUREMENTS OF THE SFMR AND NOAA GPS DROPWINDSONDES IN HURRICANE
Evgeny Poplavsky, Nikita Rusakov, Yuliya Troitskaya, Institute of Applied Physics, Russian Academy of Sciences, Russia

Tuesday, July 13 10:30 - 12:00 Oral Room 10
Session TU1.O-10 Oral

Recent Advances in GNSS-R I

Session Co-Chairs: Mehrez Zribi, CNRS; Lucinda King, University of Surrey; Ragini Bal Mahesh, Technische Universität München

TU1.O-10.1 SOIL MOISTURE RETRIEVAL USING THE FMPL-2/FSSCAT GNSS-R AND MICROWAVE RADIOMETRY DATA
Joan Francesc Munoz-Martin, David Llavería, Christoph Herbert, Universitat Politècnica de Catalunya, Spain; Miriam Pablos, Institut de Ciències del Mar and Barcelona Expert Center, Spain; Adriano Camps, Universitat Politècnica de Catalunya, Spain

TU1.O-10.2 DESERT ROUGHNESS RETRIEVAL USING CYGNSS GNSS-R DATA
Mehrez Zribi, Donato Stilla, CNRS, France; Nazzareno Pierdicca, Sapienza University, Italy

TU1.O-10.3 SAHARA SUBSURFACE CHARACTERIZATION USING CYGNSS GNSS-R DATA
Mehrez Zribi, Donato Stilla, CNRS, France; Nazzareno Pierdicca, Sapienza University, Italy; Nicolas Baghdadi, INRAE, France

TU1.O-10.4 POLARIMETRIC FEATURES OF GNSS-R OBSERVATION OVER LAND: A SIMULATION STUDY
Laura Dente, Leila Guerriero, Tor Vergata University of Rome, Italy; Davide Comite, Sapienza University of Rome, Italy; Mehrez Zribi, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Estel Cardellach, Institute of Space Science, Spain; Nazzareno Pierdicca, Sapienza University of Rome, Italy; Martin Unwin, Surrey Satellite Technology Ltd, United Kingdom

TU1.O-10.5 SOIL MOISTURE ESTIMATION USING AMPLITUDE ATTENUATION FACTOR OF LOW-COST GNSS RECEIVER BASED SNR OBSERVATIONS
Yunwei Li, Wuhan University, China; Kegen Yu, China University of Mining and Technology, China; Taoyong Jin, Xin Chang, Wuhan University, China; Qiang Zhang, Chongqing Meteorological Bureau, China, China; Changhui Xu, Chinese Academy of Surveying & Mapping, China; Jiancheng Li, Wuhan University, China

TU1.O-10.6 VERIFICATION OF THE TOPOGRAPHICALLY ACCURATE REFLECTION POINT PREDICTION ALGORITHM FOR OPERATIONAL GNSS-REFLECTOMETRY USING TDS-1 AND DOT-1
Lucinda King, University of Surrey, United Kingdom; Martin Unwin, Jonathan Rawlinson, Surrey Satellite Technology Ltd., United Kingdom; Raffaella Guida, Craig Underwood, University of Surrey, United Kingdom

Tuesday, July 13 10:30 - 12:00 Oral Room 11
Session TU1.O-11 Oral-Invited

Advanced Methods for Polarimetric Information Extraction I

Session Co-Chairs: Avik Bhattacharya, Indian Institute of Technology Bombay, India; EunYeol Kim, Colorado State University; Unmesh Khati, Jet Propulsion Laboratory, Califronia Institue of Technology

TU1.O-11.1 REVIEW OF CHANGE-DETECTION ALGORITHMS APPLIED TO POLARIMETRIC SAR TIME-SERIES
Unmesh Khati, Marco Lavalle, Gustavo X.H. Shiroma, NASA Jet Propulsion Laboratory, California Institute of Technology, United States; Luca Brocca, National Research Council of Italy, Italy

TU1.O-11.3 TARGET SCATTERING CHARACTERIZATION IN SAR POLARIMETRY USING MODEL-FREE APPROACHES
Subhadip Dey, Avik Bhattacharya, Indian Institute of Technology Bombay, India; Alejandro C. Frery, Victoria University of Wellington, New Zealand; Carlos López-Martínez, Universitat Politècnica de Catalunya, Spain

TU1.O-11.4 CHARACTERIZATION AND EXTRACTION OF ROADS USING POLARIMETRY METHODS IN L-BAND SAR IMAGES
Nathan Paillou, Laétitia Thirion-Lefevre, Régis Guinvarc'h, Université Paris-Saclay, CentraleSupélec, France

TU1.O-11.5 AVERAGED STOKES VECTOR FEATURES BASED MAN-MADE TARGETS ANALYSIS USING POLSAR DATA
Fang Shang, Natsuki Fujiwara, Naoto Kishi, University of Electronics-Communication, Japan

TU1.O-11.6 A FULL-PARAMETERS MICROWAVE PROPERTIES MEASUREMENT SYSTEM OF 20M DIAMETER ANECHOIC CHAMBER
Wei Tian, Yun Shao, Aerospace Information Reasearch Institute, Chinese Academy of Sciences, China; Zhiqu Liu, Laboratory of Target Microwave Properties, China; Qiufang Wei, Aerospace Information Reasearch Institute, Chinese Academy of Sciences, China; Zhihua Tang, Cong Ni, Institute of Remote Sensing Satellite, China Academy of Space Technology, China

Tuesday, July 13 10:30 - 12:00 Oral Room 12
Session TU1.O-12 Oral-Invited

Advancement of UAV application with Artificial Intelligence for Precision Agriculture

Session Co-Chairs: Dharmendra Singh, Indian Institute of Technology Roorkee; Meenal Sharma, University of Twente; Naveen Singh Rajput, IIT BHU

TU1.O-12.2 PERFORMANCE IMPACT OF JP2 COMPRESSION ON SEMANTIC SEGMENTATION OF POLSAR IMAGES
Juhi Checker, University of Mumbai, India; Shaunak De, IEEE, United States; Varsha Turkar, Don Bosco College of Engineering, Goa University, India; Gulab Singh, Indian Institute of Technology Bombay, India

TU1.O-12.3 CRITICAL ANALYSIS OF MACHINE LEARNING APPROACHES FOR VEGETATION FRACTIONAL COVER ESTIMATION USING DRONE AND SENTINEL-2 DATA
Ajay Maurya, IIT Roorkee, India; Maryam Nadeem, Jamia Hamdard, New Delhi, India; Dharmendra Singh, IIT Roorkee, India; Keshav Prasad Singh, Naveen Singh Rajput, IIT BHU, India

TU1.O-12.4 AN INFORMATION FUSION APPROACH OF UAV AND SATELLITE DATA FOR INTRA FIELD CLASSIFICATION
Anjana Kukunuri, Deepak Murugan, Dharmendra Singh, Indian Institute of Technology Roorkee, India

TU1.O-12.5 SEMANTIC SEGMENTATION OF POLSAR IMAGES FOR VARIOUS LAND COVER FEATURES
Rahul Kotru, Musab Shaikh, Varsha Turkar, Shreyas Simu, Satyaswarup Banerjee, Don Bosco College of Engineering, Goa University, India; Gulab Singh, Indian Institute of Technology Bombay, India

TU1.O-12.6 RAILWAY TRACK SLEEPER DETECTION IN LOW ALTITUDE UAV IMAGERY USING DEEP CONVOLUTIONAL NEURAL NETWORK
Arun Kumar Singh, Arun Kant Dwivedi, Nimish Nahar, Dharmendra Singh, Indian Institute of Technology Roorkee, India

Tuesday, July 13 10:30 - 12:00 Oral Room 13
Session TU1.O-13 Oral-Invited

AI for Weather Radars

Session Co-Chairs: Haonan Chen, Colorado State University; Chandra V Chandrasekar, Colorado State University; Javiera Castillo-Navarro, Onera

TU1.O-13.1 DEEP LEARNING FOR SURFACE PRECIPITATION ESTIMATION USING MULTIDIMENSIONAL POLARIMETRIC RADAR MEASUREMENTS
Haonan Chen, V. Chandrasekar, Colorado State University, United States

TU1.O-13.3 A MULTI-CHANNEL 3D CONVOLUTIONAL-RECURRENT NEURAL NETWORK FOR CONVECTIVE STORM NOWCASTING
Wei Zhang, Rui Zhang, Ocean University of China, China; Haonan Chen, Colorado State University, United States; Guangxin He, Nanjing University of Information Science and Technology, China; Yurong Ge, Lei Han, Ocean University of China, China

TU1.O-13.4 HIGH EFFICIENCY WEATHER RADAR MOSAIC IMAGE GENERATION FRAMEWORK
Jingyin Tang, Citadel LLC, United States; Corene Matyas, University of Florida, United States

TU1.O-13.5 IDENTIFICATION OF CONVECTIVE PRECIPITATION FEATURE OBSERVED BY TRMM/GPM PR USING A REVISED UNSUPERVISED CLUSTERING PROPOSAL
Lei Ji, Weixin Xu, Sun Yat-Sen University, China; Haonan Chen, Colorado State University, United States; Hao Chen, Sun Yat-Sen University, China

Tuesday, July 13 10:30 - 12:00 Oral Room 14
Session TU1.O-14 Oral-Invited

ALOS Series Missions, Cal/Val and Applications

Session Co-Chairs: Takeo Tadono, Japan Aerospace Exploration Agency; Masato Ohki, JAXA; Gonzalo Raimundo Luzardo Morocho, Universiteit Gent

TU1.O-14.1 ALOS-2 OPERATION STATUS AND DATA DISTRIBUTION
Shin-ichi Sobue, Akiko Noda, Takashi Omote, Hiroshi Kido, Fumio Kudoh, Japan Aerospace Exploration Agency (JAXA), Japan

TU1.O-14.3 EFFECTS OF IONOSPHERE AND TROPOSPHERE ON L-BAND SAR GEOMETRIC ACCURACY
Haruya Hirano, Osamu Isoguchi, Remote Sensing Technology Center of JAPAN (RESTEC), Japan; Takeshi Motohka, Takeo Tadono, Japan Aerospace Exploration Agency (JAXA), Japan

TU1.O-14.4 UPDATES OF CALIBRATION AND VALIDATION PLAN OF THE ADVANCED OPTICAL SATELLITE (ALOS-3)
Takeo Tadono, Yousei Mizukami, Japan Aerospace Exploration Agency (JAXA), Japan; Junichi Takaku, Fumi Ohgushi, Hiroki Kai, Remote Sensing Technology Center of Japan, Japan

TU1.O-14.5 AN OVERVIEW OF GEOMETRIC CALIBRATION AND DSM GENERATION FOR ALOS-3 OPTICAL IMAGERIES
Junichi Takaku, Remote Sensing Technology Center of Japan, Japan; Takeo Tadono, Japan Aerospace Exploration Agency (JAXA), Japan; Hiroki Kai, Fumi Ohgushi, Masanori Doutsu, Remote Sensing Technology Center of Japan, Japan

TU1.O-14.6 CURRENT STATUS OF DEVELOPING ALOS-4 WITH KEY MISSIONS: PALSAR-3 AND SPAISE3
Mina Konaka, Takeshi Motohka, Kazuhide Yamamoto, Yukihiro Kankaku, Yoshihisa Arikawa, Shinichi Suzuki, Japan Aerospace Exploration Agency (JAXA), Japan

Tuesday, July 13 10:30 - 12:00 Oral Room 15
Session TU1.O-15 Oral-Invited

DEEP Insight SAR I

Session Co-Chairs: Mihai Datcu, Research Center for Spatial Information (CEOSpaceTech), University POLITEHNICA of Bucharest (UPB) and Earth Observation Center (EOC), German Aerospace Center (DLR); Zhongling Huang, Northwestern Polytechnical University; Lynette Dias, Twente Universiy

TU1.O-15.1 CAN WE EVALUATE THE DISTINGUISHABILITY OF THE OPENSARURBAN DATASET ?
Ning Liao, Shanghai Jiao Tong University, China; Mihai Datcu, German Aerospace Center (DLR), Germany; Zenghui Zhang, Shanghai Jiao Tong University, China; Weiwei Guo, Tongji University, China; Wenxian Yu, Shanghai Jiao Tong University, China

TU1.O-15.3 NONCOHERENT IMAGING EXPERIMENTS OF CIRCULAR SAR
Yuxiao Luo, Daoxiang An, Leping Chen, Jingwei Chen, Xiaotao Huang, National University of Defence Technology, China

TU1.O-15.4 SELF-CALIBRATED CONVOLUTIONAL NEURAL NETWORK FOR SAR IMAGE DESPECKLING
Ye Yuan, Yan Jiang, Yanxia Wu, Harbin Engineering University, China; Richard Jiang, Lancaster University, United Kingdom

TU1.O-15.5 PROPOSAL OF POLSAR LAND CLASSIFICATION USING QUATERNION CONVOLUTIONAL NEURAL NETWORKS
Yuya Matsumoto, Ryo Natsuaki, Akira Hirose, University of Tokyo, Japan

TU1.O-15.6 A DEEP FEATURE TRANSFORMATION METHOD BASED ON DIFFERENTIAL VECTOR FOR FEW-SHOT LEARNING
Qian Guo, Feng Xu, Fudan University, China

Tuesday, July 13 10:30 - 12:00 Oral Room 16
Session TU1.O-16 Oral-Invited

Deep Learning and SAR Despeckling: An Open and Challenging Issue

Session Co-Chairs: Florence Tupin, Telecom Paris; Giampaolo Ferraioli, Università degli Studi di Napoli Parthenope; Axel Deijns, The AfricaMuseum

TU1.O-16.1 A REVIEW OF DEEP-LEARNING TECHNIQUES FOR SAR IMAGE RESTORATION
Loïc Denis, Université de Lyon, Université Jean-Monnet Saint-Etienne, France; Emanuele Dalsasso, Florence Tupin, Telecom Paris, France

TU1.O-16.3 IMPACT OF TRAINING SET DESIGN IN CNN-BASED SAR IMAGE DESPECKLING
Antonio Mazza, Giuseppe Scarpa, Luisa Verdoliva, Giovanni Poggi, University Federico II, Italy

TU1.O-16.4 A MULTI-OBJECTIVE APPROACH FOR MULTI-CHANNEL SAR DESPECKLING
Sergio Vitale, Università degli Studi di Napoli Parthenope, Italy; Hossein Aghababaei, University of Twente, Netherlands; Giampaolo Ferraioli, Vito Pascazio, Gilda Schirinzi, Università degli Studi di Napoli Parthenope, Italy

TU1.O-16.5 COMPARATIVE EVALUATION OF DEEP LEARNING-BASED SAR-OPTICAL IMAGE MATCHING APPROACHES
Lloyd Hughes, Lloyd Hughes Consulting, South Africa; Michael Schmitt, Munich University of Applied Sciences, Germany

TU1.O-16.6 A COHERENT GENERATIVE SCHEME FOR SAR IMAGE REPRESENTATION
Dong-Xiao Yue, Feng Xu, Fudan University, China

Tuesday, July 13 10:30 - 12:00 Oral Room 17
Session TU1.O-17 Oral-Invited

Earth Observation using Scatterometer

Session Co-Chairs: Reet Kamal Tiwari, Indian Institute of Technology; Sartajvir Singh, Chitkara University; Vaibhav Rajan

TU1.O-17.1 EXPLORING USE OF KU-BAND SCATTEROMETER DATA FROM SCATSAT-1 FOR CROP MONITORING IN INDIA, A CASE STUDY FOR JUTE CROP
Rojalin Tripathy, B.K. Bhattacharya, AED, BPSG. EPSA, Spaced Applications Centre, ISRO, India

TU1.O-17.3 DETECTION OF CRYOSPHERIC PARAMETERS WITH ARTIFICIAL NEURAL NETWORK OVER ANTARCTIC REGION USING KU-BAND BASED ISRO'S SCATSAT-1 DATA
Sartajvir Singh, Chitkara University, India; Reet Kamal Tiwari, Indian Institute of Technology, India

TU1.O-17.4 DETECTION OF TWO RECENT CALVING EVENTS IN ANTARCTICA FROM SCATSAT-1
Nanaoba Singh Khoisnam, National Institute of Technology Manipur, India; Kamaljit Singh Rajkumar, Manipur Technical University, India; Mamata Maisnam, National Institute of Technology Manipur, India; Jayaprasad P, Saroj Maity, Deepak Putrevu, Arundhati Misra, Space Applications Centre, Indian Space Research Organisation, India

TU1.O-17.5 NWP OCEAN CALIBRATION FOR THE CFOSAT WIND SCATTEROMETER
Zhen Li, Ad Stoffelen, Anton Verhoef, Jeroen Verspeek, Royal Netherlands Meteorological Institute, Netherlands

Tuesday, July 13 10:30 - 12:00 Oral Room 18
Session TU1.O-18 Oral-Invited

Hazards Monitoring and Assessment Using Multi-Source Observations and Big Data Mining: Methodologies and Case Studies

Session Co-Chairs: Tao Guo, PIESAT Information Technology Co., Ltd.; Christian Tøttrup, DHI GARS; Diego Bueso, Universitat de València

TU1.O-18.1 UNDERSTANDING THE SUBSIDENCE HAZARD WITH MULTI-SOURCE DATA AND ML MODELS – A CASE STUDY IN YANGTZE RIVER DELTA OF CHINA
Panpan Tang, Nanhu Laboratory, China; Yuxiang Wang, Xia Lei, PIESAT Information Technology Co., Ltd, China; Peng Gou, Nanhu Laboratory, China

TU1.O-18.3 MULTI-MISSION REMOTE SENSING OBSERVATIONS FOR OPTIMIZING HYDROLOGICAL HAZARD PREDICTIONS
Cecile Kittel, Daniel Druce, DHI-GRAS, Denmark; Karina Nielsen, Peter Bauer-Gottwein, Technical University of Denmark, Denmark; Christian Tøttrup, DHI-GRAS, Denmark

TU1.O-18.4 QUANTITATIVE, NEAR REAL-TIME MAPPING OF BUSHFIRES THROUGH INTEGRATION OF OPTICAL AND SAR REMOTE SENSING TECHNIQUES
Linlin Ge, University of New South Wales, Australia; Yufei Wang, Piesat Information Technology, Australia; Qi Zhang, Zheyuan Du, Chang Liu, Yifei Dong, Tony Sleigh, University of New South Wales, Australia; Tao Guo, Xia Lei, Zhewen Ma, Piesat Information Technology, Australia

TU1.O-18.5 GLACIAL LAKE OUTBURST FLOODS AND GLACIAL LAKE MONITORING IN THE HIMALAYA BASED ON REMOTE SENSING OBSERVATIONS
Yong Nie, Muchu Lesi, Institute of Mountain Hazards and Environment, Chinese Academy of Sciences, China; Jida Wang, Kansas State University, United States; Wen Wang, Institute of Mountain Hazards and Environment, Chinese Academy of Sciences, China

TU1.O-18.6 DOWNSCALING OF SATELLITE SOIL MOISTURE PRODUCTS AND ITS APPLICATIONS IN DROUGHT MONITORING
Jicheng Liu, Yuan Zhou, Laboratory of Environmental Model & Data Optima (EMDO), United States

Tuesday, July 13 10:30 - 12:00 Oral Room 19
Session TU1.O-19 Oral-Invited

Hyperspectral Imaging for Sustainable Agriculture and Food Security

Session Co-Chairs: Michael Marshall, Faculty of Geo-Information Science and Earth Observation (ITC), University of Twente; Mirco Boschetti, National Research Council of Italy; Francesco Falabella, Università degli Studi della Basilicata

TU1.O-19.1 HYPERSPECTRAL REMOTE SENSING OF VEGETATION: KNOWLEDGE GAIN AND KNOWLEDGE GAP AFTER 50 YEARS OF RESEARCH
Prasad Thenkabail, United States Geological Survey (USGS), United States

TU1.O-19.3 INTRODUCING THE POTENTIAL OF THE ENMAP-BOX FOR AGRICULTURAL APPLICATIONS USING DESIS AND PRISMA DATA
Tobias Hank, Katja Berger, Matthias Wocher, Ludwig-Maximilians-Universitaet Muenchen (LMU), Germany; Martin Danner, Bavarian Ministry of Food, Agriculture and Forestry, Germany; Wolfram Mauser, Ludwig-Maximilians-Universitaet Muenchen (LMU), Germany

TU1.O-19.4 HYNUTRI: ESTIMATING THE NUTRITIONAL COMPOSITION OF WHEAT FROM MULTI-TEMPORAL PRISMA DATA
Mariana Belgiu, Michael Marshall, Faculty of Geo-Information Science and Earth Observation (ITC), University of Twente, Netherlands; Mirco Boschetti, Monica Pepe, Institute for Electromagnetic Sensing of the Environment, Italian National Research Council, Italy; Alfred Stein, Caroline Lievens, Faculty of Geo-Information Science and Earth Observation (ITC), University of Twente, Netherlands

TU1.O-19.5 MAPPING CELLULOSE ABSORPTION BAND IN NPV USING PRISMA DATA
Loredana Pompilio, Mirco Boschetti, CNR-IREA, Italy; Matteo Petito, University of Padova, Italy; Michele Pisante, University of Teramo, Italy; Luigi Ranghetti, Monica Pepe, CNR-IREA, Italy

TU1.O-19.6 DESIS AND PRISMA: A STUDY OF A NEW GENERATION OF SPACEBORNE HYPERSPECTRAL SENSORS IN THE STUDY OF WORLD CROPS
Itiya Aneece, Prasad Thenkabail, US Geological Survey, United States

Tuesday, July 13 10:30 - 12:00 Oral Room 20
Session TU1.O-20 Oral-Invited

Hyperspectral Imaging for Soil Mapping and Monitoring

Session Co-Chairs: Bas Van Wesemael, Université catholique de Louvain; Sabine Chabrillat, Helmholtz-Zentrum Potsdam–Deutsches GeoForschungsZentrum GFZ; chengzhe Li, University of Iowa

TU1.O-20.1 ESTIMATION OF FIELD SCALE TOPSOIL PROPERTIES OF AGRONOMIC INTEREST FROM PRISMA IMAGING SPECTROMETER DATA
Raffaele Casa, Massimo Tolomio, Nada Mzid, University of Tuscia, Italy; Stefano Pignatti, Simone Pascucci, National Research Council (CNR), Italy

TU1.O-20.3 CROPLAND TOPSOIL PROPERTIES MAPPING BY APPLYING A MACHINE LEARNING ALGORITHM TO OPEN ACCESS COPERNICUS DATA
Nikolaos Tziolas, Nikolaos Tsakiridis, George Zalidis, Aristotle University Of Thessaloniki, Greece

TU1.O-20.4 ANALYSIS OF SENSITIVE SPECTRAL CHARACTERISTICS OF FARMLAND SOIL ORGANIC MATTER CONTENT BASED ON AHSI/ZY1-02D DATA
Yayu Yang, Kun Shang, Land Satellite Remote Sensing Application Center, Ministry of Natural Resources of China, China; Yuanjin Xu, China University of Geosciences, China

TU1.O-20.5 SOIL ORGANIC CARBON MODELLING WITH DIGITAL SOIL MAPPING AND REMOTE SENSING FOR PERMANENTLY VEGETATED AREAS
Laura Poggio, Luis de Sousa, Giulio Genova, ISRIC World Soil Information, Netherlands; Pablo d'Angelo, Peter Schwind, Uta Heiden, German Aerospace Center (DLR), Germany

TU1.O-20.6 EVALUATING SOIL REFLECTANCE COMPOSITES GENERATED BY SCMAP USING DIFFERENT SENTINEL-2 REFLECTANCE DATA INPUTS
Uta Heiden, Pablo d'Angelo, Peter Schwind, Raquel de los Reyes Lopez, Rupert Mueller, DLR Oberpfaffenhofen, Remote Sensing Technology Institute, Germany

Tuesday, July 13 13:00 - 14:10 Multimedia Room 1

Session TU2.MM-1

SAR Interferometry: Methods and Applications I

Session Co-Chairs: Homa Ansari, German Aerospace Center (DLR); Gilda Schirinzi, Università degli Studi di Napoli Parthenope; Matthieu Gallet, Université Savoie Mont Blanc

TU2.MM-1.1 DELINEATING RELIABLE GROUND CONTROL POINTS IN SBAS-INSAR ANALYSIS WITH PHASE DERIVATIVE VARIANCE
Yan Yan, University of Electronic Science and Technology of China, China; Yong Wang, East Carolina University, United States

TU2.MM-1.2 SAR-GMTI BASED ON ATI WITH NORMALIZED AMPLITUDE WEIGHTED PHASE DIFFERENCE
Qinghua Liu, Junfeng Wang, Xingzhao Liu, Shanghai Jiao Tong University, China

TU2.MM-1.3 AN ADAPTIVE SUBPIXEL COREGISTRATION FOR HIGH RESOLUTION INSAR IMAGE DATA
Zheyi Jiang, Shuangxi Zhang, Rui Guo, Yuxin Gao, Yongfeng Zhi, Northwestern Polytechnical University, China

TU2.MM-1.4 A COMPARATIVE STUDY OF DERAMPING TECHNIQUES FOR SENTINEL-1 TOPS IN THE CONTEXT OF INTERFEROMETRY
Roland Akiki, Université Paris-Saclay & Kayrros, France; Raphaël Grandin, Institut de Physique du Globe de Paris – Université Paris VII, France; Carlo de Franchis, Université Paris-Saclay & Kayrros, France; Gabriele Facciolo, Jean-Michel Morel, Université Paris-Saclay, France

TU2.MM-1.5 JOINT PHASE UNWRAPPING AND SPECKLE FILTERING BY USING CONVOLUTIONAL NEURAL NETWORKS
Giampaolo Ferraioli, Vito Pascazio, Gilda Schirinzi, Sergio Vitale, Università degli Studi di Napoli Parthenope, Italy; Mengdao Xing, Xidian University, China; Hanwen Yu, University of Electronic Science and Technology of China, China; Lifan Zhou, Changshu Institute of Technology, China

TU2.MM-1.6 INVESTIGATION OF THE PHASE BIAS IN THE SHORT TERM INTERFEROGRAMS
Yasser Maghsoudi, Milan Lazecky, Leeds University, United Kingdom; Homa Ansari, German Aerospace Center (DLR), Germany; Andy Hooper, Tim Wright, Leeds University, United Kingdom

TU2.MM-1.7 AN IMPROVED LEAST SQUARE PHASE UNWRAPPING ALGORITHM COMBINED WITH CONVOLUTIONAL NEURAL NETWORK
Ziwen Zhang, Qian Jiang, University of Electronic Science and Technology of China, China; Yong Wang, East Carolina University, United States; Xiaobo Yang, University of Electronic Science and Technology of China, China

TU2.MM-1.8 A PHASE FILTERING METHOD BASED ON DEEP LEARNING NETWORK
Yifan Liu, Ziwen Zhang, Jiang Qian, University of Electronic Science and Technology of China, China; Yong Wang, East Carolina University, United States; Xiaobo Yang, University of Electronic Science and Technology of China, China

TU2.MM-1.9 PARALLEL CS-INSAR FOR MAPPING NATIONWIDE DEFORMATION IN CHINA
Yixian Tang, Chao Wang, Hong Zhang, Aerospace Information Reasearch Institute, Chinese Academy of Sciences, China; Haihang You, Weikang Zhang, Institute of Computing Technology, Chinese Academy of Sciences, China; Wei Duan, Jing Wang, Longkai Dong, Aerospace Information Reasearch Institute, Chinese Academy of Sciences, China

Tuesday, July 13 13:00 - 14:10 Multimedia Room 2

Session TU2.MM-2

Feature Extraction in Passive and Active Remote Sensing

Session Co-Chairs: Yogender Yadav, Faculty of ITC, University of Twente; Alexandru Neculai, German Aerospace Center (DLR); Mauro Dalla Mura, Grenoble Institute of Technology

TU2.MM-2.1 AUTOMATED DAMAGED BUILDINGS IDENTIFICATION FROM HIGH-SPATIAL-RESOLUTION IMAGERY WITH TEXTURE AND SPECTRAL INFORMATION
Jiali Xie, Jianwu Jiang, Feng Wang, Jingwen Li, Yingnan Zhang, Yanling Lu, Guilin University of Technology, China

TU2.MM-2.2 TARGET-CONSTRAINED PARTICLE SWARM OPTIMIZATION-BASED BAND SELECTION FOR HYPERSPECTRAL TARGET DETECTION
Xiaodi Shang, Shihui Liu, Meiping Song, Dalian Maritime University, China

TU2.MM-2.3 BAND SELECTION FOR SPECIFIC TARGET DETECTION OF HYPERSPECTRAL IMAGERY
Xudong Sun, Site Li, Hongqi Zhang, Fengqiang Xu, Xianping Fu, Dalian Maritime University, China

TU2.MM-2.4 EFFECT OF SEARCH METHODS ON FEATURE SELECTION WITH HYPERSPECTRAL DATA
Yogender Yadav, Faculty of ITC, University of Twente, Netherlands; Mahesh Pal, National Institute of Technology, Kurukshetra, India

TU2.MM-2.5 MULTI-SOURCE REMOTE SENSING IMAGE REGISTRATION BASED ON LOCAL DEEP LEARNING FEATURE
Yongxian Zhang, Wuhan University, China; Zhijun Zhang, Xining Center of Natural Resources Comprehensive Survey, China Geological Survey, Qinghai, China; Guorui Ma, Jiao Wu, Wuhan University, China

TU2.MM-2.6 METRIC LEARNING FOR 2D IMAGE PATCH AND 3D POINT CLOUD VOLUME MATCHING
Baiqi Lai, Weiquan Liu, Cheng Wang, Xiamen University, China; Shuting Chen, Jimei University, China; Xuesheng Bian, Xiuhong Lin, Chenglu Wen, Xiamen University, China; Jonathan Li, University of Waterloo, Canada

TU2.MM-2.7 MULTI-ANGULAR SAR SCATTERING ANISOTROPY ANALYSIS BASED ON LOW-RANK MATRIX DECOMPOSITION
Xiaoyang Yue, Aerospace Information Reasearch Institute, Chinese Academy of Sciences, China; Yun Lin, North China University of Technology, China; Fei Teng, Shanshan Feng, Wen Hong, Aerospace Information Reasearch Institute, Chinese Academy of Sciences, China

TU2.MM-2.8 SEA-LAND COARSE SEGMENTATION WITH TWO AND THREE-TERM LRS DECOMPOSITIONS IN MULTISQUINT SPACEBORNE SAR IMAGERY
Yulun Li, Wei Yang, Yuming Jiang, Chunsheng Li, Beihang University, China

TU2.MM-2.9 CLASSIFICATION OF OIL SPILLS AND LOOK-ALIKES FROM SAR IMAGES USING BAG OF VISUAL WORDS METHOD OF FEATURE EXTRACTION
Anagha Dhavalikar, Pranali Choudhari, Father C. Rodrigues Institute of Technology, India

Tuesday, July 13 13:00 - 14:10 Multimedia Room 3

Session TU2.MM-3

Semantic Segmentation in Optical Data II

Session Co-Chairs: Mayank Jain, University College Dublin; Dan López-Puigdollers, Universitat de València; Adrien Chan-Hon-Tong, ONERA

TU2.MM-3.1 GCN-BASED SEMANTIC SEGMENTATION METHOD FOR MINE INFORMATION EXTRACTION IN GAOFEN-1 IMAGERY
Chenbin Liang, State Key Laboratory of Management and Control for Complex Systems, Institute of Automation, Chinese Academy of Sciences;School of Artificial Intelligence,University of Chinese Academy of Sciences, China; Baihua Xiao, State Key Laboratory of Management and Control for Complex Systems, Institute of Automation, Chinese Academy of Sciences, China; Bo Cheng, Aerospace Information Reasearch Institute, Chinese Academy of Sciences, China

TU2.MM-3.2 SEMANTIC LABELING OF VERY HIGH-RESOLUTION IMAGERY BY LEVERAGING CONTEXTUAL INFORMATION WITH OPTIMIZED NON-LOCAL NEURAL NETWORK
Xin Li, Feng Xu, Xin Lyu, Liancheng Zhao, Tao Zeng, Xinyuan Wang, Hohai University, China

TU2.MM-3.3 DUAL-STREAM HIGH RESOLUTION NETWORK FOR MULTI-SOURCE REMOTE SENSING IMAGE SEGMENTATION
Bo Ren, Shibin Ma, Biao Hou, Xidian University, China; Danfeng Hong, German Aerospace Center (DLR), Germany

TU2.MM-3.4 S-MOBILENETV2+SEGNET MODEL AND RAPID IDENTIFICATION OF SUGARCANE
Weiguang Liu, Guoqing Zhou, Jiasheng Xu, Guilin University of Technology, China

TU2.MM-3.5 DEMOTIVATE ADVERSARIAL DEFENSE IN REMOTE SENSING
Adrien Chan-Hon-Tong, Gaston Lenczner, Aurélien Plyer, ONERA, France

TU2.MM-3.6 USING GANS TO AUGMENT DATA FOR CLOUD IMAGE SEGMENTATION TASK
Mayank Jain, Conor Meegan, Soumyabrata Dev, University College Dublin, Ireland

TU2.MM-3.7 SEMANTIC SEGMENTATION FOR HIGH-RESOLUTION REMOTE SENSING IMAGES BY LIGHT-WEIGHT NETWORK
Changjian Deng, Leikun Liang, Yanzhou Su, University of Electronic Science and Technology of China, China; Changtao He, Sichuan Jiuzhou Eletric Group Co., Ltd, China; Jian Cheng, University of Electronic Science and Technology of China, China

TU2.MM-3.8 GRAPH-BASED APPROACH TO IMPROVE INDIVIDUAL TREE CROWN DELINEATION IN TEMPERATE FOREST USING STRUCTURAL AND SPECTRAL INFORMATION
Matthieu Deluzet, ONERA, France; Thierry Erudel, CS Group, France; Xavier Briottet, ONERA, France; Thomas Houet, LETG-Rennes, France; David Sheeren, Sophie Fabre, ONERA, France

TU2.MM-3.9 EXTRACTION OF OPEN-PIT MINE RECLAMATION AREA WITH CONVOLUTIONAL NEURAL NETWORK
Congtang Meng, Yindi Zhao, Bo Wu, China University of Mining and Technology, China

TU2.MM-3.10 SELF-SUPERVISED IMAGE COLORIZATION FOR SEMANTIC SEGMENTATION OF URBAN LAND COVER
Jonathan González Santiago, Fabian Schenkel, Wolfgang Middelmann, Fraunhofer IOSB, Germany

Tuesday, July 13 13:00 - 14:10 Multimedia Room 4

Session TU2.MM-4

Semantic Segmentation in SAR/PolSAR Data

Session Co-Chairs: María Culman, KU Leuven; Alireza Taravat, Deimos Space UK; Florence Tupin, Telecom Paris

TU2.MM-4.1 FOREST CANOPY MAPPING USING SYNTHETIC APERTURE RADAR BY MEANS OF PULSE COUPLED NEURAL NETWORKS
Alireza Taravat, Deimos Space UK, United Kingdom; Iraj Emadodin, Kiel University, Germany

TU2.MM-4.2 AN IMPROVED DARK-SPOT SEGMENTATION BASED ON NON-CIRCULARITY ENHANCED SAR IMAGERY: A PRELIMINARY EXPLORATION
Haitao Lang, Chenguang Ge, Wenjing Li, Shuangmei Zhao, Chunnan Li, Lihui Niu, Guang'an Yang, Beijing University of Chemical Technology, China

TU2.MM-4.3 BAYESIAN U-NET FOR SEGMENTING GLACIERS IN SAR IMAGERY
Andreas Hartmann, Amirabbas Davari, Thorsten Seehaus, Matthias Braun, Andreas Maier, Vincent Christlein, Friendrich-Alexander Universität Erlangen-Nürnberg, Germany

TU2.MM-4.4 GLACIER CALVING FRONT SEGMENTATION USING ATTENTION U-NET
Michael Holzmann, Amirabbas Davari, Thorsten Seehaus, Matthias Braun, Andreas Maier, Vincent Christlein, Friendrich-Alexander Universität Erlangen-Nürnberg, Germany

TU2.MM-4.5 A SUPERPIXEL AGGREGATION METHOD BASED ON MULTI-DIRECTION GRAY LEVEL CO-OCCURRENCE MATRIX FOR SAR IMAGE SEGMENTATION
Meiling Cui, Yulin Huang, Rufei Wang, Jifang Pei, Weibo Huo, Yin Zhang, Haiguang Yang, University of Electronic Science and Technology of China, China

TU2.MM-4.6 DEEP LEARNING BASED OIL SPILL CLASSIFICATION USING UNET CONVOLUTIONAL NEURAL NETWORK
Abdul Basit, Muhammad Adnan Siddique, Information Technology University (ITU), Pakistan; Muhammad Saquib Sarfraz, Institute for Anthropomatics and Robotics, Karlsruhe Institute of Technology (KIT), Germany

TU2.MM-4.7 OIL SPILL DETECTION BASED ON CBD-NET USING MARINE SAR IMAGE
Yanan Zhang, Qiqi Zhu, Qingfeng Guan, China University of Geosciences, China

TU2.MM-4.8 DISTRIBUTION CHARACTERISTICS OF GREEN ALGAE IN YELLOW SEA USING AN DEEP LEARNING AUTOMATIC DETECTION PROCEDURE
Yuan Guo, Le Gao, Xiaofeng Li, Institute of Oceanography, Chinese Academy of Sciences, China

TU2.MM-4.9 CLASSIFYING SEA ICE TYPES FROM SAR IMAGES USING A U-NET-BASED DEEP LEARNING MODEL
Yan Huang, Yibin Ren, Xiaofeng Li, Institute of Oceanology, Chinese Academy of Sciences and Center for Ocean Mega-Science, Chinese Academy of Sciences, China

TU2.MM-4.10 CONVOLUTIONAL AUTOENCODER FOR UNSUPERVISED REPRESENTATION LEARNING OF POLSAR TIME-SERIES
Thomas Di Martino, ONERA, CentraleSupélec, Université Paris-Saclay, France; Régis Guinvarc'h, Laétitia Thirion-Lefevre, CentraleSupélec, France; Elise Colin Koeniguer, ONERA, Université Paris-Saclay, France

Tuesday, July 13 13:00 - 14:10 Multimedia Room 5

Session TU2.MM-5

Electromagnetic Modeling in Remote Sensing I

Session Co-Chairs: Jose Luis Alvarez-Perez, University of Alcala; Robbe Neyns, Vrije Universiteit Brussel; Kamal Sarabandi, University of Michigan

TU2.MM-5.1 EFFECTS OF OCEAN WAVE SPECTRUM TRUNCATION ON SEA CLUTTER DISTRIBUTION IN NUMERICAL SIMULATIONS
Yanlei Du, Jian Yang, Tsinghua University, China; Tao Liu, Naval University of Engineering, China; Liang Zeng, Tao Zhang, Tsinghua University, China; Xiaofeng Yang, Aerospace Information Reasearch Institute, Chinese Academy of Sciences, China

TU2.MM-5.2 NUMERICAL INVESTIGATION OF ACTIVE MAGNETIC RANGING METHOD FOR RELIEF WELL PROJECTS
Peng Hao, Yongpeng Zhao, Xiangyang Sun, Zaiping Nie, University of Electronic Science and Technology of China, China

TU2.MM-5.3 A GEOMETRIC-FACTOR-REVISED PERMITTIVITY MODEL FOR THREE-PHASE MIXTURE WITH ARBITRARY INCLUSION PACKING
Chen Guo, Minmin Che, Chang'an University, China; Bowen Ling, Stanford University, China

TU2.MM-5.4 RIGOROUS NUMERICAL METHOD FOR ELECTROMAGNETIC SCATTERING BY AN OBJECT BURIED BETWEEN TWO ROUGH SURFACES
Marc Songolo, Nicolas Pinel, Icam Ouest School of Engineering, France; Christophe Bourlier, Polytech Nantes, France

TU2.MM-5.5 SECOND-ORDER SCATTERING IN THE IEM2MC ROUGH SURFACE SCATTERING MODEL
Jose Luis Alvarez-Perez, University of Alcala, Spain; Matias Barber, Institute for Astronomy and Space Physics (IAFE), Argentina

TU2.MM-5.6 AN IMPROVED TWO-SCALE METHOD FOR SIMULATING THE BACKSCATTERING OF RANDOM ROUGH SURFACES
Xun Yang, Ling Tong, Ming Li, University of Electronic Science and Technology of China, China

TU2.MM-5.7 MULTI-FREQUENCY NMM3D SIMULATIONS OF WAVE PROPAGATION IN VEGETATION FOR REMOTE SENSING OF SOIL MOISTURE
Weihui Gu, Leung Tsang, University of Michigan, United States; Andreas Colliander, Simon Yueh, California Institute of Technology, United States

Tuesday, July 13 13:00 - 14:10 Multimedia Room 6

Session TU2.MM-6

Ship Detection

Session Co-Chairs: Shitian He, National University of Defense Technology; Louise Delhaye, The AfricaMuseum; Haipeng Wang, Fudan University

TU2.MM-6.1 SMALL SHIP DETECTION VIA DEFORMABLE CONVOLUTIONAL NETWORK
Yao Wang, Ganggang Dong, Hongwei Liu, Xidian University, China

TU2.MM-6.2 SHIPSRDET: AN END-TO-END REMOTE SENSING SHIP DETECTOR USING SUPER-RESOLVED FEATURE REPRESENTATION
Shitian He, Huanxin Zou, Yingqian Wang, Runlin Li, Fei Cheng, National University of Defence Technology, China

TU2.MM-6.3 SHIP DETECTION AND RECOGNITION IN OPTICAL REMOTE SENSING IMAGES BASED ON SCALE ENHANCEMENT ROTATING CASCADE R-CNN NETWORKS
Caiguang Zhang, Gangyao Kuang, Boli Xiong, National University of Defence Technology, China

TU2.MM-6.4 YOLOV3 BASED SHIP DETECTION IN VISIBLE AND INFRARED IMAGES
Lena Chang, Yi-Ting Chen, Ming-Hung Hung, Jung-Hua Wang, National Taiwan Ocean University, Taiwan; Yang-Lang Chang, National Taipei University of Technology, Taiwan

TU2.MM-6.5 SHIP DETECTION FROM OPTICAL REMOTE SENSING IMAGERY BASED ON SCENE CLASSIFICATION AND SALIENCY-TUNED RETINANET
Ruoting Yin, Beijing University of Chemical Technology, China; Qizhi Xu, Beijing Institute of Technology, China; Ding Yifang, Institute of Beijing Remote sensing Information, China

TU2.MM-6.6 IDENTIFICATION OF UNCLASSIFIED SHIPS IMPLEMENTING AIS INFORMATION AND SAR IMAGE-BASED SHIP DETECTION RESULTS
Juyoung Song, Duk-jin Kim, Seoul National University, Korea (South)

TU2.MM-6.7 SHIP DETECTION AND CLASSIFICATION IN EO/IR VHR SATELLITE IMAGERY
Igor Zakharov, C-CORE, Canada; Daniel Lavigne, DRDC, Canada; Sherry Warren, Michael Henschel, Desmond Power, Mark Howell, C-CORE, Canada

TU2.MM-6.8 SAR SHIP DETECTION BASED ON AN IMPROVED FASTER R-CNN USING DEFORMABLE CONVOLUTION
Xiao Ke, Xiaoling Zhang, Tianwen Zhang, Jun Shi, Shunjun Wei, University of Electronic Science and Technology of China, China

TU2.MM-6.9 FAST SHIP DETECTION METHOD FOR SAR IMAGES IN THE INSHORE REGION
Xiaoya Fu, Zhaocheng Wang, Hebei University of Technology, China

TU2.MM-6.10 A FEATURE ENHANCEMENT METHOD BASED ON THE SUB-APERTURE DECOMPOSITION FOR ROTATING FRAME SHIP DETECTION IN SAR IMAGES
Songlin Lei, Xiaolan Qiu, Chibiao Ding, Aerospace Information Reasearch Institute, Chinese Academy of Sciences, China; Shujie Lei, Shanghai Radio Equipment Research Institute, China

Tuesday, July 13 13:00 - 14:10 Multimedia Room 7

Session TU2.MM-7

SAR Target Recognition

Session Co-Chairs: Xingyan Cao, Universiteit Gent; Roshanak Darvish, Twente University; Xavier Neyt, Royal Military Academy , Belgium

TU2.MM-7.1 SAR TARGET RECOGNITION AND ANGLE ESTIMATION BY USING ROTATION-MAPPING NETWORK
Yuanyuan Zhou, Wei Wang, Chen Wang, Xiaqing Yang, Jun Shi, Shunjun Wei, University of Electronic Science and Technology of China, China

TU2.MM-7.2 A NOVEL DATA AUGMENTATION METHOD FOR SAR IMAGE TARGET DETECTION AND RECOGNITION
Xiaolong Zhang, Xinghua Chai, Yanqiao Chen, The 54th Research Institute of China Electronics Technology Group Corporation, China; Zichen Yang, Guangyuan Liu, Aiyuan He, Yangyang Li, Xidian University, China

TU2.MM-7.3 MULTI-VIEW SAR AUTOMATIC TARGET RECOGNITION BASED ON DEFORMABLE CONVOLUTIONAL NETWORK
Zhiyong Wang, Chenwei Wang, Jifang Pei, Yulin Huang, Yin Zhang, Haiguang Yang, University of Electronic Science and Technology of China, China; Zhiwei Xing, Civil Aviation University of China, China

TU2.MM-7.4 OPTRONIC CONVOLUTIONAL NEURAL NETWORK FOR SAR TARGET RECOGNITION
Ziyu Gu, Zhicheng Wang, Yesheng Gao, Xingzhao Liu, Shanghai Jiao Tong University, China; Yu Cui, shanghai Academy of Spaceflite Technology, China

TU2.MM-7.5 AN IQE CRITERION-BASED METHOD FOR SAR IMAGES CLASSIFICATION NETWORK PRUNING
Jielei Wang, Zongyong Cui, Zongjie Cao, Hanzeng Wang, Changjie Cao, University of Electronic Science and Technology of China, China

TU2.MM-7.6 SPARSE SAR IMAGE BASED AUTOMATIC TARGET RECOGNITION BY YOLO NETWORK
Jiarui Deng, Hui Bi, Yanjie Yin, Xingmeng Lu, Nanjing University of Aeronautics and Astronautics, China; Wei Liang, Chinese Academy of Sciences, China

TU2.MM-7.7 HIERARCHICAL NONLINEAR DICTIONARY LEARNING WITH CONVOLUTIONAL NEURAL NETWORKS: APPLICATION TO SAR TARGET RECOGNITION
Lei Tao, Xue Jiang, Xingzhao Liu, Shanghai Jiao Tong University, China

TU2.MM-7.8 SAR AUTOMATIC TARGET RECOGNITION BASED ON MULTI-SCALE CONVOLUTIONAL FACTOR ANALYSIS MODEL WITH MAX-MARGIN CONSTRAINT
Yuchen Guo, Lan Du, Chen Li, Jian Chen, Xidian University, China

TU2.MM-7.9 HOW SAR IMAGE DENOISE AFFECTS THE PERFORMANCE OF DCNN-BASED TARGET RECOGNITION METHOD
Jiaxin Tang, Fan Zhang, Fei Ma, Beijing University of Chemical Technology, China; Fei Gao, Beihang University, China; Qiang Yin, Yongsheng Zhou, Beijing University of Chemical Technology, China

Tuesday, July 13 13:00 - 14:10 Multimedia Room 8

Session TU2.MM-8

Hyperspectral Image Classification

Session Co-Chairs: Qian Du, Mississippi State University; Dandan Ma, Northwestern Polytechnical University; Anna Mateo-Sanchis, Universitat de València

TU2.MM-8.1 A BINARY FEATURE REPRESENTATION METHOD FOR HYPERSPECTRAL IMAGE CLASSIFICATION
Changda Xing, Meiling Wang, Zhisheng Wang, Chaowei Duan, Yiliu Liu, Nanjing University of Aeronautics and Astronautics, China

TU2.MM-8.2 HYPERSPECTRAL IMAGE CLASSIFICATION BASED ON EXTENDED MORPHOLOGICAL PROFILE FEATURES AND GHOST MODULE
Size Liu, Bixiu Ding, Jing Bai, Xidian University, China; Zhu Xiao, Hunan University, China

TU2.MM-8.3 COLLABORATIVE AND LOW-RANK GRAPH FOR DISCRIMINANT ANALYSIS OF HYPERSPECTRAL IMAGERY
Chiranjibi Shah, Qian Du, Mississippi State University, United States

TU2.MM-8.4 GROUP-AWARE LOW-RANK REPRESENTATION FOR HYPERSPECTRAL IMAGE CLASSIFICATION
Changda Xing, Meiling Wang, Zhisheng Wang, Chaowei Duan, Yiliu Liu, Nanjing University of Aeronautics and Astronautics, China

TU2.MM-8.5 ADAPTIVE SPECTRAL AND SPATIAL FEATURE EXTRACTION FRAMEWORK FOR HYPERSPECTRAL CLASSIFICATION
Wenchao Wang, Yuan Yuan, Dandan Ma, Northwestern Polytechnical University, China

TU2.MM-8.6 KEROGEN TYPE CLASSIFICATION IN HYDROCARBON SOURCE ROCKS USING HYPERSPECTRAL DATA AND MACHINE LEARNING
Tainá Thomassim Guimarães, Lucas Silveira Kupssinskü, Daniel Capella Zanotta, João Gabriel Motta, Unisinos University, Brazil; André Luiz Durante Spigolon, Petrobras Research and Development Center (CENPES), Brazil; Luiz Gonzaga Jr, Maurício Roberto Veronez, Unisinos University, Brazil

TU2.MM-8.7 GLOBAL SPATIAL AND LOCAL SPECTRAL SIMILARITY BASED SAMPLE AUGMENT AND EXTENDED SUBSPACE PROJECTION FOR HYPERSPECTRAL IMAGE CLASSIFICATION
Xueji Shen, Haoyang Yu, Chunyan Yu, Yulei Wang, Meiping Song, Dalian Maritime University, China

TU2.MM-8.8 SPATIAL-SPECTRAL HYPERSPECTRAL IMAGE CLASSIFICATION VIA MULTIPLE RANDOM ANCHOR GRAPHS ENSEMBLE LEARNING
Yanling Miao, Qi Wang, Mulin Chen, Xuelong Li, Northwestern Polytechnical University, China

TU2.MM-8.9 HYPERSPECTRAL IMAGE CLASSIFICATION BASED ON CLASS CONFUSION MERGING AND SOFT BAND SELECTION
Xinyuan Miao, Ye Zhang, Junping Zhang, Xuejian Liang, Harbin Institute of Technology, China

TU2.MM-8.10 AUTOMATICALLY ADJUSTABLE MULTI-SCALE FEATURE EXTRACTION FRAMEWORK FOR HYPERSPECTRAL IMAGE CLASSIFICATION
Jiaqi Yang, Bo Du, Chen Wu, Liangpei Zhang, Wuhan University, China

Tuesday, July 13 13:00 - 14:10 Multimedia Room 9

Session TU2.MM-9

Deep Learning for Hyperspectral Image Classification II

Session Co-Chairs: Wei Wei, Northwestern Polytechnical University; Thimm Zwiener, The AfricaMuseum; Feng Shou, College of Information and Communication Engineering, Harbin Engineering University

TU2.MM-9.1 HYPERSPECTRAL IMAGE CLASSIFICATION BASED ON DENSE CONVOLUTION AND CONDITIONAL RANDOM FIELD
Chunhui Zhao, Harbin University of Engineering, China; Boao Qin, Tong Li, Shou Feng, Yiming Yan, Harbin Engineering University, China

TU2.MM-9.2 MIRROR MOSAICKING BASED REDUCED COMPLEXITY APPROACH FOR THE CLASSIFICATION OF HYPERSPECTRAL IMAGES
S N Chaudhri, Naveen Singh Rajput, K P Singh, IIT(BHU), India; Dharmendra Singh, IIT, Roorkee, INDIA, India

TU2.MM-9.3 HYPERSPECTRAL IMAGE CLASSIFICATION BASED ON SPECTRAL GRAPH AND BIDIRECTIONAL LSTM NETWORK
Xu Tang, Qionglin Zhou, Fanbo Meng, Xidian University, China; Xiao Han, Geovis Spatial Technology Co.,Ltd, China; Dalei Li, Science and Technology on Electro-optic Control Laboratory, China; Xiangrong Zhang, Licheng Jiao, Xidian University, China

TU2.MM-9.4 DEEP DIFFUSION PROCESSES FOR ACTIVE LEARNING OF HYPERSPECTRAL IMAGES
Abiy Tasissa, Tufts University, United States; Duc Nguyen, University of Maryland, United States; James Murphy, Tufts University, United States

TU2.MM-9.5 ENSEMBLE CNN WITH ENHANCED FEATURE SUBSPACES FOR IMBALANCED HYPERSPECTRAL IMAGE CLASSIFICATION
Qinzhe Lv, Wei Feng, Yinghui Quan, Xidian University, China; Qiang Li, Northwestern Polytechnical University, China; Gabriel Dauphin, University Paris XIII, France; Lianru Gao, Chinese Academy of Sciences, China; Guoping Zhao, Shaan Xi Academy of Forestry, China; Mengdao Xing, Xidian University, China

TU2.MM-9.6 BOOSTING CNN FOR HYPERSPECTRAL IMAGE CLASSIFICATION
Haoyu Zhang, Yushi Chen, Xin He, Harbin Institute of Technology, China; Xingliang Shen, Tianjin Navigation Instruments Research Institute, China

TU2.MM-9.7 HSGACN: HYPERSPECTRAL IMAGE CLASSIFICATION ALGORITHM BASED ON GRAPH CONVOLUTIONAL NETWORK
Yi Xiao, Siying Chen, Hao Wang, Zhengang Zhao, Tao Huang, Yuchen Liang, Jin Qin, Rong Ma, Zongyao Yin, Ruiqing Yan, Xianchuan Yu, Beijing Normal University, China

TU2.MM-9.8 META TRANSFER LEARNING FOR FEW-SHOT HYPERSPECTRAL IMAGE CLASSIFICATION
Fei Zhou, Lei Zhang, Wei Wei, Northwestern Polytechnical University, China; Zongwen Bai, Yanan University, China; Yanning Zhang, Northwestern Polytechnical University, China

TU2.MM-9.9 CLASSIFICATION OF MULTI-RESOLUTION HYPERSPECTRAL DATA BY CONVOLUTIONAL NEURAL NETWORKS
Takato Yamada, Akira Iwasaki, University of Tokyo, Japan

TU2.MM-9.10 A COMPARATIVE STUDY OF NOISE SENSITIVITY ON DIFFERENT HYPERSPECTRAL CLASSIFICATION METHODS
Congyu Li, Xinxin Liu, Xudong Kang, Shutao Li, Hunan University, China

Tuesday, July 13 13:00 - 14:10 Multimedia Room 10

Session TU2.MM-10

Retrievals and Parameter Estimation

Session Co-Chairs: Jefersson A. dos Santos, Federal University of Minas Gerais, UFMG, Brazil; Yakoub Bazi, King Saud University; Ragini Bal Mahesh, Technische Universität München

TU2.MM-10.1 RESEARCH ON INVERSION OF MINERAL CONTENT INFORMATION BASED ON HYPERSPECTRAL REMOTE SENSING
Na Li, Xinfeng Dong, Fuping Gan, China Aero Geophysical Survey and Remote Sensing Center for Natural Resources, China

TU2.MM-10.2 A REMOTE SENSING METHOD TO INVERSE CHEMICAL OXYGEN DEMAND IN QINGHAI LAKE
Quan Guo, Dianjun Zhang, Lingjuan Cao, Jie Zhan, School of Marine Science and Technology, Tianjin University, China

TU2.MM-10.3 ESTIMATION OF MIXED FORESTS CLUMPING INDEX AND ITS SPATIAL HETEROGENEITY STUDY
Rui Xie, Ziti Jiao, Beijing Normal University, China; Yadong Dong, Skate Key Laboratory of Remote Sensing Science, China; Xiaoning Zhang, Siyang Yin, Lei Cui, Jing Guo, Sijie Li, Zidong Zhu, Yidong Tong, Beijing Normal University, China

TU2.MM-10.4 A MACHINE LEARNING FRAMEWORK FOR MAPPING SOIL NUTRIENTS WITH MULTI-SOURCE DATA FUSION
Kamal Das, Navin Twarakavi, IBM Research, India, India; Noppadon Khiripet, NSTDA - Thailand, Thailand; Panyawat Chattanrassamee, Chalerm Kijkullert, Mitr Phol - Thailand, Thailand

TU2.MM-10.5 ESTIMATING LEAF AREA INDEX AT 250M SPATIAL RESOLUTION FROM MODIS DATA USING CONVOLUTIONAL NEURAL NETWORKS
Yunteng Zhang, Zhiqiang Xiao, Beijing Normal University, China

TU2.MM-10.6 AMMONIA NITROGEN MONITORING OF URBAN RIVERS WITH UAV-BORNE HYPERSPECTRAL REMOTE SENSING IMAGERY
Zhou Wang, Lifei Wei, Chujun He, Qikai Lu, Hubei University, China

Tuesday, July 13 13:00 - 14:10 Multimedia Room 11

Session TU2.MM-11

Retrieval and Modeling of Land and Atmosphere Parameters

Session Co-Chairs: Michele Gazzea, Western Norway University of Applied Sciences; EunYeol Kim, Colorado State University; Lina Zhuang, University of Hong Kong

TU2.MM-11.1 ESTIMATION OF SOIL ORGANIC CARBON CONTENT BASED ON DEEP LEARNING AND QUANTILE REGRESSION
Wudi Zhao, Zhilu Wu, Zhendong Yin, Harbin Institute of Technology, China

TU2.MM-11.2 AUTOMATED 3D VEGETATION DETECTION ALONG POWER LINES USING MONOCULAR SATELLITE IMAGERY AND DEEP LEARNING
Michele Gazzea, Sindre Aalhus, Lars Kristensen, Western Norway University of Applied Sciences, Norway; Eren Ozguven, Florida State University, United States; Reza Arghandeh, Western Norway University of Applied Sciences, Norway

TU2.MM-11.3 AN EVAPOTRANSPIRATION MODEL FOR ARID LAND TO ESTIMATE WATER LOSS IN HOTAN RIVER BASIN
Yongmin Yang, Aihua Long, Ji Zhang, Hongxin Liu, China Institute of Water Resources and Hydropower Research, China

TU2.MM-11.4 ESTIMATION AND EVALUATION OF THE LAND SURFACE TEMPERATURE FROM FENGYUN-3 SERIES SATELLITE DATA IN NORTHWEST CHINA
Hao Tu, University of Electronic Science and Technology of China, China; Hua Li, Qinhuo Liu, Aerospace Information Reasearch Institute, Chinese Academy of Sciences, China; Ruibo Li, Shandong University of Science and Technology, China

TU2.MM-11.5 GLOBAL DAILY 500-M EVAPOTRANSPIRATION ESTIMATION OVER VEGETATED AREAS USING RNADOM FOREST FROM MODIS DATA
Zhong Peng, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, China; Ronglin Tang, Yazhen Jiang, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences; University of Chinese Academy of Sciences, China; Meng Liu, Ministry of Agriculture/Institute of Agricultural Resources and Regional Planning, Chinese Academy of Agricultural Sciences, China

TU2.MM-11.6 LAND SURFACE EMISSIVITY ESTIMATION FROM SATELLITE DATA WITH MACHINE LEARNING
Xiu-Juan Li, Hua Wu, Zhao-Liang Li, State Key Laboratory of Resources and Environmental Information System, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, China; Yong-Gang Qian, Aerospace Information Reasearch Institute, Chinese Academy of Sciences, China; Si-Bo Duan, Key Laboratory of Agri-informatics, Ministry of Agriculture/Institute of Agricultural Resources and Regional Planning, Chinese Academy of Agricultural Sciences, China

TU2.MM-11.7 COUPLED ESTIMATION OF DAILY GROSS PRIMARY PRODUCTION AND EVAPOTRANSPIRATION AT 84 GLOBAL FOREST SITES
Lingxiao Huang, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, China; Meng Liu, Institute of Agricultural Resources and Regional Planning, Chinese Academy of Agricultural Sciences, China; Yazhen Jiang, Ronglin Tang, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, China

TU2.MM-11.8 PRELIMINARY VALIDATION OF THE EXTENDED LONG-TERM LAND SURFACE TEMPERATURE FROM NOAA AVHRR OVER THE HEIHE RIVER BASIN, CHINA
Yongjie Wang, Jin Ma, Ji Zhou, University of Electronic Science and Technology of China, China

Tuesday, July 13 13:00 - 14:10 Multimedia Room 12

Session TU2.MM-12

Environmental Monitoring and Natural Hazard Mitigation

Session Co-Chairs: Yifang Ban, Royal Institute of Technology; Raul Queiroz Feitosa, Pontifical Catholic University of Rio de Janeiro; Meenal Sharma, University of Twente

TU2.MM-12.1 FIRE REFERENCE PERIMETERS EXTRACTED FROM SENTINEL-2 DATA FOR VALIDATION OF BURNED AREA PRODUCTS IN AFRICA BIOMES
Matteo Sali, Lorenzo Busetto, Mirco Boschetti, CNR, Italy; Magí Franquesa, Emilio Chuvieco, University of Alcala, Spain; Daniela Stroppiana, CNR, Italy

TU2.MM-12.2 DEFORESTATION DETECTION BASED ON U-NET AND LSTM IN OPTICAL SATELLITE REMOTE SENSING IMAGES
Jie Zhang, Zhibao Wang, Northeast Petroleum University, China; Lu Bai, Ulster University, United Kingdom; Guangfu Song, Northeast Petroleum University, China; Jinhua Tao, Liangfu Chen, University of Chinese Academy of Sciences, China

TU2.MM-12.3 DETECTION AND VOLUME ESTIMATION OF LARGE-SCALE LANDSLIDE IN ABE BAREK, AFGHANISTAN USING NONLINEAR MAPPING OF DEMS
Mujeeb Rahman Atefi, Hiroyuki Miura, Hiroshima University, Japan

TU2.MM-12.4 A NOVEL FOREST DISATER MONITORING METHOD BASED ON FCM AND NEIGHBORHOOD FACTOR GENETIC ALGORITHM USING MULTISPECTRAL DATA
Yang Cao, Wei Feng, Yinghui Quan, Aifeng Ren, Mengdao Xing, Xidian University, China

TU2.MM-12.5 EARLY DETECTION OF WILDFIRES WITH GOES-R TIME-SERIES AND DEEP GRU NETWORK
Yu Zhao, Yifang Ban, Andrea Nascetti, Royal Institute of Technology, Sweden

TU2.MM-12.6 COMPARISON OF OPTICAL AND SAR DATA FOR DEFORESTATION MAPPING IN THE AMAZON RAINFOREST WITH FULLY CONVOLUTIONAL NETWORKS
Mabel Ortega Adarme, Raul Queiroz Feitosa, Jose Bermudez Castro, Patrick Nigri Happ, Pontifical Catholic University of Rio de Janeiro, Brazil; Cláudio Aparecido Almeida, National Institute for Space Research (INPE), Brazil

TU2.MM-12.7 DETECTION OF METHANE EMISSIONS USING PATTERN RECOGNITION
Elyes Ouerghi, Thibaud Ehret, Gabriele Facciolo, Enric Meinhardt-Llopis, Jean-Michel Morel, Université Paris-Saclay, France; Carlo de Franchis, Université Paris-Saclay & Kayrros, France; Thomas Lauvaux, Laboratoire des Sciences du Climat et de l'Environnement, France

TU2.MM-12.8 CORAL BLEACHING DETECTION USING SENTINEL-2B/MSI IMAGES
Bailu Liu, Lei Guan, Ocean University of China, China

TU2.MM-12.9 MULTI-TEMPORAL CHANGES ANALYSIS OF NATURAL VEGETATION COVER USING SERIAL NDVI AND METRIC INDICES: CASE OF TLEMCEN NATIONAL PARK (NORTHWEST OF ALGERIA)
Lotfi Mustapha Kazi-Tani, University of Tlemcen, Algeria; Abderrazak Bannari, Space Pix-Map International Inc., Canada

Tuesday, July 13 13:00 - 14:10 Multimedia Room 13

Session TU2.MM-13

Multi-temporal Analysis of SAR Images

Session Co-Chairs: Francesca Cigna, Italian Space Agency (ASI); Javiera Castillo-Navarro, Onera; Adnane CHAKIR, LMME, Faculty of Science Semlalia, Cadi Ayyad University

TU2.MM-13.1 GRAPH-LEVEL NEURAL NETWORK FOR SAR IMAGE CHANGE DETECTION
Rongfang Wang, Liang Wang, Xidian University, China; Pinghai Dong, Tsinghua Shenzhen International Graduate School, China; Licheng Jiao, Jia-Wei Chen, Xidian University, China

TU2.MM-13.2 LAND SUBSIDENCE MONITORING IN SEMARANG, INDONESIA THROUGH OPTIMIZED HOT SPOT ANALYSIS BASED ON TIME-SERIES INSAR PROCESSING
Wahyu Luqmanul Hakim, Seul Ki Lee, Chang-Wook Lee, Kangwon National University, Korea (South)

TU2.MM-13.4 MULTI-TEMPORAL INSAR AND TARGET DETECTION WITH COSMO-SKYMED SAR BIG DATA TO MONITOR URBAN DYNAMICS IN WUHAN (CHINA)
Deodato Tapete, Francesca Cigna, Italian Space Agency (ASI), Italy; Timo Balz, Hashir Tanveer, Jinghui Wang, Haonan Jiang, Wuhan University, China

TU2.MM-13.5 SAR IMAGE CHANGE DETECTION METHOD BASED ON NEURAL-CRF STRUCTURE
Jianlong Zhang, Mengying Cui, Bin Wang, Xidian University, China

TU2.MM-13.6 DIURNAL CYCLES OF C-BAND TEMPORAL COHERENCE AND BACKSCATTERING COEFFICIENT OVER AN OLIVE ORCHARD IN A SEMI-ARID AREA: COMPARISON OF IN SITU AND SENTINEL-1 RADAR OBSERVATIONS
Adnane Chakir, LMME, Faculty of Science Semlalia, Cadi Ayyad University, Morocco; Pierre-Louis Frison, Paris-Est Marne-la-Vallée University, France; Saïd Khabba, Cadi Ayyad University, Morocco; Jamal Ezzahar, CRSA, Mohammed VI Polytechnic University / MISCOM, National School of Applied Sciences, Cadi Ayyad University, Morocco; Ludovic Villard, Fanise Pascal, Centre d'Etudes Spatiales de la Biosphère (CESBIO), University of Toulouse, IRD/CNRS/UPS/CNES, France; Nadia Ouaadi, LMME, Department of Physics, Faculty of Science Semlalia, Cadi Ayyad University, Marrakech, Morocco / CESBIO, University of Toulouse, IRD/CNRS/UPS/CNES, Morocco; Valerie Ledantec, Lionel Jarlan, Centre d'Etudes Spatiales de la Biosphère (CESBIO), University of Toulouse, IRD/CNRS/UPS/CNES, France

TU2.MM-13.7 SLOW FEATURE ANALYSIS BASED ON CONVOLUTIONAL NEURAL NETWORK FOR SAR IMAGE CHANGE DETECTION
Ling Wan, Lei Ma, Institute of Automation, Chinese Academy of Sciences, China; Jialong Guo, Beijing University of Technology, China; Mingliang Liu, Harbin University of Science and Technology, China; Dongpan Yao, Institute of Automation, Chinese Academy of Sciences, China

TU2.MM-13.8 DAMAGE ASSESSMENT OF BRIDGES DUE TO THE 2020 JULY FLOOD IN JAPAN USING ALOS-2 INTENSITY IMAGES
Wen Liu, Yoshihisa Maruyama, Chiba university, Japan; Fumio Yamazaki, National Research Institute for Earth Science and Disaster Resilience, Japan

TU2.MM-13.9 TOWARDS MONITORING OF MOUNTAIN MASS WASTING USING OBJECT-BASED IMAGE ANALYSIS USING SAR INTENSITY IMAGES
Shih-Yuan Lin, National Chengchi University, Taiwan; Cheng-Wei Lin, Sinotech Engineering Consultants, Taiwan; Stephan van Gasselt, National Chengchi University, Taiwan

TU2.MM-13.10 DIURNAL CYCLES OF C-BAND TEMPORAL COHERENCE AND BACKSCATTERING COEFFICIENT OVER A WHEAT FIELD IN A SEMI-ARID AREA
Nadia Ouaadi, Cadi Ayyad University, Morocco; Ludovic Villard, University of Toulouse, France; Jamal Ezzahar, Cadi Ayyad University, Morocco; Pierre-Louis Frison, Paris-Est Marne-la-Vallée, France; Saïd Khabba, Cadi Ayyad University, Morocco; Mohamed Kasbani, Pascal Fanise, University of Toulouse, France; Adnane Chakir, Cadi Ayyad University, Morocco; Valerie Le Dantec, University of Toulouse, France; Salah Er-Raki, Cadi Ayyad University, Morocco; Lionel Jarlan, University of Toulouse, France

Tuesday, July 13 13:00 - 14:10 Multimedia Room 14

Session TU2.MM-14

Advanced Methods of Hyperspectral Image Unmixing

Session Co-Chairs: Behnood Rasti, Helmholtz-Zentrum Dresden-Rossendorf (HZDR); Gonzalo Raimundo Luzardo Morocho, Universiteit Gent; Meng Ding, University of Electronic Science and Technology of China

TU2.MM-14.1 BOOSTING HYPERSPECTRAL IMAGE UNMIXING USING DENOISING: FOUR SCENARIOS
Behnood Rasti, Helmholtz-Zentrum Dresden-Rossendorf (HZDR), Germany; Bikram Koirala, Paul Scheunders, University of Antwerp (CDE), Belgium; Pedram Ghamisi, Richard Gloaguen, Helmholtz-Zentrum Dresden-Rossendorf (HZDR), Germany

TU2.MM-14.2 ENHANCING REWEIGHTED LOW-RANK REPRESENTATION FOR HYPERSPECTRAL IMAGE UNMIXING
Wu-Chao Di, Jie Huang, Jin-Ju Wang, Ting-Zhu Huang, University of Electronic Science and Technology of China, China

TU2.MM-14.3 SPECTRAL UNMIXING USING DEEP CONVOLUTIONAL ENCODER-DECODER
Behnood Rasti, Helmholtz-Zentrum Dresden-Rossendorf (HZDR), Helmholtz Institute Freiberg for Resource Technology, Germany; Bikram Koirala, Paul Scheunders, University of Antwerp (CDE), Belgium; Pedram Ghamisi, Helmholtz-Zentrum Dresden-Rossendorf (HZDR), Helmholtz Institute Freiberg for Resource Technology, Germany

TU2.MM-14.4 FACTOR-REGULARIZED NONNEGATIVE TENSOR DECOMPOSITION FOR BLIND HYPERSPECTRAL UNMIXING
Meng Ding, Ting-Zhu Huang, Xi-Le Zhao, Jie Lin, University of Electronic Science and Technology of China, China; Jing-Hua Yang, Macau University of Science and Technology, China

TU2.MM-14.5 A UNION FRAMEWORK WITH SPARSE TOPIC RELAXION AND GROUP CLUSTERING FOR HYPERSPECTRAL UNMIXING
Linlin Wang, Qiqi Zhu, Wen Zeng, Qingfeng Guan, China University of Geosciences, China

TU2.MM-14.6 A PENALIZATION-BASED NMF APPROACH FOR HYPERSPECTRAL UNMIXING ADDRESSING SPECTRAL VARIABILITY WITH AN ADDITIVELY-TUNED MIXING MODEL
Salah Eddine Brezini, Yannick Deville, Institut de Recherche en Astrophysique et Planétologie, France; Moussa Sofiane Karoui, Fatima Zohra Benhalouche, Agence Spatiale Algérienne, Centre des Techniques Spatiales, Algeria; Abdelaziz Ouamri, Université des Sciences et de la Technologie d'Oran Mohamed Boudiaf, Algeria

TU2.MM-14.7 INFLUENCE OF THE DARKEST PIXEL ON ENDMEMBERS INITIALIZATION
Parasuram Yadav Palla, Amba Shetty, Raghavendra BS, Narasimhadhan AV, National Institute of Technology Karnataka, India

TU2.MM-14.8 LOW-RANK SUBSPACE UNMIXING OF REMOTELY SENSED HYPERSPECTRAL IMAGE
Quan You, Fan Li, Shaoquan Zhang, Shengqian Wang, Chengzhi Deng, Chenguang Xu, Nanchang Institute of Technology, China

TU2.MM-14.9 SUPERPIXEL BASED LOW-RANK SPARSE UNMIXING FOR HYPERSPECTRAL REMOTE SENSING IMAGE
Fan Li, Nanchang Institute of Technology, China; Bingkun Liang, Sun Yat-Sen University, China; Shaoquan Zhang, Chengzhi Deng, Zhaoming Wu, Shengqian Wang, Nanchang Institute of Technology, China

TU2.MM-14.10 WEAKLY SUPERVISED CONVOLUTIONAL NEURAL NETWORKS FOR HYPERSPECTRAL UNMIXING
Jiayu Bai, Ruyi Feng, Lizhe Wang, China University of Geosciences, China; Yanfei Zhong, Liangpei Zhang, Wuhan University, China

Tuesday, July 13 13:00 - 14:10 Multimedia Room 15

Session TU2.MM-15

Image Restoration and Enhancement

Session Co-Chairs: Daniel Cerra, German Aerospace Center (DLR); Daniel Zanotta, UNISINOS; Lynette Dias, Twente Universiy

TU2.MM-15.1 A LOW-RANK AND SPARSE CONSTRAINED DARK CHANNEL PRIOR FOR CLOUD REMOVAL IN REMOTE SENSING IMAGE SEQUENCE
Jin Cheng, Ye Zhang, Xinyu Zhou, Shaoqi Shi, Harbin Institute of Technology, China

TU2.MM-15.2 A RECURRENT REFINEMENT NETWORK FOR SATELLITE VIDEO SUPER-RESOLUTION
Yi Xiao, Xin Su, Qiangqiang Yuan, Wuhan University, China

TU2.MM-15.3 A MULTI-LOOKING APPROACH FOR SPATIAL SUPER-RESOLUTION ON LABORATORY-BASED HYPERSPECTRAL IMAGE
Daniel Zanotta, Ademir Marques Jr., Alysson Soares Aires, Fabiane Bordin, Graciela Racolte, João Gabriel Motta, Lucas Kupssinsku, Marianne Muller, Rafael Kenji Horota, Tainá Thomassim Guimarães, Vinícius Sales, Unisinos University, Brazil; Caroline Cazarin, Cenpes, Brazil; Luiz Gonzaga Jr, Maurício Roberto Veronez, Unisinos University, Brazil

TU2.MM-15.4 SPATIAL-SPECTRAL TOTAL VARIATION CONSTRAINED COLLABORATIVE TENSOR REGULARIZATION FOR DUAL-CAMERA COMPRESSIVE HYPERSPECTRAL IMAGING
Zhenghui Liang, Yang Xu, Liang Xiao, Zhihui Wei, Nanjing University of Science and Technology, China

TU2.MM-15.5 INCREASING LANDSAT 5 TM SPATIAL RESOLUTION TO 15 M USING A SUPER-RESOLUTION DEEP LEARNING MODEL TRAINED WITH PAN-SHARPENED LANDSAT 7 ETM+ DATA
Fabien H. Wagner, Foundation for Science, Technology and Space Applications-FUNCATE, Brazil; Peter Joyce, Roel Brienen, Emanuel Gloor, University of Leeds, United Kingdom

TU2.MM-15.6 PROBA-V-REF: REPURPOSING THE PROBA-V CHALLENGE FOR REFERENCE-AWARE SUPER RESOLUTION
Ngoc-Long Nguyen, Jérémy Anger, Axel Davy, Pablo Arias, Gabriele Facciolo, Université Paris-Saclay, France

TU2.MM-15.7 DEEP LEARNING FOR MULTIPLE-IMAGE SUPER-RESOLUTION OF SENTINEL-2 DATA
Michal Kawulok, Tomasz Tarasiewicz, Jakub Nalepa, Diana Tyrna, Daniel Kostrzewa, KP Labs / Silesian University of Technology, Poland

TU2.MM-15.8 IMPROVED IMAGE AGGREGATION FOR LARGE-SCALE CLOUD-FREE IMAGE CREATION
David Nagy, Zhenya Warshavsky, Lloyd Hughes, Project Canopy, United States

TU2.MM-15.9 COMPRESSED IMAGING IN FOREIGN OBJECT DEBRIS RADAR
Fei Qin, Xingdong Liang, Xiangxi Bu, Zhiyuan Zeng, Aerospace Information Reasearch Institute, Chinese Academy of Sciences, China

TU2.MM-15.10 HYPERSPECTRAL IMAGERY SUPER-RESOLUTION BASED ON SELF-CALIBRATED ATTENTION RESIDUAL NETWORK
Baorui Wang, Shaohui Mei, Yan Feng, Northwestern Polytechnical University, China; Qian Du, Mississippi State University, Armenia

Tuesday, July 13 13:00 - 14:10 Multimedia Room 16

Session TU2.MM-16

Advanced Algorithms for Geospatial Data Analysis

Session Co-Chairs: Axel Deijns, The AfricaMuseum; Meiliu Wu, University of Wisconsin; Bo Peng, University of Wisconsin-Madison

TU2.MM-16.1 HIGH-QUALITY FAST COMPRESSION ALGORITHM BASED ON FRACTAL-WAVELET
Zheng Wang, Bo Gao, PeiCheng Wang, Xun Gong, Ling Tong, University of Electronic Science and Technology of China, China

TU2.MM-16.2 GEOSPATIAL DATA ANALYSIS FOR GLOBAL MARITIME RISK ASSESSMENT USING THE DISCRETE GLOBAL GRID SYSTEM
Andrew Rawson, University of Southampton, United Kingdom; Zoheir Sabeur, Bournemouth University, United Kingdom; Mario Brito, University of Southampton, United Kingdom

TU2.MM-16.3 SPATIAL DATA PARTITIONING METHOD BASED ON SPATIO-TEMPORAL AND SEMANTIC FEATURES
Yan Zhou, Xu Wang, MengDou Qin, Cong Zhang, School of Resources and Environment, University of Electronic Science and Technology of China, China

TU2.MM-16.4 AGGLUTINATION OF SUB-BASINS USING SHREVE ORDER
Sergio Rosim, National Institute for Space Research (INPE), Brazil; Monica De Martino, Institute of Applied Mathematics and Information Technologies - IMATI, Italy

TU2.MM-16.5 DEVELOPMENT OF GRIDDED REFERENCE GRAPHICS USING MACHINE LEARNING AND A CUSTOMIZED GEOPROCESSING WORKFLOW
Adam Johantges, Bryan Jonas, Christopher Oxendine, Matthew O'Banion, United States Military Academy, United States

TU2.MM-16.6 CONSTRUCTION OF SPATIOTEMPORAL KNOWLEDGE GRAPH FOR EMERGENCY DECISION MAKING
Jiahui Chen, Xingtong Ge, Weichao Li, Ling Peng, Aerospace Information Reasearch Institute, Chinese Academy of Sciences, China

TU2.MM-16.7 LANDSLIDE RISK CLASSIFICATION BASED ON ENSEMBLE MACHINE LEARNING
Leiyu Dai, University of Electronic Science and Technology of China, China; Mingcang Zhu, Department of Natural Resources of Sichuan Province, China; Zhanyong He, Yong He, Sichuan Research Institute for Eco-system Restoration & Geo-hazard Prevention, China; Zezhong Zheng, University of Electronic Science and Technology of China, China; Guoqing Zhou, Guilin University of Technology, China; Chao Wang, University of Electronic Science and Technology of China, China; Juan Ren, Hongqiong Tang, Sichuan Research Institute for Eco-system Restoration & Geo-hazard Prevention, China; Qiang Liu, Fang Huang, University of Electronic Science and Technology of China, China; Zhongnian Li, Central China Normal University, China; Mujie Li, Zhiyong Wang, Mingqi Li, Ling Jiang, University of Electronic Science and Technology of China, China

TU2.MM-16.8 DETERMINING THE OPTIMUM LOCATION FOR LANDFILL SITE IN BUTUAN CITY USING GIS-BASED ANALYSIS
Arturo Cauba, Myrnalyn Badbad, Caraga State University, Philippines

TU2.MM-16.9 IMPERVIOUS LAND COVER PATTERN AND ITS IMPACT ON URBAN WATER LOGGING: CASE OF NEW DELHI, INDIA
Harkesh Paras Dewangan, Surabhi Mehrotra, Maulana Azad National Institute of Technology Bhopal, India

Tuesday, July 13 13:00 - 14:10 Multimedia Room 17
Session TU2.MM-17

Seasonal Snow I

Session Co-Chairs: Fraser King, University of Waterloo; Lingmei Jiang, Beijing Normal University; Vaibhav Rajan

TU2.MM-17.1 A LOW-COST PORTABLE AUTOMATIC SYSTEM FOR SNOW SURFACE ROUGHNESS MEASUREMENTS BASED ON DIGITAL PHOTOGRAPHY.
Riccardo Barella, Eurac Research / Politecnico di Milano, Italy; Carlo Marin, Callegari Mattia, Eurac Research, Italy; Marco Gianinetto, Politecnico di Milano / CNR, Italy; Thomas Moranduzzo, ColomboSky S.r.l., Italy; Claudia Notarnicola, Eurac Research, Italy

TU2.MM-17.2 ESTIMATING CLOUD-FREE FRACTIONAL SNOW COVER FROM HIMAWARI-8, FY-4A AND MODIS OBSERVATION
Fangbo Pan, Lingmei Jiang, Beijing Normal University, China; Gongxue Wang, Information Engineering University, China; Xu Su, Xiaonan Zhou, Beijing Normal University, China

TU2.MM-17.3 ESTIMATION AND VALIDATION THE FRACTIONAL SNOW COVER FROM SENTINEL-2 MSI OVER THE TIBET PLATEAU
Xu Su, Lingmei Jiang, Beijing Normal University, China; Gongxue Wang, Information Engineering University, China

TU2.MM-17.4 EVALUATION OF GRIDDED SNOW WATER EQUIVALENT PRODUCTS USING CLOUDSAT-CPR SNOWFALL ESTIMATES
Fraser King, Christopher Fletcher, University of Waterloo, Canada

TU2.MM-17.5 PREDICTION OF SNOW DEPTH BASED ON MULTI-SOURCE DATA AND MACHINE LEARNING ALGORITHMS
Dejing Qiao, College of Surveying and Geo-Informatics, North China University of Water Resources and Electric Power, China; Zhen Li, Ping Zhang, Jianmin Zhou, Shuang Liang, Aerospace Information Reasearch Institute, Chinese Academy of Sciences, China

TU2.MM-17.6 FEASIBILITY OF ESTIMATING SNOW EMISSIVITY VIA ASSIMILATION OF MULTIFREQUENCY PASSIVE MICROWAVE DATA
Sayed M. Bateni, University of Hawaii at Manoa, United States; Mahdi Navari, University of Maryland and NASA, United States; Sujay Kumar, National Aeronautics and Space Administration (NASA), United States; Essam Heggy, University of Southern California and California Institute of Technology, United States

TU2.MM-17.7 SPATIAL AND TEMPORAL VARIABILITY OF WET SNOW IN THE FRENCH MOUNTAINS USING A COLOR-SPACE BASED SEGMENTATION TECHNIQUE ON SENTINEL-1 SAR IMAGES
Fatima Karbou, CNRM/CEN, France; Philippe Durand, CNES, France; Isabelle Gouttevin, CNRM/CEN, France

TU2.MM-17.8 COMBINED USE OF OPTICAL AND SAR DATA FOR THERMOKARST TERRAIN: A CASE STDUY IN CENTRAL YAKUTIA
Yoon Taek Jung, Yeji Lee, Minhwa Kim, Sang-Eun Park, Sejong University, Korea (South)

TU2.MM-17.9 EVALUATION AND COMPARISON OF SNOW REFLECTANCE MODELS
Gongxue Wang, Information Engineering University, China; Lingmei Jiang, Beijing Normal University, China; Yongsheng Zhang, Information Engineering University, China

TU2.MM-17.10 THE RELATIONSHIP OF SAMPLING DISTRIBUTION AND BRDF IN DIFFERENT WAVELENGTH FOR SNOW SURFACE
Jing Guo, Ziti Jiao, Xiaoning Zhang, Lei Cui, Siyang Yin, Rui Xie, Sijie Li, Zidong Zhu, Yidong Tong, Beijing Normal University, China

Tuesday, July 13 13:00 - 14:10 Multimedia Room 18
Session TU2.MM-18

Data Processing, Management and Visualization I

Session Co-Chairs: Diego Bueso, Universitat de València; Lucas Silveira Kupssinskü, Unisinos University; Stefan Livens, VITO

TU2.MM-18.1 USE OF SATELLITE COMMUNICATION SYSTEMS FOR COLLECTING AND TRANSMITTING DATA ON THE STATE OF THE ARCTIC SEA ICE COVER
Alexander Kuzmichev, Vladimir Smirnov, Natalia Zakhvatkina, Irina Bychkova, Arctic and Antarctic Research Institute, Russia

TU2.MM-18.2 EFFICIENT EXAMPLES OF EARTH OBSERVATION SATELLITE DATA PROCESSING USING THE JAXA SUPERCOMPUTER SYSTEM AND THE FUTURE FOR THE NEXT SUPERCOMPUTER SYSTEM
Masaki Yamada, Akira Fujioka, Naoyuki Fujita, Makiko Hashimoto, Yoko Ueda, Takanobu Aoki, Takahiro Minami, Japan Aerospace Exploration Agency (JAXA), Japan; Masaya Torii, Tadahiro Yamamoto, Fujitsu Limited, Japan

TU2.MM-18.3 AN ONTOLOGY MODEL FOR CLIMATIC DATA ANALYSIS
Jiantao Wu, University College Dublin, Ireland; Fabrizio Orlandi, Trinity College Dublin, Ireland; Declan O'Sullivan, The ADAPT SFI Research Centre, Ireland; Soumyabrata Dev, University College Dublin, Ireland

TU2.MM-18.4 THE DREAM DATABASE: A MULTIMODE DATABASE INCLUDING OPTICS, RADAR, DSM (SRTM) AND OSM LABELS FOR DEEP MACHINE LEARNING PURPOSES
Elise Colin Koeniguer, Onera, France; Alexandre Mayerowitz, Airbus, France; Nathan Letheule, Aurélien Plyer, Onera, France

TU2.MM-18.5 MOSIS LAB HYPERSPECTRAL - VISUALIZATION AND CORRELATION OF HYPERSPECTRAL DATA ON IMMERSIVE VIRTUAL REALITY
Tainá Thomassim Guimarães, Diego Henrique Diemmer Mariani, Lucas Silveira Kupssinskü, Pedro Rossa, Rafael Kenji Horota, Rafael de Freitas, Luiz Roupinha, Branda Eloá Weppo, Aline Weschenfelder, Unisinos University, Brazil; André Luiz Durante Spigolon, Petrobras Research and Development Center (CENPES), Brazil; Luiz Gonzaga Jr, Maurício Roberto Veronez, Unisinos University, Brazil

TU2.MM-18.6 VIZSPECTRALDATA: A WEB-BASED APPLICATION FOR HYPERSPECTRAL DATA VISUALIZATION
Lucas Silveira Kupssinskü, Tainá Thomassim Guimarães, Unisinos University, Brazil; Caroline Lessio Cazarin, Petrobras Research and Development Center (CENPES), Brazil; Luiz Gonzaga Jr, Maurício Roberto Veronez, Unisinos University, Brazil

TU2.MM-18.7 DESIGN AND DEVELOPMENT OF SPATIO-TEMPORAL FUSION AND OPERATION PLATFORM FOR ANCIENT AND MODERN MAPS
Liyan Ren, Yingcheng Li, Jincheng Xiao, China TopRS Technology Co. Ltd, China; Bin Liu, China Aero Geophysical Survey and Remote Sensing Center for Natural Resources, China

TU2.MM-18.8 SIMULTANEOUSLY AZIMUTH-PITCH SUPER-RESOLUTION IMAGING FOR GROUND-TO-AIR RADAR
Qiping Zhang, Yin Zhang, Yongchao Zhang, Yulin Huang, Jianyu Yang, University of Electronic Science and Technology of China, China

TU2.MM-18.9 SPATIOTEMPORAL VARIATION OF VEGETATION LEAF AREA INDEX BEFORE AND AFTER IMPLEMENTATION OF ECOLOGICAL RESTORATION PROGRAM IN FUXIAN LAKE BASIN
Dandan Wei, Land Satellite Remote Sensing Application Center, Ministry of Natural Resources of China, China; Zhiguang Zhang, Chinese Academy of Geological Sciences, China; Hang Cui, Land Satellite Remote Sensing Application Center, Ministry of Natural Resources of China, China

TU2.MM-18.10 SCIENTIFIC WORKFLOW SCHEDULING BASED ON DATA TRANSFORMATION GRAPH FOR REMOTE SENSING APPLICATION
Zhuojing Tian, Beijing Union University, China; Qiwen Zhou, Zhenchun Huang, Tsinghua University, China

Tuesday, July 13 13:00 - 14:10 Multimedia Room 19

Session TU2.MM-19

Land Cover Dynamics I

Session Co-Chairs: Bart Deronde, VITO Remote Sensing; Francesco Falabella, Università degli Studi della Basilicata; Hongsheng Zhang, The University of Hong Kong

TU2.MM-19.1 VEGETATION NET PRIMARY PRODUCTIVITY ESTIMATION BASED ON MULTISPECTRAL REMOTE SENSING IMAGES IN QINGHAI LAKE BASIN
Jie Zhan, Dianjun Zhang, Lingjuan Cao, Quan Guo, Tianjin University, China

TU2.MM-19.2 MAPPING FOREST TYPE WITH MULTI-SEASONAL LANDSAT DATA AND MULTIPLE ENVIRONMENTAL FACTORS IN YUNNAN PROVINCE BASED ON GOOGLE EARTH ENGINE
Ruonan Li, Leiguang Wang, Guanglong Ou, Weiheng Xu, Qinling Dai, Southwest Forestry University, China

TU2.MM-19.3 ASSESSING ENVIRONMENTAL QUALITY DYNAMICS AND ITS RESPONSE TO VEGETATION CHANGE IN THE UPPER MINJIANG RIVER WATERSHED BY MODIS AND SPOT PRODUCTS
Enxu Yu, Mingfang Zhang, School of Resources and Environment, University of Electronic Science and Technology of China, China; Yiping Hou, University of British Columbia (Okanagan Campus), Canada; Zhiwei Jiang, Lihao Deng, Sheng Zhang, Chen Yang, Yali Xu, Shiyu Deng, School of Resources and Environment, University of Electronic Science and Technology of China, China

TU2.MM-19.4 THE EFFECT OF WAR ON LAND USE DYNAMICS IN MOSUL IRAQ USING REMOTE SENSING AND GIS TECHNIQUES
Huda Jamal Jumaah, Technical College of Kirkuk, Northern Technical University, Iraq; Bahareh Kalantar, Naonori Ueda, RIKEN Center for Advanced Intelligence Project, Japan; Ojogbane Success Sani, Universiti Putra Malaysia, Malaysia; Qayssar Mahmood Ajaj, Kirkuk Technical College, Northern Technical University, Iraq; Sarah Jamal Jumaah, College of Education for Pure Sciences, University of Kirkuk, Iraq

TU2.MM-19.5 GEOSPATIAL ANALYSIS OF LANDSCAPE FRAGMENTATION UNDER RAPID HUMAN INTERVENTION IN THE KELANI RIVER BASIN: ISSUES AND HYDROLOGICAL CONSEQUENCES
Sandamali Wijeratne, Gang Li, Muhammad Sajid Mehmood, Northwest University, China

TU2.MM-19.6 A DYNAMICS TREND ANALYSIS METHOD OF THERMOKARST LAKES BASED ON THE MACHINE LEARNING ALGORITHM
Hong Chen, Liqiang Tong, Zhaocheng Guo, Jienan Tu, China Aero Geophysical Survey and Remote Sensing Center for Natural Resources, China; Hua Wu, State Key Laboratory of Resources and Environmental Information System, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences and University of Chinese Academy of Sciences, China; Peng He, China Aero Geophysical Survey and Remote Sensing Center for Natural Resources, China

TU2.MM-19.7 MONITORING OF THE TREND OF TIMBERLINES IN TAIWAN AMIDST CLIMATE CHANGE THROUGH MULTI-TEMPORAL SATELLITE IMAGES
Ming-En Chung, Nova Doyog, Chinsu Lin, National Chiayi University, Taiwan

TU2.MM-19.8 MAPPING AND ASSESSMENT OF LAND USE AND LAND COVER FOR DIFFERENT ECOREGIONS OF ECUADOR USING PHENOLOGY-BASED CLASSIFICATION.
Gladys Villegas, Frieke Van Coillie, Ghent University, Belgium; Daniel Ochoa, ESPOL Polytechnic University, Ecuador

TU2.MM-19.9 BURN SEVERITY AND ALBEDO ANALYSIS CONCERNING THE MENDOCINO COMPLEX FIRE
Tasos Tentoglou, Julia Burmistrova, Erin Hestir, University of California, Merced, United States

Tuesday, July 13 13:00 - 14:10 Multimedia Room 20

Session TU2.MM-20

Novel SAR Imaging Techniques

Session Co-Chairs: Marwan Younis, German Aerospace Center (DLR); Andy Nelson, University of Twente; chengzhe Li, University of Iowa

TU2.MM-20.1 STUDY ON THE PIVOTAL IMAGING TECHNOLOGY OF MINI SAR ON UAV
Weidi Xu, Maosheng Xiang, Bingnan Wang, Chong Song, Rongrong Wang, Aerospace Information Reasearch Institute, Chinese Academy of Sciences, China

TU2.MM-20.2 ELEVATION VARIATION EFFECTS COMPARISON BETWEEN LEO AND GEO SAR
Faguang Chang, Dexin Li, Zhen Dong, Zhihua He, Xing Chen, College of Electronic Science and Technology, National University of Defense Technology, China

TU2.MM-20.3 ANALYSIS OF SENTINEL-1 TOPSAR RAW DATA FOR SYNTHESIZING SINGLE LOOK COMPLEX IMAGE
Kyeongrok Kim, Jae-Hyun Kim, Ajou University, Korea (South)

TU2.MM-20.4 SHIFT-FREQUENCY JAMMING IMAGING AND ANALYSIS BASED ON ACTIVE RADAR CALIBRATOR
Guikun Liu, Liang Li, University of Chinese Academy of Sciences, China; Jun Hong, Feng Ming, Aerospace Information Reasearch Institute, Chinese Academy of Sciences, China

TU2.MM-20.5 ESTIMATING SAFETY FACTOR AGAINST ROOT LODGING USING SENTINEL-1 DATA
Sugandh Chauhan, Roshanak Darvishzadeh, University of Twente, Netherlands; Mirco Boschetti, CNR-IREA, National Research Council, Italy; Sander van Delden, Wageningen University, Netherlands; Andy Nelson, University of Twente, Netherlands

TU2.MM-20.6 RESEARCH ON FORWARD-LOOKING IMAGING TECHNOLOGY BASED ON MANEUVERING MOTION
Xiandong Meng, Yesheng Gao, Zhicheng Wang, Xingzhao Liu, Shanghai Jiao Tong University, China

TU2.MM-20.7 VIDEO FORMATION METHOD FOR UAV SAR UTILIZING TENSOR RECOVERY ALGORITHM
Hongyang An, Junjie Wu, Jingyi Qu, Zhichao Sun, Jianyu Yang, University of Electronic Science and Technology of China, China

TU2.MM-20.8 LOW PROBABILITY OF INTERCEPT WAVEFORM OPTIMIZATION METHOD FOR SAR IMAGING
Mingyue Lou, Taineng Zhong, Min Li, Xinzhou Li, Zhongyu Li, Junjie Wu, Jianyu Yang, University of Electronic Science and Technology of China, China

TU2.MM-20.9 FRONT-DOWNWARD-LOOKING 3D SAR IMAGING USING FREQUENCY DIVERSITY ARRAY
Jifa Shen, Kefei Liao, Shan Ouyang, Haitao Wang, Qiaoying Yu, School of Information and Communications, Guilin University of Electronic Technology, China

TU2.MM-20.10 FREQUENCY SCAN FOR TIME-OF-ECHO COMPRESSION IN SAR SYSTEMS
Marwan Younis, Felipe Queiroz de Almeida, Michelangelo Villano, Tobias Bollian, Alberto Moreira, German Aerospace Center (DLR), Germany

Tuesday, July 13 13:00 - 14:10 Multimedia Room 21
Session TU2.MM-21

Agriculture+Machine Learning

Session Co-Chairs: Sara Perez-Carabaza, University College Dublin; Corrado Avolio, e-GEOS - an Italian Space Agency and Telespazio company; Petia Malasheva, National Institute of Meteorology and Hydrology

TU2.MM-21.1 CROP CLASSIFICATION FROM SENTINEL-2 TIME SERIES WITH TEMPORAL CONVOLUTIONAL NEURAL NETWORKS
Sara Perez-Carabaza, University College Dublin, Ireland; Vasileios Syrris, Pieter Kempeneers, Pierre Soille, European Commission, Joint Research Centre, Italy

TU2.MM-21.2 SEGMENTATION AND CLASSIFICATION OF UAV-BASED ORTHOPHOTO OF WATERMELON FIELD USING SUPPORT VECTOR MACHINE TECHNIQUE
Zixun Lin, Nova Doyog, Shin-Fu Huang, Chinsu Lin, National Chiayi University, Taiwan

TU2.MM-21.3 PLANT COUNTS IN DENSE RED BEET CROPS: A COMPUTER VISION APPROACH
Amirhossein Hassanzadeh, Jan van Aardt, Rochester Institute of Technology, United States; Julie Kikkert, Cornell Cooperative Extension, United States; Sarah Pethybridge, Sean Murphy, Cornell University, United States; Daniel Cross, Love Beets Production LLC, United States

TU2.MM-21.4 COCONUT TREES DETECTION ON THE TENARUNGA USING HIGH-RESOLUTION SATELLITE IMAGES AND DEEP LEARNING
Juepeng Zheng, Tsinghua University, China; Wenzhao Wu, National Supercomputing Center in Wuxi, China; Le Yu, Haohuan Fu, Tsinghua University, China

TU2.MM-21.5 PALM TREES CROWN DETECTION AND DELINEATION FROM VERY HIGH SPATIAL RESOLUTION IMAGES USING DEEP NEURAL NETWORK (U-NET)
Rhinane Hassan, Hassan II University of Casablanca, Morocco; Bannari Abderazzak, Arabian Gulf University, Canada; Maanan Mehdi, Aderdour Nacer, Hassan II University of Casablanca, Morocco

TU2.MM-21.6 AUTOMATIC CLASSIFICATION OF AGRICULTURAL SUMMER CROPS IN URUGUAY
Adrián Cal, Instituto Nacional de Investigación Agropecuaria, Uruguay; Javier Preciozzi, Pablo Musé, Universidad de la República, Facultad de Ingeniería, Uruguay

TU2.MM-21.7 AUTOMATIC DETECTION OF ANOMALOUS TIME TRENDS FROM SATELLITE IMAGE SERIES TO SUPPORT AGRICULTURAL MONITORING
Corrado Avolio, Alessia Tricomi, Massimo Zavagli, Laura De Vendictis, Fabio Volpe, Mario Costantini, e-GEOS - an Italian Space Agency and Telespazio company, Italy

TU2.MM-21.8 STUDY ON SPATIAL AUTO-REGRESSION WITHIN SOIL PHYSICAL-CHEMICAL INDICATORS IN TYPICAL KARST DEMONSTRATION ZONE
Hui Yin, Jiasheng Chen, Huizhou University, China; Zhongcheng Jiang, Chinese Academy of Geological Sciences, China

Tuesday, July 13 13:00 - 14:10 Multimedia Room 22
Session TU2.MM-22

Ocean Waves and Currents

Session Co-Chairs: Mariya Panfilova, Institute of Applied Physics Russian Academy Science; Yunya Gao, Universität Salzburg; Federica Polverari, Jet Propulsion Laboratory, California Institute of Technology

TU2.MM-22.1 CAN GNSS-REFLECTOMETRY SUPPORT GLOBAL MONITORING OF FLOATING MATTER IN THE OCEAN?
Jennifer King, Daniel Pascual, Maria Paola Clarizia, Deimos Space UK Ltd, United Kingdom; Peter de Maagt, European Space Agency (ESA), Netherlands

TU2.MM-22.2 HIGH-RESOLUTION RADAR OBSERVATION SEA SURFACE STATES DURING AMK82 CRUISE
Aleksey Ermoshkin, Alexander Kupaev, Alexander Molkov, Institute of Applied Physics, Russian Academy of Sciences, Russia

TU2.MM-22.3 AIRBORNE VALIDATION EXPERIMENTS FOR SPACEBORNE DOPPLER SCATTEROMETERS AND THE JOINT OBSERVATION OF WIND AND CURRENTS
Jingyu Zhang, Xiaolong Dong, Di Zhu, National Space Science Center, CAS, China; Qingliu Bao, Piesat Information Technology Co.,Ltd., China; Xingou Xu, Risheng Yun, Jianying Ma, Yuanjing Miao, National Space Science Center, CAS, China

TU2.MM-22.4 TOWARDS A CHARACTERIZATION OF THE KA-BAND OCEAN SURFACE BACKSCATTERING MECHANISMS
Federica Polverari, Alexander Wineteer, Ernesto Rodriguez, Dragana Perkovic-Martin, NASA Jet Propulsion Laboratory, California Institute of Technology, United States; Paul Siqueira, University of Massachusetts Amherst, United States; J. Thomas Farrar, Woods Hole Oceanographic Institution, United States; J. Max Adam, University of Massachusetts Amherst, United States; James Edson, Woods Hole Oceanographic Institution, United States

TU2.MM-22.5 SEASONAL VARIABILITY OF SURFACE CURRENTS IN THE GULF OF TONKIN DERIVED FROM HF RADAR OBSERVATIONS
Manh Cuong Tran, Alexei Sentchev, Laboratoire d'Océanologie et de Géosciences - UMR 8187 LOG, France; Kim Cuong Nguyen, VNU University of Science, Viet Nam

TU2.MM-22.6 METHODS OF COMPARING THE WAVE MODEL SIMULATION DATA WITH THE KA-BAND RADAR DATA
Mariya Panfilova, Alexandra Kuznetsova, Yuriy Titchenko, Daniil Sergeev, Yuliya Troitskaya, Vladimir Karaev, Institute of Applied Physics, Russian Academy of Sciences, Russia

TU2.MM-22.7 A NEW ALGORITHM FOR RETRIEVING SEA SURFACE CURRENT DIRECTION FROM SAR DOPPLER INFORMATION
Xiaobo Yang, Yijun He, Nanjing University of Information Science and Technology, China

TU2.MM-22.8 EXPERIMENTAL MEASUREMENTS OF THE STATISTICAL CHARACHTERISTICS OF THE SEA WAVES USING UNDERWATER ACOUSTIC WAVEGAUGE AND COMPARISON WITH ADCP MEASUREMENTS
Mariya Ryabkova, Yury Titchenko, Vladimir Karaev, Eugeny Meshkov, Roman Belyaev, Mariya Panfilova, Institute of Applied Physics, Russian Academy of Sciences, Russia; Vladimir Baranov, Vladimir Ocherednik, Shirshov Institute of Oceanology of Russian Academy of Sciences, Russia

Tuesday, July 13 13:00 - 14:10 Multimedia Room 23

Session TU2.MM-23

Radiometer Systems and Calibration

Session Co-Chairs: Hong Tat Ewe, Universiti Tunku Abdul Rahman; Mark Andrews, The Ohio State University; Adebowale Adebayo, Universität Salzburg

TU2.MM-23.1 A STUDY OF FRONT END ARCHITECTURES FOR THE POLARRAD 0.5-2 GHZ MICROWAVE RADIOMETER
Mark Andrews, Joel Johnson, The Ohio State University, United States; Matthew Mclinden, NASA Goddard Space Flight Center, United States; Sidharth Misra, NASA Jet Propulsion Laboratory, United States

TU2.MM-23.2 DESIGN OF INTERMEDIATE FREQUENCY MODULE OF MICROWAVE RADIOMETER BASED ON POLYPHASE FILTER BANK
Shijian Fu, Ling Tong, Xun Gong, Xinyi Gao, Peicheng Wang, Bo Gao, Yukai Liu, Kun Zhang, University of Electronic Science and Technology of China, China

TU2.MM-23.3 FURTHER DEVELOPMENT OF THE MECHANICALLY-ACTUATED RECONFIGURABLE REFLECTARRY (MARR) FOR THE MICROWAVE SINGLE PIXEL IMAGER (MSPI)
Justin Bobak, Scott Rudolph, Blerta Markowski, David Bonanno, Michael Nurnberger, Brian Hicks, Hatim Alqadah, William Bounds, US Naval Research Laboratory, United States

TU2.MM-23.4 CALIBRATION OF A WIDEBAND AUTOCORRELATION RADIOMETER (WIBAR) ENHANCED WITH A COMB FILTER IN TIME DOMAIN MODE
Maryam Salim, Roger De Roo, Kamal Sarabandi, University of Michigan, United States

TU2.MM-23.5 INTERCALIBRATION OF FY-3D MWTS AGAINST S-NPP ATMS BASED ON RADIATIVE TRANSFER MODEL
Xian-Hui Su, Geng-Ming Jiang, Fudan University, China

TU2.MM-23.6 ATMOSPHERIC EMISSION AT LOW MICROWAVE FREQUENCIES: A SITE-BASED ANALYSIS
Ada Vittoria Bosisio, Marco Brogioni, Giovanni Macelloni, CNR, Italy

TU2.MM-23.7 WIND VECTOR AND SST DEPENDENCE OF KU- AND KA- BAND OCEAN SURFACE NRCS AT LOW INCIDENCE ANGLES
Alamgir Hossan, W. Linwood Jones, University of Central Florida, United States

TU2.MM-23.8 BACKSCATTERING SIGNATURES AT KU BAND OVER AFRICA FROM JASON-3 AND SWIM
Frédéric Frappart, Laboratoire d'Etudes en Géophysique et Océanographie Spatiales (LEGOS), France; Fabien Blarel, LEGOS, France; Zacharie Aoulad, ISPA, France; Catherine Prigent, LERMA, France; Eric Mougin, GET, France; Fabrice Papa, LEGOS, France; Philippe Paillou, LAB, France; Mehrez Zribi, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Cassandra Normandin, LAB, France; Pierre Zeiger, LEGOS, France; José Darrozes, Luc Bourrel, GET, France; Christophe Moisy, Jean-Pierre Wigneron, ISPA, France

TU2.MM-23.9 LINEAR DECONVOLUTION PROCESSING ON RESOLUTION ENHANCEMENT FOR SCATTEROMETER
Liling Liu, China University of Mining and Technology, China; Xiaolong Dong, National Space Science Center, Chinese Academy of Sciences, China; Wenming Lin, Nanjing University of Information Science and Technology, China; Liting Wang, North China Institute of Computing Technology, China

Tuesday, July 13 13:00 - 14:10 Multimedia Room 24

Session TU2.MM-24

Landslides and Earthquakes

Session Co-Chairs: Rufai Balogun, Universität Salzburg; Pawan Singh, Motilal Nehru National Institute of Technology Allahabad; Pierre-Yves Declercq, Royal Belgium Institute of Natural Sciences

TU2.MM-24.1 VIDEO MONITORING OF LANDSLIDE BASED ON BACKGROUND SUBTRACTION WITH GAUSSIAN MIXTURE MODEL ALGORITHM
Yang Liu, Chang'an University, China; Gucheng Tang, Zhejiang Academy of Surveying and Mapping, China; Weibao Zou, Chang'an University, China

TU2.MM-24.2 LANDSLIDE MAPPING USING SAR IMAGERY WITH PRECISE REGISTRATION
Taku Teshima, Akira Iwasaki, University of Tokyo, Japan

TU2.MM-24.3 A COMPARATION OF CNN AND DENSENET FOR LANDSLIDE DETECTION
Tong Liu, Tao Chen, China University of Geosciences, China

TU2.MM-24.4 PIXEL BASED LANDSLIDE IDENTIFICATION USING LANDSAT 8 AND GEE
Pawan Singh, Vipin Maurya, Ramji Dwivedi, Motilal Nehru National Institute of Technology Allahabad, India

TU2.MM-24.5 AREAS PRONE TO LAND SUBSIDENCE AND THEIR EVOLUTIONS IN BELGIUM DURING THE LAST 30 YEARS
Pierre-Yves Declercq, Atefe Choopani, Royal Belgium Institute of Natural Sciences, Belgium; Alain Dassargues, University of Liège, Belgium; Xavier Devleeschouwer, Royal Belgium Institute of Natural Sciences, Belgium

TU2.MM-24.6 POST-EARTHQUAKE LANDSLIDE EXTRACTION BASED ON FEATURE EXPANSION U-NET MODEL
Xiao Gao, Tao Chen, China University of Geosciences, China

TU2.MM-24.7 THE DEVELOPMENT OF RAPID EARTHQUAKE DISASTER ASSESSMENT SYSTEM BASED ON SPACE-AIR-GROUND INTEGRATED EARTH OBSERVATION
Xiang Ding, Xiaoqing Wang, Aixia Dou, Ling Ding, Xiaoxiang Yuan, Institute of Earthquake Forecasting, CEA, China; Shuming Wang, Institute of Earthquake Forecasting, China

TU2.MM-24.8 AUTOMATIC DETECTION OF LANDSLIDES BASED ON MACHINE LEARNING FRAMEWORK
Meghanadh Devara, Vipin Maurya, Manish Kumar, Ramji Dwivedi, MNNIT ALLAHABAD, India

Tuesday, July 13 13:00 - 14:10 Multimedia Room 25

Session TU2.MM-25

Machine Learning Methods in Hazard Assessment

Session Co-Chairs: Fan Meng, China University of Petroleum(East China); Davide De Santis, University of Rome; Mar Ariza, Wageningen University & Research

TU2.MM-25.1 AUTOMATIC DETECTION OF WIDELY DISTRIBUTED LOCAL-SCALE SUBSIDENCE BOWLS IN RAPIDLY URBANIZING METROPOLITAN REGION USING TIME-SERIES INSAR AND DEEP LEARNING METHODS
Zherong Wu, Zhuoyi Zhao, Yi Zheng, Peifeng Ma, Chinese University of Hong Kong, China

TU2.MM-25.2 CYCLONE IDENTIFY USING TWO-BRANCH CONVOLUTIONAL NEURAL NETWORK FROM GLOBAL FORECASTING SYSTEM ANALYSIS
Fan Meng, Qingyu Tian, China University of Petroleum (East China), China; Handan Sun, China University of Petroleum, China; Danya Xu, Southern Marine Science and Engineering Guangdong Laboratory (Zhuhai), China; Tao Song, China University of Petroleum (East China), China

TU2.MM-25.3 TROPICAL CYCLONE SIZE ESTIMATION USING DEEP CONVOLUTIONAL NEURAL NETWORK
Fan Meng, Pengfei Xie, Ying Li, China University of Petroleum (East China), China; Handan Sun, China University of Petroleum, China; Danya Xu, Southern Marine Science and Engineering Guangdong Laboratory (Zhuhai), China; Tao Song, China University of Petroleum (East China), China

TU2.MM-25.4 USE ENSEMBLE LEARNING TO ESTIMATE THE POPULATION AND ASSETS EXPOSED TO TROPICAL CYCLONES
Fan Meng, China University of Petroleum (East China), China; Tongmao Ma, Polytechnical University of Madrid, Spain; Pengfei Xie, China University of Petroleum (East China), China; Handan Sun, China University of Petroleum, China; Danya Xu, Southern Marine Science and Engineering Guangdong Laboratory (Zhuhai), China; Tao Song, China University of Petroleum (East China), China

TU2.MM-25.5 VOLCANIC SO2 NEAR-REAL TIME RETRIEVAL USING TROPOMI DATA AND NEURAL NETWORKS: THE DECEMBER 2018 ETNA TEST CASE
Davide De Santis, Ilaria Petracca, University of Rome, Italy; Stefano Corradini, Lorenzo Guerrieri, Istituto Nazionale di Geofisica e Vulcanologia, Italy; Matteo Picchiani, GEO-K s.r.l, Italy; Luca Merucci, Dario Stelitano, Istituto Nazionale di Geofisica e Vulcanologia, Italy; Fabio Del Frate, University of Rome, Italy; Fred Prata, AIRES Pty Ltd., Australia; Giovanni Schiavon, University of Rome, Italy

TU2.MM-25.6 TOWARDS IMPROVED FORECASTING OF VOLCANIC HAZARDS USING MACHINE LEARNING APPLIED TO INSAR DATA
Andrew Hooper, Matt Gaddes, University of Leeds, United Kingdom; Marco Bagnardi, NASA, United States; Fabien Albino, University of Bristol, United Kingdom

TU2.MM-25.7 A MACHINE LEARNING METHODOLOGY FOR NEXT DAY WILDFIRE PREDICTION
Stella Girtsou, Alexis Apostolakis, National Observatory of Athens, Greece; Giorgos Giannopoulos, Athena Research Center, Greece; Charalampos Kontoes, National Observatory of Athens, Greece

TU2.MM-25.8 SEMI-SUPERVISED PHENOLOGY ESTIMATION IN COTTON PARCELS WITH SENTINEL-2 TIME-SERIES
Vasileios Sitokonstantinou, Alkiviadis Koukos, Charalampos Kontoes, Nikolaos S. Bartsotas, National Observatory of Athens, Greece; Vassilia Karathanassi, National Technical University of Athens, Greece

TU2.MM-25.9 WATER BODY DETECTION USING DEEP LEARNING WITH SENTINEL-1 SAR SATELLITE DATA AND LAND COVER MAPS
Hyungyun Jeon, Duk-jin Kim, Junwoo Kim, Seoul National University, Korea (South)

TU2.MM-25.10 DEEP REINFORCEMENT LEARNING INTERDEPENDENT HEALTHCARE CRITICAL INFRASTRUCTURE SIMULATION MODEL FOR DYNAMICALLY VARYING COVID-19 SCENARIO – A CASE STUDY OF A METRO CITY
Srikanth Gollavilli, Nivedita Nukavarapu, Surya Durbha, Indian Institute of Technology Bombay, India

Tuesday, July 13 14:00 - 15:40 Multimedia Room 26

Session TU2.MM-26

Student Paper Contest I

Session Co-Chairs: Francesca Bovolo, Fondazione Bruno Kessler; David M. Le Vine, NASA Goddard Space Flight Center; Max Felius

TU2.MM-26.1 A MACHINE LEARNING APPROACH TO MASS-CONSERVING ICE THICKNESS INTERPOLATION
Thomas Teisberg, Dustin Schroeder, Emma MacKie, Stanford University, United States

TU2.MM-26.2 ROTATION CONSISTENCY-PRESERVED GENERATIVE ADVERSARIAL NETWORKS FOR CROSS-DOMAIN AERIAL IMAGE SEMANTIC SEGMENTATION
Te Shi, Yansheng Li, Yongjun Zhang, School of Remote Sensing and Information Engineering, Wuhan University, China

TU2.MM-26.3 SEMANTIC SEGMENTATION OF REMOTE SENSING IMAGES COMBINING HIERARCHICAL PROBABILISTIC GRAPHICAL MODELS AND DEEP CONVOLUTIONAL NEURAL NETWORKS
Martina Pastorino, Gabriele Moser, Sebastiano Serpico, Università degli Studi di Genova, Italy; Josiane Zerubia, Université Cote d'Azur, France

TU2.MM-26.4 TOWARDS OUT-OF-DISTRIBUTION DETECTION FOR REMOTE SENSING
Jakob Gawlikowski, German Aerospace Center (DLR), Germany; Sudipan Saha, Anna Kruspe, Xiao Xiang Zhu, Technical University of Munich, Germany

TU2.MM-26.5 POSSIBLE EVIDENCE OF EARTHQUAKE PRECURSORS OBSERVED IN IONOSPHERIC SCINTILLATION EVENTS OBSERVED FROM SPACEBORNE GNSS-R DATA
Carlos Molina, Badr-Eddine Boudriki Semlali, Hyuk Park, Adriano Camps, Universitat Politècnica de Catalunya, Spain

Tuesday, July 13 14:25 - 15:55 Oral Room 1
Session TU3.O-1 Oral

Microwave Remote Sensing of Ocean Winds

Session Co-Chairs: David Weissman, Hofstra University; Matthieu Gallet, Université Savoie Mont Blanc; Jakov Toporkov, US Naval Research Laboratory

TU3.O-1.1 NUMERICAL SIMULATIONS AND ANALYSIS OF BEAM-RESOLVED IN-PLANE BISTATIC SCATTERING IN A WAVETANK SETUP
Jakov Toporkov, Jeffrey Ouellette, US Naval Research Laboratory, United States

TU3.O-1.2 CYGNSS-BASED ESTIMATES OF TROPICAL CYCLONE WIND FIELD STRUCTURE: A RETROSPECTIVE ANALYSIS
Mary Morris, NASA Jet Propulsion Laboratory, California Institute of Technology, United States; Charles Sampson, Naval Research Laboratory, United States

TU3.O-1.3 AN EVALUATION OF NOAA CYGNSS WINDS DERIVED FROM V3.0 CYGNSS NORMALIZED BISTATIC RADAR CROSS SECTION
Faozi Said, NOAA/GST, United States; Zorana Jelenak, NOAA/UCAR, United States; Paul S. Chang, National Oceanic and Atmospheric Administration (NOAA), United States

TU3.O-1.4 ESTIMATING SEA SURFACE VORTICITY FROM THE RAPIDSCAT SCATTEROMETER KU-BAND NRCS BY USING COINCIDENT SUB-FOOTPRINT SCALE WINDS AND DUAL POLARIZTION ANALYSIS
David Weissman, Hofstra University, United States; Mark Bourassa, Florida State University, United States

TU3.O-1.5 OCEAN VECTOR WIND MEASUREMENTS FROM GPM TO STUDY DIURNAL CYCLES OF TROPICAL WINDS
Alamgir Hossan, University of Central Florida, United States; Maria Jacob, Universidad Nacional de Córdoba, Argentina; W. Linwood Jones, University of Central Florida, United States

TU3.O-1.6 AN OPERATIONAL ALL-WEATHER WIND SPEED FROM AMSR2
Suleiman Alsweiss, Joseph Sapp, Zorana Jelenak, Paul S. Chang, NOAA/NESDIS/STAR, United States

Tuesday, July 13 14:25 - 15:55 Oral Room 2
Session TU3.O-2 Oral

Satellite Mission Derived Analytics

Session Co-Chairs: Jennifer Adams, ESA; Myriam Cournet, Centre National d'Etudes Spatiales (CNES); Alexandru Neculai, German Aerospace Center (DLR)

TU3.O-2.1 A DEEP LEARNING SYSTEM FOR PRECIPITATION ESTIMATION USING MEASUREMENTS FROM THE ADVANCED BASELINE IMAGER (ABI) ON THE GOES-R SERIES
Yang Liu, Ocean University of China, China; Haonan Chen, Colorado State University, United States; Lei Han, Ocean University of China, China; Jieying He, Chinese Academy of Sciences, China

TU3.O-2.2 CHARACTERIZATION OF GLOBAL VEGETATION ROUGHNESS INDEX (VRI) PRODUCTS DERIVED FROM THE SGLI SENSOR ONBOARD GCOM-C
Lu Xu, Jiangsu Normal University, China; Hongliang Fang, Sijia Li, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, China

TU3.O-2.3 EVALUATION OF MC-CNN BASED STEREO MATCHING PIPELINE FOR THE CO3D EARTH OBSERVATION PROGRAM
Véronique Defonte, Loïc Dumas, CS Group, France; Myriam Cournet, Emmanuelle Sarrazin, Centre National d'Etudes Spatiales (CNES), France

TU3.O-2.4 RSTAC: AN R PACKAGE TO ACCESS SPATIOTEMPORAL ASSET CATALOG SATELLITE IMAGERY
Rolf Simoes, Felipe Carvalho de Souza, Matheus Zaglia, Gilberto Ribeiro de Queiroz, Rafael D. C. dos Santos, Karine Reis Ferreira, Instituto Nacional de Pesquisas Espaciais, Brazil

TU3.O-2.5 PROTOTYPING VEGETATION TRAITS MODELS IN THE CONTEXT OF THE HYPERSPECTRAL CHIME MISSION PREPARATION
Jochem Verrelst, Charlotte De Grave, Eatidal Amin, Pablo Reyes, Miguel Morata, Enrique Portales, Santiago Belda, University of Valencia, Spain; Giulia Tagliabue, Cinzia Panigada, University of Milano - Bicocca, Italy; Mirco Boschetti, Gabriele Candiani, National Research Council (CNR-IREA), Italy; Karl Segl, Stephane Guillasso, GFZ, Germany; Katja Berger, Mattias Wocher, Tobias Hank, Ludwig-Maximilians-Universitaet Muenchen (LMU), Germany; Uwe Rascher, Forschungszentrum Jülich, Germany; Claudia Isola, European Space Agency (ESA), Netherlands

TU3.O-2.6 EARTH OBSERVATION SIMULATOR (EO-SIM): AN OPEN-SOURCE SOFTWARE FOR OBSERVATION SYSTEMS DESIGN
Vinay Ravindra, Ryan Ketzner, Sreeja Nag, NASA Ames Research Center, United States

Tuesday, July 13 14:25 - 15:55 Oral Room 3
Session TU3.O-3 Oral

Radiometric Sounding and Imaging

Session Co-Chairs: Saibun Tjuatja, The University of Texas at Arlington; Dan López-Puigdollers, Universitat de València; John Kendra, Leidos

TU3.O-3.1 DEVELOPMENT OF A POLARIMETRIC 50 GHZ SPECTROMETER FOR TEMPERATURE SOUNDING IN THE MIDDLE ATMOSPHERE
Witali Krochin, Gunter Stober, Axel Murk, University of Bern, Switzerland

TU3.O-3.2 SAPHIR-NG HIGH RESOLUTION MICROWAVE SOUNDER: TOWARDS AN ENHANCED OBSERVATION OF THE ATMOSPHERE
Jérôme Puech, Laura Hermozo, CNES, France; Hélène Brogniez, LATMOS, France; Philippe Chambon, METEO France, France; Rémy Roca, LEGOS, France; Valerio Cipolla, Christophe Goldstein, CNES, France; Bruno Picard, FLUCTUS, France; Ralf Bennartz, Earth and Environmental Sciences, Vanderbilt University, France; Benjamin Carayon, Jean-Claude Orlhac, Christophe Malassingne Costes, Laurent Costes, Nicolas Jeannin, Adrien Moraine, AIRBUS Defence and Space, France

TU3.O-3.3 NOISE SUPPRESSION IN ATMS SPATIAL RESOLUTION ENHANCEMENT USING ADAPTIVE WINDOW METHOD
Jun Zhou, Hu Yang, University of Maryland, United States

TU3.O-3.4 ROTARY-MOTION-EXTENDED ARRAY SYNTHESIS (R-MXAS): SIMULTANEOUS SPARSITY AND SENSITIVITY IN A SYNTHETIC APERTURE IMAGING RADIOMETER
John Kendra, Greg Bloy, Leidos, United States; Joseph Hughes, ASTRA, LLC, United States

TU3.O-3.5 A NEW ANTENNA PATTERN DECONVOLUTION METHOD TO ENHANCE THE SPATIAL RESOLUTION OF MULTI-CHANNEL MICROWAVE RADIOMETER MEASUREMENTS
Matteo Alparone, Ferdinando Nunziata, Università degli Studi di Napoli Parthenope, Italy; Claudio Estatico, Università degli Studi di Genova, Italy; Maurizio Migliaccio, Università degli Studi di Napoli Parthenope, Italy

TU3.O-3.6 MILLIMETER LUNAR MICROWAVE RADIANCE: MODEL SIMULATION AND SATELLITE OBSERVATIONS
Hu Yang, University of Maryland, United States

Tuesday, July 13 14:25 - 15:55 Oral Room 4
Session TU3.O-4 Oral

UAV and Close Sensing Applications IV

Session Co-Chairs: María Culman, KU Leuven; mehrdad moshtaghi, VITO; Sudipan Saha, TU Munich

TU3.O-4.1 UAVS FOR FINE-SCALE OPEN-SOURCE LANDFILL MAPPING
Coraline Wyard, Benjamin Beaumont, Institut scientifique de service public (ISSeP), Belgium; Taïs Grippa, Stefanos Georganos, Université libre De Bruxelles, Belgium; Eric Hallot, Institut scientifique de service public (ISSeP), Belgium

TU3.O-4.2 TEMPORAL RELATIONS MATTER: A TWO-PATHWAY NETWORK FOR AERIAL VIDEO RECOGNITION
Pu Jin, Lichao Mou, Yuansheng Hua, Technical University of Munich, Germany; Gui-Song Xia, Wuhan University, China; Xiao Xiang Zhu, Technical University of Munich, Germany

TU3.O-4.3 COMPARISON OF REFLECTANCE CALIBRATION WORKFLOWS FOR A UAV-MOUNTED MULTI-CAMERA ARRAY SYSTEM
Erekle Chakhvashvili, Bastian Siegmann, Juliane Bendig, Uwe Rascher, Forschungszentrum Jülich, Germany

TU3.O-4.4 A ROBUST FRAMEWORK TO ESTIMATE THE SPATIAL RESOLUTION OF OVERHEAD IMAGES USING OFF-THE-SHELF OBJECT DETECTORS
Haolin Liang, Shawn Newsam, University of California, Merced, United States

TU3.O-4.5 DEVELOPMENT OF A BEST PRACTICES WORKFLOW FOR RAPID BEACH SURVEYING USING A LOWER-COST MOBILE LIDAR SYSTEM
Isabel Garcia, Michael Starek, Texas A&M University - Corpus Christi, United States

TU3.O-4.6 ANOMALY DETECTION IN AERIAL VIDEOS VIA FUTURE FRAME PREDICTION NETWORKS
Pu Jin, Lichao Mou, Technical University of Munich, Germany; Gui-Song Xia, Wuhan University, China; Xiao Xiang Zhu, Technical University of Munich, Germany

Tuesday, July 13 14:25 - 15:55 Oral Room 5
Session TU3.O-5 Oral

Electromagnetic Modeling in Remote Sensing II

Session Co-Chairs: Ping Yang, Texas A&M University; Leung Tsang, University of Michigan; Robbe Neyns, Vrije Universiteit Brussel

TU3.O-5.1 A WIDEBAND METHOD OF MOMENTS TARGET MODELING AND FEATURE EXTRACTION APPROACH FOR GPR IMAGING
Zacharie Idriss, Raghu Raj, Naval Research Laboratory, United States; Ram Narayanan, Pennsylvania State University, United States

TU3.O-5.2 SIMULATIONS OF THE OPTICAL PROPERTIES OF NONSPHERICAL DIELECTRIC PARTICLES IN THE ATMOSPHERE
Ping Yang, Jiachen Ding, Masanori Saito, James Coy, R. Lee Panetta, Texas A&M University, United States

TU3.O-5.3 BIOMASS END-TO-END PERFORMANCE SIMULATOR: DESCRIPTION OF THE IONOSPHERE MODULE
Adriano Camps, Universitat Politècnica de Catalunya, Spain; Jose Barbosa, Ioannis Nestoras, Adriano Jordão, RDA, Switzerland; Maria Sanjuan-Ferrer, Marc Rodriguez, German Aerospace Center (DLR), Germany

TU3.O-5.4 EXTENSION OF THE SCALAR KIRCHHOFF APPROXIMATION FOR CALCULATING THE COHERENT SCATTERING FROM MULTI-LAYERS WITH RANDOM ROUGH INTERFACES
Nicolas Pinel, Icam Ouest, France

TU3.O-5.5 WAVE SCATTERING FROM A MODULATED ROUGH SURFACE
Ying Yang, Kun-Shan Chen, Guilin University of Technology, China

TU3.O-5.6 PHYSICS-BASED PREDICTION OF THE STATISTICAL MOMENTS OF BISTATIC SEA CLUTTER
Ahmed Balakhder, King Abdulaziz City for Science and Technology, Saudi Arabia; Joel Johnson, The Ohio State University, United States

Tuesday, July 13 14:25 - 15:55 Oral Room 6
Session TU3.O-6 Oral

SAR Interferometry: Methods and Applications II

Session Co-Chairs: Ramon Hanssen, Delft University of Technoogy; Lanying Wang, University of Waterloo; Louise Delhaye, The AfricaMuseum

TU3.O-6.1 IMPACTS OF IONOSPHERIC EFFECTS ON SPACEBORNE SINGLE-PASS SAR IMAGING AND INTERFEROMETRY OF LUTAN-1
Haoyu Lin, Yunkai Deng, Heng Zhang, Da Liang, Tingzhu Fang, Robert Wang, Aerospace Information Reasearch Institute, Chinese Academy of Sciences, China

TU3.O-6.2 ASSESSMENT OF THE ACCURACY OF TROPOSPHERIC ATMOSPHERIC CORRECTION USING A HIGH-EFFICIENCY WRF SIMULATION DRIVEN BY ERA5
Qinghua Liu, Qiming Zeng, Jian Jiao, Peking University, China

TU3.O-6.3 SPATIO-TEMPORAL TROPOSPHERIC VARIABILITY IN SAR INTERFEROGRAMS WITH EXTREMELY HIGH TEMPORAL RESOLUTION
Fengming Hu, Fudan University, China; Ramon F. Hanssen, Delft University of Technology, Netherlands

TU3.O-6.4 THE TRIPLET NETWORK ENHANCED SPECTRAL DIVERSITY (T-NESD) METHOD FOR THE CORRECTION OF TOPS DATA CO-REGISTRATION ERRORS FOR NON-STATIONARY SCENES
Pietro Mastro, Università degli Studi della Basilicata, Italy; Antonio Pepe, Italian National Council of Research, Italy

TU3.O-6.5 MONITORING SURFACE DEFORMATION OVER OILFIELD USING MT-INSAR AND PRODUCTION WELL DATA
Sarah Narges Fatholahi, Hongjie He, Lanying Wang, Awase Khirni Syed, Jonathan Li, University of Waterloo, Canada

TU3.O-6.6 EFFICIENCY OF CONTEXTUAL INFORMATION IN PROCESSING OF INTERFEROMETRIC DATA STACKS
Roghayeh Zamani, University of Napoli Parthenope, Italy; Hossein Aghababaei, University of Twente, Netherlands; Giampaolo Ferrioli, University of Napoli Parthenope, Italy

Tuesday, July 13 14:25 - 15:55 Oral Room 7
Session TU3.O-7 Oral

Image Segmentation: Data and Applications

Session Co-Chairs: Alina Zare, University of Florida; Kruspe Anna, German Aerospace Center (DLR); Technical University of Munich (TUM); Xingyan Cao, Universiteit Gent

TU3.O-7.1 EXPLORING TEMPORAL CONTEXT AT MULTIPLE SCALES FOR CROP MAPPING WITH FULLY CONVOLUTIONAL RECURRENT NETS AND FULLY CONNECTED CRFS
Marcos Rogozinski, Jorge Andres Chamorro Martinez, Patrick Nigri Happ, Raul Queiroz Feitosa, Pontifical Catholic University of Rio de Janeiro, Brazil

TU3.O-7.2 DATA AUGMENTATION FOR LAND COVER CLASSIFICATION USING GENERATIVE ADVERSARIAL NETWORKS
Kamel Aouaidjia, Issam Boukerch, Algerian Space Agency, Algeria

TU3.O-7.3 THE WEAKLY-LABELED RAND INDEX
Dylan Stewart, Anna Hampton, Alina Zare, University of Florida, United States; Jeff Dale, James Keller, University of Missouri, United States

TU3.O-7.4 MODERATE RESOLUTION REMOTE SENSING AND MACHINE LEARNING FOR HUMAN RIGHTS MONITORING: THE CASE OF RAKHINE STATE, MYANMAR
Josh Redmond, University of Exeter, United Kingdom

TU3.O-7.5 AN OPENSTREETMAP-BASED DATASET OF BUILDING FOOTPRINTS FOR ANALYSING DIFFERENT TYPES OF LABEL NOISE
Jonas Gütter, German Aerospace Center (DLR), Jena, Germany, Germany; Kruspe Anna, Xiao Xiang Zhu, German Aerospace Center (DLR); Technical University of Munich (TUM), Germany

TU3.O-7.6 ATTENTION BASED SEMANTIC SEGMENTATION ON UAV DATASET FOR NATURAL DISASTER DAMAGE ASSESSMENT
Tashnim Chowdhury, Maryam Rahnemoonfar, University of Maryland Baltimore County, United States

Tuesday, July 13 14:25 - 15:55 Oral Room 8
Session TU3.O-8 Oral

Optical II - Vehicle/Aircraft Detection

Session Co-Chairs: Xiuping Jia, The School of Engineering and Information Technology; Zeyad Awwad, Massachusetts Institute of Technology; Anna Mateo-Sanchis, Universitat de València

TU3.O-8.1 VEHICLE DETECTION USING DEEP LEARNING WITH DEFORMABLE CONVOLUTION
Yuanhang Wang, Shujia Ye, Yang Bai, Guoming Gao, Yanfeng Gu, Harbin Institute of Technology, China

TU3.O-8.2 LEARNING VIA WATCHING: A WEAKLY SUPERVISED MOVING OBJECT DETECTOR FOR SATELLITE VIDEOS
Junpeng Zhang, University of New South Wales Canberra, Australia; Jue Zhang, University of New South Wales, Australia; Xiuping Jia, University of New South Wales Canberra, Australia

TU3.O-8.3 SELF-SUPERVISED DEEP LEARNING FOR VEHICLE DETECTION IN HIGH-RESOLUTION SATELLITE IMAGERY
Zeyad Awwad, Massachusetts Institute of Technology, United States; Faisal Alnasser, Tariq Alshahrani, King Abdulaziz City for Science and Technology, Saudi Arabia; Matthew Moraguez, Massachusetts Institute of Technology, United States; Ahmad Alabdulkareem, King Abdulaziz City for Science and Technology, Saudi Arabia; Olivier de Weck, Massachusetts Institute of Technology, United States

TU3.O-8.4 ADAPTING VEHICLE DETECTOR TO TARGET DOMAIN BY ADVERSARIAL PREDICTION ALIGNMENT
Yohei Koga, Independent researcher, Japan; Hiroyuki Miyazaki, Ryosuke Shibasaki, University of Tokyo, Japan

TU3.O-8.5 INVERSE DOMAIN ADAPTATION FOR REMOTE SENSING IMAGES USING WASSERSTEIN DISTANCE
Ziyao Li, Wuhan University, China; Rui Wang, Man-On Pun, Chinese University of Hong Kong, China; Zhiguo Wang, Sichuan University, China; Huiliang Yu, Shanghai CAS-NOVA Satellite Technology Company Limited, China

TU3.O-8.6 MULTI-VIEW ATTENTION NETWORK FOR REMOTE SENSING IMAGE CAPTIONING
Yun Meng, Yu Gu, Xiutiao Ye, Jingxian Tian, Shuang Wang, Xidian University, China; He Zhang, Northwest University, China; Biao Hou, Licheng Jiao, Xidian University, China

Tuesday, July 13 14:25 - 15:55 Oral Room 9
Session TU3.O-9 Oral

Deep Learning for Semantic Segmentation and Image Classification II

Session Co-Chairs: Shutao Li, Hunan University; Thimm Zwiener, The AfricaMuseum; Claudio Persello, University of Twente

TU3.O-9.1 ENSEMBLE CNN BASED ON PIXEL-PAIR AND RANDOM FEATURE SELECTION FOR HYPERSPECTRAL IMAGE CLASSIFICATION WITH SMALL-SIZE TRAINING SET
Shuxian Dong, Yinghui Quan, Wei Feng, Xidian University, China; Qiang Li, Northwestern Polytechnical University, China; Gabriel Dauphin, University Paris XIII, France; Mengdao Xing, Xidian University, China

TU3.O-9.2 NEURAL STOCHASTIC DIFFERENTIAL EQUATION FOR HYPERSPECTRAL IMAGE CLASSIFICATION
Xiao Zhang, Wei Wei, Lei Zhang, Northwestern Polytechnical University, China; Chen Ding, Xi'an University of Posts and Telecommunications, China

TU3.O-9.3 SEMI-SUPERVISED SAR ATR VIA CONDITIONAL GENERATIVE ADVERSARIAL NETWORK WITH MULTI-DISCRIMINATOR
Xiaoyu Liu, Yulin Huang, Chenwei Wang, Jifang Pei, Weibo Huo, Yin Zhang, Jianyu Yang, University of Electronic Science and Technology of China, China

TU3.O-9.4 SELF-SUPERVISED AUTO-ENCODING MULTI-TRANSFORMATIONS FOR AIRPLANE CLASSIFICATION
Yin Xu, Ziteng Cui, Shanghai Jiao Tong University, China; Weiwei Guo, Tongji University, China; Zenghui Zhang, Wenxian Yu, Shanghai Jiao Tong University, China

TU3.O-9.5 ADVERSARIAL FINE-GRAINED ADAPTATION NETWORK FOR CROSS-SCENE CLASSIFICATION
Sihan Zhu, Fulin Luo, Bo Du, Liangpei Zhang, Wuhan University, China

TU3.O-9.6 PERFORMANCE OF DIFFERENT U-NET ARCHITECTURES FOR INVENTORY OF COCONUT PLANTATIONS USING CARTOSAT-2 MULTISPECTRAL DATA
Sujeeth Vankudari, Navneet Raju, Anirudh Maiya, PES University, India; Hebbar R, National Remote Sensing Centre-ISRO, India; Uma D, Shylaja SS, PES University, India; Ganesha Raj, National Remote Sensing Centre-ISRO, India

Tuesday, July 13 14:25 - 15:55 Oral Room 10
Session TU3.O-10 Oral

Advances in Parameter Retrieval and Applications

Session Co-Chairs: Fernando Camacho, EOLAB; Takeo Tadono, Japan Aerospace Exploration Agency; Ragini Bal Mahesh, Technische Universität München

TU3.O-10.1 PROTOTYPE FOR SURFACE ALBEDO RETRIEVAL BASED ON SENTINEL-3 OLCI AND SLSTR DATA IN THE FRAMEWORK OF COPERNICUS CLIMATE CHANGE
Jorge Sánchez-Zapero, Fernando Camacho, EOLAB, Spain; Jonathan León-Tavares, VITO, Belgium; Enrique Martínez-Sánchez, Javier Gorroño, EOLAB, Spain; Iskander Benhadj, Carolien Toté, Else Swinnen, VITO, Belgium; Joaquín Muñoz-Sabater, European Centre for Medium-Range Weather Forecasts (ECMWF), United Kingdom

TU3.O-10.2 A METHOD OF RETRIEVING 10-M SPECTRAL SURFACE ALBEDO PRODUCTS FROM SENTINEL-2 AND MODIS DATA
Rui Song, Jan-Peter Muller, Alistair Francis, University College London, United Kingdom

TU3.O-10.3 SINGLE UNDERWATER IMAGE RESTORATION BY CONTRASTIVE LEARNING
Junlin Han, Mehrdad Shoeiby, Tim Malthus, Elizabeth Botha, Janet Anstee, Saeed Anwar, Ran Wei, Lars Petersson, Mohammad Ali Armin, Commonwealth Scientific and Industrial Research Organisation (CSIRO), Australia

TU3.O-10.4 ESTIMATING BIOMASS FROM SENTINEL-3 ALTIMETRY DATA: A SENSITIVITY ANALYSIS
Davide Comite, Nazzareno Pierdicca, Sapienza University of Rome, Italy; Maria Paola Clarizia, Deimos Space, United Kingdom; Giuseppina De Felice Proia, Leila Guerriero, Cristina Vittucci, Tor Vergata University, Italy; Daniel Pascual, Deimos Space, United Kingdom; Marco Restano, SERCO, Italy; Jérôme Benveniste, European Space Agency (ESA), Italy

TU3.O-10.6 REGRESSION NETWORKS FOR CALCULATING ENGLACIAL LAYER THICKNESS
Debvrat Varshney, Maryam Rahnemoonfar, Masoud Yari, University of Maryland Baltimore County, United States; John Paden, University of Kansas, United States

Tuesday, July 13 14:25 - 15:55 Oral Room 11
Session TU3.O-11 Oral-Invited

Advanced Methods for Polarimetric Information Extraction II

Session Co-Chairs: Armando Marino, University of Stirling; EunYeol Kim, Colorado State University; Laurent Ferro-Famil, University of Rennes 1

TU3.O-11.1 POLARIMETRIC ANALYSIS USING THE ALGEBRAIC REAL REPRESENTATION OF THE SCATTERING MATRIX
Madalina Ciuca, Grenoble Images Parole Signal Automatique (GIPSA-lab) Grenoble INP/ University POLITEHNICA of Bucharest (UPB), Romania; Gabriel Vasile, Michel Gay, Grenoble Images Parole Signal Automatique (GIPSA-lab) Grenoble INP, France; Andrei Anghel, Silviu Ciochina, University Politehnica of Bucharest, Romania

TU3.O-11.2 POLARIMETRIC SAR SIGNATURE FOR CROP CHARACTERIZATION
Abhinav Verma, Subhadip Dey, Narayanarao Bhogapurapu, Dipankar Mandal, MRS Lab, India; Dipanwita Haldar, Indian Institute of Remote Sensing (IIRS-ISRO), India; Avik Bhattacharya, MRS Lab, India

TU3.O-11.3 FAST MATRIX BASED COMPUTATION OF EIGENVALUES IN POLSAR DATA
Allan A. Nielsen, Technical University of Denmark, Denmark

TU3.O-11.4 RECONSTRUCTION OF PSEUDO QUAD-POL IMAGES FROM GENERAL COMPACT POLARIMETRIC DATA
Junjun Yin, University of Science and Technology Beijing, China; Jian Yang, Tsinghua University, China

Tuesday, July 13 14:25 - 15:55 Oral Room 12
Session TU3.O-12 Oral

Land Cover Classification and Object Extraction

Session Co-Chairs: Gabriele Moser, University of Genoa; Di Zhang, University of Hamburg; Meenal Sharma, University of Twente

TU3.O-12.1 DISENTANGLED NON-LOCAL NETWORK FOR HYPERSPECTRAL AND LIDAR DATA CLASSIFICATION
Wenxia Liu, Feng Gao, Junyu Dong, Ocean University of China, China

TU3.O-12.2 HYPERSPECTRAL AND LIDAR DATA CLASSIFICATION BASED ON LINEAR SELF-ATTENTION
Min Feng, Feng Gao, Jian Fang, Junyu Dong, Ocean University of China, China

TU3.O-12.3 INVESTIGATING FUSION STRATEGIES ON ENCODER-DECODER NETWORKS FOR CROP SEGMENTATION USING SAR AND OPTICAL IMAGE SEQUENCES
Laura Elena Cué La Rosa, Pontifical Catholic University of Rio de Janeiro, Brazil; Dário Augusto Borges Oliveira, IBM Research, Brazil, Brazil; Raul Queiroz Feitosa, Pontifical Catholic University of Rio de Janeiro, Brazil

TU3.O-12.4 SOFNET: SAR-OPTICAL FUSION NETWORK FOR LAND COVER CLASSIFICATION
Di Zhang, Martin Gade, Jianwei Zhang, University of Hamburg, Germany

TU3.O-12.5 ROAD EXTRACTION AND ROAD WIDTH ESTIMATION VIA FUSION OF AERIAL OPTICAL IMAGERY, GEOSPATIAL DATA, AND STREET-LEVEL IMAGES
Andrea Grillo, University of Genoa, Italy; Vladimir Krylov, Dublin City University, Ireland; Gabriele Moser, University of Genoa, Italy; Sebastiano Serpico, Università degli Studi di Genova, Italy

TU3.O-12.6 STRUCTURED BUILDING EXTRACTION FROM HIGH-RESOLUTION SATELLITE IMAGES WITH A HYBRID CONVOLUTIONAL NEURAL NETWORK
Jianing Wang, Hanjiang Xiong, Jianya Gong, Xianwei Zheng, Wuhan University, China

Tuesday, July 13 14:25 - 15:55 Oral Room 13
Session TU3.O-13 Oral

Geospatial Intelligence

Session Co-Chairs: Javiera Castillo-Navarro, Onera; Mayumi C. M. Hirye, QUAPA Research Lab; Sebastien Lefèvre, Université Bretagne du Sud

TU3.O-13.1 OCRE: FUNDING OPPORTUNITIES FOR THE EUROPEAN RESEARCH COMMUNITY FOR USING OCRE'S PROCURED CLOUD AND EARTH OBSERVATION COMMERCIAL SERVICES
Jose Manuel Delgado Blasco, Antonio Romeo, RHEA Group, Spain; David Heyns, GEANT, Netherlands; Natassa Antoniou, EARSC, Belgium; Rob Carrillo, Trust-IT, Italy

TU3.O-13.2 AN EFFICIENT VARIANT OF THE GARBRECHNT AND MARTZ ALGORITHM FOR CALCULATING FLOW DIRECTIONS OVER FLAT SURFACES IN RASTER DIGITAL ELEVATION MODELS
Lihui Song, Guiyun Zhou, Zhonghua Su, University of Electronic Science and Technology of China, China; Yang Chen, Beijing Normal University, China; Xiang Zhou, Rong Zhao, University of Electronic Science and Technology of China, China

TU3.O-13.4 A PORTABLE APPROACH TO INTEGRATING DIVERSE GEO-SCIENCE DATA USING STARE-AWARE DATABASES AND TRANSITIONING TO CLOUD
Michael Rilee, Rilee Systems Technologies LLC, United States; Kwo-Sen Kuo, Bayesics, LLC, United States; Niklas Griessbaum, James Frew, University of California, United States; James Gallagher, OPeNDAP, Inc., United States

TU3.O-13.5 DEVELOPING A SYSTEM TO MAP AND MONITOR BEACHED SARGASSUM ON THE CARIBBEAN COAST OF MEXICO
Giles Foody, University of Nottingham, United Kingdom; Hansel Aragon, Comisión Nacional para el Conocimiento y Uso de la Biodiversidad, Mexico; Betsabe de la Barreda-Bautista, Doreen Boyd, University of Nottingham, United Kingdom; Sergio Estrada, Comisión Nacional para el Conocimiento y Uso de la Biodiversidad, Mexico; Pablo Lopez, Centro de Investigación en Ciencias de Información Geoespacial, Mexico; Adolfo Magaldi, National Autonomus University of Mexico, Mexico; Sarah Metcalfe, University of Nottingham, United Kingdom; Susana Perera-Valderrama, Rainer Ressl, Comisión Nacional para el Conocimiento y Uso de la Biodiversidad, Mexico; Oscar Siordia, Centro de Investigación en Ciencias de Información Geoespacial, Mexico; Sofie Sjogersten, University of Nottingham, United Kingdom; Geoff Smith, Specto Natura Ltd, United Kingdom

TU3.O-13.6 HIGH-RESOLUTION DATA GRIDS TO ASSESS URBAN DENSITY AND ENVIRONMENTAL QUALITY: THE CASE OF SÃO PAULO CITY
Mayumi C. M. Hirye, QUAPA Research Lab, Brazil; Angelo S. Filardo Jr., Faculty of Architecture and Urbanismo, Brazil; Fabien H. Wagner, GeoProcessing Division, Brazil

Tuesday, July 13 14:25 - 15:55 Oral Room 14
Session TU3.O-14 Oral

Seasonal Snow II

Session Co-Chairs: Simonetta Paloscia, Institute of Applied Physics, National Research Council (IFAC-CNR); Juha Lemmetyinen, Finnish Meteorological Institute; Gonzalo Raimundo Luzardo Morocho, Universiteit Gent

TU3.O-14.1 DEVELOPMENT OF DYNAMIC SNOW DENSITY METHODOLOGY FOR GLOBSNOW SWE RETRIEVAL
Pinja Venäläinen, Kari Luojus, Juha Lemmetyinen, Jouni Pulliainen, Mikko Moisander, Matias Takala, Finnish Meteorological Institute, Finland

TU3.O-14.2 SNOW WATER EQUIVALENT RETRIEVAL FROM COSMO-SKYMED OBSERVATIONS THROUGH MACHINE LEARNING ALGORITHMS AND MODEL SIMULATIONS
Emanuele Santi, Simonetta Paloscia, Simone Pettinato, Institute of Applied Physics, National Research Council (IFAC-CNR), Italy; Claudia Notarnicola, Giovanni Cuozzo, Ludovica De Gregorio, EURAC Research, Institute for Earth Observation, Italy; Francesca Cigna, Deodato Tapete, Italian Space Agency (ASI), Italy

TU3.O-14.3 INTEGRATION OF DMRT AND SNOWPACK MODELS FOR SIMULATING BACKSCATTERING AND COMPARISON WITH COSMO-SKYMED DATA
Fabrizio Baroni, Simone Pilia, Alessandro Lapini, Simonetta Paloscia, Simone Pettinato, Emanuele Santi, Leonardo Santurri, CNR/IFAC, Italy; Mauro Valt, ARPAV- Centro Valanghe di Arabba, Italy

TU3.O-14.4 A MULTISOURCE STATISTICAL METHOD TO DOWNSCALE SNOW COVER FRACTION IN MOUNTAIN REGIONS
Valentina Premier, University of Trento, Italy; Carlo Marin, Claudia Notarnicola, Eurac Research, Italy; Lorenzo Bruzzone, University of Trento, Italy

TU3.O-14.5 EVALUATION OF A HIGH-RESOLUTION OPERATIONAL SNOW COVER AREA CLASSIFICATION ALGORITHM
Zacharie Barrou Dumont, Simon Gascoin, Center for the Study of the Biosphere from Space, France

TU3.O-14.6 AHP BASED ASSESSMENT OF GLOF SUSCEPTIBILITY OF SOUTH LHONAK GLACIAL LAKE, SIKKIM HIMALAYA, INDIA
Pranata Hazra, Akhouri Pramod Krishna, Birla Institute of Technology, Mesra, India

Tuesday, July 13 14:25 - 15:55 Oral Room 15
Session TU3.O-15 Oral

Data Processing, Management and Visualization III

Session Co-Chairs: Daniela Zaidenberg, Massachusetts Institute of Technology; Stefan Livens, VITO; Lynette Dias, Twente Universiy

TU3.O-15.1 A FRAGILE WATERMARKING IN CIPHERTEXT DOMAIN BASED ON MULTI-PERMUTATION SUPERPOSITION CODING FOR REMOTE SENSING IMAGE
Li Jiang, Hao Zheng, Chaoxing Zhao, Zhengzhou University, China

TU3.O-15.2 STARE COMPANION FILES FOR NASA EARTH SCIENCE DATA
James Gallagher, OPeNDAP, United States; Edward Hartnett, Intelligent Data Design, Inc., United States; Michael Rilee, Rilee Systems Technologies, LLC, United States; Kwo-Sen Kuo, Bayesics, LLC, United States

TU3.O-15.3 AUTOMATED IMAGE PROCESSING WORKFLOW FOR UNMANNED AERIAL VEHICLES
Samuel Oswald, Dries Raymaekers, Wouter Dierckx, Dominique De Munck, Stephen Kempenaers, Jens Verrydt, Dieter Meeus, Bram Janssen, Tim Deroose, Pieter-Jan Baeck, Jan Biesemans, VITO, Belgium

TU3.O-15.4 GEO-IMAGERY MANAGEMENT AND STATISTICAL PROCESSING IN A REGIONAL CONTEXT USING OPEN DATA CUBE
Urtzi Otamendi, Izar Azpiroz, Marco Quartulli, Igor Olaizola, Vicomtech, Spain; Francisco J. Perez, David Alda, Xabier Garitano, Hazi, Spain

TU3.O-15.5 ADVANTAGES AND BOTTLENECKS OF QUANTUM MACHINE LEARNING FOR REMOTE SENSING
Daniela Zaidenberg, Massachusetts Institute of Technology, United States; Alessandro Sebastianelli, University of Sannio, Italy; Dario Spiller, Bertrand Le Saux, European Space Agency (ESA), Italy; Silvia Liberata Ullo, University of Sannio, Italy

TU3.O-15.6 A NEW WEB-BASED SOFTWARE TOOL FOR ICESAT AND ICESAT-2 LASER ALTIMETRY DATA PROCESSING AND VISUALIZATION
Bruno Silva, Luiz Guerreiro Lopes, University of Madeira, Portugal; Pedro Campos, Interactive Technologies Institute (ITI/LARSyS) and University of Madeira, Portugal

Tuesday, July 13 14:25 - 15:55 Oral Room 16
Session TU3.O-16 Oral

Education and Remote Sensing

Session Co-Chairs: Frieke Van Coillie, Ghent University; Axel Deijns, The AfricaMuseum; Maxwell Owusu, University of Twente

TU3.O-16.1 USER UPTAKE OF COPERNICUS RESOURCES: A USE CASE FOR LAND MONITORING
Lorenza Apicella, Alfonso Quarati, National Research Council (CNR), Italy; Sergio Rosim, Instituto Nacional de Pesquisas Espaciais, Brazil; Monica De Martino, National Research Council (CNR), Italy

TU3.O-16.2 ONLINE EDUCATION OF REMOTE SENSING IN CHINA DURING THE COVID-19 PANDEMIC: A CASE OF STUDY IN JIANGSU NORMAL UNIVERSITY
Qi Zhang, Qingmiao Ma, Yingjie Li, Shuguo Wang, Tianchen Qu, Zhuohao Liu, Ying Zhang, Chengzhi Gao, Jiangsu Normal University, China

TU3.O-16.3 WEARABLE ELECTRONICS EDUCATION FOR NEUROLOGICAL DISEASES
Hua Fan, Huajiang Xie, University of Electronic Science and Technology of China, China; Rami Ghannam, University of Glasgow, United Kingdom

TU3.O-16.4 GEO-ETHICS IN SLUM MAPPING
Maxwell Owusu, Monika Kuffer, Mariana Belgiu, University of Twente, Netherlands; Taïs Grippa, Moritz Lennert, Stefanos Georganos, Sabine Vanhuysse, Université libre De Bruxelles, Belgium

TU3.O-16.6 STRIVING FOR DIVERSITY, EQUITY, AND INCLUSION IN REMOTE SENSING EDUCATION
Reginald Blake, Janet Liou-Mark, Hamidreza Norouzi, Julia Rivera, New York City College of Technology, United States; Abdou Rachid Bah, City University of New York, Graduate Center, United States

Tuesday, July 13 14:25 - 15:55 Oral Room 17

Session TU3.O-17 Oral

High Resolution Agricultural Applications using Fluorescence/ Hyperspectral Data

Session Co-Chairs: Vineet Kumar, Delft University of Technology; Sathishkumar Samiappan, Assistant Research Professor; Vaibhav Rajan

TU3.O-17.1 COMPARING THE RETRIEVAL OF CHLOROPHYLL FLUORESCENCE FROM TWO AIRBORNE HYPERSPECTRAL IMAGERS WITH DIFFERENT SPECTRAL RESOLUTIONS FOR PLANT PHENOTYPING STUDIES
Anirudh Belwalkar, Tomas Poblete, Andrew Longmire, University of Melbourne, Australia; Alberto Hornero, Swansea University, Consejo Superior de Investigaciones Científicas, United Kingdom; Pablo Zarco-Tejada, University of Melbourne, Consejo Superior de Investigaciones Científicas, Australia

TU3.O-17.2 EARLY DETECTION OF ROOT-KNOT NEMATODE (MELOIDOGYNE INCOGNITA) INFESTATION IN COTTON USING HYPERSPECTRAL DATA
Sathishkumar Samiappan, Raju Beemanahalli, Assistant Research Professor, United States; Meilun Zhou, Research Associate, United States; John Brooks, Martin Wubben, USDA Agricultural Research Service, United States

TU3.O-17.3 ASSESSING THE CONTRIBUTION OF AIRBORNE-RETRIEVED CHLOROPHYLL FLUORESCENCE FOR NITROGEN ASSESSMENT IN ALMOND ORCHARDS
Yue Wang, Lola Suarez, University of Melbourne, Australia; Xiaojin Qian, Chinese Academy of Sciences, China; Tomas Poblete, University of Melbourne, Australia; Victoria Gonzalez-Dugo, Consejo Superior de Investigaciones Cientificas (CSIC), Spain; Dongryeol Ryu, Pablo J. Zarco-Tejada, University of Melbourne, Australia

TU3.O-17.4 DENOISING HYPERSPECTRAL FIELD SPECTRA OF VEGETATION WITH A PROSAIL-FED DENOISING AUTOENCODER
Zihua Wu, Qiming Qin, Peking University, China

TU3.O-17.5 RESPONSE OF BEAN (PHASEOLUS VULGARIS L.) TO ELEVATED [CO2] IN YIELD, BIOMASS AND CHLOROPHYLL FLUORESCENCE
Juan Quirós-Vargas, Forschungszentrum Jülich, Germany; Rafael Diogo Caldeira, Universidade Católica Portuguesa, Portugal; Nicolas Zendonadi dos Santos, Lars Zimmermann, Bastian Siegmann, Forschungszentrum Jülich, Germany; Thorsten Kraska, University of Bonn, Germany; Marta W. Vasconcelos, Universidade Católica Portuguesa, Portugal; Uwe Rascher, Onno Muller, Forschungszentrum Jülich, Germany

TU3.O-17.6 LAI MODELING IN DEGRADED MEDITERRANEAN RAINFED CULTIVATED CROP LINKED WITH SOIL EROSION STAGES BASED ON VNIR-SWIR HYPERSPECTRAL DATA
Robert Milewski, Helmholtz Centre Potsdam, GFZ German Research Centre for Geosciences, Germany; Thomas Schmid, Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas, Spain; Sabine Chabrillat, Helmholtz Centre Potsdam, GFZ German Research Centre for Geosciences, Germany

Tuesday, July 13 14:25 - 15:55 Oral Room 18

Session TU3.O-18 Oral

Active RS for Soil Moisture Retrieval

Session Co-Chairs: Rajat Bindlish, NASA Goddard Space Flight Center; Diego Bueso, Universitat de València; Anke Fluhrer, German Aerospace Center (DLR)

TU3.O-18.1 TIME-SERIES SOIL MOISTURE RETRIEVAL USING S-BAND BACKSCATTER MEASUREMENTS FROM THE SMEX02 CAMPAIGN
Dustin Horton, Alexandra Bringer, Joel Johnson, The Ohio State University, United States; Jeonghwan Park, Rajat Bindlish, NASA Goddard Space Flight Center, United States

TU3.O-18.2 SOIL MOISTURE RETRIEVAL USING A TIME-SERIES RATIO ALGORITHM FOR THE NISAR MISSION
Jeonghwan Park, NASA Goddard Space Flight Center/GST, United States; Rajat Bindlish, NASA Goddard Space Flight Center, United States; Alexandra Bringer, Dustin Horton, Joel Johnson, ElectroScience Laboratory, The Ohio State University, United States

TU3.O-18.3 A NEW FULLY CONSTRAINED LEAST SQUARES-BASED FUSION APPROACH OF OPTICAL, THERMAL, AND SAR REMOTE SENSING DATA FOR SOIL MOISTURE CONTENT ESTIMATION
Oualid Yahia, Moussa Sofiane Karoui, Agence Spatiale Algérienne, Algeria; Raffaella Guida, University of Surrey, United Kingdom

TU3.O-18.4 SOIL MOISTURE RETRIEVAL USING L-BAND SAR OVER LANDSLIDE REGIONS IN NORTHERN CALIFORNIA GRASSLANDS
Tien-Hao Liao, California Institute of Technology, United States; Seung-Bum Kim, Alexander Handwerger, Eric J. Fielding, NASA Jet Propulsion Laboratory, United States

TU3.O-18.5 COMPLEX PERMITTIVITY AND PENETRATION DEPTH ESTIMATION FROM AIRBORNE P-BAND SAR DATA APPLYING A HYBRID DECOMPOSITION METHOD
Anke Fluhrer, Thomas Jagdhuber, German Aerospace Center (DLR), Germany; Alireza Tabatabaeenejad, University of Southern California, United States; Hamed Alemohammad, Radiant Earth Foundation, United States; Carsten Montzka, Forschungszentrum Jülich, Germany; Maike Schumacher, University of Aalborg, Germany; Harald Kunstmann, University of Augsburg, Germany

TU3.O-18.6 RELATIONSHIP BETWEEN RETRIEVALS OF SURFACE SOIL MOISTURE AND ROUGHNESS USING SAR DATA AT L-BAND
Seungbum Kim, NASA Jet Propulsion Laboratory, United States; Tienhao Liao, California Institute of Technology, United States

Tuesday, July 13 14:25 - 15:55 Oral Room 19
Session TU3.O-19 Oral

Remote Sensing Applications in Wetlands

Session Co-Chairs: Hongsheng ZHANG, The University of Hong Kong; Mihai Datcu, Research Center for Spatial Information (CEOSpaceTech), University POLITEHNICA of Bucharest (UPB) and Earth Observation Center (EOC), German Aerospace Center (DLR); Francesco Falabella, Università degli Studi della Basilicata

TU3.O-19.1 MANGROVE SPECIES MAPPING USING DEEP LEARNING WITH FUSION OF HYPERSPECTRAL AND HIGH-RESOLUTION MULTISPECTRAL IMAGES
Luoma Wan, Chinese University of Hong Kong, China; Hongsheng Zhang, University of Hong Kong, China; Peifeng Ma, Chinese University of Hong Kong, China; Guanghui Lin, Tsinghua University, China

TU3.O-19.2 CONSTRUCTING A COASTAL PLAINS WETLAND DELINEATION MODEL USING HYPERSPATIAL LIDAR DATA
Narcisa Pricope, Asami Minei, Joanne Halls, University of North Carolina Wilmington, United States

TU3.O-19.3 CHARACTERIZATION OF NATURAL WETLANDS WITH CUMULATIVE SUMS OF POLARIMETRIC SAR TIMESERIES
Javier Ruiz-Ramos, The Open University, United Kingdom; Armando Marino, University of Stirling, United Kingdom; Andrea Berardi, The Open University, United Kingdom; Andy Hardy, Aberystwyth University, United Kingdom; Matthew Simpson, 35 percent, United Kingdom

TU3.O-19.4 WATER DEPTH RETRIEVAL IN THE EVERGLADES USING CYGNSS
Brandi Downs, Andrew O'Brien, The Ohio State University, United States; Mary Morris, Cinzia Zuffada, NASA Jet Propulsion Laboratory, California Institute of Technology, United States

TU3.O-19.5 BASELINE INVASIVE SPECIES COMMUNITY MAPPING AT LOWER KLAMATH WETLAND, OREGON-CALIFORNIA (USA)
Margarita Huesca, University of Twente, Netherlands; Susan Ustin, University of California, Davis, United States

TU3.O-19.6 TROPICAL PEATLAND CLASSIFICATION USING MULTI-SENSOR SENTINEL IMAGERY AND RANDOM FOREST ALGORITHM IN GREATER AMANZULE, GHANA
Alex Amoakoh, Paul Aplin, Kwame Awuah, Irene Delgado-Fernandez, Cherith Moses, Edge Hill University, United Kingdom; Carolina Alonso, Universidad de Las Palmas de Gran Canaria, United Kingdom

Tuesday, July 13 14:25 - 15:55 Oral Room 20
Session TU3.O-20 Oral

Precipitation Observations

Session Co-Chairs: Srinivasa Ramanujam Kannan, Indian Institute of Technology Bhubaneswar; chengzhe Li, University of Iowa; David Kunkee, The Aerospace Corporation

TU3.O-20.1 PROGRESS IN CONVECTIVE SYSTEM OBSERVATION BY COMBINATION OF DIFFERENT SATELLITES
Tran-Vu La, Christophe Messager, Extreme Weather Expertises (EXWEXs), France

TU3.O-20.2 SATELLITE STUDY OF ATMOSPHERIC CYCLONES AND RIVERS AROUND ANTARCTICA
Leonid Mitnik, Vladimir Kuleshov, V.I.Il'ichev Pacific Oceanological Institute, Far Eastern Branch, Russian Academy of Sciences, Russia; Mariya Panfilova, Vladimir Karaev, Institute of Applied Physics, Russian Academy of Sciences, Russia; Maia Mitnik, Anastasiya Baranyuk, V.I.Il'ichev Pacific Oceanological Institute, Far Eastern Branch, Russian Academy of Sciences, Russia

TU3.O-20.3 HURRICANE PRECIPITATION RETRIEVAL USING FY-3C MWRI BRIGHTNESS TEMPERATURE
Ruanyu Zhang, Shanghai Spaceflight Institute of TT&C and Telecommunication, China; Lanjie Zhang, Beijing Information Science and Technology University, China; Lifei Jiang, Xue Li, Enchen Li, Pingkai Wang, Shanghai Spaceflight Institute of TT&C and Telecommunication, China

TU3.O-20.4 UPSCALING IMD GROUND RADAR VERTICAL REFLECTIVITY USING TRMM PR OBSERVATIONS AND ARTIFICIAL NEURAL NETWORK
Alok Sharma, Srinivasa Ramanujam Kannan, Indian Institute of Technology Bhubaneswar, India

TU3.O-20.5 SAMPLING EVALUATION TO MEASURE OBSERVING SYSTEM REPRESENTATIVENESS
Jordan Stern, Paul Grogan, Stevens Institute of Technology, United States

Tuesday, July 13 16:00 - 17:40 Multimedia Room 26

Session TU2.MM-26

Student Paper Contest II

Session Co-Chairs: David M. Le Vine, NASA Goddard Space Flight Center; Francesca Bovolo, Fondazione Bruno Kessler; Max Felius

TU2.MM-26.1 REAL-TIME, DEEP SYNTHETIC APERTURE SONAR (SAS) AUTOFOCUS
Isaac Gerg, Vishal Monga, Penn State University, United States

TU2.MM-26.2 QUANTIFYING SPATIAL RELATIONSHIPS IN ICE PENETRATING RADAR MEASUREMENT UNCERTAINTY THROUGH CLUTTER SIMULATION
Emma MacKie, Dustin Schroeder, Gregor Steinbrugge, Riley Culberg, Stanford University, United States

TU2.MM-26.3 AN INNOVATIVE PUSH-TO-TALK (PTT) SYNCHRONIZATION SCHEME FOR FUTURE DISTRIBUTED SAR
Yanyan Zhang, Robert Wang, Aerospace Information Reasearch Institute, Chinese Academy of Sciences, China

TU2.MM-26.4 SATELLITE PASSIVE MICROWAVE REMOTE SENSING FOR SEISMIC THERMAL ANOMALY: PHENOMENA AND MECHANISMS
Yuan Qi, Lixin Wu, Wenfei Mao, Yifan Ding, Yingjia Liu, Central South University, China

TU2.MM-26.5 PROPOSAL OF A GROUND PENETRATING RADAR SYSTEM UTILIZING POLARIZATION INFORMATION BY USING PHASOR-QUATERNION SELF-ORGANIZING MAP
Yicheng Song, Akira Hirose, University of Tokyo, Japan

Tuesday, July 13 16:40 - 18:10 Oral Room 1

Session TU4.O-1 Oral-Invited

Emergency Response During Covid-19: New Techniques for Real-time Urban Flood Mapping, Short-term Flood Prediction and Communication to the Emergency Management Community

Session Co-Chairs: Heather McGrath, Natural Resources Canada; Shabnam Jabari, University of New Brunswick; Matthieu Gallet, Université Savoie Mont Blanc

TU4.O-1.1 CURRENT LIMITATIONS AND EMERGING TRENDS IN REAL-TIME MAPPING OF NATURAL DISATERS AND THE EMERGENCE OF DISASTER DASHBOARDS FOR COMMUNICATING RISK
Heather McGrath, Natural Resources Canada, Canada; Shabnam Jabari, University of New Brunswick, Canada

TU4.O-1.2 CERC-HAND-D: A TOOL FOR SUPPORTING ON-THE-FLY FLOOD MAPPING IN CANADA
Blair Scriven, University of Calgary, Canada; Heather McGrath, Natural Resources Canada, Canada; Emmanuel Stefanakis, University of Calgary, Canada

TU4.O-1.3 CANADA'S EMERGENCY GEOMATICS SERVICE NEAR REAL-TIME FLOOD MAPPING FROM MULTI-SOURCE DATA
Ian Olthof, Vincent Decker, Simon Tolszczuk-Lederc, Victor Neufeld, Brad Lehrbass, Nicolas Svacina, Tom Rainville, Elise Bergeron, Emergency Geomatics Service, Canada

TU4.O-1.4 URBAN FLOOD DETECTION USING SENTINEL1-A IMAGES
Shadi Sadat Baghermanesh, Shabnam Jabari, University of New Brunswick, Canada; Heather McGrath, Natural Resources Canada, Canada

TU4.O-1.5 BUILDING DAMAGE DETECTION IN POST-EVENT HIGH-RESOLUTION IMAGERY USING DEEP TRANSFER LEARNING
Ghasem Abdi, Morteza Esfandiari, Shabnam Jabari, University of New Brunswick, Canada

Tuesday, July 13 16:40 - 18:10 Oral Room 2
Session TU4.O-2 Oral-Invited

Getting Ready for the NASA-ISRO SAR Mission

Session Co-Chairs: Paul Rosen, Jet Propulsion Laboratory / California Institute of Technology; Franz Meyer, University of Alaska Fairbanks; Alexandru Neculai, German Aerospace Center (DLR)

TU4.O-2.1 SCIENCE STATUS OF THE NASA-ISRO SAR MISSION
Paul Rosen, NASA Jet Propulsion Laboratory, California Institute of Technology, United States; Raj Kumar, Indian Space Research Organisation, India

TU4.O-2.3 NISAR'S CAPABILITIES IN SUPPORT OF THE APPLICATIONS COMMUNITY
Cathleen Jones, NASA Jet Propulsion Laboratory, California Institute of Technology, United States; Batuhan Osmanoglu, NASA Goddard Space Flight Center, United States; Nathan Torbick, Applied GeoSolutions, LLC, United States

TU4.O-2.4 NISAR REQUIREMENTS AND VALIDATION APPROACH FOR SOLID EARTH SCIENCE
Mark Simons, David Bekaert, California Institute of Technology, United States; Adrian Borsa, University of California, San Diego, United States; Andrea Donnellan, Eric J. Fielding, Cathleen Jones, California Institute of Technology, United States; Rowena Lohman, Cornell University, United States; Zhong Lu, Southern Methodist University, United States; Franz J. Meyer, University of Alaska-Fairbanks, United States; Susan Owen, Paul Rosen, California Institute of Technology, United States; Howard Zebker, Stanford University, United States

TU4.O-2.5 ECOSYSTEM SCIENCES WITH NISAR
Paul Siqueira, University of Massachusetts, United States; John Armston, University of Maryland, United States; Bruce Chapman, NASA Jet Propulsion Laboratory, California Institute of Technology, United States; Anup Das, Indian Space Research Organisation, India; Ralph Dubayah, University of Maryland, United States; Josef Kellndorfer, Earth Big Data, United States; Kyle McDonald, City University of New York, United States; Chakrapani Patnaik, Indian Space Research Organisation, India; Sassan Saatchi, NASA Jet Propulsion Laboratory, California Institute of Technology, United States; Nathan Torbick, Applied GeoSolutions, LLC, United States

TU4.O-2.6 CRYOSPHERE SCIENCES WITH NISAR
Ian Joughin, University of Washington, United States; Rick Forster, University of Utah, United States; Alex Gardner, Ben Holt, NASA Jet Propulsion Laboratory, California Institute of Technology, United States; Eric Rignot, Bernd Scheuchl, University of California, Irvine, United States

Tuesday, July 13 16:40 - 18:10 Oral Room 3
Session TU4.O-3 Oral-Invited

Integrating Earth Observation and Geospatial Data and Analytics to Monitor and Assess Risk and Resilience

Session Co-Chairs: Bandana Kar, Oak Ridge National Laboratory; ZhiQiang Chen, University of Missouri, Kansas City; Dan López-Puigdollers, Universitat de València

TU4.O-3.1 INTEGRATING HYDROLOGIC MODELS AND EARTH OBSERVATION DATA FOR GLOBAL FLOOD FORECASTING AND ALERTING IN NEAR REAL-TIME
Margaret Glasscoe, University of Alabama in Huntsville, United States; Douglas Bausch, Pacific Disaster Center, United States; Prativa Sharma, University of Missouri Kansas City, United States; Jun Wang, Indiana University, United States; ZhiQiang Chen, Molan Zhang, University of Missouri Kansas City, United States; Guy Schumann, Remote Sensing Solutions, United States; Marlon Pierce, Indiana University, United States; Clay Woods, Kristy Tiampo, University of Colorado Boulder, United States; Ronald Eguchi, ImageCat, Inc., United States

TU4.O-3.3 A MACHINE LEARNING APPROACH TO FLOOD DEPTH AND EXTENT DETECTION USING SENTINEL 1A/B SYNTHETIC APERTURE RADAR
Kristy Tiampo, Clay Woods, Lingcao Huang, University of Colorado Boulder, United States; Prativa Sharma, ZhiQiang Chen, University of Missouri, United States; Bandana Kar, Oak Ridge National Laboratory, United States; Douglas Bausch, Pacific Disaster Center, United States; Conor Simmons, Rigo Estrada, Michael Willis, University of Colorado Boulder, United States; Margaret Glasscoe, NASA Jet Propulsion Laboratory, California Institute of Technology, United States

TU4.O-3.4 DEEP METRIC LEARNING FOR DAMAGE DETECTION USING BITEMPORAL SATELLITE IMAGES
Molan Zhang, ZhiQiang Chen, University of Missouri Kansas City, United States

TU4.O-3.5 SPATIOTEMPORAL TRACKING OF WIDE AREA POWER OUTAGE FROM NIGHT-TIME LIGHT IMAGERY
Bandana Kar, Jessica Bobeck, Oak Ridge National Laboratory, United States; Tamar Moss, Brandeis University, United States; David Hughes, Oak Ridge National Laboratory, United States

TU4.O-3.6 IMPLICATIONS OF A NEW NORMAL URBAN AIR QUALITY
Shobha Kondragunta, National Oceanic and Atmospheric Administration (NOAA), United States; Hai Zhang, Zigang Wei, IM Systems Group, United States

Tuesday, July 13 16:40 - 18:10 Oral Room 4
Session TU4.O-4 Oral-Invited

Integration of Photogrammetry and Deep Learning in Earth Observation Applications

Session Co-Chairs: José Marcato Junior, UFMS; Jonathan Li, University of Waterloo; María Culman, KU Leuven

TU4.O-4.1 INTEGRATION OF PHOTOGRAMMETRY AND DEEP LEARNING IN EARTH OBSERVATION APPLICATIONS
José Marcato Junior, Pedro Zamboni, UFMS - Federal University of Mato Grosso do Sul., Brazil; Mariana Campos, FGI, Finland; Ana Ramos, Lucas Osco, Unoeste, Brazil; Jonathan Silva, UFMS - Federal University of Mato Grosso do Sul., Brazil; Wesley Gonçalves, Federal University of Mato Grosso do Sul, Brazil; Jonathan Li, University of Waterloo, Canada

TU4.O-4.3 A PROPOSAL TO INTEGRATE ORB-SLAM FISHEYE AND CONVOLUTIONAL NEURAL NETWORKS FOR OUTDOOR TERRESTRIAL MOBILE MAPPING
Thaisa Aline Correia Garcia, São Paulo State University, Brazil; Mariana Batista Campos, Finnish Geospatial Research Institute, Finland; Letícia Ferrari Castanheiro, Antonio Maria Garcia Tommaselli, São Paulo State University, Brazil

TU4.O-4.4 SEMANTIC SEGMENTATION OF UAV LIDAR POINT CLOUDS OF A STACK INTERCHANGE WITH DEEP NEURAL NETWORKS
Weikai Tan, Dedong Zhang, University of Waterloo, Canada; Lingfei Ma, Central University of Finance and Economics, China; Lanying Wang, University of Waterloo, Canada; Nannan Qin, Key Laboratory of Planetary Sciences, Purple Mountain Observatory, Chinese Academy of Sciences, China; Yiping Chen, Xiamen University, China; Jonathan Li, University of Waterloo, Canada

TU4.O-4.5 RETINANET DEEP LEARNING-BASED APPROACH TO DETECT TERMITE MOUNDS IN EUCALYPTUS FORESTS
Juan Sales, José Marcato Junior, Henrique Siqueira, Mauricio Souza, Edson Matsubara, Wesley Gonçalves, Federal University of Mato Grosso do Sul, Brazil

TU4.O-4.6 ASSESSMENT OF CNN-BASED METHODS FOR SINGLE TREE DETECTION ON HIGH-RESOLUTION RGB IMAGES IN URBAN AREAS
Pedro Zamboni, José Marcato Junior, Federal University of Mato Grosso do Sul, Brazil; Gabriela Miyoshi, São Paulo State University, Brazil; Jonathan Silva, José Martins, Wesley Gonçalves, Federal University of Mato Grosso do Sul, Brazil

Tuesday, July 13 16:40 - 18:10 Oral Room 5
Session TU4.O-5 Oral-Invited

International Initiatives Linking NewSpace Domains to Scientific and Applications Objectives and Requirements

Session Co-Chairs: Alfreda A. Hall, NASA Goddard Space Flight Center; Clement Albinet, ESA - European Space Research Institute; Robbe Neyns, Vrije Universiteit Brussel

TU4.O-5.1 NEWSPACE CAL/VAL MATURITY ASSESSMENT INITIATIVES AT ESA AND NASA
Clément Albinet, ESA - European Space Research Institute, Italy; Alfreda A. Hall, NASA Goddard Space Flight Center, United States; Henri Laur, ESA - European Space Research Institute, Italy; Kevin J. Murphy, NASA, United States; Valentina Boccia, Giuseppe Ottavianelli, ESA - European Space Research Institute, Italy; Jaime Nickeson, Will McCarty, NASA Goddard Space Flight Center, United States; Philippe Goryl, ESA - European Space Research Institute, Italy

TU4.O-5.3 EARTHNET DATA ASSESSMENT PILOT FRAMEWORK
Rubinder Mannan, Fay Done, Telespazio UK, United Kingdom; Davide Giudici, Aresys s.r.l., Italy; Alessandro Piro, SERCO, Italy; Clément Albinet, ESA - European Space Research Institute, Italy; Samuel Hunt, National Physical Laboratory, United Kingdom

TU4.O-5.4 COMMERCIAL SMALLSAT DATA ACQUISITION: PROGRAM UPDATE
Manil Maskey, NASA, United States; Alfreda A. Hall, NASA Goddard Space Flight Center, United States; Kevin J. Murphy, Compton Tucker, Will McCarty, Aaron Kaulfus, NASA, United States

TU4.O-5.5 SCIENCE UTILIZING DATA FROM SPIRE GLOBAL AS PART OF THE NASA COMMERCIAL SMALLSAT DATA ACQUISITION PROGRAM
Will McCarty, NASA Goddard Space Flight Center, United States; Obi Patrick, Megan R. Damon, Science Systems and Applications, Inc., United States; Alfreda A. Hall, NASA Goddard Space Flight Center, United States

TU4.O-5.6 A QUALITY ASSURANCE FRAMEWORK FOR SATELLITE EARTH OBSERVATION MISSIONS
Samuel Hunt, National Physical Laboratory, United Kingdom; Clément Albinet, ESA - European Space Research Institute, Italy; Jaime Nickeson, NASA, United States; Alfreda A. Hall, NASA Goddard Space Flight Center, United States; Nigel Fox, National Physical Laboratory, United Kingdom; Valentina Boccia, Philippe Goryl, European Space Agency (ESA), Italy

Tuesday, July 13 16:40 - 18:10 Oral Room 6
Session TU4.O-6 Oral-Invited

Microwave Remote Sensing of Seasonal Snow Mass

Session Co-Chairs: Hans Lievens, KU Leuven; Juha Lemmetyinen, Finnish Meteorological Institute; Louise Delhaye, The AfricaMuseum

TU4.O-6.1 ESTIMATION OF HEMISPHERIC SNOW MASS EVOLUTION BASED ON MICROWAVE RADIOMETRY
Jouni Pulliainen, Kari Luojus, Juha Lemmetyinen, Matias Takala, Finnish Meteorological Institute, Finland; Chris Derksen, Lawrence Mudryk, Environment and Climate Change Canada, Canada

TU4.O-6.3 DEVELOPMENT OF THE TERRESTRIAL SNOW MASS MISSION
Chris Derksen, Joshua King, Stephane Belair, Camille Garnaud, Vincent Vionnet, Vincent Fortin, Environment and Climate Change Canada, Canada; Juha Lemmetyinen, Finnish Meteorological Institute, Finland; Yves Crevier, Patrick Plourde, Brian Lawrence, Helena van Mierlo, Canadian Space Agency, Canada; Geoff Burbidge, Airbus, United Kingdom; Paul Siqueira, University of Massachusetts, United States

TU4.O-6.4 OBSERVING SNOW DEPTH AT SUB-KILOMETER RESOLUTION OVER THE EUROPEAN ALPS FROM SENTINEL-1
Hans Lievens, Isis Brangers, KU Leuven, Belgium; Hans-Peter Marshall, Boise State University, United States; Tobias Jonas, WSL Institute for Snow and Avalanche Research SLF, Switzerland; Marc Olefs, ZAMG - Zentralanstalt für Meteorologie und Geodynamik, Austria; Gabriëlle De Lannoy, KU Leuven, Belgium

TU4.O-6.5 REMOTE SENSING OF DEEP SNOW WITH C BAND RADAR DATA: VOLUME AND SURFACE SCATTERING
Jiyue Zhu, Leung Tsang, University of Michigan, United States; Tien-Hao Liao, California Institute of Technology, United States

TU4.O-6.6 L-BAND INSAR DEPTH CHANGE RETRIEVAL DURING THE NASA SNOWEX 2020 CAMPAIGN: GRAND MESA, COLORADO
Hans-Peter Marshall, Boise State University, United States; Elias Deeb, Rick Forster, University of Utah, United States; Carrie Vuyovich, NASA Goddard Space Flight Center, United States; Kelly Elder, Chris Hiemstra, U.S. Forest Service, United States; Jewell Lund, University of Utah, United States

Tuesday, July 13 16:40 - 18:10 Oral Room 7
Session TU4.O-7 Oral-Invited

New UAV/Mobile-mapping SAR Systems and Applications

Session Co-Chairs: Othmar Frey, Gamma Remote Sensing / ETH Zurich; Carlos López-Martínez, Universitat Politècnica de Catalunya; Xingyan Cao, Universiteit Gent

TU4.O-7.1 MEASUREMENT OF SURFACE DISPLACEMENTS WITH A UAV-BORNE/CAR-BORNE L-BAND DINSAR SYSTEM: SYSTEM PERFORMANCE AND USE CASES
Othmar Frey, Gamma Remote Sensing / ETH Zurich, Switzerland; Charles Werner, Andrea Manconi, Gamma Remote Sensing, Switzerland; Roberto Coscione, ETH Zurich, Switzerland

TU4.O-7.3 SUGARCANE PRECISION MONITORING BY DRONE-BORNE P/L/C-BAND DINSAR
Hugo E. Hernandez-Figueroa, Bárbara Teruel, Luciano P. Oliveira, Gian Oré, Marlon S. Alcântara, University of Campinas - UNICAMP, Brazil; Rodrigo Cintra, São Martinho SA, Brazil; Jhonnatan Yepes, Juliana A. Góes, University of Campinas - UNICAMP, Brazil; Dieter Luebeck, Radaz Indústria e Comércio de Produtos Eletrônicos Ltda., Brazil; Valquíria Castro, Felicio Castro, University of Campinas - UNICAMP, Brazil; Laila F. Moreira, Radaz Indústria e Comércio de Produtos Eletrônicos Ltda., Brazil; Leonardo S. Bins, National Institute for Space Research (INPE), Brazil; Lucas H. Gabrielli, University of Campinas - UNICAMP, Brazil

TU4.O-7.4 HIGH-RESOLUTION INSAR APPLICATIONS BASED ON SARDRONE TECHNOLOGY
Gerard Ruiz-Carregal, Marc Lort, Luis Yam, Eduard Makhoul, Antonio Heredia, Rubén Iglesias, Azadeh Faridi, Giuseppe Centolanza, Dani Monells, Javier Duro, Dares Technology, Spain

TU4.O-7.5 PROTOTYPE OF A SMALL, AGILE, DRONE-BASED SAR SYSTEM AND PRELIMINARY FOCUSING RESULTS
Peter Brotzer, Elias Méndez Dominguez, Daniel Henke, University of Zurich, Switzerland

TU4.O-7.6 EXPERIMENTS WITH SMALL UAS TO SUPPORT SAR TOMOGRAPHIC MISSION FORMULATION
Brian Hawkins, NASA Jet Propulsion Laboratory, United States; Matthew Anderson, California Institute of Technology, United States; Sam Prager, University of Southern California, United States; Soon-Jo Chung, California Institute of Technology, United States; Marco Lavalle, NASA Jet Propulsion Laboratory, United States

Tuesday, July 13 16:40 - 18:10 Oral Room 8
Session TU4.O-8 Oral-Invited

Prospects for Orbital Radar Sounding of Earth's Ice Sheets

Session Co-Chairs: Dustin Schroeder, Stanford University; Lorenzo Bruzzone, University of Trento; Anna Mateo-Sanchis, Universitat de València

TU4.O-8.1 GLACIOLOGICAL CONSTRAINTS ON LINK BUDGETS FOR ORBITAL RADAR SOUNDING OF EARTH'S ICE SHEETS
Dustin Schroeder, Nicole Bienert, Riley Culberg, Emma MacKie, Thomas Teisberg, Stanford University, United States; Winnie Chu, Georgia Institute of Technology, United States; Duncan Young, University of Texas Institute for Geophysics, United States

TU4.O-8.3 DEBRIS: DISTRIBUTED ELEMENT BEAMFORMER RADAR FOR ICE AND SUBSURFACE SOUNDING
Mark S. Haynes, NASA Jet Propulsion Laboratory, California Institute of Technology, United States; Robert M. Beauchamp, NASA Jet Propulsion Laboratory, United States; Ala Khazendar, Rayan Mazouz, Marco B. Quadrelli, Paolo Focardi, Richard E. Hodges, William Bertiger, NASA Jet Propulsion Laboratory, California Institute of Technology, United States; Nicole Bienert, Jet Propulsion Laboratory, Stanford University, United States

TU4.O-8.4 EXPLORING DESERTS RESPONSE TO CLIMATE CHANGE FROM THE ORBITING ARID SUBSURFACE AND ICE SHEET SOUNDER (OASIS)
Essam Heggy, University of Southern California, United States

TU4.O-8.5 UWB MIMO RADARS FOR SOUNDING AND IMAGING OF ICE ON THE EARTH AND OTHER CELESTIAL BODIES
Prasad Gogineni, Stephen Yan, University of Alabama, United States; Paul Song, University of Massachusetts Lowell, United States; John Volakis, Florida International University, United States; Manohar Deshpande, NASA Goddard Space Flight Center, United States; Ivan Galkin, University of Massachusetts Lowell, United States; Jason Soderblom, Massachusetts Institute of Technology, United States; Alex Hayes, Cornell University, United States; Bodo Reinisch, Robert Giles, University of Massachusetts Lowell, United States; Rohan Sood, University of Alabama, United States; Hua-Liang Zhang, University of Massachusetts Lowell, United States; David Braaten, U of Kansas, United States; Lorenzo Bruzzone, University of Trento, Italy; Satheesh Bojja Venkatakrishnan, Florida International University, United States; Drew Taylor, University of Alabama, United States

TU4.O-8.6 STRATUS: A NEW MISSION CONCEPT FOR MONITORING THE SUBSURFACE OF POLAR AND ARID REGIONS
Lorenzo Bruzzone, University of Trento, Italy; Francesca Bovolo, Fondazione Bruno Kessler, Italy; Leonardo Carrer, University of Trento, Italy; Elena Donini, Fondazione Bruno Kessler, Italy; Sanchari Thakur, University of Trento, Italy

Tuesday, July 13 16:40 - 18:10 Oral Room 9
Session TU4.O-9 Oral-Invited

Quantifying Tropical Forest Functional Variables over Large Areas

Session Co-Chairs: Pierre Defourny, UCLouvain-Geomatics; Matthew Hansen, University of Maryland; Thimm Zwiener, The AfricaMuseum

TU4.O-9.1 MULTI-DECADAL ANNUAL LAND COVER DYNAMICS AND FOREST DISTURBANCE IN THE BRAZILIAN AMAZON BIOME
Carlos Jr Souza, Instituto do Homem e Meio Ambiente da Amazônia (Imazon), Brazil; Luis Jr. Oliveira, Antônio V. Fonseca, Instituto do Homem e Meio Ambiente da Amazônia, Brazil

TU4.O-9.3 TROPICAL FOREST CANOPY STRUCTURE AND CHANGE ASSESSMENT USING LANDSAT, GEDI, AND AIRBORNE LIDAR DATA
Peter Potapov, Xinyuan Li, Andres Hernandez-Serna, Svetlana Turubanova, Alexandra Tyukavina, Matthew Hansen, Hao Tang, University of Maryland, United States; Quyen Hanh Nguyen, SERVIR-Mekong, Thailand

TU4.O-9.4 FOREST ABOVEGROUND BIOMASS ESTIMATION WITH GEDI AND ICESAT-2 IN BOREAL FORESTS
Laura Duncanson, University of Maryland College Park, United States; Amy Neuenschwander, University of Texas at Austin, United States; Carlos Alberto Silva, University of Maryland College Park, United States; Paul Montesano, SSAI / NASA GSFC, United States; Eric Guenther, University of Texas at Austin, United States; Nathan Thomas, ESSIC, University of Maryland / NASA Goddard Space Flight Center, United States; Steven Hancock, University of Edinburgh, United Kingdom; David Minor, University of Maryland College Park, United Kingdom; Joanne White, Mike Wulder, Canadian Forest Service, Natural Resources Canada, Canada; John Armston, University of Maryland College Park, United States

TU4.O-9.5 CHARACTERIZING THE CONGO BASIN FORESTS BY A DETAILED FOREST TYPOLOGY ENRICHED WITH FOREST BIOPHYSICAL VARIABLES
Juliette Dalimier, Martin Claverie, Benjamin Goffart, Université Catholique de Louvain, Belgium; Quentin Jungers, Observatoire des Forêts d'Afrique Centrale, Belgium; Céline Lamarche, Thomas De Maet, Pierre Defourny, Université Catholique de Louvain, Belgium

TU4.O-9.6 USING EXPERIMENTAL SITES IN TROPICAL FORESTS TO TEST THE ABILITY OF OPTICAL REMOTE SENSING TO DETECT FOREST DEGRADATION AT 0.3 – 30 M RESOLUTIONS
Chiara Aquino, Edward Mitchard, Iain McNicol, Harry Carstairs, University of Edinburgh, United Kingdom; Andrew Burt, University College London, United Kingdom; Beisit Luz Puma Vilca, Universidad Nacional de San Antonio Abad del Cusco, Peru; Mathias Disney, University College London, United Kingdom

Tuesday, July 13 16:40 - 18:10 Oral Room 10
Session TU4.O-10 Oral-Invited

Remote Sensing in the Energy Industry: A Valuable Tool for Renewable Energy and Monitoring Environmental Footprints

Session Co-Chairs: Helene Bideaud, Total; Emmanuel Pajot, EARSC; Ragini Bal Mahesh, Technische Universität München

TU4.O-10.1 PRELIMINARY ASSESSMENT OF PROBABLE IMPACTS CAUSED BY THE LARGEST OIL SPILL IN BRAZIL HISTORY ON SELECTED MANGROVE STANDS USING SATELLITE IMAGING
Guillaume Lassalle, UNICAMP, Brazil; Dominique Dubucq, TOTAL S.A., France

TU4.O-10.3 MACHINE LEARNING COMBINATION OF LEO AND GEO SATELLITES FOR DESIGN AND MONITORING OF OCEAN WIND ENERGY
Christophe Messager, Extreme Weather Expertsises, France; Tran-Vu La, Extreme Weather Expertises (EXWEXs), France; Rémi Sahl, Extreme Weather Expertsises, France

TU4.O-10.4 THE IMPORTANCE OF MATCHING NEEDS TO SATELLITE SYSTEM CAPABILITY WHEN MONITORING METHANE EMISSIONS FROM SPACE
Jean-Francois Gauthier, GHGSat Incorporated, Canada

TU4.O-10.5 SAR SURFACE WIND ESTIMATION AND EXTRAPOLATION AT TURBINE HUB HEIGHT WITH MACHINE LEARNING FOR OFFSHORE WIND FARM SITING
Louis de Montera, Henrick Berger, Romain Husson, CLS, France; Pascal Appelghem, Atmosky, France; Laurent Guerlou, Mauricio Fragoso, CLS, France

Tuesday, July 13 16:40 - 18:10 Oral Room 11
Session TU4.O-11 Oral-Invited

Satellite Capabilities Bringing Countries Together to Respond to Natural Disasters

Session Co-Chairs: Satya Kalluri, JPSS/NOAA/NESDIS; EunYeol Kim, Colorado State University; Gary McWilliams, Science and Technology Corporation

TU4.O-11.1 APPLICATIONS OF JOINT POLAR SATELLITE SYSTEM DATA AND PRODUCTS FOR SEVERE WEATHER EVENTS AND CLIMATE MONITORING
Satya Kalluri, JPSS/NOAA/NESDIS, United States; Cheng-Zhi Zou, Lawrence Flynn, STAR/NOAA/NESDIS, United States

TU4.O-11.3 SATELLITE FIRE PRODUCTS: MORE VALUABLE NOW THAN EVER WITH LONGER FIRE SEASONS
William C Straka III, University of Wisconsin, United States; Ivan Csiszar, Shobha Kondragunta, NOAA/NESDIS/STAR, United States; Curtis Seaman, CIRA, United States; Ravan Ahmadov, CIRES, NOAA/ESRL, United States; Amy Huff, I.M. Systems Group (IMSG), United States; Mark Rosenberg, William Brewer, California Department of Forestry and Fire Protection (CAL FIRE), United States

TU4.O-11.4 MONITORING TRACE GASES USING NOAA UNIQUE COMBINED ATMOPSPHERIC PROCESSING SYSTEM (NUCAPS) PRODUCTS
Murty Divakarla, IM Systems Group, Inc., United States; Ken Pryor, Satya Kalluri, Juying Warner, Center for Satellite Applications and Research, United States; Nick Nalli, IM Systems Group, Inc., United States; Chris Barnet, STC, Inc., United States; Changyi Tan, Mike Wilson, Tong Zhu, Tianyuan Wang, IM Systems Group, Inc., United States; Walter Wolf, Lihang Zhou, Center for Satellite Applications and Research, United States

TU4.O-11.5 ASSESSING FLOOD INUNDATION AND EXPOSURE ESTIMATES FROM THE GLOBAL FLOOD AWARENESS SYSTEM (GLOFAS) WITH DATA FROM THE VIIRS SATELLITE FOR THE ASIAN MONSOON IN 2020
Calum Baugh, European Centre for Medium-Range Weather Forecasts (ECMWF), United Kingdom; William C Straka III, University of Wisconsin, United States; Eleanor Hansford, Christel Prudhomme, European Centre for Medium-Range Weather Forecasts (ECMWF), United Kingdom

TU4.O-11.6 USING COPERNICUS SENTINEL MEASUREMENTS TO MONITOR COVID-19 IMPACT ON THE ENVIRONMENT
Claus Zehner, European Space Agency (ESA), Italy

Tuesday, July 13 16:40 - 18:10 Oral Room 12
Session TU4.O-12 Oral

Resolution Enhancement of Hyperspectral Data

Session Co-Chairs: Daniel Cerra, German Aerospace Center (DLR); Meenal Sharma, University of Twente; Touseef Ahmad, Indian Space Research Organization

TU4.O-12.1 MULTI-SUPERVISED RECURSIVE-CNN FOR HYPERSPECTRAL AND MULTISPECTRAL IMAGE FUSION
Yuda Lu, Jingxiang Yang, Liang Xiao, Nanjing University of Science and Technology, China

TU4.O-12.2 A VARIATIONAL APPROACH WITH NONLOCAL SELF-SIMILARITY AND JOINT-SPARSITY FOR HYPERSPECTRAL IMAGE SUPER-RESOLUTION
Ting Xu, Ting-Zhu Huang, Yong Chen, Jie Huang, Liang-Jian Deng, University of Electronic Science and Technology of China, China

TU4.O-12.3 ENHANCED RESIDUAL DENSE NETWORK JOINT WITH GRUS FOR MULTISPECTRAL AND HYPERSPECTRAL IMAGE FUSION
Jiajun Xiao, Qiangqiang Yuan, Jie Li, Huanfeng Shen, Wuhan University, School of Geodesy and Geomatics, China

TU4.O-12.4 ENHANCED 3D CONVOLUTION FOR HYPERSPECTRAL IMAGE SUPER-RESOLUTION
Denghong Liu, Jie Li, Qiangqiang Yuan, Wuhan University, China

TU4.O-12.5 ROBUST COUPLED NON-NEGATIVE MATRIX FACTORIZATION FOR HYPERSPECTRAL AND MULTISPECTRAL DATA FUSION
Touseef Ahmad, Rosly B Lyngdoh, Anand S Sahadevan, Praveen K Gupta, Arundhati Misra, Indian Space Research Organisation, India; Soumyendu Raha, Indian Institute of Science Bangalore, India

TU4.O-12.6 AN IMPROVED HYPERSPECTRAL IMAGE SUPER RESOLUTION RESTORATION ALGORITHM BASED ON POCS
Yulei Wang, Xinxin He, Yao Shi, Qingyu Zhu, Haoyang Yu, Dalian Maritime University, China

Tuesday, July 13 16:40 - 18:10 Oral Room 13
Session TU4.O-13 Oral-Invited

UAV for Mapping and Monitoring of Forest Ecosystems

Session Co-Chairs: Sruthi M. Krishna Moorthy, Ghent University; Benjamin Brede, Wageningen University & Research; Javiera Castillo-Navarro, Onera

TU4.O-13.1 FUSION OF LIDAR AND HYPERSPECTRAL DATA FROM DRONES FOR ECOLOGICAL QUESTIONS: THE GATOREYE ATLANTIC FOREST RESTORATION CASE STUDY
Danilo Almeida, Eben Broadbent, Angelica Zambrano, University of Florida, United States; Matheus Ferreira, Military Institute of Engineering, Brazil; Pedro Brancalion, University of São Paulo, Brazil

TU4.O-13.3 SENSING TROPICAL FOREST PHENOLOGY AND PRODUCTIVITY FROM THE FIELD TO THE SATELLITE
Nicolas Barbier, UMR AMAP, Université de Montpellier, IRD, CNRS, CIRAD, INRAE, France; James Ball, Cambridge University, United Kingdom; Ilona Clocher, UMR AMAP, Université de Montpellier, IRD, CNRS, CIRAD, INRAE, France; Hervé Poilvé, Airbus Defence and Space, France; Philippe Verley, Grégoire Vincent, UMR AMAP, Université de Montpellier, IRD, CNRS, CIRAD, INRAE, France

TU4.O-13.4 SENSITIVITY OF SIMULATED GEDI WAVEFORMS TO FOREST LEAF AREA AND IMPLICATIONS FOR FOOTPRINT ABOVEGROUND BIOMASS MODELS
KC Cushman, Smithsonian Tropical Research Institute, Panama; John Armston, Ralph Dubayah, Laura Duncanson, University of Maryland, United States; Steven Hancock, University of Edinburgh, United States; Michelle Hofton, University of Maryland, United States; Kamil Král, Martin Krůček, Silva Tarouca Research Institute, Czech Republic; Hao Tang, University of Maryland, United States; James R. Kellner, Brown University, United States

TU4.O-13.5 A SHORTEST PATH BASED TREE ISOLATION METHOD FOR UAV LIDAR DATA
Pasi Raumonen, Tampere University, Finland; Benjamin Brede, Alvaro Lau, Harm Bartholomeus, Wageningen University and Research, Netherlands

TU4.O-13.6 A NEW DRONE LASER SCANNING BENCHMARK DATASET FOR CHARACTERIZATION OF SINGLE-TREE AND FOREST BIOPHYSICAL PROPERTIES
Stefano Puliti, Norwegian Insitute of Bioeconomy Research, Norway; Grant D. Pearse, Michael S. Watt, SCION, New Zealand; Edward Mitchard, Ian McNicol, University of Edinburgh, United Kingdom; Magnus Bremer, Martin Rutzinger, University of Innsbruck, Austria; Peter Surovy, Czech University of Life Sciences, Czech Republic; Luke Wallace, University of Tasmania, Australia; Markus Hollaus, TU Wien, Austria; Rasmus Astrup, Norwegian Insitute of Bioeconomy Research, Norway

Tuesday, July 13 16:40 - 18:10 Oral Room 14
Session TU4.O-14 Oral-Invited

Biodiversity and Vulnerable Ecosystems

Session Co-Chairs: Julien Radoux, Université catholique de Louvain; Gonzalo Raimundo Luzardo Morocho, Universiteit Gent; Marc Paganini, ESA

TU4.O-14.1 AN OPERATIONAL SERVICE FOR MONITORING GRASSLAND DOMINATED NATURA2000 SITES WITH COPERNICUS DATA
Geoffrey Smith, Specto Natura Ltd., United Kingdom; Stefan Kleeschulte, space4environment, Luxembourg; Tomas Soukup, GISAT, Czech Republic; Raul Garcia, Bilbomatica, Spain; Gebhard Banko, Environment Agency Austria, Austria; Bruno Combal, DG Environment, Belgium

TU4.O-14.3 FINNISH ECOSYSTEM OBSERVATORY (FEO) - OPERATIONALIZING REMOTE SENSING ANALYSES FOR THREATENED HABITATS AND BIODIVERSITY MONITORING
Petteri Vihervaara, Saku Anttila, Peter Kullberg, Pekka Härmä, Markus Törmä, Tytti Jussila, Kaisu Aapala, Risto Heikkinen, Janne Mäyrä, Mikko Kervinen, Martin Forsius, Finnish Environment Institute (SYKE), Finland

TU4.O-14.4 HOTSPOT VEGETATION STRUCTURE AND TERRAIN MONITORING OF DUTCH COASTAL DUNES WITH LIDAR AND OPTICAL CAMERA'S MOUNTED ON DRONES
Henk Kramer, Sander Mücher, Wageningen University and Research, Netherlands; Harrie van der Hagen, Dunea duin & water, Netherlands

TU4.O-14.5 PERFORMANCE ASSESSMENT OF THE SEN4CAP MOWING DETECTION ALGORITHM ON A LARGE REFERENCE DATA SET OF MANAGED GRASSLANDS.
Mathilde De Vroey, Julien Radoux, Université Catholique de Louvain, Belgium; Massimo Zavagli, Laura De Vendictis, e-GEOS, Italy; Diane Heymans, Sophie Bontemps, Pierre Defourny, Université Catholique de Louvain, Belgium

TU4.O-14.6 RELATIONSHIPS BETWEEN LAND DEGRADATION AND CLIMATE CHANGE VULNERABILITY OF AGRICULTURAL WATER RESOURCES
Nataliia Kussul, Leonid Shumilo, Space Research Institute NASU-SSAU, Ukraine; Loukas Garanis, University of Geneva, Ukraine

Tuesday, July 13 16:40 - 18:10 Oral Room 15
Session TU4.O-15 Oral-Invited

Aeolus and Aeolus follow-on

Session Co-Chairs: Ad Stoffelen, Royal Netherlands Meteorological Institute (KNMI); Anne Grete Straume-Lindner, ESA; Rufai Balogun

TU4.O-15.1 FUTURE SPACE-BASED DOPPLER WIND LIDAR WINDS
Ad Stoffelen, Gert-Jan Marseille, Koninklijk Nederlands Meteorologische Instituut (KNMI), Netherlands; Tommaso Parinello, European Space Agency (ESA), Italy; Oliver Reitebuch, German Aerospace Center (DLR), Germany; Michael Rennie, European Centre for Medium-Range Weather Forecasts (ECMWF), United Kingdom; Anne-Grete Straume-Lindner, European Space Agency (ESA), Netherlands

TU4.O-15.3 ESA'S WIND MISSION AEOLUS - OVERVIEW, STATUS AND OUTLOOK
Anne-Grete Straume-Lindner, Tommaso Parrinello, Jonas von Bismarck, Sebastian Bley, Peggy Fischer, Marta De Laurentis, Denny Wernham, Thomas Kanitz, Emilio Alvarez, Thorsten Fehr, Frithjof Ehlers, Viet Duc Tran, European Space Agency (ESA), Netherlands; Isabell Krisch, Oliver Reitebuch, German Aerospace Center (DLR), Germany; Michael Rennie, European Centre for Medium-Range Weather Forecasts (ECMWF), United Kingdom

TU4.O-15.4 THE AEOLUS DATA INNOVATION AND SCIENCE CLUSTER
Isabell Krisch, Oliver Reitebuch, German Aerospace Center (DLR), Germany; Jonas von Bismarck, Tommaso Parrinello, European Space Agency (ESA), Italy; Michael Rennie, European Centre for Medium-Range Weather Forecasts (ECMWF), United Kingdom; Fabian Weiler, German Aerospace Center (DLR), Germany; Dorit Huber, DoRIT, Germany; Jos de Kloe, Royal Netherlands Meteorological Institute (KNMI), Netherlands; Alain Dabas, CNRM, Université de Toulouse, Météo-France, CNRS, France; Anne-Grete Straume-Lindner, European Space Agency (ESA), Netherlands; Saleh Abdalla, European Centre for Medium-Range Weather Forecasts (ECMWF), United Kingdom; Stefano Aprile, Sebastian Bley, European Space Agency (ESA), Italy; Fabio Bracci, German Aerospace Center (DLR), Germany; Simone Bucci, Massimo Cardaci, Serco Italia, Italy; Werner Damman, S[&]T, Netherlands; David Donovan, Royal Netherlands Meteorological Institute (KNMI), Netherlands; Frithjof Ehlers, European Space Agency (ESA), Netherlands; Frederic Fabre, Les Myriades, France; Peggy Fischer, European Space Agency (ESA), Italy; Thomas Flament, CNRM, Université de Toulouse, Météo-France, CNRS, France; Giacomo Gostinicchi, Serco Italia, Italy; Lars Isaksen, European Centre for Medium-Range Weather Forecasts (ECMWF), United Kingdom; Sebastian Jupin-Langlois, ABB, Canada; Thomas Kanitz, European Space Agency (ESA), Netherlands; Adrien Lacour, CNRM, Université de Toulouse, Météo-France, CNRS, France; Marta De Laurentis, European Space Agency (ESA), Italy; Christian Lemmerz, Oliver Lux, Uwe Marksteiner, German Aerospace Center (DLR), Germany; Gert-Jan Marseille, Royal Netherlands Meteorological Institute (KNMI), Netherlands; Nafiseh Masoumzadeh, Markus Meringer, German Aerospace Center (DLR), Germany; Sander Niemeijer, S[&]T, Netherlands; Ines Nikolaus, Physics Solutions, Germany; Gaetan Perron, ABB, Canada; Bas Pijnacker-Hordijk, S[&]T, Netherlands; Katja Reissig, IB Reissig, Germany; Matic Savli, CNRM, Université de Toulouse, Météo-France, CNRS, France; Karsten Schmidt, German Aerospace Center (DLR), Germany; Ad Stoffelen, Royal Netherlands Meteorological Institute (KNMI), Netherlands; Dimitri Trapon, CNRM, Université de Toulouse, Météo-France, CNRS, France; Michael Vaughan, Optical & Lidar Associates, United Kingdom; Marcella Veneziani, S[&]T, Netherlands; Cristiano De Vincenti, Serco Italia, Italy; Benjamin Witschas, German Aerospace Center (DLR), Germany

TU4.O-15.5 DEMONSTRATED AEOLUS BENEFITS IN ATMOSPHERIC SCIENCES
Michael Rennie, European Centre for Medium-Range Weather Forecasts (ECMWF), United Kingdom; Ad Stoffelen, Koninklijk Nederlands Meteorologische Instituut (KNMI), Netherlands; Sergey Khaykin, LATMOS/IPSL, France; Scott Osprey, University of Oxford, United Kingdom; Corwin Wright, Tim Banyard, University of Bath, United Kingdom; Anne-Grete Straume-Lindner, European Space Agency (ESA), Netherlands; Oliver Reitebuch, Isabell Krisch, German Aerospace Center (DLR), Germany; Tommaso Parrinello, Jonas Von Bismarck, ESA / ESRIN, Italy; Denny Wernham, ESA / ESTEC, Netherlands

TU4.O-15.6 AEOLUS-2 MISSION PRE-DEVELOPMENT STATUS
Denny Wernham, Arnaud Heliere, Graeme Mason, Anne-Grete Straume-Lindner, European Space Agency (ESA), Netherlands

Tuesday, July 13 16:40 - 18:10 Oral Room 16
Session TU4.O-16 Oral-Invited

ESA's BIOMASS Mission: Latest Developments

Session Co-Chairs: Björn Rommen, European Space Agency; Thuy Le Toan, Centre D'Etudes Spatiales de la Biosphère (CESBIO); Axel Deijns, The AfricaMuseum

TU4.O-16.1 THE ROLE OF THE BIOMASS MISSION IN CARBON CYCLE SCIENCE AND POLITICS
Shaun Quegan, University of Sheffield and National Centre for Earth Observation, United Kingdom; Thuy Le Toan, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Jerome Chave, Université Toulouse III Paul Sabatier, France; Markus Reichstein, Max Planck Institute for Biogeochemistry, France; Sassan Saatchi, NASA Jet Propulsion Laboratory, California Institute of Technology, France; Hank Shugart, University of Virginia, France; Mathew Williams, University of Edinburgh, France

TU4.O-16.3 THE BIOMASS SYSTEM – OVERVIEW AND DEVELOPMENT STATUS
Adriano Carbone, Rhea System B.V. for ESA / European Space Agency, Netherlands; Gabriella Costa, Michael Fehringer, Florence Heliere, European Space Agency, ESA, Italy; Antonio Leanza, SERCO B.V. for ESA / European Space Agency, Netherlands; Elia Maestroni, Nuno Miranda, Janice Patterson, European Space Agency, ESA, Germany; Björn Rommen, European Space Agency (ESA), Netherlands; Tristan Simon, Philip Willemsen, European Space Agency, ESA, Netherlands

TU4.O-16.4 BIOMASS LEVEL-2 PRODUCTS - PART I: RATIONALE AND APPLICATIONS
Lars M.H. Ulander, Chalmers University of Technology, Sweden; Mauro Mariotti d'Alessandro, Politecnico di Milano, Italy; Francesco Banda, Davide Giudici, Aresys s.r.l., Italy; Maciej Soja, MJ Soja Consulting, Australia; Shaun Quegan, University of Sheffield, United Kingdom; Konstantinos P. Papathanassiou, German Aerospace Center (DLR), Germany; Stefano Tebaldini, Politecnico di Milano, Italy; Thuy Le Toan, Ludovic Villard, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Björn Rommen, Klaus Scipal, European Space Agency (ESA), Netherlands

TU4.O-16.5 BIOMASS LEVEL-2 PRODUCTS - PART II: PROCESSING SCHEMES AND AGB ESTIMATION RESULTS FROM CAMPAIGN DATA
Stefano Tebaldini, Mauro Mariotti d'Alessandro, Politecnico di Milano, Italy; Francesco Banda, Davide Giudici, Aresys s.r.l., Italy; Lars M.H. Ulander, Chalmers University of Technology, Sweden; Maciej Soja, MJ Soja Consulting, Italy; Shaun Quegan, University of Sheffield, Italy; Konstantinos P. Papathanassiou, German Aerospace Center (DLR), Germany; Thuy Le Toan, Ludovic Villard, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Björn Rommen, Klaus Scipal, European Space Agency (ESA), France

TU4.O-16.6 BIOMASS GROUND SEGMENT ARCHITECTURE, MULTI-MISSION ALGORITHM AND ANALYSIS PLATFORM (MAAP) AND RELATED OPEN-SOURCE DEVELOPMENTS
Clément Albinet, Stefanie Lumnitz, Bjorn Frommknecht, Nuno Miranda, Klaus Scipal, Gabriella Costa, Henri Laur, ESA - European Space Research Institute, Italy

Tuesday, July 13 16:40 - 18:10 Oral Room 17
Session TU4.O-17 Oral

Crop Mapping and Monitoring using SAR I

Session Co-Chairs: Michael Schlund, Faculty of Geo-information Science and Earth Observation (ITC); Vaibhav Rajan; Heather McNairn, Agriculture and Agri-Food Canada

TU4.O-17.1 MULTI-FREQUENCY SAR TO MONITOR AGRICULTURE IN THE AMERICAS
Heather McNairn, Laura Dingle Robertson, Dole Tsan, Xianfeng Jiao, Andrew Davidson ` , Agriculture and Agri-Food Canada, Canada

TU4.O-17.2 POTENTIAL OF SENTINEL-1 TIME SERIES DATA FOR THE ESTIMATION OF SEASON LENGTH IN WINTER WHEAT PHENOLOGY
Michael Schlund, Faculty of Geo-information Science and Earth Observation (ITC), Netherlands; Felix Lobert, Stefan Erasmi, Thünen-Institute of Farm Economics, Germany

TU4.O-17.3 MONITORING WHEAT CROP GROWTH USING A NEW VEGETATION INDEX FROM SENTINEL-1 GRD SAR DATA
Narayanarao Bhogapurapu, Subhadip Dey, Dipankar Mandal, Avik Bhattacharya, Rao Y. S., Indian Institute of Technology Bombay, India

TU4.O-17.4 CROP CLASSIFICATION BASED ON IMAGE SEGMENTATION AND PHENOLOGICAL SIMILARITY USING SAR IMAGERY
Lin Chen, Gangqiang An, Minfeng Xin, Gengke Lai, University of Electronic Science and Technology of China, China

TU4.O-17.5 ENSEMBLE LEARNING FOR CROP MONITORING FROM MULTITEMPORAL OPTICAL AND SYNTHETIC APERTURE RADAR EARTH OBSERVATIONS
Hazhir Bahrami, University of Tehran, Iran; Saeid Homayouni, Centre Eau Terre Environnement, Institut National de la Recherche Scientifique, Canada; Masoud Mahdianpari, C-CORE and Memorial University of Newfoundland, Canada; Abdolreza Safari, University of Tehran, Iran

TU4.O-17.6 CROP CLASSIFICATION AND BIOMASS ESTIMATE USING COSMO-SKYMED AND SENTINEL-1 DATA IN AN AGRICULTURAL TEST AREA IN CENTRAL ITALY
Alessandro Lapini, Giacomo Fontanelli, Fabrizio Baroni, Simonetta Paloscia, Simone Pettinato, Simone Pilia, Giuliano Ramat, Emanuele Santi, Leonardo Santurri, CNR-IFAC, Italy; Francesca Cigna, Deodato Tapete, Italian Space Agency (ASI), Italy

Wednesday, July 14 10:30 - 12:00 Oral Room 1
Session WE1.O-1 Oral-Invited

TanDEM-X: Mission Status and Science Perspective

Session Co-Chairs: Alberto Moreira, German Aerospace Center; Irena Hajnsek, German Aerospace Center (DLR) / ETH Zürich; Bastien Cerino, Université Savoie Mont Blanc

WE1.O-1.1 TANDEM-X: MISSION AND SCIENCE
Irena Hajnsek, German Aerospace Center (DLR) / ETH Zürich, Germany; Alberto Moreira, Manfred Zink, Stefan Buckreuss, Thomas Kraus, Markus Bachmann, Thomas Busche, German Aerospace Center (DLR), Germany

WE1.O-1.3 JOINT PAZ AND TANDEM-X MISSIONS INTERFEROMETRIC PERFORMANCE
Alberto Alonso-Gonzalez, Irena Hajnsek, Christo Grigorov, Achim Roth, Ursula Marschalk, German Aerospace Center (DLR), Germany; Nuria Gimeno Martinez, Patricia Cifuentes Revenga, María José González Bonilla, Nuria Casal Vazquez, Juan M Cuerda Muñoz, Marcos Garcia Rodriguez, Instituto Nacional de Tecnica Aeroespacial (INTA), Spain

WE1.O-1.4 TANDEM-X AND GEDI DATA FUSION FOR A CONTINUOUS FOREST HEIGHT MAPPING AT LARGE SCALES
Victor Cazcarra-Bes, Matteo Pardini, Changhyun Choi, Roman Guliaev, Konstantinos P. Papathanassiou, German Aerospace Center (DLR), Germany

WE1.O-1.5 AREA AND VOLUME QUANTIFICATION OF ARCTIC THAW SLUMPS USING TIME-SERIES OF DIGITAL ELEVATION MODELS
Philipp Bernhard, ETH Zürich, Switzerland; Simon Zwieback, University of Alaska Fairbanks, United States; Irena Hajnsek, German Aerospace Center (DLR), Germany

WE1.O-1.6 GERMAN X-BAND SPACEBORNE SAR HERITAGE AND THE FUTURE HRWS MISSION
Michael Bartusch, Adriana Elizabeth Nuncio Quiroz, Samuel Stettner, Alberto Moreira, Manfred Zink, German Aerospace Center (DLR), Germany

Wednesday, July 14 10:30 - 12:00 Oral Room 2
Session WE1.O-2 Oral

Signal Denoising, Reconstruction and Completion

Session Co-Chairs: Simonetta Paloscia, Institute of Applied Physics, National Research Council (IFAC-CNR); Behnood Rasti, Helmholtz-Zentrum Dresden-Rossendorf (HZDR); Islam Alam Saad Mansour, German Aerospace Center (DLR)

WE1.O-2.1 WHEN IS THE RIGHT TIME TO APPLY DENOISING?
Kasra Rafiezadeh Shahi, Behnood Rasti, Pedram Ghamisi, Helmholtz-Zentrum Dresden-Rossendorf, Helmholtz Institute Freiberg for Resource Technology, Germany; Paul Scheunders, University of Antwerp, Belgium; Richard Gloaguen, Helmholtz-Zentrum Dresden-Rossendorf, Helmholtz Institute Freiberg for Resource Technology, Germany

WE1.O-2.2 AN EVALUATION OF ROBUST REMOTE REFERENCE AND PARAMETRIC MAGNETOTELLURIC TRANSFER FUNCTION ESTIMATION
Xinyi Xu, Mark Butala, Zhejiang University, China

WE1.O-2.3 STRIPE NOISE REMOVAL FOR INFRARED IMAGE BY REGULARIZED SPECTRAL SEPARATION
Yue Hu, Xinyu Zhou, Ye Zhang, Shaoqi Shi, Disi Lin, Harbin Institute of Technology, China

WE1.O-2.4 SPECTRAL RECONSTRUCTION USING RESIDUAL CHANNEL AFFINITY PROPAGATION NETWORK WITH STRUCTURAL SIMILARITY CONSTRAINT
Chaoxiong Wu, Jiaojiao Li, Rui Song, Yunsong Li, Xidian University, China

WE1.O-2.5 DEEP HYPERSPECTRAL TENSOR COMPLETION JUST USING SMALL DATA
Chia-Hsiang Lin, Yen-Cheng Lin, Po-Wei Tang, Man-Chun Chu, National Cheng Kung University, Taiwan

WE1.O-2.6 WAVELET-BASED BLOCK LOW-RANK REPRESENTATIONS FOR HYPERSPECTRAL DENOISING
Bin Zhao, Jóhannes Rúnar Sveinsson, Magnus O. Ulfarsson, University of Iceland, Iceland; Jocelyn Chanussot, Université Grenoble Alpes; University of Iceland, Iceland

Wednesday, July 14 10:30 - 12:00 Oral Room 3
Session WE1.O-3 Oral

Advanced Segmentation and Land Cover Methods for Optical Data

Session Co-Chairs: Qingyu Li, Technical University of Munich, German Aerospace Center; Luc Baudoux, Institut national de l'information géographique et forestière; Wufan Zhao, University of Twente

WE1.O-3.1 CONTEXTUAL LAND-COVER MAP TRANSLATION WITH SEMANTIC SEGMENTATION
Luc Baudoux, Institut national de l'information géographique et forestière, France; Jordi Inglada, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Clément Mallet, Institut national de l'information géographique et forestière, France

WE1.O-3.2 SEMI-SUPERVISED LAND-USE CLASSIFICATION USING WEAKLY LABELED REMOTE SENSING DATA
Rui Wang, Man-On Pun, Chinese University of Hong Kong, Shenzhen, China; Huiliang Yu, Shanghai CAS-NOVA Satellite Technology Company Limited, China

WE1.O-3.3 LAND COVER CLASSIFICATION FROM A MAPPING PERSPECTIVE: PIXELWISE SUPERVISION IN THE DEEP LEARNING ERA
Thorsten Wilhelm, Dominik Koßmann, TU Dortmund University, Germany

WE1.O-3.4 A MULTI-TASK DEEP LEARNING FRAMEWORK FOR BUILDING FOOTPRINT SEGMENTATION
Burak Ekim, Elif Sertel, Istanbul Technical University, Turkey

WE1.O-3.5 HRLINKNET: LINKNET WITH HIGH-RESOLUTION REPRESENTATION FOR HIGH-RESOLUTION SATELLITE IMAGERY
Muyu Wu, Zhen Shu, Jinming Zhang, Xiangyun Hu, Wuhan University, China

WE1.O-3.6 END-TO-END SEMANTIC SEGMENTATION AND BOUNDARY REGULARIZATION OF BUILDINGS FROM SATELLITE IMAGERY
Qingyu Li, Technical University of Munich (TUM) / German Aerospace Center (DLR), Germany; Stefano Zorzi, Graz University of Technology, Austria; Yilei Shi, Technical University of Munich, Germany; Friedrich Fraundorfer, Graz University of Technology, German Aerospace Center, Austria; Xiao Xiang Zhu, Technical University of Munich (TUM) / German Aerospace Center (DLR), Germany

Wednesday, July 14 10:30 - 12:00 Oral Room 4
Session WE1.O-4 Oral

Advanced Target Detection Method in Hyperspectral/Lidar/Radar

Session Co-Chairs: Carmela Galdi, Università degli Studi del Sannio; Yuanwen Yue, ETH Zurich; Pietro Mastro, Università degli Studi della Basilicata

WE1.O-4.1 ANOMALY DETECTION IN HYPERSPECTRAL IMAGE USING 3D-CONVOLUTIONAL VARIATIONAL AUTOENCODER
Jingfa Zhang, Yang Xu, Nanjing University of Science and Technology, China; Tianming Zhan, Nanjing Audit University, China; Zebin Wu, Zhihui Wei, Nanjing University of Science and Technology, China

WE1.O-4.2 IMBALANCED MULTI-CLASS CLASSIFICATION OF HYPERSPECTRAL IMAGE BASED ON SMOTE AND DEEP ROTATION FOREST
Xian Zhong, Yinghui Quan, Wei Feng, Xidian University, China; Qiang Li, Northwestern Polytechnical University, China; Gabriel Dauphin, University Paris XIII, France; Mengdao Xing, Xidian University, China

WE1.O-4.3 AUTOMATIC DETECTION AND MAPPING OF HIGHWAY GUARDRAILS FROM MOBILE LIDAR POINT CLOUDS
Yuanwen Yue, ETH Zurich, Switzerland; Maged Gouda, Karim El-Basyouny, University of Alberta, Canada

WE1.O-4.4 SELF-SUPERVISED SPECTRAL MATCHING NETWORK FOR HYPERSPECTRAL TARGET DETECTION
Can Yao, Yuan Yuan, Zhiyu Jiang, Northwestern Polytechnical University, China

WE1.O-4.5 SAR TARGET DETECTION NETWORK BASED ON SALIENCY-COMBINED SINGLE SHOT MULTI BOX DETECTOR
Lu Li, Lan Du, Yuang Du, Xidian University, China

WE1.O-4.6 WGAN-GP-BASED SYNTHETIC RADAR SPECTROGRAM AUGMENTATION IN HUMAN ACTIVITY RECOGNITION
Lele Qu, Yutong Wang, Tianhong Yang, Lili Zhang, Yanpeng Sun, Shenyang Aerospace University, China

Wednesday, July 14 10:30 - 12:00 Oral Room 5
Session WE1.O-5 Oral

Deep Learning for Semantic Segmentation and Image Classification I

Session Co-Chairs: Juan M. Haut, Spanish University for Distance Education, UNED; Frederik Priem, Vrije Universiteit Brussel; Romain Thoreau, ONERA / Magellium

WE1.O-5.1 BAYESIAN DEEP LEARNING WITH MONTE CARLO DROPOUT FOR QUALIFICATION OF SEMANTIC SEGMENTATION
Clément Dechesne, Pierre Lassalle, CNES, France; Sébastien Lefèvre, Université Bretagne Sud / IRISA, France

WE1.O-5.2 ADAPTING KERNELS FOR HYPERSPECTRAL IMAGE CLASSIFICATION
Juan M. Haut, Spanish University for Distance Education, UNED, Spain; Mercedes E. Paoletti, University of Malaga, Spain; Rafael Pastor-Vargas, Llanos Tobarra, Antonio Robles-Gomez, Roberto Hernández, Spanish University for Distance Education, UNED, Spain; Eligious M.T. Hendrix, University of Malaga, Spain; Jun Li, Sun Yat-Sen University, China

WE1.O-5.3 HYPERSPECTRAL CLASSIFICATION BASED ON SPECTRAL INDICES LEARNED THROUGH SOFT ATTENTION UNITS
Romain Thoreau, ONERA / Magellium, France; Véronique Achard, Xavier Briottet, ONERA, France

WE1.O-5.4 MULTIPLE INCREMENTAL KERNEL CONVOLUTION FOR LAND COVER CLASSIFICATION OF REMOTELY SENSED IMAGES
Xuanwen Tao, Lirong Han, Mercedes E. Paoletti, University of Extremadura, Spain; S. K. Roy, Jalpaiguri Govt. Engineering College, India; Javier Plaza, University of Extremadura, Spain; Juan M. Haut, National Distance Education University, UNED, Spain; Antonio Plaza, University of Extremadura, Spain

WE1.O-5.5 ROBUST DEEP METRIC LEARNING FOR REMOTE SENSING IMAGES WITH NOISY ANNOTATIONS
Jian Kang, School of Electronic and Information Engineering, Soochow University, China; Ruben Fernandez-Beltran, Institute of New Imaging Technologies, University Jaume I, China; Puhong Duan, Xudong Kang, College of Electrical and Information Engineering, Hunan University, China; Antonio Plaza, Hyperspectral Computing Laboratory, University of Extremadura, China

WE1.O-5.6 MONITORING THREATENED IRISH HABITATS USING MULTI-TEMPORAL MUTI-SPECTRAL AERIAL IMAGERY AND CONVOLUTIONAL NEURAL NETWORKS
Sara Perez-Carabaza, Oisin Boydell, University College Dublin, Ireland; Jerome O'Connell, ProvEye, Ireland

Wednesday, July 14 10:30 - 12:00 Oral Room 6
Session WE1.O-6 Oral

Spatio-temporal Analysis

Session Co-Chairs: Lianru Gao, Aerospace Information Research Institute, Chinese Academy of Sciences; Frédéric Jourdin, Service Hydrographique et Océanographique de la Marine; Abdelhafid Dahhani, Université Savoie Mont Blanc

WE1.O-6.1 A NEW SPATIO-TEMPORAL FUSION METHOD FOR BLENDING LANDSAT AND MODIS DATA IN HETEROGENEOUS AREA
Bo Ping, Tianjin University, China; Yunshan Meng, National Marine Data and Information Service, China

WE1.O-6.2 A NEW SPATIOTEMPORAL DATA FUSION METHOD TO RECONSTRUCT HIGH-QUALITY LANDSAT NDVI TIME-SERIES DATA
Xiaofang Ling, Ruyin Cao, University of Electronic Science and Technology of China, China

WE1.O-6.3 FAST UNSUPERVISED SPATIOTEMPORAL SUPER-RESOLUTION FOR MULTISPECTRAL SATELLITE IMAGING USING PLUG-AND-PLAY MACHINERY STRATEGY
Chia-Hsiang Lin, Cheng-Yu Sie, Pang-Yu Lin, Jhao-Ting Lin, Nationl Cheng Kung University, Taiwan

WE1.O-6.4 ADAPTIVE CHANNEL ATTENTION AND FEATURE SUPER-RESOLUTION FOR REMOTE SENSING IMAGES SPATIOTEMPORAL FUSION
Shuai Fang, Siyuan Meng, Hefei University of Technology, China; Yang Cao, University of Science and Technology of China, China; Jing Zhang, Hefei University of Technology, China; Weikai Shi, Macau University of Science and Technology, China

WE1.O-6.5 DATA-DRIVEN SPATIO-TEMPORAL INTERPOLATION OF SEA SURFACE SEDIMENT CONCENTRATION FROM SATELLITE-DERIVED DATA: AN OSSE CASE-STUDY IN THE BAY OF BISCAY
Jean-Marie Vient, UBO- Université de Bretagne Occidentale, France; Frédéric Jourdin, Service Hydrographique et Océanographique de la Marine, France; Ronan Fablet, Institut des Mines-Telecom Atantique, France; Baptiste Mengual, SAS Benoit Waeles–Consultant Génie Côtier, France; Ludivine Lafosse, Service Hydrographique et Océanographique de la Marine, France; Christophe Delacourt, UBO-Université de Bretagne Occidentale, France

WE1.O-6.6 DINSAR AND PS METHODS FUSION FOR DISPLACEMENT ESTIMATION BEFORE AND AFTER EARTHQUAKES AT THE SOUTHERN TIP OF THE BAIKAL LAKE, RUSSIA
Valeriy Bondur, Institute of aerospace monitoring AEROCOSMOS, Russia; Tumen Chimitdorzhiev, Aleksey Dmitriev, Pavel Dagurov, Institute of Physical Materials Science, SB RAS, Russia

Wednesday, July 14 10:30 - 12:00 Oral Room 7
Session WE1.O-7 Oral

Analyzing Forest Using Passive and Active RS Methods

Session Co-Chairs: Anke Fluhrer, German Aerospace Center (DLR); Andeise Cerqueira Dutra, National Institute for Space Research; Shan Wei, University of Hong Kong

WE1.O-7.1 AN ALGORITHM TO ESTIMATE TREE HEIGHT WITH INSAR TECHNIQUE AND DUAL-POL ALOS/PALSAR DATASETS
Yao Chen, University of Electronic Science and Technology of China, China; Yong Wang, East Carolina University, United States; Yan Yan, University of Electronic Science and Technology of China, China

WE1.O-7.2 ESTIMATING CANOPY HEIGHT AND WOOD VOLUME OF EUCALYPTUS PLANTATIONS IN BRAZIL USING GEDI LIDAR DATA
Ibrahim Fayad, Nicolas Baghdadi, INRAE, France; Clayton Alcarde, Suzano, Brazil; Jose Luiz Stape, Unesp, Faculdade de Ciências Agronômicas, Brazil; Jean Stéphane Bailly, AgroParisTech, France; Henrique Scolforo, Suzano, Brazil; Mehrez Zribi, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Guerric Le Maire, CIRAD, France

WE1.O-7.3 BRAZILIAN SAVANNA HEIGHT ESTIMATION USING UAV PHOTOGRAMMETRY
Andeise Cerqueira Dutra, National Institute for Space Research, Brazil; Fábio Marcelo Breunig, Federal University of Santa Maria, Brazil; Henrique Luis Godinho Cassol, Marceli Terra De Oliveira, Tânia Beatriz Hoffmann, Egidio Arai, Valdete Duarte, Yosio Edemir Shimabukuro, National Institute for Space Research, Brazil

WE1.O-7.4 RETRIEVAL OF FOREST WATER POTENTIAL FROM L-BAND VEGETATION OPTICAL DEPTH
Thomas Jagdhuber, Anke Fluhrer, Anne-Sophie Schmidt, German Aerospace Center (DLR), Germany; François Jonard, Université catholique de Louvain, Belgium; David Chaparro, Universitat Politècnica de Catalunya, Spain; Thomas Meyer, Université catholique de Louvain, Belgium; Natan Holtzman, Alexandra G. Konings, Stanford University, United States; Andrew Feldman, Massachusetts Institute of Technology, United States; Martin J. Baur, University of Cambridge, United Kingdom; Maria Piles, University of Valencia, Spain; Dara Entekhabi, Massachusetts Institute of Technology, United States

WE1.O-7.5 A DUAL-POLARIMETRIC APPROACH TO OBSERVE WILDFIRES USING C-BAND POLSAR MEASUREMENTS
Ferdinando Nunziata, Emanuele Ferrentino, Andrea Buono, Università degli studi di Napoli Parthenope, Italy; Maurizio Sarti, National Research Council (CNR), Italy; Maurizio Migliaccio, Università degli studi di Napoli Parthenope, Italy

WE1.O-7.6 DEFORESTATION MONITORING USING SENTINEL-1 SAR IMAGES IN HUMID TROPICAL AREAS
Bertrand Ygorra, VisioTerra, France; Frédéric Frappart, Laboratoire d'Etudes en Géophysique et Océanographie Spatiales (LEGOS), France; Jean-Pierre Wigneron, Christophe Moisy, Institut National de Recherche pour l'Agriculture, l'alimentation et l'Environnement, France; Thibault Catry, Institut de Recherche pour le Developpement, France; Frédéric Baup, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Eliakim Hamunyela, University of Namibia, Namibia; Serge Riazanoff, VisioTerra, France

Wednesday, July 14 10:30 - 12:00 Oral Room 8
Session WE1.O-8 Oral

Crop Mapping and Monitoring using Multimodal Data

Session Co-Chairs: Esra Erten, Istanbul Technical University; Natalia Efremova, University of Oxford; Greg Hurlock, Georgia Tech

WE1.O-8.1 DEEP ONE-CLASS CROP EXTRACTION FRAMEWORK FOR MULTI-MODAL REMOTE SENSING IMAGERY
Lei Lei, State Key Laboratory of Information Engineering in Surveying, Mapping and Remote Sensing, Wuhan University, China; Xinyu Wang, School of Remote Sensing and Information Engineering, Wuhan University, China; Hengwei Zhao, Xin Hu, Chang Luo, Yanfei Zhong, State Key Laboratory of Information Engineering in Surveying, Mapping, and Remote Sensing (LIESMARS), Wuhan University, China

WE1.O-8.2 BIOPHYSICAL PARAMETER ESTIMATION USING EARTH OBSERVATION DATA IN A MULTI-SENSOR DATA FUSION APPROACH: CYCLEGAN
Natalia Efremova, University of Oxford, United Kingdom; Esra Erten, Istanbul Technical University, Turkey

WE1.O-8.3 COLLABORATIVE MAPPING RICE PLANTING AREAS USING MULTISOURCE REMOTE SENSING DATA
Pengfei Zhai, Shihua Li, Ze He, Yuchuan Deng, Yueming Hu, University of Electronic Science and Technology of China, China

WE1.O-8.4 FLOODED RICE PADDY DETECTION AND ITS ACCURACY ASSESSMENT USING SENTINEL-1 AND PLANETSCOPE DATA: A CASE STUDY OF 2018 SPRING FLOOD IN WEST JAVA INDONESIA
Hiroyuki Wakabayashi, Nihon University, Japan; Chiharu Hongo, Chiba University, Japan; Yoshihiro Asaoka, Nihon University, Japan; Boedi Tjahjono, IPB University, Indonesia; Intan Permata, Office of Food Crops and Horticulture of West Java Province, Indonesia

WE1.O-8.5 SENTINEL-1 AND SENTINEL-2 BASED CROP CLASSIFICATION OVER AGRICULTURAL REGIONS OF NAVARRE (SPAIN)
Maria Gonzalez-Audicana, Sandra Lopez-Saenz, María Arias, Ion Sola, Jesus Alvarez-Mozos, Public University of Navarre, Spain

WE1.O-8.6 AUTOMATED CROP HARVEST DETECTION ALGORITHM BASED ON SYNERGISTIC USE OF OPTICAL AND RADAR SATELLITE IMAGERY
Kasper Bonte, Mehrdad Moshtaghi, Kristof Van Tricht, Laurent Tits, Vlaamse Instelling voor Technologisch Onderzoek, Belgium

Wednesday, July 14 10:30 - 12:00 Oral Room 9
Session WE1.O-9 Oral

Remote Sensing of Ocean Currents

Session Co-Chairs: Vladimir Karaev, Institute of Applied Physics Russian Academy of Sciences; Miguel Hoyo García, Fondazione Bruno Kessler; Anis Elyouncha, Chalmers University of Technology

WE1.O-9.1 CALCULATION OF BISTATIC REFLECTION WITH RIVER CURRENTS
Yuriy Titchenko, Vladimir Karaev, Mariya Ryabkova, Kirill Ponur, Institute of Applied Physics, Russian Academy of Sciences, Russia

WE1.O-9.2 SYNERGISTIC OBSERVATIONS OF SURFACE WINDS AND CURRENTS IN TROPICAL CYCLON
Shengren Fan, Nanjing University of Information Science and Technology, China; Xu Yang, Shiyu Xue, Xi'an Institute of Space Radio Technology, China Academy of Space Technology, China; Biao Zhang, Nanjing University of Information Science and Technology, China

WE1.O-9.3 A DEEP LEARNING MODEL FOR SUBSURFACE MESOSCALE EDDY DETECTION BASED ON REMOTE SENSING IMAGES
Yingjie Liu, Xiaofeng Li, Institute of Oceanology, Chinese Academy of Sciences, China

WE1.O-9.4 MICROWAVE DOPPLER RADAR EXPERIMENT ON A RIVER
Vladimir Karaev, Mariya Ryabkova, Mariya Panfilova, Yury Titchenko, Eugeny Meshkov, Emma Zuikova, Institute of Applied Physics, Russian Academy of Sciences, Russia

WE1.O-9.5 COMPARISON OF THE SEA SURFACE VELOCITY DERIVED FROM SENTINEL-1 AND TANDEM-X
Anis Elyouncha, Leif E. B. Eriksson, Chalmers University of Technology, Sweden; Harald Johnsen, Norwegian Research Center, Norway

WE1.O-9.6 OCEANIC CIRCULATION IN THE STRAIT OF GIBRALTAR REVEALED BY AIS DATA INFORMATION
Clément Le Goff, Alexey Mironov, Brahim Boussidi, e-odyn, France; Lucie Bordois, Franck Dumas, SHOM, France; Bertrand Chapron, Ifremer, France

Wednesday, July 14 10:30 - 12:00 Oral Room 10
Session WE1.O-10 Oral

Lidar Science and Technology

Session Co-Chairs: Christopher Valenta, Georgia Institute of Technology; Francesc Rocadenbosch, Universitat Politecnica de Catalunya; Lemma Tsegaye D., Ethiopian Space Science and Technology Institute

WE1.O-10.1 INTEGRATED PHOTONICS TECHNOLOGY FOR EARTH SCIENCE REMOTE-SENSING LIDAR
Fengqiao Sang, Joseph Fridlander, Victoria Rosborough, Simone Tommaso Šuran Brunelli, University of California, Santa Barbara, United States; Jeffrey Chen, Kenji Numata, NASA, United States; S. Randy Kawa, NASA Goddard Space Flight Center, United States; Mark Stephen, NASA, United States; Larry Coldren, Jonathan Klamkin, University of California, Santa Barbara, United States

WE1.O-10.2 INTENSITY CORRECTION OF MULTISPECTRAL AIRBORNE LASER SCANNING DATA
Wai Yeung Yan, Hong Kong Polytechnic University, China

WE1.O-10.3 FLOATING DOPPLER WIND LIDAR MOTION SIMULATOR FOR HORIZONTAL WIND SPEED MEASUREMENT ERROR ASSESSMENT
Andreu Salcedo-Bosch, Joan Farré-Guarné, Josep Sala-Álvarez, Javier Villares-Piera, Francesc Rocadenbosch, Universitat Politècnica de Catalunya, Spain; Robin Tanamachi, Purdue University, United States

WE1.O-10.4 UAS LIDAR CROP LAI ESTIMATIONS FROM CANOPY DENSITY
Jordan Bates, Carsten Montzka, Marius Schmidt, Françoıs Jonard, Forschungszentrum Jülich, Germany

WE1.O-10.5 FULL-WAVEFORM TERRESTRIAL LIDAR DATA CLASSIFICATION USING RAW SAMPLES OF DIGITIZED WAVEFORM
Mohammad Pashaei, Michael Starek, Philippe Tissot, Jacob Berryhill, Texas A&M University - Corpus Christi, United States

WE1.O-10.6 A LOCAL TOPOLOGICAL INFORMATION AWARE BASED DEEP LEARNING METHOD FOR GROUND FILTERING FROM AIRBORNE LIDAR DATA
Zhipeng Luo, Xiamen University, China; Ziyue Zhang, University of Nottingham Ningbo China, China; Wen Li, Haojia Lin, Yiping Chen, Cheng Wang, Xiamen University, China; Jonathan Li, University of Waterloo, Canada

Wednesday, July 14 10:30 - 12:00 Oral Room 11
Session WE1.O-11 Oral

Ice Sheets and Glaciers I

Session Co-Chairs: Silvan Leinss, ETH Zurich; Suvrat Kaushik, EDYTEM(CNRS)/LISTIC, Universite Savoie Mont Blanc, Le Bourget du lac/Annecy, France; Hira Zafar, Universität Salzburg

WE1.O-11.1 MEASURING GLACIER VELOCITY BY AUTOFOCUSING TEMPORALLY MULTILOOKED SAR TIME SERIES
Silvan Leinss, Shiyi Li, Othmar Frey, ETH Zurich, Switzerland

WE1.O-11.2 FUSION OF GLACIER DISPLACEMENT OBSERVATIONS WITH DIFFERENT TEMPORAL BASELINES
Laurane Charrier, Université Savoie Mont Blanc and Office National d'Etudes et de Recherches Aérospatiales (ONERA), France; Yajing Yan, Université Savoie Mont Blanc, France; Elise Colin Koeniguer, Office National d'Etudes et de Recherches Aérospatiales (ONERA), France; Emmanuel Trouvé, Université Savoie Mont Blanc, France

WE1.O-11.3 AUTOMATED EXTRACTION FOR SUPRAGLACIAL LAKE IN GREENLAND USING SENTINEL-1 SAR IMAGERY
Di Jiang, Aerospace Information Reasearch Institute, Chinese Academy of Sciences, China; Xinwu Li, Key Laboratory of Digital Earth Science, Aerospace Information Research Institute, China; Qian Xiang, Beihang University, China; Mengyue Ma, China University of Geosciences, China; Wen Hong, Key Laboratory of Technology in Geo-spatial Information Processing and Application System, China; Yirong Wu, Aerospace Information Reasearch Institute, Chinese Academy of Sciences, China

WE1.O-11.4 VISIBILITY ANALYSIS OF GLACIERS ON STEEP SLOPES IN THE EUROPEAN ALPS USING TERRASAR-X/PAZ DATA
Suvrat Kaushik, EDYTEM(CNRS)/LISTIC, Universite Savoie Mont Blanc, Le Bourget du lac/Annecy, France; Yajing Yan, LISTIC, Universite Savoie Mont Blanc, France; Ludovic Ravanel, Florence Magnin, EDYTEM(CNRS), Universite Savoie Mont Blanc, Le Bourget du lac, France; Emmanuel Trouvé, LISTIC, Universite Savoie Mont Blanc, France

WE1.O-11.5 YEAR-AROUND C- AND L- BAND OBSERVATION AROUND THE MOSAIC ICE FLOE WITH HIGH SPATIAL AND TEMPORAL RESOLUTION
Suman Singha, German Aerospace Center (DLR), Germany; Malin Johansson, UiT The Arctic University of Norway, Norway; Gunnar Spreen, University of Bremen, Germany; Stephen Howell, Environment and Climate Change Canada, Canada; Shin-ichi Sobue, Japan Aerospace Exploration Agency (JAXA), Japan; Malcolm Davidson, European Space Agency (ESA), Netherlands

WE1.O-11.6 ANALYSIS OF MEGADUNE FIELDS IN ANTARCTICA
Giacomo Traversa, Università degli Studi di Siena, Italy; Davide Fugazza, Università degli Studi di Milano, Italy; Massimo Frezzotti, Università degli Studi Roma 3, Italy

Wednesday, July 14 10:30 - 12:00 Oral Room 12
Session WE1.O-12 Oral

Novel Processing and Services for Land Use Applications

Session Co-Chairs: Anas Tukur Balarabe, University of Portsmouth; Wei Chen, China University of Mining & Technology, Beijing; Ximena Tagle Casapia, Wageningen University & Research

WE1.O-12.1 LULC IMAGE CLASSIFICATION WITH CONVOLUTIONAL NEURAL NETWORK
Anas Tukur Balarabe, Ivan Jordanov, University of Portsmouth, United Kingdom

WE1.O-12.2 A LIGHTWEIGHT AND MULTI-SCALE CNN MODEL FOR LAND-COVER CLASSIFICATION WITH HIGH-RESOLUTION REMOTE SENSING IMAGES
Wang Xin, China University of Petroleum (East China), China; Zhao Yunhua, Qingdao Surveying & Mapping Institute, China; Liu Dongsheng, Chang'an University, China; Sun Genyun, Zhang Aizhu, China University of Petroleum (East China), China; Li Jing, Chinese Academy of Sciences, China

WE1.O-12.3 EDGE GUIDED STRUCTURE EXTRACTION FOR HYPERSPECTRAL IMAGE CLASSIFICATION
Ying Zhang, Puhong Duan, Xudong Kang, Jianxu Mao, Hunan University, China

WE1.O-12.4 MULTI-MODAL FUSION ARCHITECTURE SEARCH FOR LAND COVER CLASSIFICATION USING HETEROGENEOUS REMOTE SENSING IMAGES
Xiao Li, Lin Lei, Gangyao Kuang, National University of Defence Technology, China

WE1.O-12.5 COPERNICUS LAND SERVICE, GLOBAL COMPONENT PORTFOLIO
Michel Massart, Michael Cherlet, European Commission, Belgium

WE1.O-12.6 SPATIAL AND TEMPORAL CHANGES IN ECOSYSTEM SERVICE VALUE IN KARST AREAS OF SOUTHWESTERN CHINA BASED ON LAND-USE CHANGES
Wei Chen, Xuepeng Zhang, Zhe Wang, China University of Mining and Technology, China

Wednesday, July 14 10:30 - 12:00 Oral Room 13
Session WE1.O-13 Oral

Forests and Biomass from Space I

Session Co-Chairs: David Chaparro, Universitat Politècnica de Catalunya; Amen Al-Yaari, Sorbonne University - Laboratoire METIS; Jasper Feyen, Universiteit Gent

WE1.O-13.1 IMPROVED FOREST BIOMASS ESTIMATION BY ADDING TIME-SERIES CHARACTERISTICS OF LANDSAT REFLECTANCE
Xia Liu, Zhanmang Liao, University of Electronic Science and Technology of China, China; Albert van Dijk, Australian National University, Australia; Binbin He, Yue Shi, University of Electronic Science and Technology of China, China

WE1.O-13.2 MONITORING FOREST ABOVE-GROUND BIOMASS FROM MULTIFREQUENCY VEGETATION OPTICAL DEPTH:A PRELIMINARY STUDY
Claudia Olivares-Cabello, David Chaparro, Mercè Vall-Llossera, Adriano Camps, Universitat Politècnica de Catalunya, Spain

WE1.O-13.3 INTERANNUAL VARIABILITY OF BIOMASS (SMOS VEGETATION OPTICAL DEPTH) OVER THE CONTIGUOUS UNITED STATES
Amen Al-Yaari, Sorbonne University - Laboratoire METIS, France; Jean-Pierre Wigneron, INRA, France; Agnes Ducharne, Sorbonne University - Laboratoire METIS, France; Frédéric Frappart, Laboratoire d'Etudes en Géophysique et Océanographie Spatiales (LEGOS), France; Xiaojun Li, Xiangzhuo Liu, Mengjia Wang, INRAe, France; Lei Fan, Nanjing University of Information Science and Technology, China; Hongliang Ma, INRAe, France; Zanping Xing, Nanjing University of Information Science and Technology, China; Roberto Fernandez-Moran, University of Valencia, Image Processing Lab (IPL), Spain; Christophe Moisy, INRAe, China

WE1.O-13.4 THE POTENTIAL OF SENTINEL-1 DATA FOR CONIFEROUS FOREST FUEL LOADS ESTIMATION IN SOUTHWEST OF SICHUAN, CHINA
He Binbin, Li Yanxi, University of Electronic Science and Technology of China, China

WE1.O-13.5 ON THE USE OF GNSS REFLECTOMETRY FOR DETECTING FIRE DISTURBANCES IN FORESTS: A CASE STUDY IN ANGOLA
Emanuele Santi, Institute of Applied Physics, National Research Council (IFAC-CNR), Italy; Maria Paola Clarizia, Deimos Space, United Kingdom; Davide Comite, La Sapienza University of Rome, Italy; Laura Dente, Leila Guerriero, Tor Vergata University of Rome, Italy; Mauro Pierdicca, La Sapienza University of Rome, Italy

WE1.O-13.6 GLOBAL SCALE IB AMSR2 VEGETATION OPTICAL DEPTH AT X-BAND
Mengjia Wang, Beijing Normal University / INRAE, China; Jean-Pierre Wigneron, INRAE, France; Philippe Ciais, Université Paris-Saclay, France; Rui Sun, Beijing Normal University, France; Frédéric Frappart, Laboratoire d'Etudes en Géophysique et Océanographie Spatiales (LEGOS), France; Lei Fan, Chongqing Jinfo Mountain Karst Ecosystem National Observation and Research Station; School of Geographical Sciences, Southwest University, France; Xiaojun Li, Xiangzhuo Liu, INRAE, France; Amen Al-Yaari, Sorbonne Université, France; Roberto Fernandez-Moran, University of Valencia, Spain; Hongliang Ma, Wuhan University, France; Zanpin Xing, Chongqing Jinfo Mountain Karst Ecosystem National Observation and Research Station; School of Geographical Sciences, Southwest University, France; Christophe Moisy, INRAE, France

Wednesday, July 14 10:30 - 12:00 Oral Room 14
Session WE1.O-14 Oral

Remote Sensing Applications in Inland Waters I

Session Co-Chairs: Paolo Gamba, University of Pavia; Xiaohui Pan, Universiteit Gent; Pascal Castellazzi, Commonwealth Scientific and Industrial Research Organisation

WE1.O-14.1 WIDE-SCALE WATER BODIES MAPPING USING MULTI-TEMPORAL SENTINEL-1 SAR DATA
David Marzi, Paolo Gamba, University of Pavia, Italy

WE1.O-14.2 MITIGATION OF LAND SUBSIDENCE DUE TO GROUNDWATER EXTRACTION IN QUERETARO, MEXICO
Pascal Castellazzi, Commonwealth Scientific and Industrial Research Organisation (CSIRO), Australia; Jaime Garfias, Centro Interamericano de Recursos del Agua, Mexico; Richard Martel, Institut National de la Recherche Scientifique, Canada

WE1.O-14.3 DAILY ESTIMATION OF INLAND WATER STORAGE IN THE MADEIRA BASIN DURING THE LAST TWENTY YEARS (1998-2018)
Jeremy Guilhen, Collecte Localisation Satellites / Laboratoire Ecologie Fonctionnelle et Environnement, France; Marie Parrens, E.I Purpan, France; Franck Mercier, Collecte Localisation Satellites, France; Ahmad Al Bitar, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; José Miguel Sanchez Pérez, Laboratoire Ecologie Fonctionnelle et Environnement, France; William Santini, Institut de Recherche pour le Développement, Laboratoire GET, France; Sabine Sauvage, Laboratoire Ecologie Fonctionnelle et Environnement, France

WE1.O-14.4 INSAR COHERENCE OVER REGIONAL AUSTRALIA: IMPLICATIONS FOR MAPPING GROUNDWATER-RELATED GROUND DEFORMATION
Pascal Castellazzi, Commonwealth Scientific and Industrial Research Organisation (CSIRO), Australia

WE1.O-14.5 LEARNING DEEP MODELS FROM WEAK LABELS FOR WATER SURFACE SEGMENTATION IN SAR IMAGES
Francesco Asaro, Gianluca Murdaca, Claudio Maria Prati, Politecnico di Milano, Italy

WE1.O-14.6 AUTOMATIC DETECTION OF INLAND WATER BODIES ALONG ALTIMETRY TRACKS USING RADAR BACKSCATTERING
Frédéric Frappart, Laboratoire d'Etudes en Géophysique et Océanographie Spatiales (LEGOS), France; Pierre Zeiger, LEGOS, France; Julie Betbeder, Valéry Gond, Régis Bellot, CIRAD, France; Nicolas Baghdadi, INRAE, France; Fabien Blarel, LEGOS, France; José Darrozes, Luc Bourrel, GET, France; Frédérique Seyler, ESPACE-DEV, France

Wednesday, July 14 10:30 - 12:00 Oral Room 15
Session WE1.O-15 Oral-Invited

DEEP Insight SAR II

Session Co-Chairs: Mihai Datcu, Research Center for Spatial Information (CEOSpaceTech), University POLITEHNICA of Bucharest (UPB) and Earth Observation Center (EOC), German Aerospace Center (DLR); Zhongling Huang, Northwestern Polytechnical University; Nimisha Verma, University of Twente

WE1.O-15.1 BAG-OF-WORDS FOR TRANSFER LEARNING
Iulia Calota, Daniela Faur, University Politehnica of Bucharest, Romania; Mihai Datcu, University Politehnica of Bucharest / German Aerospace Center (DLR), Romania

WE1.O-15.3 A STUDY OF RECOVERING POLSAR INFORMATION FROM SINGLE-POLARIZED DATA USING DNN
Junrong Qu, Xiaolan Qiu, Chibiao Ding, Aerospace Information Reasearch Institute, Chinese Academy of Sciences, China

WE1.O-15.4 A NOISE-AWARE DEEP LEARNING MODEL FOR SEA ICE CLASSIFICATION BASED ON SENTINEL-1 SAR IMAGERY
Habib Ullah, Salman Khaleghian, Thomas Kræmer, Torbjørn Eltoft, Andrea Marinoni, UiT The Arctic University of Norway, Norway

WE1.O-15.5 COMSAR: A NEW ALGORITHM FOR PROCESSING BIG DATA SAR INTERFEROMETRY
Dinh Ho Tong Minh, INRAE, France; Yen-Nhi Ngo, Independent researcher, France

WE1.O-15.6 AN IMPROVED IMAGING METHOD FOR MOVING TARGET BASED ON GENERALIZED RADON-FOURIER TRANSFORM
Yongpeng Gao, Zegang Ding, Beijing Institute of Technology, China; Shouye Lv, Yingying Li, Beijing Institute of Remote Sensing Information, China; Tianyi Zhang, Beijing Institute of Technology, China

Wednesday, July 14 10:30 - 12:00 Oral Room 16
Session WE1.O-16 Oral

Atmospheric Sounding: Technology, Methods and Applications I

Session Co-Chairs: Laura Martínez-Ferrer, Universitat de València; Anamiya Bhattacharya, TSDD/MRSA

WE1.O-16.1 TOWARDS AN OPTIMAL POLARIMETRIC RADAR RAINFALL METHODOLOGY: DEMONSTRATION DURING A WATER-LOGGING DISASTER IN EASTERN CHINA
Yabin Gou, Hong Zhu, Hangzhou Meteorological Bureau, China; Ming Yang, Zhejiang Meteorological Information Network Center, China; Haonan Chen, Colorado State University, United States; Jieying He, National Space Science Center, CAS, China

WE1.O-16.2 ASSIMILATION OF DOPPLER WEATHER RADAR DATA WITH A REGIONAL WRF-3DVAR SYSTEM: INFLUENCE OF DATA ASSIMILATION VOLUME ON PRECIPITATION FORECAST
Yuchen Liu, Jia Liu, Chuanzhe Li, Fuliang Yu, Wei Wang, China Institute of Water Resources and Hydropower Research, China

WE1.O-16.3 RETRIEVAL OF ATMOSPHERIC TEMPERATURE PROFILES FROM HYPERSPECTRAL MICROWAVE RADIATIVE DATA BASED ON THE NEURAL NETWORK
Danlei Wang, Ling Tong, Xun Gong, Xin Guan, Peicheng Wang, Bo Gao, University of Electronic Science and Technology of China, China

WE1.O-16.4 SYSTEM DESIGN OF GROUND BASED SOUNDER FOR NOWCASTING
Mahendra Bhadoria, Latheef Shaik, Anamiya Bhattacharya, Shrija Bhattacharyya, Ranajit Dey, Madhav Das, Satyendra Kushwaha, Ankit Sharma, Samyak Jain, Prantik Chakraborty, Rajeev Jyoti, Indian Space Research Organisation, India

WE1.O-16.5 RADIO-ZENITH INTERFEROMETRY-BASED RECONSTRUCTION OF REFRACTIVITY PROFILE USING SIGNALS FROM LEO CONSTELLATION
Blossom Treesa Bastian, Meena Vasudevan, Divya S. Vidyadharan, Ajay Ragh, Nithin Philip Joseph, Aaron Xavier, Naveen Francis Chittilapilly, Augsense Lab, India

WE1.O-16.6 A SATELLITE-BASED METHOD FOR FORECASTING SOLAR RADIATION PART I: CLOUD MOTION AND TRAJECTORY MODELING
Santo V. Salinas, Tianli Lee, Tan Li, National University of Singapore, Singapore

Wednesday, July 14 10:30 - 12:00 Oral Room 17
Session WE1.O-17 Oral

Monitoring the Coastal Environment

Session Co-Chairs: Bart Deronde, VITO Remote Sensing; Ils Reusen; Druti Gangwar

WE1.O-17.1 OBJECT-BASED MANGROVE MAPPING USING SUBMETER SUPERSPECTRAL WORLDVIEW-3 IMAGERY AND DEEP CONVOLUTIONAL NEURAL NETWORK
Antoine Collin, Associate Professor, France; Mathilde Letard, PSL Université Paris, France; Mark Andel, Digitaglobe Foundation, United States; Sahadev Sharma, Institute of Ocean and Earth Sciences, University of Malaya, Malaysia

WE1.O-17.2 CLASSIFICATION OF MULTI-CHANNEL SAR DATA BASED ON MB-U2-ACNET MODEL FOR SHANGHAI NANHUI DONGTAN INTERTIDAL ZONE ENVIRONMENT MONITORING
Guangyang Liu, Bin Liu, Shanghai Ocean University, China; Xiaofeng Li, Institute of Oceanography, Chinese Academy of Sciences, China; Gang Zheng, Second Institute of Oceanography, Ministry of Natural Resources, China

WE1.O-17.3 VERTICAL LAND MOTION AT TIDE GAUGES USING SEQUENTIAL SBAS-INSAR ANALYSIS
Suresh Krishnan Palanisamy Vadivel, Duk-jin Kim, Seoul National University, Korea (South); Jungkyo Jung, NASA Jet Propulsion Laboratory, California Institute of Technology, Korea (South); Yang-Ki Cho, Seoul National University, Korea (South)

WE1.O-17.4 SHALLOW WATER BATHYMETRY EXTRACTION IN SMALL ISLAND OF WAKATOBI, INDONESIA
Ratna Sari Dewi, Nadya Oktaviani, Badan Informasi Geospasial, Indonesia

WE1.O-17.5 MONITORING STORM-SURGE EVENTS IN COASTAL ZONES USING SATELLITE DATA
Olga Lavrova, Space Research Institute of Russian Academy of Sciences, Russia; Andrey Kostianoy, Shirshov Institute of Oceanology of Russian Academy of Sciences, Russia; Tatiana Bocharova, Space Research Institute of Russian Academy of Sciences, Russia

WE1.O-17.6 OIL SLICKS FROM NATURAL HYDROCARBON SEEPS IN THE CASPIAN SEA AS VIEWED VIA SATELLITE REMOTE SENSING
Marina Mityagina, Olga Lavrova, Space Research Institute of Russian Academy of Sciences, Russia

Wednesday, July 14 10:30 - 12:00 Oral Room 18
Session WE1.O-18 Oral

Satellite Missions Status

Session Co-Chairs: Robert Cullen, European Space Agency; Weizhi Deng, University of Iowa; Craig Donlon, European Space Agency

WE1.O-18.1 COPERNICUS SENTINEL-6 MICHAEL FREILICH SATELLITE MISSION: OVERVIEW AND PRELIMINARY IN ORBIT RESULTS
Craig Donlon, Robert Cullen, Luisella Giulicchi, Marco Fornari, Pierrik Vuilleumier, European Space Agency (ESA), Netherlands

WE1.O-18.2 OVERVIEW AND CURRENT STATUS OF ADVANCED LAND OBSERVING SATELLITE-3 (ALOS-3)
Kei Shimomura, Hidenori Watarai, Japan Aerospace Exploration Agency (JAXA), Japan

WE1.O-18.3 ORBIT, PERFORMANCE AND OBSERVATION SCENARIOS FOR ESA'S EARTH EXPLORER MISSION PROPOSAL HYDROTERRA
Vinicius Queiroz de Almeida, Jalal Matar, Marc Rodriguez-Cassola, Alberto Moreira, German Aerospace Center (DLR), Germany; Roger Haagmans, Paolo Bensi, Daniele Petrolati, European Space Agency (ESA), Netherlands

WE1.O-18.4 SMOS INSTRUMENT PERFORMANCE AFTER MORE THAN 11 YEARS IN ORBIT
Manuel Martin-Neira, European Space Agency (ESA), Netherlands; Roger Oliva, Raúl Onrubia, Zenithal Blue Technologies, Spain; Ignasi Corbella, Nuria Duffo, Roselena Rubino, Polytechic University of Catalonia, Spain; Juha Kainulainen, Harp Technologies, Finland; Josep Closa, Albert Zurita, Javier del Castillo, Airbus Defence and Space, Spain; François Cabot, Ali Khazaal, Eric Anterrieu, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Jose Barbosa, Research and Development in Aerospace GmbH, Switzerland; Gonçalo Lópes, Daniel Barros, Deimos Engenharia, Portugal; Joe Tenerelli, OceanDataLab, France; Raúl Díez-García, Verena Rodríguez, Telespazio UK Ltd, Spain; Jorge Fauste, European Space Agency (ESA), Spain; José María Castro Cerón, ISDEFE, Spain; Antonio Turiel, Verónica González-Gambau, SMOS Barcelona Expert Centre, Spain; Raffaele Crapolicchio, European Space Agency (ESA), Italy; Lorenzo Di Ciolo, Serco Italia S.p.A., Spain; Giovanni Macelloni, Marco Brogioni, Francesco Montomoli, Institute of Applied Physics, Italy; Pierre Vogel, Berta Hoyos Ortega, Elena Checa Cortés, Martin Suess, European Space Agency (ESA), Netherlands

WE1.O-18.5 UPDATES TO THE SPECIAL SENSOR MICROWAVE IMAGER/SOUNDER (SSMIS) CALIBRATION FOR THE GPM V07 DATA RELEASE
Rachael Kroodsma, ESSIC, University of Maryland / NASA Goddard Space Flight Center, United States; Wesley Berg, Colorado State University, United States; Thomas Wilheit, ESSIC, University of Maryland, United States

WE1.O-18.6 THE HARMONY MISSION: END OF PHASE-0 SCIENCE OVERVIEW
Paco Lopez Dekker, TU Delft, Netherlands; Juliet Biggs, University of Bristol, United Kingdom; Bertrand Chapron, Ifremer, France; Andy Hooper, University of Leeds, United Kingdom; Andreas Kaab, University of Oslo, Norway; Simona Masina, Euro-Mediterranean Center on Climate Change, Norway; Jeremie Mouginot, CNRS Institut des Geosciences de l'Environnement, France; Bruno Buongiorno Nardelli, ISMAR-CNR, Italy; Claudia Pasquero, University of Milan, Italy; Pau Prats-Iraola, German Aerospace Center (DLR), Germany; Pierre Rampal, CNRS Institut des Geosciences de l'Environnement, France; Julienne Stroeve, University College London, United Kingdom; Björn Rommen, European Space Agency (ESA), Netherlands

Wednesday, July 14 10:30 - 12:00 Oral Room 19
Session WE1.O-19 Oral

Passive Optical and Hyperspectral Sensors and Calibration

Session Co-Chairs: Kevin Ruddick, Royal Belgium Institute of Natural Sciences; Guichen Zhang, German Aerospace Center (DLR); Stefania Matteoli, National Research Council (CNR) of Italy

WE1.O-19.1 AUTOMATIC RADIOMETRIC CALIBRATION OF GAOFEN-1/WFV CAMERAS AND CROSS VALIDATION WITH SENTINEL-2/MSI
Yaokai Liu, Lingling Ma, Renfei Wang, Wan Li, Yongguang Zhao, Ning Wang, Yonggang Qian, Caixia Gao, Shi Qiu, Aerospace Information Reasearch Institute, Chinese Academy of Sciences, China

WE1.O-19.2 ASSESSMENT OF COPERNICUS SENTINEL-2 CONSTELLATION AFTER FIVE YEARS IN-ORBIT: LEVEL-1C USER-PRODUCTS
Bahjat Alhammoud, ARGANS Ltd., United Kingdom; Carine Quang, CS Group, France; Valentina Boccia, European Space Agency (ESA), Italy; Rosario Quirino Iannone, RHEA SpA/ESRIN, Italy

WE1.O-19.3 RADIOMETRIC CROSS CALIBRATION OF CHINA HJ-1B AND MODIS THERMAL INFRARED CHANNELS USING AN SNO METHOD BASED ON OBSERVATION ELEMENTS MATCHING
Kun Li, Yonggang Qian, Ning Wang, Xinhong Wang, Lingling Ma, Wan Li, Chuanrong Li, Lingli Tang, Key Laboratory of Quantitative Remote Sensing Information Technology, Aerospace Information Research Institute, Chinese Academy of Sciences, China

WE1.O-19.4 TEMPORAL VICARIOUS RADIOMETRIC CALIBRATION OF ZY-3 MUX SENSOR USING AUTOMATIC GROUND MEASUREMENT OF BAOTOU SANDY SITE IN CHINA
Wan Li, Lingling Ma, Yongguang Zhao, Yaokai Liu, Ning Wang, Yonggang Qian, Kun Li, Chuanrong Li, Lingli Tang, Aerospace Information Reasearch Institute, Chinese Academy of Sciences, China

WE1.O-19.5 INTER-BAND CALIBRATION FOR HYPERSPECTRAL WATER REMOTE SENSING: DEMONSTRATION FOR CHRIS-PROBA
Héloïse Lavigne, Kevin Ruddick, Royal Belgium Institute of Natural Sciences, Belgium

WE1.O-19.6 LUNAR CALIBRATION AND ITS VALIDATION FOR A MULTISPECTRAL SENSOR ONBOARD RISESAT MICROSATELLITE
Masataka Imai, Kyoto Sangyo University, Japan; Junichi Kurihara, Hokkaido University, Japan; Toru Kouyama, National Institute of Advanced Industrial Science and Technology, Japan; Toshinori Kuwahara, Shinya Fujita, Yuji Sakamoto, Tohoku University, Japan; Sei-Ichi Saitoh, Takafumi Hirata, Hokkaido University, Japan; Hirokazu Yamamoto, National Institute of Advanced Industrial Science and Technology, Japan; Yuji Sato, Tohoku University, Japan; Yukihiro Takahashi, Hokkaido University, Japan

Wednesday, July 14 10:30 - 12:00 Oral Room 20
Session WE1.O-20 Oral

UAV and Close Sensing Applications II

Session Co-Chairs: Xiaohui Wei, Hunan University; Juan Pablo Navarro-Castillo, German Aerospace Center (DLR); Els Knaeps, VITO Remote Sensing

WE1.O-20.1 REAL-TIME EMBEDDED HPC BASED EARTHQUAKE DAMAGE MAPPING USING 3D LIDAR POINT CLOUDS
Pratyush Talreja, Indian Institute of Technology Bombay, India; Surya Durbha, Indian University of Technology Bombay, India; Rajat Shinde, Abhishek Potnis, Indian Institute of Technology Bombay, India

WE1.O-20.2 DESIGN AND EXPERIMENT OF A HOLLOW STRUCTURE MICROWAVE HUMIDITY SENSOR
Kun Zhang, Bo Gao, Jiangwu Wen, Xun Gong, Peicheng Wang, Ling Tong, University of Electronic Science and Technology of China, China

WE1.O-20.3 HYPERSPECTRAL IMAGE BASED VEGETATION INDEX (HSVI): A NEW VEGETATION INDEX FOR URBAN ECOLOGICAL RESEARCH
Zhijun Jiao, Aizhu Zhang, Genyun Sun, Hang Fu, China University of Petroleum (East China), China; Yanjuan Yao, Ministry of Environmental protection of China, China

WE1.O-20.4 SEAM-CUTTING BASED UNMANNED AERIAL VEHICLE HYPERSPECTRAL IMAGE STITCHING
Yan Mo, Xiaohui Wei, Xudong Kang, Shuo Zhang, Shutao Li, Hunan University, China

WE1.O-20.5 OPTIMIZATION OF AERIAL IMAGE EXPOSURE CENTER WITH BASELINE CONSTRAINT CONDITION MODEL
Wanying Chen, Guoqing Zhou, Tao Yue, Man Yuan, Guilin University of Technology, China

WE1.O-20.6 ENERGY-EFFICIENT PASSIVE UAV SAR: SYSTEM CONCEPT AND PERFORMANCE ANALYSIS
Zhichao Sun, University of Electronic Science and Technology of China, China; Ying He, Southwest China Research Institute of Electronic Equipment, China; Tianfu Chen, Hongyang An, Junjie Wu, Jianyu Yang, University of Electronic Science and Technology of China, China

Wednesday, July 14 13:00 - 14:10 Multimedia Room 1
Session WE2.MM-1

Interferometric SAR Methods and Applications

Session Co-Chairs: Oriol Monserrat, Centre Tecnologic de Telecomunicacions de Catalunya; Antonio Pauciullo, IREA-CNR; Bastien Cerino, Université Savoie Mont Blanc

WE2.MM-1.1 A STUDY ON ALGORITHMS AND PARAMETER SETTINGS FOR DS PREPROCESSING
Markus Even, Karlsruhe Institute of Technology, Germany

WE2.MM-1.2 FILTERING OF THE ATMOSPHERIC PHASE SCREEN IN INSAR DATA USING THE NONEQUISPACED FAST FOURIER TRANSFORM
Riccardo Palamà, Michele Crosetto, Oriol Monserrat, Anna Barra, Maria Cuevas, Centre Tecnologic de Telecomunicacions de Catalunya, Spain; Bruno Crippa, University of Milan, Italy; Jacek Rapinski, Marek Mróz, University of Warmia and Mazury in Olsztyn, Poland

WE2.MM-1.3 PHASE UNWRAPPING METHODS FOR D-INSAR
Chen Xie, University of Electronic Science and Technology of China, China; Mingcang Zhu, Department of Natural Resources of Sichuan Province, China; Yong He, Zhanyong He, Sichuan Research Institute for Eco-System Restoration & Geo-Hazard Prevention, China; Fangrong Zhou, Yunnan Power Grid Company Ltd, China; Juan Ren, Hongqiong Tang, Sichuan Research Institute for Eco-System Restoration & Geo-Hazard Prevention, China; Liutong Li, Zezhong Zheng, Tianming Shao, University of Electronic Science and Technology of China, China; Zhongnian Li, Central China Normal University, China; Zhiyong Wang, Mingqi Li, Ling Jiang, University of Electronic Science and Technology of China, China

WE2.MM-1.4 EMULATION OF A SAR INTERFEROGRAM FROM THE PAST SATELLITES FOR THE PRESENT EVENTS
Ryo Natsuaki, University of Tokyo, Japan; Ryu Sugimoto, Chiaki Tsutsumi, Ryosuke Nakamura, National Institute of Advanced Industrial Science and Technology, Japan

WE2.MM-1.5 SNAPPING FOR SENTINEL-1 MISSION ON GEOHAZARDS EXPLOITATION PLATFORM: AN ONLINE MEDIUM RESOLUTION SURFACE MOTION MAPPING SERVICE
Michael Foumelis, Aristotle University Of Thessaloniki, Greece; Jose Manuel Delgado Blasco, Universidad de Jaén, Spain; Fabrice Brito, Fabrizio Pacini, Panteha Pishehvar, Terradue s.r.l., Italy

WE2.MM-1.8 TOWARDS THE INTEGRATED PROCESSING OF GEODETIC DATA
Freek J. van Leijen, Hans van der Marel, Ramon F. Hanssen, Delft University of Technology, Netherlands

WE2.MM-1.9 ESTIMATION OF EARTH DEFORMATION CAUSED BY THE NUCLEAR TEST PERFORMED IN NORTH KOREA
Nicomino Fiscante, University of Study ROMA TRE, Italy; Filippo Biondi, University of L'Aquila, Italy; Pia Addabbo, University of Study GIUSTINO FORTUNATO, Italy; Carmine Clemente, University of Strathclyde, United Kingdom; Giunta Gaetano, University of Study ROMA TRE, Italy; Danilo Orlando, University of Study NICCOLO' CUSANO, Italy

Wednesday, July 14 13:00 - 14:10 Multimedia Room 2
Session WE2.MM-2

Feature Extraction & Unmixing

Session Co-Chairs: Andrea Marinoni, The Arctic University of Norway; Islam Alam Saad Mansour, German Aerospace Center (DLR); Gabriele Moser, University of Genoa

WE2.MM-2.1 FEATURE SELECTION USING SELF ORGANIZING MAP ORIENTED EVOLUTIONARY APPROACH
Oguzhan Ceylan, Kadir Has University, Turkey; Gulsen Taskin, Istanbul Technical University, Turkey

WE2.MM-2.2 UNSUPERVISED BAND SELECTION FOR HYPERSPECTRAL DATASETS BY DOUBLE GRAPH LAPLACIAN DIAGONALIZATION
Eduard Khachatrian, Saloua Chlaily, Torbjørn Eltoft, Arctic University of Norway, Norway; Paolo Gamba, University of Pavia, Italy; Andrea Marinoni, Arctic University of Norway, Norway

WE2.MM-2.3 HIERARCHICAL PROBABILISTIC EMBEDDINGS FOR MULTI-VIEW IMAGE CLASSIFICATION
Benjamin Brodie, Subash Khanal, Muhammad Usman Rafique, Connor Greenwell, Nathan Jacobs, University of Kentucky, United States

WE2.MM-2.4 ND-SPACE: NORMALIZED DIFFERENCE SPECTRAL MAPPING, WITH SOIL AND VEGETATION EXAMPLES
William Philpot, Cornell University, United States

WE2.MM-2.5 ON THE USE OF SPAN IMAGE IN POLSAR SPECKLE FILTERING
Mohamed Yahia, Tarig Ali, GIS and Mapping Laboratory, American University of Sharjah, United Arab Emirates; Md Maruf Mortula, Civil Engineering department, American University of Sharjah, United Arab Emirates; Riadh Abdelfattah, Universitéy of Carthage: COSIM Lab, Higher School of Communications of Tunis, Tunisia; Samy Elmahdi, GIS and Mapping Laboratory, American University of Sharjah, United Arab Emirates

WE2.MM-2.6 A NOVEL COLLABORATIVE REPRESENTATION BASED SEISMIC FAULT DETECTION FRAMEWORK
Ratul Kishore Saha, Tiash Ghosh, Indian Institute of Technology Kharagpur, India; Sanjai Kumar Singh, Oil and Natural Gas Corporation, India; Aurobinda Routray, Indian Institute of Technology Kharagpur, India

WE2.MM-2.7 FUSION DETECTION OF CLOSED WATER IN MEDIUM-LOW RESOLUTION REMOTE SENSING IMAGERY
Yuanyong Ning, Yanan You, Jingyi Cao, Fang Liu, Beijing University of Posts and Telecommunications, China; Qing Yan, School of Artificial Intelligence, Beijing University of Posts and Telecommunications, China

WE2.MM-2.8 BIDIRECTIONAL PATHWAY FEATURE PYRAMID NETWORKS AND REVERSE SCALE- TRANSFER LAYER FOR DETECTING MULT-SCALE SHIPS
Guanhua Jiang, Yanan You, School of Artificial Intelligence, Beijing University of Posts and Telecommunications, China; Gang Meng, Beijing Institute of Remote Sensing Information, China; BoHao Ran, Beijing University of Posts and Telecommunications, China; Fang Liu, School of Artificial Intelligence, Beijing University of Posts and Telecommunications, China

WE2.MM-2.9 ITERATIVE SPECTRAL DISTANCING: A NOVEL APPROACH FOR EXTRACTING ENDMEMBERS IN COMPLEX URBAN IMAGE SCENES
Frederik Priem, Vrije Universiteit Brussel, Belgium; Ben Somers, KU Leuven, Belgium; Frank Canters, Vrije Universiteit Brussel, Belgium

Wednesday, July 14 13:00 - 14:10 Multimedia Room 3

Session WE2.MM-3

Advanced Segmentation for Landcover/Data Fusion

Session Co-Chairs: Charles Peureux, Collecte Localisation Satellites; Wufan Zhao, University of Twente; Marian-Daniel Iordache, Flemish Institute for Technological Research, Remote Sensing Department (VITO-TAP)

WE2.MM-3.1 A DEEP INTERACTIVE FRAMEWORK FOR BUILDING EXTRACTION IN REMOTELY SENSED IMAGES VIA A COARSE-TO-FINE STRATEGY
Kun Li, Xiangyun Hu, Wuhan University, China

WE2.MM-3.2 CORNER-GUIDED BUILDING POLYGON CONSTRUCTION FROM AERIAL IMAGES USING DEEP MULTITASK LEARNING
Ziming Li, Qinchuan Xin, Sun Yat-Sen University, China

WE2.MM-3.3 ATTENTION RESIDUAL U-NET FOR BUILDING SEGMENTATION IN AERIAL IMAGES
Chaohui Li, Yingjian Liu, Haoyu Yin, Yue Li, Qingxiang Guo, Limin Zhang, Pengting Du, Ocean University of China, China

WE2.MM-3.4 CASCADED DEEP NEURAL NETWORKS FOR PREDICTING BIASES BETWEEN BUILDING POLYGONS IN VECTOR MAPS AND NEW REMOTE SENSING IMAGES
Mingyang Hu, Wuhan University, China; Meng Lu, Utrecht University, China; Shunping Ji, Wuhan University, China

WE2.MM-3.5 DEEP LEARNING BASED WATER SEGMENTATION USING KOMPSAT-5 SAR IMAGES
Myeung Un Kim, Han Oh, Seung-Jae Lee, Yeonju Choi, Sanghyuck Han, Korea Aerospace Research Institute, Korea (South)

WE2.MM-3.6 A NOVEL DEEP TRANSFER LEARNING METHOD FOR SAR AND OPTICAL FUSION IMAGERY SEMANTIC SEGMENTATION
Yanjuan Liu, Yingying Kong, Nanjing University of Aeronautics and Astronautics, China

WE2.MM-3.7 SEA-LAND SEGMENTATION OF REMOTE SENSING IMAGE BASED ON SPATIAL CONSTRAINT MODEL SUPERPIXEL METHOD
JiaLe Zha, Huai-Xin Chen, University of Electronic Science and Technology of China, China; ChengWu Bai, Sichuan Provincial Administration of Production Safety, China; ChengJie Ren, University of Electronic Science and Technology of China, China

WE2.MM-3.8 SEGMENTATION OF SENTINEL-1 SAR IMAGES OVER THE OCEAN, PRELIMINARY METHODS AND ASSESSMENTS
Aurélien Colin, Charles Peureux, Romain Husson, Collecte Localisation Satellites, France; Nicolas Longépé, -lab Explore Office, Italy; Régis Rauzy, Collecte Localisation Satellites, France; Ronan Fablet, Pierre Tandeo, Samir Saoudi, Lab-STICC, UMR CNRS 6285, France; Alexis Mouche, Laboratoire d'Océanographie Physique et Spatiale, France; Gérald Dibarboure, Centre National d'Études Spatiales, France

WE2.MM-3.9 RESIDUAL ATTENTION MECHANISM FOR CONSTRUCTION DISTURBANCE DETECTION FROM SATELLITE IMAGE
Ning Lv, Hao Yuan, Chen Chen, Jiaxuan Deng, Tao Su, Xidian University, China; Yang Zhou, Ministry of Water Resources of China, China; Hua Yang, Northwest University, China

WE2.MM-3.10 CADNET: TOP-DOWN CONTEXTUAL SALIENCY DETECTION NETWORK FOR HIGH SPATIAL RESOLUTION REMOTE SENSING IMAGE SHADOW DETECTION
Yang Yang, Mingqiang Guo, Qiqi Zhu, China University of Geosciences, China

Wednesday, July 14 13:00 - 14:10 Multimedia Room 4

Session WE2.MM-4

Multi-applications of Image Segmentation I

Session Co-Chairs: José Nascimento, Instituto de Telecomunicações, Instituto Superior; Shailendra Kumar Joshi, Space Applications Centre; Pietro Mastro, Università degli Studi della Basilicata

WE2.MM-4.1 RESEARCH ON FRACTURE RECOGNITION IN WELL LOGGING IMAGES:ADVERSARIAL LEARNING WITH ATTENTION
Wei Zhang, Tong Wu, Zhipeng Li, Yanjun Li, Yibing Shi, University of Electronic Science and Technology of China, China

WE2.MM-4.2 VECNET: A SPECTRAL AND MULTI-SCALE SPATIAL FUSION DEEP NETWORK FOR PIXEL-LEVEL CLOUD TYPE CLASSIFICATION IN HIMAWARI-8 IMAGERY
Zhaoqing Wang, Xiangyu Kong, Zhanbei Cui, Ming Wu, Chuang Zhang, Beijing University of Posts and Telecommunications, China; MingMing Gong, University of Melbourne, Australia; Tongliang Liu, University of Sydney, Australia

WE2.MM-4.3 SOIL TYPE CLASSIFICATION FROM HIGH RESOLUTION SATELLITE IMAGES WITH DEEP CNN
Abhinav Pandey, Devesh Kumar, Debarati B. Chakraborty, Indian Institute of Technology Jodhpur, India

WE2.MM-4.4 LANDSLIDE DETECTION OF HIGH-RESOLUTION SATELLITE IMAGES USING ASYMMETRIC DUAL-CHANNEL NETWORK
Yaohui Liu, Wenzhuo Zhang, Xiaoxian Chen, Mingyang Yu, Yingjun Sun, Fei Meng, Shandong Jianzhu University, China; Xiwei Fan, China Earthquake Administration, China

WE2.MM-4.5 FIRE DETECTION USING DEEPLABV3+ WITH MOBILENETV2
Houda Harkat, José Nascimento, Instituto de Telecomunicações, Instituto Superior, Portugal; Alexandre Bernardino, Instituto de Sistemas e Robótica, Portugal

WE2.MM-4.6 TOWARDS ROBUST CLOUD DETECTION IN SATELLITE IMAGES USING U-NETS
Bartosz Grabowski, Maciej Ziaja, KP Labs, Poland; Michal Kawulok, Jakub Nalepa, KP Labs / Silesian University of Technology, Poland

WE2.MM-4.7 MEGH SANSUCHAK: A CLOUD MASK ALGORITHM FOR HIGH RESOLUTION PANCHROMATIC SATELLITE IMAGERY
Shailendra Kumar Joshi, Ichchhit Baranwal, Vaibhav Malhotra, Shilpa Prakash, B. Kartikeyan, Space Applications Centre, Indian Space Research Organisation, India

WE2.MM-4.8 THE REPROCESSING FOR HIMAWARI-8 BASED ON DEEP LEARNING
Haoyu Zhang, Zezhong Zheng, University of Electronic Science and Technology of China, China; Mingcang Zhu, Department of Natural Resources of Sichuan Province, China; Fangrong Zhou, Yunnan Power Grid Co., Ltd., China; Yong He, Sichuan Research Institute for Eco-system Restoration & Geo-hazard Prevention, China; Zhongnian Li, Central China Normal University, China; Guoqing Zhou, Guilin University of Technology, China; Zhiyong Wang, Mingqi Li, Ling Jiang, Qiang Liu, University of Electronic Science and Technology of China, China; Xuemei Li, Chengdu University of Technology, China

WE2.MM-4.9 CONVERTIBLE SPARSE CONVOLUTION FOR POINT CLOUD INSTACE SEGMENTATION
Jing Du, Guorong Cai, Zongyue Wang, Jinhe Su, Yundong Wu, JiMei University, China

WE2.MM-4.10 OBJECT BASED IMAGE ANALYSIS FOR DELINEATION OF SLOPE UNITS
Naeem Shahzad, Xiaoli Ding, Sawaid Abbas, Hong Kong Polytechnic University, China; Syed Muhammad Iretza, University of the Punjab, Pakistan

Wednesday, July 14 13:00 - 14:10 Multimedia Room 5
Session WE2.MM-5

Advances in Image Denoising and Restoration

Session Co-Chairs: Mauro Dalla Mura, Grenoble Institute of Technology; Frederik Priem, Vrije Universiteit Brussel; BIN ZHAO, UNIVERSITY OF ICELAND

WE2.MM-5.1 HYPERSPECTRAL DENOISING VIA GLOBAL TENSOR RING DECOMPOSITION AND LOCAL UNSUPERVISED DEEP IMAGE PRIOR
Jian-Li Wang, Ting-Zhu Huang, Xi-Le Zhao, School of Mathematical Sciences, University of Electronic Science and Technology of China, China; Teng-Yu Ji, School of Mathematics and Statistics, Northwestern Polytechnical University, China; Tai-Xiang Jiang, School of Economic Information Engineering, Southwestern University of Finance and Economics, China

WE2.MM-5.2 A NEW DEEP HIERARCHY FOR UNDERWATER IMAGE RECONSTRUCTION
Yafei Song, Ganggang Dong, Xidian University, China

WE2.MM-5.3 CLOUD REMOVAL FOR SINGLE VISIBLE IMAGE BASED ON MODIFIED DARK CHANNEL PRIOR WITH MULTIPLE SCALE
Shaoqi Shi, Ye Zhang, Xinyu Zhou, Jin Cheng, Harbin Institute of Technology, China

WE2.MM-5.4 LEARNING A MODEL-BASED DEEP HYPERSPECTRAL DENOISER FROM A SINGLE NOISY HYPERSPECTRAL IMAGE
Guanyiman Fu, Fengchao Xiong, Shuyin Tao, Jianfeng Lu, Nanjing University of Science and Technology, China; Jun Zhou, Griffith University, Australia; Yuntao Qian, Zhejiang University, China

WE2.MM-5.5 HYPERSPECTRAL IMAGE SUPER-RESOLUTION VIA MULTI-DOMAIN FEATURE LEARNING
Qiang Li, Qi Wang, Xuelong Li, Northwestern Polytechnical University, China

WE2.MM-5.6 HYPERSPECTRAL IMAGE DENOISING WITH COLLABORATIVE TOTAL VARIATION AND LOW RANK REGULARIZATION
Lu Yang, Jinhuan Xu, Liang Xiao, Nanjing University of Science and Technology, China

WE2.MM-5.7 A PROPOSED FULLY CONSTRAINED LEAST SQUARES FOR SOLVING SPARSE ENDMEMBER FRACTIONS WITH LINEAR SPECTRAL MIXTURE MODEL
Cuicui Ji, Chongqing Jiaotong University, China; Xiaosong Li, Aerospace Information Reasearch Institute, Chinese Academy of Sciences, China; Jinying Wang, Piesat Information Technology Co., Ltd., China; Maolin Chen, Jianping Pan, Chongqing Jiaotong University, China

WE2.MM-5.8 NON-LOCAL MEANS LOW-RANK APPROXIMATION FOR HYPERSPECTRAL DENOISING
Bin Zhao, Jóhannes Rúnar Sveinsson, Magnus O. Ulfarsson, University of Iceland, Iceland; Jocelyn Chanussot, Université Grenoble Alpes; University of Iceland, Iceland

Wednesday, July 14 13:00 - 14:10 Multimedia Room 6
Session WE2.MM-6

Detection and Enhancement Methods for Active and Passive RS Data

Session Co-Chairs: Jade Morton, University of Colorado Boulder; Abdelhafid Dahhani, Université Savoie Mont Blanc; Ramona Pelich, Luxembourg Institute of Science and Technology (LIST)

WE2.MM-6.1 MITIGATING FALSE POSITIVE CLASSIFICATION IN AERIAL LIDAR SEMANTIC SEGMENTATION
Kendrick Cancio, MIT Lincoln Laboratory, United States

WE2.MM-6.2 MOVING TARGET SHADOW DETECTION BASED ON DEEP LEARNING IN VIDEO SAR
Hao Zhang, Zhe Liu, University of Electronic Science and Technology of China, China

WE2.MM-6.3 REFOCUSING MOVING VESSEL SIGNATURES BASED ON SENTINEL-1 SLC IMAGERY
Ramona Pelich, Marco Chini, Renaud Hostache, Patrick Matgen, Luxembourg Institute of Science and Technology, Luxembourg

WE2.MM-6.4 IMPROVED SIAMRPN++ WITH CLUSTERING-BASED FRAME DIFFERENCING FOR OBJECT TRACKING OF REMOTE SENSING VIDEOS
Jie Feng, Bingyu Hui, Yuping Liang, Quanhe Yao, Xiangrong Zhang, Xidian University, China

WE2.MM-6.5 RESEARCH ON THE EXTRACTION OF WIND TURBINE ALL OVER THE CHINA BASED ON DOMESTIC SATELLITE REMOTE SENSING DATA
Wei Zhang, Guanghui Wang, Jianwei Qi, Geng Wang, Tao Zhang, Land Satellite Remote Sensing Application Center, China

WE2.MM-6.6 REMOTE SENSING IMAGE ENHANCEMENT BY ROLLING GUIDANCE AND HAZY IMAGE MODEL
Nur Huseyin Kaplan, Erzurum Technical University, Turkey; Isin Erer, Istanbul Technical University, Turkey

WE2.MM-6.7 HYPERSPECTRAL ANOMALY DETECTION BASED ON ADAPTIVE WEIGHTED SPARSE DICTIONARY LEARNING
Xin Li, Yuan Yuan, Northwestern Polytechnical University, China

Wednesday, July 14 13:00 - 14:10 Multimedia Room 7
Session WE2.MM-7

Target Detection and Recognition in Remote Sensing Data

Session Co-Chairs: Fabio Del Frate, University of Rome; Shan Wei, University of Hong Kong; Youngwook Kim, California State University, Fresno

WE2.MM-7.1 ROTATED HYBRID TASK CASCADE NETWORK FOR REMOTE SENSING AIRCRAFT TARGET RECOGNITION
Xu Cao, Huanxin Zou, Fei Cheng, Runlin Li, Shitian He, Li Sun, National University of Defence Technology, China

WE2.MM-7.2 SCSF-NET: SINGLE CLASS SCALE FIXED NETWORK FOR OBJECT DETECTION IN OPTICAL REMOTE SENSING IMAGES ON LIMITED HARDWARE
Minghui Wang, Beihang University, China; Qingpeng Li, Hunan University, China; Junjun Pan, Yunchao Gu, Beihang University, China

WE2.MM-7.3 AIRPLANE DETECTION AND RECOGNITION INCORPORATING TARGET COMPONENT DETECTION
Hecheng Jia, Qian Guo, Ruoyi Zhou, Feng Xu, Fudan University, China

WE2.MM-7.4 MULTI-SCALE CASCADE GUIDED OBJECT DETECTION IN AERIAL IMAGES
Jiajia Liao, Jimei University, China; Yingchao Piao, Chinese Academy of Sciences, China; Guorong Cai, Yundong Wu, Jinhe Su, Jimei University, China

WE2.MM-7.5 DAFF-NET: DUAL ATTENTION FEATURE FUSION NETWORK FOR AIRCRAFT DETECTION IN REMOTE SENSING IMAGES
Min Liu, Qian Hu, Cong Wang, Tian Tian, Weitao Chen, China University of Geosciences, China

WE2.MM-7.6 RECOGNITION OF WARHEAD BY RANGE-PROFILE MATCHING
Donglin Tan, Junfeng Wang, Shanghai Jiao Tong University, China

WE2.MM-7.7 AUTOMATICALLY DETECTING TEXTUAL CONTENT IN HIGH-RESOLUTION IMAGES
Dayara Basso, Marilaine Colnago, São Paulo State University (UNESP), Brazil; Samara Azevedo, Federal University of Itajuba (UNIFEI), Brazil; Rogério Negri, Wallace Casaca, São Paulo State University (UNESP), Brazil

WE2.MM-7.8 MULTI-SCALE STRUCTURE-CONDITIONED FEATURE TRANSFORM NETWORK FOR OBJECT DETECTION IN REMOTE SENSING IMAGERY
Huanqing Zhang, Jiaojiao Li, Rui Song, Yunsong Li, Xidian University, China

WE2.MM-7.9 VEHICLE DETECTION IN SATELLITE IMAGES WITH DEEP NEURAL NETWORKS AND VEHICLE SHAPE FEATURES
Kaiji He, Long Zhang, University of Manchester, United Kingdom

Wednesday, July 14 13:00 - 14:10 Multimedia Room 8
Session WE2.MM-8

Classification and Clustering of Satellite Image Time Series

Session Co-Chairs: Begüm Demir, Technische Universität Berlin; Trienko Grobler, Stellenbosch University; Greg Hurlock, Georgia Tech

WE2.MM-8.1 USING THE GAF TRANSFORM AND MODIS TIME-SERIES TO PERFORM LANDCOVER CLASSIFICATION AND CHANGE DETECTION
Trienko Grobler, Stellenbosch University, South Africa; Waldo Kleynhans, University of Pretoria, South Africa; Brian Salmon, University of Tasmania, South Africa

WE2.MM-8.2 A PARSIMONIOUS NEURAL NETWORK FOR THE CLASSIFICATION OF MODIS TIME-SERIES
Trienko Grobler, Stellenbosch University, South Africa; Waldo Kleynhans, University of Pretoria, South Africa; Brian Salmon, University of Tasmania, South Africa

WE2.MM-8.3 DEEP NEURAL NETWORKS FOR MAPPING INTEGRATED CROP-LIVESTOCK SYSTEMS USING PLANETSCOPE TIME SERIES
Henrique S. L. Almeida, Aliny A. Dos Reis, João P. S. Werner, University of Campinas – UNICAMP, Brazil; João F. G. Antunes, Embrapa Agricultural Informatics, Brazil; Liheng Zhong, Ant Group, China; Gleyce K. D. A. Figueiredo, University of Campinas – UNICAMP, Brazil; Júlio C. D. M. Esquerdo, Alexandre C. Coutinho, Embrapa Agricultural Informatics, Brazil; Rubens A. C. Lamparelli, Paulo S. G. Magalhães, University of Campinas – UNICAMP, Brazil

WE2.MM-8.4 FOREST TYPE MAPPING AT A REGIONAL SCALE BASED USING MULTITEMPORAL SENTINEL-2 IMAGERY
Jin Li, Leiguang Wang, Panfei Fang, Weiheng Xu, Qinling Dai, Southwest Forestry University, China

WE2.MM-8.5 INFLUENCE OF SAMPLE SIZE IN LAND COVER CLASSIFICATION ACCURACY USING RANDOM FOREST AND SENTINEL-2 DATA IN PORTUGAL
Daniel Moraes, Pedro Benevides, Hugo Costa, Francisco D. Moreira, Mário Caetano, Direção-Geral do Território, Portugal

WE2.MM-8.6 GOOGLE EARTH ENGINE FOR LANDSAT IMAGE PROCESSING AND MONITORING LAND USE/ LAND COVER CHANGES IN THE JOHOR RIVER BASIN, MALAYSIA
Chuen Siang Kang, Kasturi Devi Kanniah, Nazarin Ezzaty Mohd Najib, Universiti Teknologi Malaysia, Malaysia

WE2.MM-8.7 EVALUATION OF UNSUPERVISED DEEP CLUSTERING METHODS FOR CROP CLASSIFICATION USING SAR IMAGE SEQUENCES
Daliana Lobo Torres, Laura Elena Cué La Rosa, Pontifical Catholic University of Rio de Janeiro, Brazil; Dário Augusto Borges Oliveira, IBM Research, Brazil, Brazil; Raul Queiroz Feitosa, Pontifical Catholic University of Rio de Janeiro, Brazil

WE2.MM-8.8 EVALUATION OF TIME SERIES GAP-FILLING OF VENμS SATELLITE FOR LAND USE CLASSIFICATION
Daniel H. Shibuya, Gisela M. S. Pereira, Gleyce K. D. A. Figueiredo, University of Campinas – UNICAMP, Brazil; Ana C. dos S. Luciano, College of Agriculture "Luiz de Queiroz" -ESALQ, University of Sao Paulo -USP, Brazil; Rubens A. C. Lamparelli, University of Campinas – UNICAMP, Brazil; Guerric le Maire, University of Montpellier, France

WE2.MM-8.9 SPATIAL AND TEMPORAL DOMAIN ADAPTATION BY OPTIMAL TRANSPORT FOR MAPPING POPLAR PLANTATIONS OVER LARGE AREAS
Yousra Hamrouni, David Sheeren, INRAE, France

Wednesday, July 14 13:00 - 14:10 Multimedia Room 9
Session WE2.MM-9

SAR and PolSAR Image Classification

Session Co-Chairs: Ronny Hänsch, German Aerospace Center; Florence Tupin, Telecom Paris; Miguel Hoyo García, Fondazione Bruno Kessler

WE2.MM-9.1 DEEP GRAPH CLUSTER BASED UNSUPERVISED REPRESENTATION LEARNING FOR POLSAR IMAGE CLASSIFICATION
Rui Tang, Xin Xu, Rui Yang, Rong Gui, Wuhan University, China

WE2.MM-9.2 TRIPLET ATTENTION FEATURE FUSION NETWORK FOR SAR AND OPTICAL IMAGE LAND COVER CLASSIFICATION
Zhe Xu, Northwestern Polytechnical University, China; Jinbiao Zhu, Chinese Academy of Sciences, China; Jie Geng, Xinyang Deng, Wen Jiang, Northwestern Polytechnical University, China

WE2.MM-9.3 MULTI-CATEGORY SAR IMAGES GENERATION BASED ON IMPROVED GENERATIVE ADVERSARIAL NETWORK
Shaoyan Du, Jun Hong, Yu Wang, Kaichu Xing, Tian Qiu, Aerospace Information Reasearch Institute, Chinese Academy of Sciences, China

WE2.MM-9.4 FROM PIXEL TO SUPERPIXEL: A MULTI-SCALE STRATEGY FOR POLARIMETRIC SAR IMAGE CLASSIFICATION
Xianyuan Wang, Mengsi Yang, Liying Wang, Zongjie Cao, Yiming Pi, University of Electronic Science and Technology of China, China

WE2.MM-9.5 MACHINE LEARNING-BASED PARADIGM FOR BOOSTING THE SEMANTIC ANNOTATION OF EO IMAGES
Corneliu Octavian Dumitru, Gottfried Schwarz, Chandrabali Karmakar, Mihai Datcu, German Aerospace Center (DLR), Germany

WE2.MM-9.6 SYNERGETIC USE OF DESCENDING AND ASCENDING SAR WITH OPTICAL DATA FOR IMPERVIOUS SURFACE MAPPING
Ji Cheng, Genyun Sun, Aizhu Zhang, Hang Fu, Zhijun Jiao, China University of Petroleum (East china), China; Yanjuan Yao, State Environmental Protection Key Laboratory of Satellite Remote Sensing, China

WE2.MM-9.7 DETECTION OF THE LEADS IN THE ARCTIC DRIFTING SEA ICE ON SAR IMAGES
Natalia Zakhvatkina, Vladimir Smirnov, Irina Bychkova, Valeriy Stepanov, Arctic and Antarctic Research Institute, Russia

WE2.MM-9.8 CV-MOTIONNET: COMPLEX-VALUED CONVOLUTIONAL NEURAL NETWORK FOR SAR MOVING SHIP TARGETS CLASSIFICATION
Yun Zhang, Qinglong Hua, Yicheng Jiang, Hongbo Li, Dan Xu, Harbin Institute of Technology, China

WE2.MM-9.9 MULTI-SCALE SAR SHIP CLASSIFICATION WITH CONVOLUTIONAL NEURAL NETWORK
Xiaowo Xu, Xiaoling Zhang, Tianwen Zhang, University of Electronic Science and Technology of China, China

Wednesday, July 14 13:00 - 14:10 Multimedia Room 10
Session WE2.MM-10

Parameter Retrieval with SAR, LiDAR and New Systems

Session Co-Chairs: Tom Ainsworth, Naval Research Laboratory; Lemma Tsegaye D., Ethiopian Space Science and Technology Institute; Sayantan Majumdar, Missouri University of Science and Technology

WE2.MM-10.1 CHOOSING THE DEPENDENT VARIABLE IN SAR BACKSCATTER - FOREST BIOMASS MODELS
Mark Ducey, University of New Hampshire, United States; Xiaodong Huang, Beth Ziniti, Nathan Torbick, Applied GeoSolutions, LLC, United States

WE2.MM-10.2 RELATIONSHIP BETWEEN ERRORS OF SAR-BASED DIGITAL ELEVATION MODELS AND INFLUENCING FACTORS: WATER VAPOR CONTENTS AND SURFACE DEFORMATION
Yen-Yi Wu, Hsuan Ren, National Central University, Taiwan

WE2.MM-10.3 AN IMPROVED INSAR BASELINE ESTIMATION BASED ON INTERFEROMETRIC FRINGE FREQUENCY
Yuan Wang, Huaping Xu, School of Electronic and Information Engineering, Beihang University, China; Shuang Li, Beijing Institute of Radio Measurement, China; Guobing Zeng, School of Electronic and Information Engineering, Beihang University, China

WE2.MM-10.4 LAND SURFACE TEMPERATURE RETRIEVAL FROM NIGHTTIME MID-INFRARED MODIS DATA USING A SPLIT-WINDOW ALGORITHM
Lingyu Fang, Shandong University of Science and Technology, China; Hua Li, Institute of Remote Sensing and Digital Earth, China; Lin Sun, Ruibo Li, Shandong University of Science and Technology, China

WE2.MM-10.5 ESTIMATING LOCAL-SCALE GROUNDWATER WITHDRAWALS USING INTEGRATED REMOTE SENSING PRODUCTS AND DEEP LEARNING
Sayantan Majumdar, Ryan Smith, Missouri University of Science and Technology, United States; Brian D. Conway, Arizona Department of Water Resources, United States; James J. Butler Jr., Kansas Geological Survey, University of Kansas, United States; Venkataraman Lakshmi, University of Virginia, United States; Cihan H. Dagli, Missouri University of Science and Technology, United States

WE2.MM-10.6 INVESTIGATED THE CAUSE OF SNOW ALBEDO REDUCTION IN THE HIMALAYAN MOUNTAINS BY USING REMOTELY SENSED PRODUCTS
Junzhe Zhang, Xu Xie, Bo Zhou, University of California, Los Angeles, United States

WE2.MM-10.7 MULTI-YEAR SORGHUM BIOMASS PREDICTION WITH UAV-BASED REMOTE SENSING DATA
Taojun Wang, Melba Crawford, Purdue University, United States

WE2.MM-10.8 INVESTIGATION AND VALIDATION OF THE CHINESE FENGYUN-4A LAND SURFACE TEMPERATURE PRODUCTS IN THE HEIHE RIVER BASIN
Yizhen Meng, University of Electronic Science and Technology of China; Hebei University of Engineering, China; Ji Zhou, Jin Ma, University of Electronic Science and Technology of China, China; Zhiyong Long, National University of Defence Technology, China

WE2.MM-10.9 EFFECTS OF DIRECTIONAL ANISOTROPY OF THERMAL INFRARED TEMPERATURE ON LAND SURFACE EVAPOTRANSPIRATION ESTIMATION
Yazhen Jiang, Ronglin Tang, State Key Laboratory of Resources and Environment Information System, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, China; Xiaoguang Jiang, University of Chinese Academy of Sciences, China

WE2.MM-10.10 INTENSITY HARMONIZATION FOR AIRBORNE LIDAR
David Jones, Nathan Jacobs, University of Kentucky, United States

Wednesday, July 14 13:00 - 14:10 Multimedia Room 11

Session WE2.MM-11

Change Detection Techniques for Multi- and Hyper-spectral Data

Session Co-Chairs: James Theiler, Los Alamos National Laboratory; Matthieu Molinier, VTT Technical Research Centre of Finland Ltd; Hira Zafar, Universität Salzburg

WE2.MM-11.1 A PATCH TENSOR-BASED CHANGE DETECTION METHOD FOR HYPERSPECTRAL IMAGES
Zengfu Hou, Wei Li, Beijing Institute of Technology, China; Qian Du, Mississippi State University, United States

WE2.MM-11.2 A NOVEL HYPERSPECTRAL IMAGE CHANGE DETECTION FRAMEWORK BASED ON 3D-WAVELET DOMAIN ACTIVE CONVOLUTIONAL NEURAL NETWORK
Xianghai Wang, Chengdi Xing, Yining Feng, Ruoxi Song, Zhenhua Mu, Liaoning Normal University, China

WE2.MM-11.3 AN UNSUPERVISED CHANGE DETECTION APPROACH FOR DENSE SATELLITE IMAGE TIME SERIES USING 3D CNN
Khatereh Meshkini, Francesca Bovolo, Fondazione Bruno Kessler, Italy; Lorenzo Bruzzone, University of Trento, Italy

WE2.MM-11.4 HIGH-RESOLUTION REMOTE SENSING IMAGES CHANGE DETECTION WITH SIAMESE HOLISTICALLY-GUIDED FCN
Huayu Zhang, Xu Tang, Xidian University, China; Xiao Han, Geovis Spatial Technology Co.,Ltd, China; Jingjing Ma, Xiangrong Zhang, Licheng Jiao, Xidian University, China

WE2.MM-11.5 A SPATIAL-TEMPORAL-CHANNEL ATTENTION UNET++ FOR HIGH RESOLUTION REMOTE SENSING IMAGE CHANGE DETECTION
Mingliang Liu, Jinjie Huang, Harbin University of Science and Technology, China; Lei Ma, Ling Wan, Institute of Automation, Chinese Academy of Sciences, China; Jialong Guo, Beijing University of Technology, China; Dongpan Yao, University of Chinese Academy of Sciences, China

WE2.MM-11.6 A SIAMESE GLOBAL LEARNING FRAMEWORK FOR MULTI-CLASS CHANGE DETECTION
Xi Guo, Qiqi Zhu, Weihuan Deng, Qingfeng Guan, China University Of Geosciences, China

WE2.MM-11.7 REMOTE SENSING IMAGE CHANGE DETECTION BASED ON FULLY CONVOLUTIONAL NETWORK WITH PYRAMID ATTENTION
Shujun Li, Lianzhi Huo, Aerospace Information Reasearch Institute, Chinese Academy of Sciences, China

WE2.MM-11.8 END-TO-END CHANGE DETECTION IN SATELLITE REMOTE SENSING IMAGERY
Meziane Iftene, Agence Spatiale Algérienne, Algeria; Mohammed El Amin Larabi, Algerian Space Agency, Algeria; Moussa Sofiane Karoui, Centre des Techniques Spatiales, Algeria

WE2.MM-11.9 CHANGE ANALYSIS IN REGISTERED SATELLITE IMAGE TIME SERIES
Tristan Dagobert, Rafael Grompone von Gioi, Université Paris-Saclay, France; Charles Hessel, Université Paris-Saclay & Kayrros, France; Jean-Michel Morel, Université Paris-Saclay, France; Carlo de Franchis, Université Paris-Saclay & Kayrros, France

WE2.MM-11.10 MULTI-OBJECTS CHANGE DETECTION BASED ON RES-UNET
Lang Yuan, Yuxia Li, Yu Si, Junmei Ren, Yizhuo Yang, Yushu Gong, Yongqiang Xia, Zhonggui Tong, Ling Tong, University of Electronic Science and Technology of China, China

Wednesday, July 14 13:00 - 14:10 Multimedia Room 12

Session WE2.MM-12

Multi-temporal Thematic Mapping and Classification

Session Co-Chairs: Sachi Perera, Chapman University; Ximena Tagle Casapia, Wageningen University & Research; Sachi Perera, Chapman University

WE2.MM-12.1 LANDUSE LANDCOVER CHANGE DETECTION IN THE MEDITERRANEAN REGION USING A SIAMESE NEURAL NETWORK AND IMAGE PROCESSING
Sachi Perera, Mohamed Allali, Erik Linstead, Hesham El-Askary, Chapman University, United States

WE2.MM-12.2 CONVOLUTIONAL AUTOENCODER-BASED IMAGE RECONSTRUCTION FOR UNSUPERVISED MULTIMODAL CHANGE DETECTION
Anamaria Radoi, University Politehnica of Bucharest, Romania

WE2.MM-12.3 CHANGE DETECTION TYPES OF BUILDINGS IN ALEPPO CITADEL URBAN AREA DURING SYRIAN CRISIS USING SELF-ORGANIZING MAPS NEURAL NETWORKS AND VHR QUICKBIRD & WORLDVIEW-2 SATELLITE IMAGES
Bashar Sabouh, University of Aleppo, Syria; Ahed Alboody, UNIVERSITE DU LITTORAL CÔTE D'OPALE, France; Mohamad Najib Salah, Aleppo University, Syria; Ghadir Hmeidan, Researcher - University of Damascus, Syria

WE2.MM-12.4 IMPROVED UNET COMBINING DROPOUT AND ACNET FOR REMOTE SENSING IMAGE CHANGE DETECTION
Junmei Ren, Ling Tong, Yuxia Li, Lang Yuan, Yu Si, University of Electronic Science and Technology of China, China

WE2.MM-12.5 AUTOMATIC STOCKPILE VOLUME MONITORING USING MULTI-VIEW STEREO FROM SKYSAT IMAGERY
Roger Marí, Université Paris-Saclay, France; Carlo de Franchis, Université Paris-Saclay & Kayrros, France; Enric Meinhardt-Llopis, Gabriele Facciolo, Université Paris-Saclay, France

WE2.MM-12.6 LARGE-SCALE MONITORING OF NEW BUILT-UP AREAS FROM JOINT USE OF SENTINEL-1/2 IMAGES
Andrea Garzelli, Claudia Zoppetti, University of Siena, Italy

WE2.MM-12.7 COMPARING DEEP RECURRENT LEARNING AND CONVOLUTIONAL LEARNING FOR MULTI-TEMPORAL VEGETATION CLASSIFICATION
Khadidja Bakhti, Mohammed El Amin Larabi, Algerian Space Agency, Algeria

WE2.MM-12.8 AN ATTENTION-BASED SYSTEM FOR DAMAGE ASSESSMENT USING SATELLITE IMAGERY
Hanxiang Hao, Sriram Baireddy, Emily Bartusiak, Purdue University, United States; Latisha Konz, Kevin LaTourette, Michael Gribbons, Moses Chan, Lockheed Martin Space, United States; Mary Comer, Edward Delp, Purdue University, United States

WE2.MM-12.9 MULTI-TEMPORAL PREDICTION OF CONTAMINATING MINERAL ABUNDANCE USING HYPERSPECTRAL SPECTROSCOPY
Belgacem Dkhala, Faculty of Science of Tunis, University of Tunis El Manar, Tunisia; Nouha Mezned, Faculty of Science of Tunis, University of Tunis El Manar; Higher Institute of Preparatory Studies in Biology and Geology of Soukra, Institution of Agricultural Research and Higher Education, University of Carthage, Tunisia; Saadi Abdeljaouad, Faculty of Science of Tunis, University of Tunis El Manar, Tunisia

Wednesday, July 14 13:00 - 14:10 Multimedia Room 13
Session WE2.MM-13

Hyperspectral Target Detection

Session Co-Chairs: Vincent Roy, Defence Research and Development Canada; Yanzi Shi, xidian university; Jasper Feyen, Universiteit Gent

WE2.MM-13.1 HYPERSPECTRAL TARGET DETECTION WITH HIERARCHICAL DENOISING AUTOENCODER AND SUBSPACE PROJECTION
Yanzi Shi, Keyan Wang, Jiaojiao Li, Yunsong Li, Xidian University, China

WE2.MM-13.2 HYPERSPECTRAL ANOMALY DETECTION USING BILATERAL-FILTERED GENERATIVE ADVERSARIAL NETWORKS
Chunhui Zhao, Chuang Li, Shou Feng, Nan Su, Harbin Engineering University, China

WE2.MM-13.3 EDLAD: AN ENCODER-DECODER LONG SHORT-TERM MEMORY NETWORK-BASED ANOMALY DETECTOR FOR HYPERSPECTRAL IMAGES
Dehui Zhu, Bo Du, Liangpei Zhang, Wuhan University, China

WE2.MM-13.4 USING HYPERSPECTRAL IMAGING AND DEEP NEURAL NETWORK TO DETECT FUSARIUM WILT ON PHALAENOPSIS
Yung Hsu, Yen-Chieh Ouyang, Jun-Yi Lu, National Chung Hsing University, Taiwan; Mang Ou-Yang, National Chiao Tung University, Taiwan; Horng-Yuh Guo, Tsang-Sen Liu, Taiwan Agriculture Research Institute, Taiwan; Hsian-Min Chen, Taichung Veterans General Hospital, Taiwan; Chao-Cheng Wu, National Taipei University of Technology, Taiwan; Chia-Hsien Wen, Providence University, Taiwan; Min-Shao Shih, National Chung Hsing University, Taiwan; Chein-I Chang, University of Maryland Baltimore County, United States

WE2.MM-13.5 DEEP NEURAL NETWORK TRAINING USING SYNTHETIC SIGNATURES FOR RARE TARGET DETECTION IN SWIR HYPERSPECTRAL IMAGERY
Ludovic Girard, Vincent Roy, Defence Research and Development Canada, Canada; Philippe Giguère, Thierry Eude, Université Laval, Canada

WE2.MM-13.6 LOW-RANK REPRESENTATION INCORPORATING LOCAL SPATIAL CONSTRAINT FOR HYPERSPECTRAL ANOMALY DETECTION
Hao Li, Ruyi Feng, Lizhe Wang, China University of Geosciences, China; Yanfei Zhong, Liangpei Zhang, Wuhan University, China; Lifei Wei, Hubei University, China

WE2.MM-13.7 PTGAN: A PROPOSAL-WEIGHTED TWO-STAGE GAN WITH ATTENTION FOR HYPERSPECTRAL TARGET DETECTION
Haonan Qin, Weiying Xie, Yunsong Li, Kai Jiang, Jie Lei, Xidian University, China; Qian Du, Mississippi State University, United States

WE2.MM-13.8 HYPERSPECTRAL ANOMALY DETECTION VIA LOCAL GRADIENT GUIDANCE
Jing Hu, Yujing Zhang, Minghua Zhao, Jiawei Ning, Min Zhang, Xi'an University of Technology, China; Yunsong Li, Joint Laboratory of High Speed Multi-source Image Coding and Processing, China

WE2.MM-13.9 UNMIXING-BASED UNDERWATER TARGET DETECTION FOR HYPERSPECTRAL IMAGERY
Jiahao Qi, Wei Xue, Aihuan Yao, Ping Zhong, National University of Defence Technology, China

WE2.MM-13.10 HYPERSPECTRAL MEASUREMENTS FOR SHIP DETECTION USING AIRBORNE IMAGE DATA
Jae-Jin Park, Kyung-Ae Park, Seoul National University, Korea (South); Tae-Sung Kim, Sangwoo Oh, Moonjin Lee, Korea Research Institute of Ships & Ocean Engineering, Korea (South)

Wednesday, July 14 13:00 - 14:10 Multimedia Room 14
Session WE2.MM-14

Image Fusion

Session Co-Chairs: Gemine Vivone, National Research Council - Institute of Methodologies for Environmental Analysis (CNR - IMAA); Xiaohui Pan, Universiteit Gent; Paolo Addesso, Università degli Studi di Salerno | UNISA

WE2.MM-14.1 FUSING SENTINEL-2 SATELLITE IMAGES AND AERIAL RGB IMAGES
Jakob Sigurdsson, Magnús Örn Ulfarsson, Jóhannes Rúnar Sveinsson, University of Iceland, Iceland

WE2.MM-14.2 HNU-HMIF: A UAV-BORNE DATASET FOR HYPERSPECTRAL AND MULTISPECTRAL IMAGE FUSION
Congyu Li, Xinxin Liu, Xudong Kang, Shutao Li, Hunan University, China

WE2.MM-14.3 A EXTREMELY FAST SPATIO-TEMPORAL FUSION METHOD FOR REMOTELY SENSED IMAGES
Yunfei Li, Jun Li, Sun Yat-Sen University, China; Shaoquan Zhang, Nanchang Institute of Technology, China

WE2.MM-14.4 PANSHARPENING OF HYPERSPECTRAL IMAGES WITH DETAIL GUIDED FEATURE MODULATION
Yuxuan Zheng, Jiaojiao Li, Yunsong Li, Kailang Cao, Keyan Wang, Xidian University, China

WE2.MM-14.5 LEARNING IMAGE DOWNSCALING FOR PANSHARPENING USING AN IMPROVED UNET
Mohammed El Amin Larabi, Algerian Space Agency, Algeria; Meziane Iftene, Agence Spatiale Algérienne, Centre des Techniques Spatiales, Algeria; Mohammed Ilyes Tchenar, State Key Laboratory of Virtual Reality Technology and Systems, Beihang University, China; Khadidja Bakhti, Agence Spatiale Algérienne, Centre des Techniques Spatiales, Algeria

WE2.MM-14.6 PROGRESSIVE BAND-SEPARATED CONVOLUTIONAL NEURAL NETWORK FOR MULTISPECTRAL PANSHARPENING
Shi-Shi Xiao, Cheng Jin, Tian-Jing Zhang, Ran Ran, Liang-Jian Deng, University of Electronic Science and Technology of China, China

WE2.MM-14.7 FUSION OF SPACEBORNE AND AIRBORNE SAR IMAGES USING SALIENCY AND FUZZY LOGIC FOR VESSEL DETECTION
Dong Zhu, Huazhong University of Science and Technology, China; Xueqian Wang, Gang Li, Tsinghua University, China; Xiao-Ping Zhang, Ryerson University, Canada

WE2.MM-14.8 HYPERSHARPENING BY A MULTIPLICATIVE JOINT-CRITERION NMF METHOD ADDRESSING SPECTRAL VARIABILITY
Moussa Sofiane Karoui, Fatima Zohra Benhalouche, Agence Spatiale Algérienne, Centre des Techniques Spatiales, Algeria; Salah Eddine Brezini, Yannick Deville, Institut de Recherche en Astrophysique et Planétologie, France; Yasmine Kheira Benkouider, Agence Spatiale Algérienne, Centre des Techniques Spatiales, Algeria

WE2.MM-14.9 A SURVEY OF HYPERSPECTRAL IMAGE SUPER-RESOLUTION TECHNOLOGY
Meilin Zhang, China University of Geosciences, China; Xiongli Sun, Wuhan University, China; Qiqi Zhu, Guizhou Zheng, China University of Geosciences, China

WE2.MM-14.10 BAND INDEPENDENT RESIDUAL NETWORKS FOR OPTICAL REMOTE SENSING IMAGES FUSION
Mohammed El Amin Larabi, Algerian Space Agency, Algeria; Meziane Iftene, Agence Spatiale Algérienne, Algeria; Mohammed Ilyas Tchenar, State Key Laboratory of Virtual Reality Technology and Systems, Beihang University, China; Khadidja Bakhti, Kamel Hasni, Agence Spatiale Algérienne, Algeria

Wednesday, July 14 13:00 - 14:10 Multimedia Room 15

Session WE2.MM-15

Advanced Applications of Geospatial Data Analysis

Session Co-Chairs: Samuel Adewale Adelabu, University of the Free State; Oladapo Olusola, University of the Free State; Nimisha Verma, University of Twente

WE2.MM-15.1 REMOTE SENSING OF NIGHTTIME LIGHT: PROGRESS, PROSPECTS AND POSSIBILITIES IN AFRICA (2013-2021)
Oladapo Olusola, Samuel Adewale Adelabu, University of the Free State, South Africa

WE2.MM-15.2 STUDY ON THE DYNAMIC CHANGE OF WATERBIRD DIVERSITY AND DISTRIBUTION IN XIANGHAI
Ping Zhang, Yunfei Li, Weimei Tian, Jilin University, China; Lianshan Li, Jilin Xianghai National Nature Reserve Administration Bureau, China

WE2.MM-15.3 EVALUATION OF BRDF INFORMATION FROM HIMAWARI-8 AHI TIME-SERIES MULTI-ANGLE OBSERVATIONS
Xiaoning Zhang, Ziti Jiao, Changsen Zhao, Sijie Li, Zidong Zhu, Yidong Tong, Jing Guo, Rui Xie, Siyang Yin, Lei Cui, Beijing Normal University, China; Yadong Dong, Institute of Remote Sensing and Digital Earth of Chinese Academy of Sciences, China; Hu Zhang, Tianjin Normal University, China

WE2.MM-15.4 RESEARCH OF SEARCH AND RESCUE CAPABILITY EVALUATING MODEL BASED ON GIS
Ruirui Wang, Beijing Forestry University, China; Wei Shi, Huiping Jiang, Chinese Academy of Sciences, China

WE2.MM-15.5 SPATIAL-TEMPORAL DISTRIBUTION OF AIR QUALITY AND THE INFLUENCING FACTORS IN COMPLEX MOUNTAINOUS CITIES
Mengyao Li, Hongxia Luo, College of Geographical Sciences, Southwest University, China; Rui Zhang, Land Satellite Remote Sensing Application Center, Ministry of Natural Resources of China, China

WE2.MM-15.6 TAXI REFUELING BEHAVIOR ANALYSIS BY USING TRAJECTORY DATA BASED ON MACHINE LEARNING
Shiyao Zhao, Chengqi Cheng, Peking University, China; Huihui Liu, Wuhan University, China

WE2.MM-15.7 RELATIONSHIP BETWEEN DEFECTS OF CAPACITIVE EQUIPMENT AND GEOMORPHOLOGY
Chen Xie, University of Electronic Science and Technology of China, China; Qingjun Peng, Yunnan Power Grid Company Ltd., China; Zezhong Zheng, University of Electronic Science and Technology of China, China; Zhongnian Li, Central China Normal University, China; Zhiyong Wang, Mingqi Li, Ling Jiang, Qiang Liu, University of Electronic Science and Technology of China, China; Xuemei Li, Chengdu University of Technology, China

WE2.MM-15.8 STUDY ON THE LIVABILITY OF URBAN ENVIRONMENT: A CASE STUDY OF BUILT-UP AREA IN QINGDAO, CHINA
Hailun Dai, Land Satellite Remote Sensing Application Center, China; Shengyue Jin, University College London, China; Haoran Zhai, Shulei Zheng, Land Satellite Remote Sensing Application Center, China; Weibing Li, Geological Exploration Technology Institute of Jiangsu Province, China

WE2.MM-15.9 AN IMPROVEMENT OF OFFSET TRACKING FOR CROSS HAIR (CH) AND PATCH LIKE (PL) ELIMINATION AND RELIABILITY ESTIMATION FOR LARGE DEFORMATION MONITORING WITH SAR DATA
Sen Du, Universitat Politècnica de Catalunya, Spain; Jordi J. Mallorqui Franquet, Polytechnic University of Catalonia, Spain

Wednesday, July 14 13:00 - 14:10 Multimedia Room 16

Session WE2.MM-16

Ice Sheets and Glaciers II

Session Co-Chairs: Quentin Glaude, Université Libre de Bruxelles; Rahul Kar, University at Albany,State University of New York; Laura Martínez-Ferrer, Universitat de València

WE2.MM-16.1 CRACK PROPAGATION AND CALVING FRONT MONITORING USING SATO FILTER
Quentin Glaude, Université libre De Bruxelles, Belgium; Stéphane Lizin, Université de Liège, Belgium; Frank Pattyn, Université libre De Bruxelles, Belgium; Christian Barbier, Anne Orban, Université de Liège, Belgium

WE2.MM-16.2 VALIDATION FOR ICE FLOW VELOCITY OF SHIRASE GLACIER DERIVED FROM PALSAR-2 IMAGE CORRELATION
Kazuki Nakamura, Nihon University, Japan; Shigeru Aoki, Hokkaido University, Japan; Tsutomu Yamanokuchi, Remote Sensing Technology Center of Japan, Japan; Takeshi Tamura, Koichiro Doi, National Institute of Polar Research, Japan

WE2.MM-16.3 POTENTIAL OF THE GLOBAL PRECIPITATION MEASUREMENT CONSTELLATION FOR CHARACTERIZING THE POLAR FIRN
Rahul Kar, Mustafa Aksoy, Jerusha Devadason, Pranjal Atrey, University at Albany, State University of New York, United States

WE2.MM-16.4 DETERMINATION OF GLACIER SURFACE AND VOLUME VARIATION IN THE ALTA DE OLIVARES AND ACONCAGUA BASINS (CHILE), 2000-2019
Francisco Belmar, Guido Staub, Rodrigo Abarca del Rio, University of Concepción, Chile

WE2.MM-16.5 A COMPREHENSIVE EMISSION MODEL FOR LAYERED INHOMOGENEOUS MEDIUM WITH APPLICATION TO PASSIVE REMOTE SENSING OF SNOW AND ICE LAYERS
Dongjin Bai, Xiaolong Dong, National Space Science Center, Chinese Academy of Sciences, China; Saibun Tjuatja, University of Texas at Arlington, United States; Di Zhu, National Space Science Center, Chinese Academy of Sciences, China

WE2.MM-16.6 GLACIER FACIES DETECTION USING FULLY POLARIMETRIC SAR DATA WITH SIX COMPONENT SCATTERING MODEL BASED DECOMPOSITION METHOD
Ruby Panwar, Gulab Singh, IIT Bombay, India

WE2.MM-16.7 SHADOW CAST TRACKING FOR DEDUCTION OF ELEVATION DATA THROUGH AFFINE MATCHING METHODS ON OPTICAL SATELLITE IMAGERY
Bas Altena, Utrecht University, Netherlands; Bert Wouters, Delft University of Technology, Netherlands

WE2.MM-16.8 PRELIMINARY PRECISION AND BIAS ASSESSMENT OF ICESAT-2 DATA IN ANTARCTICA BASED ON FILED OBSERVATIONS AND CONSISTENCY ANALYSIS
Rongxing Li, Haotian Cui, Hongwei Li, Tong Hao, Gang Qiao, Youquan He, Gang Hai, Guojun Li, Huan Xie, Bofeng Li, Tongji University, China

Wednesday, July 14 13:00 - 14:10 Multimedia Room 17
Session WE2.MM-17

Data Processing, Management and Visualization II

Session Co-Chairs: Xinyi (Hope) Fu, Massachusetts Institute of Technology; Rui Wang, Hohai University; Druti Gangwar

WE2.MM-17.1 IMPLEMENTATION OF A FEDERATED LARGE-SCALE REMOTE SENSING DATA SHARING PLATFORM
Xuan Ma, Zhibao Wang, Northeast Petroleum University, China; Lu Bai, Ulster University, United Kingdom; Bingbing Xu, Well Testing & Perforating Services Sub-company of Daqing Oilfield Co., Ltd, China; Juntao Gao, Bilong Wen, Northeast Petroleum University, China; Jinhua Tao, University of Chinese Academy of Sciences, China

WE2.MM-17.2 GOLDEN AI DATA ACQUISITION AND PROCESSING PLATFORM FOR SAFE, SUSTAINABLE AND COST-EFFICIENT MINING OPERATIONS
Jari Havisto, VTT Technical Research Centre of Finland, Finland; Taras Matselyukh, OPT/NET B.V, Netherlands; Marko Paavola, Sanna Uusitalo, Marko Savolainen, VTT Technical Research Centre of Finland, Finland; Alfonso González Sobrecueva, Sitemark, Belgium; Andreas Knobloch, Beak Consultants GmbH, Germany; Kamen Bogdanov, Sofia university, Bulgaria

WE2.MM-17.3 ENABLING DISCOVERY AND ACCESS ACROSS NASA'S SCIENCE MISSION DIRECTORATE (SMD)
Kaylin Bugbee, NASA, United States; Mark Parsons, University of Alabama in Huntsville, United States; Ruth Duerr, Ronin Institute, United States; Peter Fox, Rensselaer Polytechnic Institute, United States; Ashish Acharya, Emily Foshee, University of Alabama in Huntsville, United States

WE2.MM-17.4 TOWARDS VISUAL EXPLORATION OF SEMANTICALLY ENRICHED REMOTE SENSING SCENE KNOWLEDGE GRAPHS (RSS-KGS)
Abhishek Potnis, Surya Durbha, Rajat Shinde, Pratyush Talreja, Indian Institute of Technology Bombay, India

WE2.MM-17.5 HYDROLOGICAL BIG DATA PREDICTION BASED ON SHARED WEIGHT LONG SHORT-TERM MEMORY
Rui Wang, Dingsheng Wan, Ke Li, Hohai University, China

WE2.MM-17.6 A NEW CATEGORIES IDENTIFICATION METHOD BASED ON RELIABILITY TEST IN RADAR SIGNAL RECOGNITION SYSTEM
Haoyuan Wang, Weibo Huo, Jifang Pei, Yin Zhang, Yulin Huang, Jianyu Yang, University of Electronic Science and Technology of China, China

WE2.MM-17.7 INVESTIGATING DEVELOPMENT OF COUNTRIES THROUGH NIGHTLIGHTS
Xinyi (Hope) Fu, Massachusetts Institute of Technology, United States; Chiara Zarro, University of Sannio, Italy; Davide De Pasquale, Intelligentia, Italy; Silvia Liberata Ullo, University of Sannio, Italy

WE2.MM-17.8 A FLY-OVER THE LAND SERVICE AND ITS GLOBAL ACTIVITIES
Michael Cherlet, Michel Massart, European Commission, Belgium

Wednesday, July 14 13:00 - 14:10 Multimedia Room 19
Session WE2.MM-19

SAR Applications

Session Co-Chairs: Guichen Zhang, German Aerospace Center (DLR); Xian Sun, Aerospace Information Research Institute, Chinese Academy of Sciences; Shaunak De, IEEE

WE2.MM-19.1 DETECTING CLEARCUT DEFORESTATION EMPLOYING DEEP LEARNING METHODS AND SAR TIME SERIES
Evandro Taquary, Leila Fonseca, INPE, Brazil; Raian Maretto, University of Twente, Netherlands; Hugo Bendini, Bruno Matosak, Sidnei Sant'Anna, José Mura, INPE, Brazil

WE2.MM-19.2 SALT TOLERANCE VEGETATION INDEX - AN INTEGRATED APPROACH OF DUAL POLARIZED SAR MODELS
Kokila Priya Ravi, Shoba Periasamy, SRM Institute of Science & Technology, India

WE2.MM-19.3 ANALYSIS OF SAR IMAGES OBTAINED IN HURRICANE CONDITIONS FOR ESTIMATES OF CO2 ATMOSPHERE-OCEAN FLUX
Daniil Sergeev, Galina Balandina, Yuliya Troitskaya, Institute of Applied Physics, Russian Academy of Sciences, Russia

WE2.MM-19.4 CONDITIONAL GIS-AWARE NETWORK FOR INDIVIDUAL BUILDING SEGMENTATION IN A VHR SAR IMAGE
Yao Sun, Yuansheng Hua, Lichao Mou, Xiaoxiang Zhu, German Aerospace Center (DLR), Germany

WE2.MM-19.5 EFFECTS OF IONOSPHERE ON LOWER-FREQUENCY SPACEBORNE SAR IMAGING
Kuan Wang, Bingxu Chen, Ning Li, Zhengwei Guo, Zewen Fu, Henan University, China

WE2.MM-19.6 FOREST BIOMASS INVERSION BASED ON KNN-FIFS WITH DIFFERENT ALOS DATA
Yongjie Ji, Peng Zeng, Wangfei Zhang, Southwest Forestry University, China; Lei Zhao, Chinese Academy of Forestry, China

WE2.MM-19.7 ESTIMATION OIL-WATER MIXTURE RATIO USING HYBRID-POLARIZED SYNTHETIC APERTURE RADAR
Haiyan Li, University of Chinese Academy of Sciences, China; William Perrie, Bedford Institute of Oceanography, Canada; Jin Wu, Institute of Geographic Sciences and Natural Resources Research, China

WE2.MM-19.8 SYNTHETIC GLACIER SAR IMAGE GENERATION FROM ARBITRARY MASKS USING PIX2PIX ALGORITHM
Rosanna Dietrich-Sussner, Amirabbas Davari, Thorsten Seehaus, Matthias Braun, Vincent Christlein, Andreas Maier, Christian Riess, Friendrich-Alexander Universität Erlangen-Nürnberg, Germany

WE2.MM-19.9 ARBITRARY-ORIENTED SAR SHIP DETECTION VIA FREQUENCY LEARNING
Yue Zhou, Xue Jiang, Shanghai Jiao Tong University, China; Zhou Li, Beijing Institute of Remote Sensing Information, China; Xingzhao Liu, Shanghai Jiao Tong University, China

Wednesday, July 14 13:00 - 14:10 Multimedia Room 20

Session WE2.MM-20

SAR Target Detection and Imaging

Session Co-Chairs: Vito Pascazio, the university of Napoli Parthenope; Thomas Fritz, German Aerospace Center (DLR); Juan Pablo Navarro-Castillo, German Aerospace Center (DLR)

WE2.MM-20.1 ISAR IMAGING OF MANEUVERING TARGETS BASED ON PARAMETER ESTIMATION
Zhenyuan Ji, Ting Yu, Yun Zhang, Guangzhi Chen, Harbin Institute of Technology, China

WE2.MM-20.2 GROUND MOVING TARGET DETECTION AND IMAGING FOR ONE-STATIONARY LOW FREQUENCY ULTRA-WIDEBAND BISTATIC SAR BASED ON MULTI-CHANNEL
Kang Liang, Hongtu Xie, Guoqian Wang, Sun Yat-Sen University, China

WE2.MM-20.3 SAR IMAGE RECONSTRUCTION AND TARGET EXTRACTION WITH UNDER-SAMPLED DATA VIA LOW-RANK AND SPARSITY MATRIX DECOMPOSITION
Min Li, Weibo Huo, Zhongyu Li, Junjie Wu, Jianyu Yang, University of Electronic Science and Technology of China, China

WE2.MM-20.4 MOVING TARGET DETECTION METHOD BASED ON NLCS AND STFT FOR BISTATIC FORWARD-LOOKING SAR WITH SINGLE-CHANNEL
Junao Li, University of Electronic Science and Technology of China, China

WE2.MM-20.5 LVD-BASED 3-D ROTATIONAL VECTOR ESTIMATION OF NON-COOPERATIVE TARGETS FOR INISAR SYSTEM
Rui Gong, Ling Wang, Daiyin Zhu, Nanjing University of Aeronautics and Astronautics, China

WE2.MM-20.6 TARGET-ORIENTED SAR FORMATION VIA SPARSE DICTIONARY LEARNING
Min Li, Siyuan Zhang, Zhongyu Li, Junjie Wu, Jianyu Yang, University of Electronic Science and Technology of China, China

WE2.MM-20.7 TARGET-ORIENTED COGNITIVE SAR WAVEFORM DESIGN VIA JOINT OPTIMIZATION
Youshan Tan, Min Li, Mingyue Lou, Zhongyu Li, Junjie Wu, Jianyu Yang, University of Electronic Science and Technology of China, China

WE2.MM-20.8 VIDEO SAR GROUND MOVING TARGET INDICATION BASED ON MULTI-TARGET TRACKING NEURAL NETWORK
Wei Wang, Yao Hu, Zongyou Zou, Yuanyuan Zhou, Chen Wang, Jun Shi, Xiaoling Zhang, University of Electronic Science and Technology of China, China

WE2.MM-20.9 SHIP IMAGING BASED ON AZIMUTH AMBIGUITY RESOLVING FOR HIGH-SPEED MANEUVERING PLATFORMS SAR WITH SMALL-APERTURE
Ning Li, Mengdao Xing, Guang-Cai Sun, Xidian University, China; Vito Pascazio, University of Napoli Parthenope, Italy

WE2.MM-20.10 A METHOD OF MOVING SHIP IMAGING AND VELOCITY ESTIMATION WITH AIRBORNE SAR
Jin Wei, Yun Zhang, Yicheng Jiang, Xin Zhu, Harbin Institute of Technology, China

Wednesday, July 14 13:00 - 14:10 Multimedia Room 21

Session WE2.MM-21

Novel Processing Methods for Urban and Land Use Applications

Session Co-Chairs: Ali Nadir Arslan, Finnish Meteorological Institute; Ruhi Begum, University of Twente; Charlotte Wirion, Vrije Universiteit Brussel

WE2.MM-21.1 NEW DATA, INTEGRATED METHODS AND MULTIPLE APPLICATIONS: A REVIEW OF URBAN STUDIES BASED ON STREET VIEW IMAGES
Feng Xu, Annan Jin, Xiliang Chen, Gang Li, Northwest University, China

WE2.MM-21.2 DEVELOPING SUPPORT FOR MONITORING AND REPORTING OF GHG EMISSIONS AND REMOVALS FROM LAND USE, LAND CHANGE AND FORESTRY
Ali Nadir Arslan, Finnish Meteorological Institute, Finland; Katarzyna Dąbrowska-Zielińska, Institute of Geodesy and Cartography, Poland; Vesselin Vassilev, Cluster Aerospace Technologies, Research and Applications, Bulgaria; Jose M. Álvarez-Martínez, Environmental Hydraulics Institute of the University of Cantabria, Spain; Kameliya Radeva, Space Research and Technology Institute at the Bulgarian Academy of Sciences, Bulgaria; Stanisław Lewiński, Space Research Centre of the Polish Academy of Sciences, Poland; Iida Autio, Finnish Environment Institute, Finland; Hannakaisa Lindqvist, Maria Tenkanen, Tuula Aalto, Finnish Meteorological Institute, Finland; Markus Törmä, Finnish Environment Institute, Finland; Lachezar Filchev, Space Research and Technology Institute at the Bulgarian Academy of Sciences, Bulgaria; Michał Krupiński, Space Research Centre of the Polish Academy of Sciences, Poland; Stephen Barry, Maynooth University, Ireland; Tarja Tuomainen, Natural Resources Institute Finland, Finland; Premysl Stych, Charles University, Czech Republic; Abad Chabbi, National Institute for Agricultural Research, Food and Environment, France

WE2.MM-21.3 URBAN RESIDENTIAL LAND PRICE ASSESSMENT BASED ON TRANSFER LEARNING
Weishi Jin, University of Electronic Science and Technology of China, China; Mingcang Zhu, Department of Natural Resources of Sichuan Province, China; Yong He, Sichuan Research Institute for Eco-System Restoration & Geo-Hazard Prevention, China; Jie Li, Chengdu Land Planning and Cadastre Center, China; Zezhong Zheng, University of Electronic Science and Technology of China, China; Mingkun Feng, Chengdu Land Planning and Cadastre Center, China; Zhongnian Li, Central China Normal University, China; Zhiyong Wang, Mingqi Li, Ling Jiang, Qiang Liu, Ankai Hou, Biao Zhang, University of Electronic Science and Technology of China, China; Xuemei Li, Chengdu University of Technology, China

WE2.MM-21.4 GIS-BASED ANALYSIS OF TOURISM POTENTIAL CASE STUDY: RURAL REGIONS EL MORRO AND POSORJA, GUAYAS, ECUADOR
Viviana Herrera-Matamoros, Andrés Velastegui-Montoya, Escuela Superior Politécnica del Litoral, Ecuador

WE2.MM-21.5 EFFECTS OF TOPOGRAPHIC ATTRIBUTES AND WATER TABLE DEPTHS ON THE SOIL SALINITY ACCUMULATION IN ARID LAND
Abderrazak Bannari, Space-Pix Map, Canada; Zahra M. Al-ali, Ghadeer Mohammed Kadhem, Arabian Gulf University, Bahrain

WE2.MM-21.6 INFLUNCE OF IRRIGATION ON THE BIAS BETWEEN ORCHIDEE AND FLUXCOM EVAPOTRANSPIRATION PRODUCTS
Amen Al-Yaari, Agnes Ducharne, Salma Tafasca, Sorbonne University - Laboratoire METIS, France; Hiroki Mizuoti, National Institute of Advanced Industrial Science and Technology, Japan; Frederique Cheruy, LMD (Laboratoire de Météorologie Dynamique), Sorbonne Université,, France

WE2.MM-21.7 CHANGE DETECTION ON GRASSLAND IN A CONTROLLED ACCESS AREA USING L-BAND FULL POLARIMETRIC SAR DATA
Chinatsu Yonezawa, Tohoku Univ., Japan

WE2.MM-21.8 FUSION OF SENTINEL-1 AND SENTINEL-2 IMAGERY FOR LAND SALINITY MAPPING: A CASE STUDY IN DA'AN, JILIN PROVINCE
Qianqian Zhang, Li Li, Chao Zhang, Ruizhi Sun, China Agricultural University, China

Wednesday, July 14 13:00 - 14:10 Multimedia Room 22

Session WE2.MM-22

Crop Assessment, Yield Estimation and Modeling at Various Spatial Scales

Session Co-Chairs: Gabrielle De Lannoy, KU Leuven; Belén Franch, University of Valencia; Gladys Villegas, Universiteit Gent

WE2.MM-22.1 CROP GROWTH MONITORING AND YIELD PREDICTION SYSTEM APPLYING COPERNICUS DATA FOR POLAND & SOUTH AFRICA
Radosław Gurdak, Katarzyna Dąbrowska-Zielińska, Zbigniew Bochenek, Marcin Kluczek, Maciej Bartold, Institute of Geodesy and Cartography, Poland; Solomon W. Newete, George J. Chirima, Agricultural Research Council, South Africa

WE2.MM-22.2 ASSIMILATION OF SMAP BASED DISAGGREGATED SOIL MOISTURE FOR IMPROVING SOIL EVAPORATION ESTIMATES BY FAO-2KC MODEL
Abdelhakim Amazirh, Mohammed VI Polytechnic University (UM6P), Center for Remote Sensing Application (CRSA), Morocco; Abdelghani Chehbouni, Mohammed VI Polytechnic University (UM6P), Center for Remote Sensing Application (CRSA); Université de Toulouse, CNES, CNRS, IRD, UPS, Centre d'Etudes Spatiales de la Biosphère (CESBIO)., Morocco; Olivier Merlin, Université de Toulouse, CNES, CNRS, IRD, UPS, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Elhoussaine Bouras, Centre d'Etudes Spatiales de la Biosphère (CESBIO), Université de Toulouse, CNES, CNRS, IRD, UPS and ProcEDE, Département de Physique Appliquée, Faculté des Sciences et Techniques, Université Cadi Ayyad, Morocco; Salah Er-Raki, Mohammed VI Polytechnic University (UM6P), Center for Remote Sensing Application (CRSA); ProcEDE, Département de Physique Appliquée, Faculté des Sciences et Techniques, Université Cadi Ayyad, Morocco

WE2.MM-22.3 A REGIONAL VERSION OF THE AQUACROP MODEL EVALUATED WITH SATELLITE RETRIEVALS AND BACKSCATTER DATA
Shannon de Roos, Gabriëlle De Lannoy, Dirk Raes, KU Leuven, Belgium

WE2.MM-22.4 ASSESSMENT OF CROP WATER PRODUCTIVITY OF ROHRI CANAL COMMAND AREA IN PAKISTAN USING REMOTE SENSING
Zenobia Talpur, Arjumand Zaidi, US Pakistan Centers for Advanced Studies in Water, Mehran University of Engineering and Technology, Pakistan; Sumaira Zafar, Asian Institute of Technology, Thailand; Suhail Ahmed, US Pakistan Centers for Advanced Studies in Water, Mehran University of Engineering and Technology, Pakistan

WE2.MM-22.5 REVISITING THE SPATIAL SCALE EFFECTS ON REMOTELY SENSED EVAPORATION
Bruno Aragon, Matteo G. Ziliani, Matthew F. McCabe, King Abdullah University of Science and Technology, Saudi Arabia

WE2.MM-22.6 GENERATING WINTER WHEAT GLOBAL CROP CALENDARS IN THE FRAMEWORK OF WORLDCEREAL
Juanma Cintas Rodríguez, Belén Franch, University of Valencia, Spain; Inbal Becker-Reshef, Sergii Skakun, University of Maryland, United States; José Antonio Sobrino, Universitat de Valencia, Spain; Kristof Van Tricht, Jeroen Degerickx, Sven Gilliams, VITO, Belgium

WE2.MM-22.7 ASSESSING UTILITY OF COPERNICUS-BASED EVAPOTRANSPIRATION MAPS FOR NATIONAL MONITORING OF FIELD-SCALE WATER USE
Radoslaw Guzinski, DHI GRAS, Denmark; Hector Nieto, COMPLUTIG, Spain; Gilles Boulet, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Dalendah Boujnah, Institut de l'Olivier, Tunisia; Benjamin Koetz, European Space Agency (ESA), Italy

WE2.MM-22.8 DROUGHT ASSESSMENT APPLYING JOINED METEOROLOGICAL AND SATELLITE DATA
Katarzyna Dąbrowska-Zielińska, Zbigniew Bochenek, Alicja Malinska, Maciej Bartold, Radosław Gurdak, Magdalena Lagiewska, Karol Paradowski, Institute of Geodesy and Cartography, Poland

Wednesday, July 14 13:00 - 14:10 Multimedia Room 23

Session WE2.MM-23

Geomorphology, Geology, Landslides, Deformation and Alteration Zones

Session Co-Chairs: Alina Shevchenko, GFZ German Research Centre for Geosciences; Alessia Giarola, Università degli Studi di Pavia; Joana Cardoso-Fernandes, Faculty of Sciences, University of Porto; Institute of Earth Sciences

WE2.MM-23.1 DETECTION AND DEFORMATION CHARACTERIZATION OF THE 2020 ANIANGZHAI LANDSLIDE USING TIME-SERIES INSAR AND OPTICAL DATASETS
Jianming Kuang, Linlin Ge, University of New South Wales, Australia; Alex Hay-Man Ng, Guangdong University of Technology, China; Qi Zhang, University of New South Wales, Australia

WE2.MM-23.2 EVALUATING A SPECIAL LUNAR TIR COLD ANOMALY USING CE-2 CELMS DATA
Liansheng Mei, Cai Liu, Zhiguo Meng, Xigang Wang, Jilin University, China; Zhanchuan Cai, Macau University of Science and Technology, China; Jinsong Ping, National Astronomical Observatory, CAS, China

WE2.MM-23.3 NEW INSIGHTS INTO A ROCK-RELATED TIR ANOMALY ON THE MOON FROM CE-2 CELMS SATELLITE DATA
Zhiguo Meng, Hengxi Liu, Wenqing Chang, Jilin University, China; Zhanchuan Cai, Macau University of Science and Technology, Macau SAR China; Tianqi Tang, Yanxiang Shi, Jilin University, China; Yongchun Zheng, National Astronomical Observatory, CAS, China

WE2.MM-23.4 MORPHOLOGY OF MOUNT THORBJORN, ICELAND, STUDIED WITH UAS PHOTOGRAMMETRY
Alina Shevchenko, Thomas Walter, GFZ German Research Centre for Geosciences, Germany; Viktor Dvigalo, Institute of Volcanology and Seismology FEB RAS, Russia

WE2.MM-23.5 VERTICAL AND HORIZONTAL DISPLACEMENTS ANALYSIS FOR MINING DEFORMATION MODELING
Wojciech T. Witkowski, Ryszard Hejmanowski, AGH University of Science and Technology, Poland

WE2.MM-23.6 INTEGRATION OF THE LEVELING OBSERVATIONS AND PSINSAR RESULTS FOR MONITORING DEFORMATIONS CAUSED BY UNDERGROUND MINING
Wojciech T. Witkowski, Dawid Mrocheń, Paweł Sopata, Tomasz Stoch, AGH University of Science and Technology, Poland

WE2.MM-23.7 QUANTITATIVE VALIDATION OF FORMATION MECHANISM OF LUNAR FLOOR FRACTURED CRATERS
Suchit Purohit, Savita Gandhi, Gujarat University, India; Nidhi Dubey, N/A, India; Prakash Chauhan, Indian Space Research Organisation, India

WE2.MM-23.8 VALIDATION OF REMOTE SENSING TECHNIQUES IN GREENFIELD EXPLORATION AREAS FOR LITHIUM (LI) IN CENTRAL PORTUGAL: A STUDY CASE
Joana Cardoso-Fernandes, Faculty of Sciences, University of Porto; Institute of Earth Sciences, Portugal; Douglas Santos, Faculty of Sciences, University of Porto, Portugal; Alexandre Lima, Ana Cláudia Teodoro, Faculty of Sciences, University of Porto; Institute of Earth Sciences, Portugal; Mônica Perrotta, Geological Survey of Brazil (CPRM), Brazil; Encarnación Roda-Robles, Universidad del País Vasco, Spain

Wednesday, July 14 13:00 - 14:10 Multimedia Room 24

Session WE2.MM-24

Satellite Missions, Sensors and Calibration I

Session Co-Chairs: Kasra Rafiezadeh Shahi, Universiteit Antwerpen; Daichi Hirahara, JAXA; Ermioni Dimitropoulou, Royal Belgian Institute for Space Aeronomy

WE2.MM-24.1 GEOMETRIC ACCURACY EVALUATION OF GF-7 IMAGE
Guoming Li, University of Electronic Science and Technology of China / Sichuan Third Surveying and Mapping Engineering Institute, China; Guoqing Li, Tianqing Wang, Ludong University, China

WE2.MM-24.2 UTILIZING SPARSE PULSE REPETITION INTERVAL AND KR PRODUCT BEFORE AZIMUTH COMPRESSION FOR SAR PROCESSING
Daichi Hirahara, Japan Aerospace Exploration Agency (JAXA), Japan

WE2.MM-24.3 THE TANDEM-X CHANGE DEM: STATUS OF THE CHANGE RAW DEMS PRODUCTION
Marie Lachaise, Markus Bachmann, Barbara Schweisshelm, Thomas Fritz, German Aerospace Center (DLR), Germany

WE2.MM-24.4 IMPROVED TROPOMI HCHO COLUMN VALIDATION USING DUAL-SCAN MAX-DOAS RETRIEVALS
Ermioni Dimitropoulou, Francois Hendrick, Martina M. Friedrich, Frederik Tack, Gaia Pinardi, Alexis Merlaud, Caroline Fayt, Christian Hermans, Michel Van Roozendael, Royal Belgian Institute for Space Aeronomy, Belgium

WE2.MM-24.5 STORE AND FORWARD MISSION DESIGN IN BIRDS-4 SATELLITES
Yasir Abbas, Marloun Sejera, Izrael Bautista, Mengu Cho, Kenichi Asami, Kyushu Institute of Technology, Japan

WE2.MM-24.6 COMPARISONS OF OBSERVATIONAL ANGLES BETWEEN MOON-BASED PLATFORM AND ARTIFICIAL SATELLITES
Yu Deng, Peking University, China; Huadong Guo, Guang Liu, Aerospace Information Reasearch Institute, Chinese Academy of Sciences, China; Hanlin Ye, China Academy of Space Technology, China; Jing Huang, Runbo Dong, Aerospace Information Reasearch Institute, Chinese Academy of Sciences, China

WE2.MM-24.7 A STUDY OF SPECTRA BANDWIDTH INDEX SETTING OF INFRARED IMAGER BASED ON SPECTRUM SIMULATION
Dandan Wei, Yao Liu, Land Satellite Remote Sensing Application Center, Ministry of Natural Resources of China, China

Wednesday, July 14 13:00 - 14:10 Multimedia Room 25

Session WE2.MM-25

Lidar Data Processing and Applications

Session Co-Chairs: Bing Ouyang, Florida Atlantic University; Olga Brovkina, Global Change Research Institute CAS; Marijana Petrovic, Ben-Gurion University of the Negev

WE2.MM-25.1 A PARTICLE FILTERING MODEL USING INSTANTANEOUS RANGE FOR VIBRATION AND NONLINEARITY COMPENSATION OF TRIANGULAR FMCW LADAR SIGNAL
Rongrong Wang, University of Chinese Academy of Sciences, China; Maosheng Xiang, Bingnan Wang, Chinese Academy of Sciences, China; Chuang Li, Xi'an Jiaotong University, China; Weidi Xu, University of Chinese Academy of Sciences, China

WE2.MM-25.2 VARIANCE PROCESSING FOR STABLE BOUNDARY-LAYER HEIGHT ESTIMATION USING BACKSCATTER LIDAR DATA: A DISCUSSION
Constantino Muñoz-Porcar, Marcos Paulo Araujo da Silva, Universitat Politècnica de Catalunya, Spain; Umar Saed, Aalto University, Finland; Francesc Rey, Universitat Politècnica de Catalunya, Spain; Maria Teresa Pay, Barcelona Supercomputing Center, Spain; Francesc Rocadenbosch, Universitat Politècnica de Catalunya, Spain

WE2.MM-25.3 MULTI-FEATURE AIRBORNE LIDAR STRIP ADJUSTMENT METHOD COMBINED WITH TENSOR VOTING ALGORITHM
Bo Song, College of Earth Sciences, Guilin University of Technology, China; Guoqing Zhou, Feng Wang, Guilin University of Technology, China

WE2.MM-25.4 IMPROVED GAUSS INFLECTION POINT MATCHING METHOD FOR LIDAR ECHO SIGNAL DECOMPOSITION
Ronghua Deng, Guoqing Zhou, Guilin University of Technology, China; Shuhua Long, College of Geomatics and Geoinformation, China; Xianxing Li, Weihao Li, Guangxi Key Laboratory for Spatial Information and Geomatics, China; Gangchao Lin, Guilin University of Technology, China

WE2.MM-25.5 DEPENDENCE OF AEROSOL EXTINCTION MEASUREMENTS USING A CAMERA BASED LIDAR ON VARIOUS AEROSOL PHASE FUNCTIONS
Amin Kabir, University of The Bahamas, Bahamas, The; Nimmi Sharma, Central Connecticut State University, United States; John Barnes, National Oceanic and Atmospheric Administration (NOAA), United States; Alicja Urbanczyk, Justin Fagnoni, Seth Gagnon, Marcus Silva, Central Connecticut State University, United States; Edward Knowles, University of The Bahamas, Bahamas, The

WE2.MM-25.6 ESTIMATION OF SAMPLING INTERVAL IN TERRESTRIAL LASER SCANNING DATA WITH NEIGHBORING ANALYSIS
Maolin Chen, Xinyi Zhang, Xiangjiang Liu, Cuicui Ji, Lidu Zhao, Chongqing Jiaotong University, China

WE2.MM-25.7 COMPARISON OF TREE ATTRIBUTE ESTIMATES FROM AIRBORNE AND TERRESTRIAL LASER SCANNING AND FIELD DATA
Olga Brovkina, Jan Novotný, Barbora Navratilova, Global Change Research Institute CAS, Czech Republic; Jan Albert, Emil Cienciala, IFER - Institute of Forest Ecosystem Research, Czech Republic

WE2.MM-25.8 TOWARDS 3D MAPPING OF SEAGRASS MEADOWS WITH TOPO-BATHYMETRIC LIDAR FULL WAVEFORM PROCESSING
Mathilde Letard, Antoine Collin, Ecole Pratique des Hautes Etudes, Université Paris Sciences Lettres, CNRS UMR 6554 LETG, France; Dimitri Lague, Université de Rennes, CNRS, Géosciences Rennes - UMR 6118, France; Thomas Corpetti, CNRS UMR 6554 Littoral Environnement Télédétection Géomatique, France; Yves Pastol, Service Hydrographique et Océanographique de la Marine, France; Anders Ekelund, Airborne Hydrography AB, Leica Geosystems, Hexagon, Sweden; Gérard Pergent, Fédération de Recherche Environnement et Société 3041 – UMR 6134, University of Corsica, France; Stéphane Costa, Université Caen-Normandie, CNRS UMR 6554 LETG, France

WE2.MM-25.9 WAVEFORM DECOMPOSITION AND FEATURE EXTRACTION OF AIRBORNE LIDAR BATHYMETRY
Jiaoyang Liu, Dianpeng Su, Chao Qi, Anxiu Yang, Xiankun Wang, Fanlin Yang, Shandong University of Science and Technology, China

Wednesday, July 14 13:00 - 14:10 Multimedia Room 26
Session WE2.MM-26

UAV and Close Sensing Applications III

Session Co-Chairs: Lihui Chen, Sichuan University; Jean-Christophe Schyns, Belgian Science Policy Office; Dries Raymaekers, VITO

WE2.MM-26.1 RESEARCH ON UAV INDOOR PATH PLANNING ALGORITHM BASED ON GLOBAL SUBDIVISION GRIDS
Bing Han, Qingmei Li, Chengqi Cheng, Peking University, China

WE2.MM-26.2 TIME SERIES PHOTOGRAMMETRIC PROCESSING WORKFLOW FOR WAVE-WASHED AREAS
Rafael Kenji Horota, Leonardo Bachi, Alysson Soares Aires, Vizlab - X-Reality and GeoInformatics Lab, UNISINOS - Sao Leopoldo, Brazil; Graciela Racolte, Universidade do Vale do Rio dos Sinos - UNISINOS, Brazil; Natália Procksch, Laboratorio de Ecologia de Mamiferos (LEM), Universidade do Vale do Rio dos Sinos - UNISINOS, Brazil; Daniel Danilewicz, Natalia Bragiola Berchieri, Paulo Henrique Ott, Grupo de Estudos de Mamiferos Aquaticos do RS (GEMARS), Brazil; Andre Spigolon, Petrobras Research and Development Center (CENPES), Brazil; Larissa Rosa de Oliveira, Luiz Gonzaga, Jr., Maurício Veronez, Universidade do Vale do Rio dos Sinos - UNISINOS, Brazil

WE2.MM-26.3 SURVEYING MIGRATORY WATERFOWL USING UAV RGB IMAGERY
Armand LaRocque, Brigitte Leblon, University of New Brunswick, Canada; Mélanie-Louise Leblanc, McGill University, Canada; Angela Douglas, Southern Gulf of St. Lawrence Coalition on Sustainability, Canada

WE2.MM-26.4 AIRCRAFT AND HIGH ALTITUDE PLATFORM SYSTEM ONBOARD CIRCULARLY POLARIZED SYNTHETIC APERTURE RADAR (CP-SAR)
Josaphat Tetuko Sri Sumantyo, C. M. Yam, C. E. Santosa, A. Takahashi, K. Ito, Chiba University, Japan

WE2.MM-26.5 OFF-NADIR PHOTOGRAMMETRY FOR AIRBORNE SAR MOTION COMPENSATION: A FIRST STEP
Usman Iqbal Ahmed, Bernhard Rabus, Mike Kubanski, Simon Fraser University, Canada

WE2.MM-26.6 UAV PANORAMIC IMAGE MOSAIC METHOD BASED ON IMPROVED OPTIMAL SEAM
Jun Chen, Zixian Li, Linbo Luo, Xiaoqiang Chen, Yue Gu, China University of Geosciences, China

WE2.MM-26.7 DRONE SERVICES FOR PLANT WATER-STATUS MAPPING
Margherita Bruscolini, Ben Suttor, Laura Giustarini, Moh Zare, Ben Gaffinet, Guy Schumann, RSS-Hydro, Luxembourg

WE2.MM-26.8 MINIATURE FLASH LIDAR FOR BATHYMETRY: AN EXPERIMENTAL PROOF-OF-CONCEPT
Christophe Pache, Christophe Meier, Serge Droz, David Nguyen, Centre Suisse d'Electronique et de Microtechnique, Switzerland; Jean-Christophe Roulet, CSEM SA, Switzerland; Alexandre Pollini, Centre Suisse d'Electronique et de Microtechnique, Switzerland; Torbjørn Houge, Maritime Robotics, Norway; Fabien Droz, Centre Suisse d'Electronique et de Microtechnique, Switzerland

WE2.MM-26.9 UAS-SFM AND AIRBORNE LIDAR TO MEASURE HURRICANE IMPACTS AND SHORT-TERM RECOVERY ALONG LITTLE ST. GEORGE ISLAND, FL, USA
Kelsi Schwind, Michael Starek, Texas A&M University - Corpus Christi, United States; Megan Lamb, Apalachicola National Estuarine Research Reserve, United States

Wednesday, July 14 14:25 - 15:55 Oral Room 1
Session WE3.O-1 Oral

Remote Sensing of Ocean Waves

Session Co-Chairs: Cédric Tourain, CNES; Yury Yurovsky, Russian State Hydrometeorological University; Bastien Cerino, Université Savoie Mont Blanc

WE3.O-1.1 EVOLUTIONS AND IMPROVEMENTS IN CFOSAT SWIM PRODUCTS
Cédric Tourain, CNES, France; Danièle Hauser, Centre National de la Recherche Scientifique, Université de Versailles Saint Quentin, France; Dunya Alraddawi, CNRS/LATMOS, France; Laura Hermozo, Raquel Rodriguez Suquet, CNES, France; Patricia Schippers, ACRI-ST, France; Lotfi Aouf, Dalphinet Alice, Météo France, France; Christophe Dufour, CNRS/LATMOS, France; Jean-Michel Lachiver, Céline Tison, CNES, France

WE3.O-1.2 DIRECTIONAL AND FREQUENCY SPREAD OF SURFACE OCEAN WAVES FROM CFOSAT/SWIM MEASUREMENTS
Eva Le Merle, Danièle Hauser, Centre National de la Recherche Scientifique, Université de Versailles Saint Quentin, France; Charles Peureux, Collecte Localisation Satellites, France; Lotfi Aouf, Meteo-France, France; Patricia Schippers, ACRI-ST, France; Christophe Dufour, Centre National de la Recherche Scientifique, Université de Versailles Saint Quentin, France

WE3.O-1.3 KA-BAND RADAR BACKSCATTERING FROM BREAKING WIND WAVES
Yury Yurovsky, Vladimir Kudryavtsev, Russian State Hydrometeorological University, Russia; Semyon Grodsky, University of Maryland, United States; Bertrand Chapron, IFREMER, France

WE3.O-1.4 BACKSCATTERING CROSS-SECTION INCIDENT DEPENDENCE BY REFLECTED PULSE SHAPE USING A FIXED ANTENNA WITH THE WIDE ANTENNA PATTERN
Yuriy Titchenko, Vladimir Karaev, Mariya Ryabkova, Kirill Ponur, Eugeniy Meshkov, Roman Belyaev, Institute of Applied Physics, Russian Academy of Sciences, Russia

WE3.O-1.5 SATELLITE-DATA-DRIVEN PROPAGATION SPEED MODEL FOR INTERNAL SOLITARY WAVES IN THE SHALLOW AND DEEP OCEANS
Xudong Zhang, Institute of Oceanography, Chinese Academy of Sciences, China; Tao Zhang, Shandong University of Science and Technology; Institute of Oceanology Chinese Academy of Sciences, China; Xiaofeng Li, Institute of Oceanography, Chinese Academy of Sciences, China

WE3.O-1.6 INTERNAL SOLITARY WAVE AMPLITUDE AND VELOCITY RETRIEVAL FROM SYNTHETIC APERTURE RADAR IMAGES OF THE CALIFORNIA INNER SHELF REGION
Samantha Furtney, Roland Romeiser, Hans Graber, University of Miami - Rosenstiel School of Marine and Atmospheric Science, United States

Wednesday, July 14 14:25 - 15:55 Oral Room 2
Session WE3.O-2 Oral

Satellite Missions Operation Considerations

Session Co-Chairs: Islam Alam Saad Mansour, German Aerospace Center (DLR); Giampaolo Ferraioli, Università degli Studi di Napoli Parthenope; David Long, Brigham Young University

WE3.O-2.1 GLOBAL L-BAND OBSERVATORY FOR WATER CYCLE STUDIES (GLOWS)
David Long, Brigham Young University, United States; Rajat Bindlish, Jeffrey Piepmeier, Giovanni De Amici, NASA, United States; Mark Bailey, MMA, United States

WE3.O-2.2 STATION-KEEPING MANOEUVRE DETECTION FOR AUTONOMOUS PRECISE INTERFEROMETRIC TRACKING OF GEOSYNCHRONOUS SATELLITES
Jorge Nicolas-Álvarez, Xavier Carreño-Megias, Oriol Fusté, Estel Ferrer, Miquel Albert, Anas Amlou, Alberto Aguasca, Antoni Broquetas, Universitat Politècnica de Catalunya, Spain

WE3.O-2.3 ULID: A DEMONSTRATION MISSION FOR DISTRIBUTED L-BAND INTERFEROMETRY EARTH OBSERVATION
François Cabot, Eric Anterrieu, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Louise Yu, Thierry Amiot, CNES, France; Yann Kerr, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France

WE3.O-2.4 VERY LOW LATENCY ARCHITECTURE FOR EARTH OBSERVATION SATELLITE ONBOARD DATA HANDLING, COMPRESSION, AND ENCRYPTION
Michele Caon, Paolo Motto Ros, Maurizio Martina, Tiziano Bianchi, Enrico Magli, Politecnico di Torino, Italy; Francisco Membibre, Alexis Ramos, Antonio Latorre, Murray Kerr, Deimos Space S.L.U, Spain; Stefan Wiehle, Helko Breit, Dominik Günzel, Srikanth Mandapati, Ulrich Balss, Björn Tings, German Aerospace Center (DLR), Germany

WE3.O-2.5 COVERAGE STANDARDS AS A MATURE INTEROPERABILITY-ENABLING IMPLEMENTATION PLATFORM
Peter Baumann, Jacobs University, Germany

WE3.O-2.6 HETEROGENEOUS CONSTELLATION DESIGN FOR A SMART SOIL MOISTURE RADAR MISSION
Benjamin Gorr, Alan Aguilar, Daniel Selva, Texas A&M University, United States; Vinay Ravindra, NASA Ames Research Center, United States; Mahta Moghaddam, University of Southern California, United States; Sreeja Nag, NASA Ames Research Center, United States

Wednesday, July 14 14:25 - 15:55 Oral Room 3
Session WE3.O-3 Oral

Recent Advances in GNSS-R II

Session Co-Chairs: Jade Morton, University of Colorado Boulder; Wufan Zhao, University of Twente; Hugo Carreno-Luengo, University of Michigan (UMich)

WE3.O-3.1 EVALUATION OF GNSS-R RETRIEVED SEA ICE SURFACE HEIGHT USING ICESAT-2 ICE FREEBOARD MEASUREMENTS
Yang Wang, Jade Morton, University of Colorado Boulder, United States

WE3.O-3.2 FREEZE/THAW RETRIEVAL OVER HIGH ALTITUDE AREAS WITH CYGNSS
Hugo Carreno-Luengo, Chris Ruf, University of Michigan, United States

WE3.O-3.3 VALIDATION OF DUAL-FREQUENCY GNSS-R GRAZING ANGLE CARRIER PHASE ALTIMETRY USING SENTINEL-3 RADAR ALTIMETER MEASUREMENTS
Weiqiang Li, Estel Cardellach, Institute of Space Sciences (ICE, CSIC), Spain; Dallas Masters, Spire Global, Inc., United States; Takayuki Yuasa, Spire Global Singapore, Singapore; Franck Borde, European Space Agency/ESTEC, Netherlands; John Shirlaw, European Space Agency/ECSAT, United Kingdom; Manuel Martin-Neira, European Space Agency/ESTEC, Netherlands

WE3.O-3.4 GENERATION OF A NEW HIGH RESOLUTION DDM DATA PRODUCT FROM CYGNSS RAW IF MEASUREMENTS
Hugo Carreno-Luengo, Chris Ruf, University of Michigan, United States; Scott Gleason, University Corporation for Atmospheric Research (UCAR), United States; Anthony Russel, Timothy Butler, University of Michigan, United States

WE3.O-3.5 THE IMPACT OF BAROMETRIC VARIATIONS ON THE SEA LEVEL IN COASTAL AREAS USING GNSS REFLECTOMETRY
Théo Gravalon, Lucia Seoane, José Darrozes, Géosciences Environnement Toulouse (GET) - Université Paul Sabatier (UPS), France; Guillaume Ramillien, Géosciences Environnement Toulouse (GET) - Centre National de la Recherche Scientifique (CNRS), France

WE3.O-3.6 SEA ICE CONCENTRATION AND SEA ICE EXTENT MAPPING WITH THE FSSCAT MISSION: A NEURAL NETWORK APPROACH
David Llaveria, Juan Muñoz, Christoph Herbert, Universitat Politècnica de Catalunya, Spain; Miriam Pablos, Consejo Superior de Investigaciones Cientificas (CSIC), Spain; Adriano Camps, Hyuk Park, Universitat Politècnica de Catalunya, Spain

Wednesday, July 14 14:25 - 15:55 Oral Room 4
Session WE3.O-4 Oral-Invited

Global Precipitation Mission with Emphasis on Hazard Mitigation

Session Co-Chairs: Chandra V Chandrasekar, Colorado State University; Ian Adams, NASA Goddard Space Flight Center; Pietro Mastro, Università degli Studi della Basilicata

WE3.O-4.1 A NEW HAIL PRODUCT FOR GPM DPR
Minda Le, V. Chandrasekar, Colorado State University, United States

WE3.O-4.3 IMPROVEMENT OF THE GSMAP PRECIPITATION RETRIEVAL ALGORITHM FOR MICROWAVE SOUNDERS OVER COAST
Tomoko Tashima, Takuji Kubota, Japan Aerospace Exploration Agency (JAXA), Japan; Tomoaki Mega, Osaka University, Japan; Shoichi Shige, Kyoto University, Japan

WE3.O-4.4 IMPLEMENTING HISTOGRAM MATCHING TO REDUCE THE ACCURACY DIFFERENCE IN THE SATELLITE-BORNE MERGED PRECIPITATION PRODUCTS
Hitoshi Hirose, Takuji Kubota, Tomoko Tashima, Japan Aerospace Exploration Agency (JAXA), Japan; Tomoaki Mega, Tomoo Ushio, Osaka University, Japan

WE3.O-4.5 IMPROVEMENT OF THE CLUTTER REMOVAL METHOD FOR THE SPACEBORNE PRECIPITATION RADARS
Kaya Kanemaru, Hiroshi Hanado, Katsuhiro Nakagawa, NICT, Japan

WE3.O-4.6 A FLEXIBLE AND STABLE METHOD FOR ESTIMATING THE VERTICAL PROFILE OF DSD PARAMETERS FOR GPM/DPR
Shinta Seto, Nagasaki University, Japan; Toshio Iguchi, University of Maryland, United States; Nobuhiro Takahashi, Nagoya University, Japan

Wednesday, July 14 14:25 - 15:55 Oral Room 5
Session WE3.O-5 Oral-Invited

Ground-based Microwave Techniques for Snowpack Monitoring I

Session Co-Chairs: Marco Pasian, Università degli Studi di Pavia; Pedro F. Espín-López, CTTC; Frederik Priem, Vrije Universiteit Brussel

WE3.O-5.1 NUMERICAL INVESTIGATION ON THE EFFECT OF THE SNOWPACK SURFACE ROUGHNESS ON THE RADAR ECHO
Marco Pasian, Martina Lodigiani, Università degli Studi di Pavia, Italy; Carlo Marin, Valentina Premier, Claudia Notarnicola, Eurac Research, Italy

WE3.O-5.3 COMMUNITY DEVELOPMENT OF THE SNOW MICROWAVE RADIATIVE TRANSFER MODEL FOR PASSIVE, ACTIVE AND ALTIMETRY OBSERVATIONS OF THE CRYOSPHERE
Melody Sandells, Northumbria University, United Kingdom; Ghislain Picard, Université Grenoble Alpes, France; Henning Löwe, WSL Institute for Snow and Avalanche Research SLF, Switzerland; Nina Maaß, Universität Hamburg, Germany; Mai Winstrup, Technical University of Denmark, Denmark; Ludo Brucker, NASA Goddard Space Flight Center, United States; Marion Leduc-Leballeur, Institute of Applied Physics, Italy; Fanny Larue, Université Grenoble Alpes, France; Jérémie Aublanc, Pierre Thibaut, Collecte Localisation Satellites, France; Justin Murfitt, University of Waterloo, Canada

WE3.O-5.4 CROSS CHARACTERIZATION OF ALPINE SNOW PACKS USING A PORTABLE 3-D HR IMAGING SYSTEM, C-BAND SPACEBORNE SAR OBSERVATIONS, IN-SITU MEASUREMENTS AND A PHYSICALLY BASED SNOW EVOLUTION MODEL
Laurent Ferro-Famil, IETR, University of Rennes 1, France; Fatima Karbou, Université Grenoble Alpes, Université de Toulouse, Météo-France, CNRS, CNRM, CEN, France; Lehmissi Harkati, IETR, University of Rennes 1, France; Philippe Lapalus, Université Grenoble Alpes, Université de Toulouse, Météo-France, CNRS, CNRM, CEN, France; Stéphane Avrillon, Frédéric Boutet, IETR, University of Rennes 1, France; Yannick Deliot, Hugo Mersizen, Isabelle Goutevin, Université Grenoble Alpes, Université de Toulouse, Météo-France, CNRS, CNRM, CEN, France; Pascal Salze, Franck Delbart, Université Grenoble Alpes, Station Alpine Joseph Fourier (UMS 3370 CNRS), France; Anne Karas, Romain Besombes, Erwan Le Gac, Université Grenoble Alpes, Université de Toulouse, Météo-France, CNRS, CNRM, CEN, France; Hervé Bellot, Xavier Ravanat, Université Grenoble Alpes, INRAE, France

WE3.O-5.5 ANALYSIS OF SNOW COHERENCE CONSERVATION FOR SWE RETRIEVAL AT L-, S-, C- AND X-BANDS
Jorge Jorge Ruiz, Finnish Metereological Institute, Finland; Risto Vehmas, Fraunhofer Institute for High Frequency Physics and Radar Techniques FHR, Germany; Juha Lemmetyinen, Finnish Metereological Institute, Finland; Anna Kontu, Riku Tarvainen, Jouni Pulliainen, Finnish Meteorological Institute, Finland; Jaan Praks, Aalto University, Finland

WE3.O-5.6 IMPACT OF FOREST CANOPY PARAMETERIZATION ON SPACE-BORNE SNOW ON GROUND DETECTION
Helga Weber, Kathrin Naegeli, Stefan Wunderle, University of Bern, Switzerland

Wednesday, July 14 14:25 - 15:55 Oral Room 6
Session WE3.O-6 Oral-Invited

Copernicus SAR Missions in C- and L- band: Status, Evolution and Contribution to Advanced Monitoring and Assessment of Natural Disasters I

Session Co-Chairs: Ramón Torres, European Space Agency; Abdelhafid Dahhani, Université Savoie Mont Blanc; Dirk Geudtner, European Space Agency

WE3.O-6.1 COPERNICUS SAR MISSIONS (C AND L-BAND)
Ramon Torres, Malcolm Davidson, Dirk Geudtner, Robert Furnell, European Space Agency (ESA), Netherlands

WE3.O-6.3 ROSE-L: COPERNICUS L-BAND SAR MISSION
Malcolm Davidson, Robert Furnell, European Space Agency (ESA), Netherlands

WE3.O-6.4 COPERNICUS SENTINEL-1 NEXT GENERATION MISSION
Dirk Geudtner, Michel Tossaint, Malcolm Davidson, Ramon Torres, European Space Agency (ESA), Netherlands

WE3.O-6.5 SYNERGISTIC USE OF L- AND C-BAND SAR SATELLITES FOR SEA ICE MONITORING
Wolfgang Dierking, Alfred-Wegener-Institute Helmholtz Center for Polar and Marine Research (AWI), Germany

WE3.O-6.6 IMAGING COMPLEX FAULT SLIP OF LARGE EARTHQUAKES WITH SENTINEL-1 AND ALOS-2 SAR ANALYSIS AND OTHER GEODETIC AND SEISMIC DATA
Eric J. Fielding, NASA Jet Propulsion Laboratory, California Institute of Technology, United States; Cunren Liang, Seismological Laboratory, California Institute of Technology, United States; Mong-Han Huang, Zhen Liu, NASA Jet Propulsion Laboratory, California Institute of Technology, United States; Théa Ragon, Seismological Laboratory, California Institute of Technology, United States; David Bekaert, NASA Jet Propulsion Laboratory, California Institute of Technology, United States; Mark Simons, Seismological Laboratory, California Institute of Technology, United States

Wednesday, July 14 14:25 - 15:55 Oral Room 7
Session WE3.O-7 Oral-Invited

Advanced Flood Monitoring and Prediction for Disaster Risk Reduction and Resilient Infrastructure

Session Co-Chairs: YOUNG-JOO KWAK, National Institute for Land and Infrastructure Management (NILIM), Ministry of Land, Infrastructure, Transport and Tourism (MLIT); Ramona Pelich, Luxembourg Institute of Science and Technology; Shan Wei, University of Hong Kong

WE3.O-7.1 SAR-BASED FLOOD MAPPING, WHERE WE ARE AND FUTURE CHALLENGES
Marco Chini, Ramona Pelich, Yu Li, Renaud Hostache, Jie Zhao, Concetta Di Mauro, Patrick Matgen, Luxembourg Institute of Science and Technology, Luxembourg

WE3.O-7.2 AUTOMATIC FLOOD EXTENT AND DEPTH ESTIMATION USING ALOS-2 AND FLOOD SIMULATION DATA
Masato Ohki, Kosuke Yamamoto, Takeo Tadono, Japan Aerospace Exploration Agency (JAXA), Japan

WE3.O-7.3 HOW CAN OBJECTS MAKE A DIFFERENCE FOR SAR-BASED FLOOD MAPPING AND MONITORING?
Frieke Van Coillie, Lisa Landuyt, Bos Debusscher, Ghent University, Belgium

WE3.O-7.4 MONITORING WEATHER-RELATED HAZARDS USING THE HYDROSAR SERVICE: APPLICATION TO THE 2020 SOUTH ASIA MONSOON SEASON
Franz J. Meyer, University of Alaska Fairbanks, United States; Lori Schultz, Jordan Bell, Andrew L Molthan, NASA Marshall Space Flight Center, United States; Batuhan Osmanoglu, MinJeong Jo, NASA Goddard Space Flight Center, United States; Eric Lundell, University of Alaska Fairbanks, United States; Bruce Chapman, NASA Jet Propulsion Laboratory, California Institute of Technology, United States; Brooke Kubby, University of Alaska Fairbanks, United States; Thomas Meyer, University of Alaska-Fairbanks, United States; Alexander Lewandowski, University of Alaska Fairbanks, United States

WE3.O-7.5 MULTI-PERSPECTIVE FRAMEWORK OF DIGITAL INFRASTRUCTURE UTILIZING EO DATA
Young-Joo Kwak, National Institute for Land and Infrastructure Management (NILIM), Ministry of Land, Infrastructure, Transport and Tourism (MLIT), Japan

Wednesday, July 14 14:25 - 15:55 Oral Room 8
Session WE3.O-8 Oral

Novel Object Detection Methods for Passive and Active RS data

Session Co-Chairs: PANOS MARKOPOULOS, RIT; Greg Hurlock, Georgia Tech; Yilei Shi, TU Munich

WE3.O-8.1 DIRECT ORIENTED SHIP LOCALIZATION REGRESSION IN REMOTE SENSING IMAGERY WITH CURRICULUM LEARNING
Weiwei Guo, Tongji University, China; Huiyuan Chen, Zenghui Zhang, Shanghai Jiao Tong University, China; YanHua Zhang, Tianjin University of Science and Technology, China; Wenxian Yu, Shanghai Jiao Tong University, China

WE3.O-8.2 MULTI-SCALE FEEDBACK CONVOLUTIONAL SPARSE CODING NETWORK FOR SALIENCY DETECTION IN REMOTE SENSING IMAGES
Zhou Huang, Huai-Xin Chen, University of Electronic Science and Technology of China, China; Cheng-Wu Bai, Li-Li Yan, Sichuan Provincial Administration of Production Safety, China

WE3.O-8.3 MULTI-SCALE BIDIRECTIONAL FEATURE FUSION FOR ONE-STAGE ORIENTED OBJECT DETECTION IN AERIAL IMAGES
Lei Pei, Gong Cheng, Xuxiang Sun, Qingyang Li, Meili Zhang, Shicheng Miao, Northwestern Polytechnical University, China

WE3.O-8.4 SEMI-SUPERVISED OBJECT DETECTION FRAMEWORK WITH OBJECT FIRST MIXUP FOR REMOTE SENSING IMAGES
Ziyu Zhang, Zhixi Feng, Shuyuan Yang, Xidian University, China

WE3.O-8.5 CALIBRATION INDEPENDENT CYGNSS DYNAMIC INLAND WATER MASK DEVELOPMENT
Mohammad Al-Khaldi, Scott Gleason, University Corporation for Atmospheric Research, United States

WE3.O-8.6 YOLORS-LITE: A LIGHTWEIGHT CNN FOR REAL-TIME OBJECT DETECTION IN REMOTE-SENSING
Manish Sharma, Panos Markopoulos, Eli Saber, Rochester Institute of Technology, United States

Wednesday, July 14 14:25 - 15:55 Oral Room 9
Session WE3.O-9 Oral

Remote Sensing Image Classification Using Machine Learning II

Session Co-Chairs: Fabio Dell'Acqua, University of Pavia; Begüm Demir, Technische Universität Berlin; Miguel Hoyo García, Fondazione Bruno Kessler

WE3.O-9.1 QUANTUM SUPPORT VECTOR MACHINE ALGORITHMS FOR REMOTE SENSING DATA CLASSIFICATION
Amer Delilbasic, University of Trento, Italy; Gabriele Cavallaro, Madita Willsch, Forschungszentrum Jülich, Germany; Farid Melgani, University of Trento, Italy; Morris Riedel, University of Iceland, Iceland; Kristel Michielsen, Forschungszentrum Jülich, Germany

WE3.O-9.3 GENETIC ALGORITHM FOR IMPROVED TRANSFER LEARNING THROUGH BAGGING COLOR-ADJUSTED MODELS
Gabriel Dax, Moritz Laass, Martin Werner, Technical University of Munich, Germany

WE3.O-9.4 GENERATION OF ATTRIBUTES FOR HIGHLY IMBALANCED LAND COVER DATA
Dominik Koßmann, Thorsten Wilhelm, Gernot A. Fink, TU Dortmund University, Germany

WE3.O-9.5 EARTH OBSERVATION IMAGE SEMANTICS: LATENT DIRICHLET ALLOCATION BASED INFORMATION DISCOVERY
Reza Mohammadi Asiyabi, Research Center for Spatial Information (CEOSpaceTech), University POLITEHNICA of Bucharest (UPB), Romania; Mihai Datcu, Research Center for Spatial Information (CEOSpaceTech), University POLITEHNICA of Bucharest (UPB) and Earth Observation Center (EOC), German Aerospace Center (DLR), Romania

WE3.O-9.6 AUTOMATING SEA ICE CHARACTERISATION FROM X-BAND SAR WITH CO-LOCATED AIRBORNE LASER SCANNER DATA OBTAINED DURING THE MOSAIC EXPEDITION
Karl Kortum, University of Bremen / German Aerospace Center (DLR), Germany; Suman Singha, German Aerospace Center (DLR), Germany; Gunnar Spreen, University of Bremen, Germany; Stefan Hendricks, Alfred-Wegener-Institute Helmholtz Center for Polar and Marine Research (AWI), Germany

Wednesday, July 14 14:25 - 15:55 Oral Room 10
Session WE3.O-10 Oral-Invited

Advances in Monitoring and Assessment of Wildfires Using Remote Sensing and Modeling

Session Co-Chairs: Vijay Natraj, Jet Propulsion Laboratory, California Institute of Technology; Jonathan Jiang, California Institute of Technology; Lemma Tsegaye D., Ethiopian Space Science and Technology Institute

WE3.O-10.1 CURRENT STATE OF THE ART IN SEASONAL WILDFIRE FORECASTING
Antonello Provenzale, National Research Council (CNR), Italy; Marco Turco, University of Murcia, Spain

WE3.O-10.3 CLIMATE CHANGE EFFECTS ON CRITICAL FOREST FLAMMABILITY EVENTS
Hamish Clarke, University of Wollongong, Australia; Rachael Nolan, Western Sydney University, Australia; Victor Resco de Dios, Universitat de Lleida, Spain; Ross Bradstock, University of Wollongong, Australia; Anne Griebel, Matthias Boer, Western Sydney University, Australia

WE3.O-10.4 COMMUNITY CHALLENGES AND PROSPECTS IN THE OPERATIONAL FORECASTING OF EXTREME BIOMASS BURNING SMOKE
Jeffrey Reid, US Naval Research Laboratory, United States; Angela Benedetti, European Centre for Medium-Range Weather Forecasts (ECMWF), United States; Peter Colarco, NASA Goddard Space Flight Center, United States; Thomas Eck, USRA, NASA Goddard Space Flight Center, United States; Amanda Gumber, University of Wisconsin, United States; Brent Holben, NASA Goddard Space Flight Center, United States; Robert Holz, University of Wisconsin, United States; Edward Hyer, US Naval Research Laboratory, United States; Willem Marais, University of Wisconsin, United States; Jeff Mcqueen, National Oceanic and Atmospheric Administration (NOAA), United States; Steven Miller, Colorado State University, United States; Min Oo, University of Wisconsin, United States; Juli Rubin, US Naval Research Laboratory, United States; Taichu Tanaka, Japanese Meteorological Agency, Japan; Jun Wang, University of Iowa, United States; Peng Xian, US Naval Research Laboratory, United States; Jianglong Zhang, University of North Dakota, United States

WE3.O-10.5 AN OVERVIEW OF THE UNB RESEARCH ON FUEL MOISTURE ESTIMATION USING OPTICAL, THERMAL INFRARED, AND RADAR IMAGERY OVER BOREAL FORESTS
Brigitte Leblon, University of New Brunswick, Canada

WE3.O-10.6 REVIEW OF CALIFORNIA WILDFIRES IMPACTS COMBINING SATELLITE OBSERVATIONS AND NUMERICAL MODELS
Yuan Wang, Jonathan Jiang, John Seinfeld, Yuk Yung, California Institute of Technology, United States

Wednesday, July 14 14:25 - 15:55 Oral Room 11
Session WE3.O-11 Oral-Invited

Advances of Satellite Earth Observation Technologies for Disaster Risk Management

Session Co-Chairs: Claudia Spinetti, Istituto Nazionale di Geofisica e Vulcanologia; Antonio Pepe, Institute for the Electromagnetic Sensing of the Environment (IREA) - National Research Council (CNR); Hira Zafar, Universität Salzburg

WE3.O-11.1 KNOWLEDGE GENERATION USING EARTH OBSERVATIONS TO SUPPORT SUSTAINABLE DEVELOPMENT
Argyro Kavvada, National Aeronautics and Space Administration (NASA), United States

WE3.O-11.3 INSAR APPLIED TO VOLCANO HAZARDS
Paul Lundgren, M. Grace Bato, NASA Jet Propulsion Laboratory, California Institute of Technology, United States

WE3.O-11.4 SATELLITE-BASED DETECTION OF VOLCANIC PLUMES: SINERGY BETWEEN THERMAL INFRARED AND MILLIMETER WAVE RADIOMETRIC DATA DURING THE 2014 KELUD EVENT
Frank S. Marzano, Sapienza Università di Roma, Italy; Luigi Mereu, Sapienza University of Rome, Italy; Simona Scollo, Luca Merucci, Stefano Corradini, INGV (Istituto Naz. Geofisica e Vulcanologia), Italy

WE3.O-11.5 GROUND DISPLACEMENT EVALUATION OF THE ISCHIA ISLAND (PHLEGRAEAN VOLCANIC DISTRICT, ITALY) APPLYING ADVANCED SATELLITE SAR INTERFEROMETRY TECHNIQUES
Lisa Beccaro, Cristiano Tolomei, Claudia Spinetti, Marina Bisson, Laura Colini, Riccardo De Ritis, Roberto Gianardi, Istituto Nazionale di Geofisica e Vulcanologia, Italy

WE3.O-11.6 EMISSIVITY BASED INDICES FOR DROUGHT AND FOREST FIRE
Guido Masiello, Carmine Serio, Sara Venafra, Angela Cersosimo, Pietro Mastro, Francesco Falabella, Pamela Pasquariello, University of Basilicata, Italy

Wednesday, July 14 14:25 - 15:55 Oral Room 12
Session WE3.O-12 Oral

Pansharpening and Image Enhancement

Session Co-Chairs: Andrea Garzelli, Università di Siena; Ximena Tagle Casapia, Wageningen University & Research; Mahdyar Ravanbakhsh, TU Berlin

WE3.O-12.1 LEARN TO HAVE COLOR AND DETAIL: AN END-TO-END PANCHROMATIC IMAGE ENHANCEMENT
Minjian Zhou, Queensland University of Technology, Australia; Yuxuan Wang, Guangming Wu, Ryosuke Shibasaki, University of Tokyo, Japan

WE3.O-12.2 WEIGHTED SHALLOW-DEEP FEATURE FUSION NETWORK FOR PANSHARPENING
Zi-Rong Jin, Tian-Jing Zhang, Cheng Jin, Liang-Jian Deng, University of Electronic Science and Technology of China, China

WE3.O-12.3 JOINT IMAGE REGISTRATION AND BLUR KERNEL LEARNING FOR PANSHARPENING
Anjing Guo, Yue Wu, Shutao Li, Hunan University, China

WE3.O-12.4 A GRAPH-BASED TEXTURAL SUPERPIXEL SEGMENTATION METHOD FOR PANSHARPENING APPLICATION.
Hind Hallabia, LIS, GMOD, Aix Marseille Université, France; Habib Hamam, Faculty of Engineering, Université de Moncton, Canada

WE3.O-12.5 CROSS RESIDUAL FUSION FOR PANSHARPENING
Meziane Iftene, Agence Spatiale Algérienne, Algeria; Mohammed El Amin Larabi, Algerian Space Agency, Algeria; Mohammed Ilyas Tchenar, Beihang University, China; Khadidja Bakhti, Centre des Techniques Spatiales, Algeria

WE3.O-12.6 FUSION OF PANCHROMATIC AND HYPERSPECTRAL IMAGES IN THE REFLECTIVE DOMAIN BY A COMBINATORIAL APPROACH AND APPLICATION TO URBAN LANDSCAPE
Yohann Constans, Sophie Fabre, ONERA, France; Hervé Carfantan, IRAP, France; Michael Seymour, Vincent Crombez, Airbus Defence and Space, France; Xavier Briottet, ONERA, France; Yannick Deville, IRAP, France

Wednesday, July 14 14:25 - 15:55 Oral Room 13
Session WE3.O-13 Oral-Invited

Assessing Risks and Understanding Impacts of Hydro-meteorological Hazards: The Benefit of Multi-source Remote Sensing

Session Co-Chairs: Silvia Maria Alfieri, Delft University of Technology; James Voogt, University of Western Ontario; Lynette Dias, Twente Universiy

WE3.O-13.1 DOCUMENTING IMPACTS OF HYDRO-METEOROLOGICAL EVENTS USING EARTH OBSERVATION
Silvia Maria Alfieri, Fatemeh Foroughnia, Adriaan van Natijne, Ali Mousivand, Roderik Lindenbergh, Delft University of Technology, Netherlands; Federico Porcu, Alma Mater Studiorum, Universita' di Bologna, Italy; Thomas Zieher, Oesterreichische Akademie Der Wissenschaften, Austria; Beatrice Pulvirulenti, Alma Mater Studiorum, Universita' di Bologna, Italy; Jingxin Yang, School of Geography and Remote Sensing, China; Massimo Menenti, Delft University of Technology, Netherlands

WE3.O-13.3 URBAN HEATWAVES AND THERMAL REMOTE SENSING
James Voogt, University of Western Ontario, Canada

WE3.O-13.4 INTEGRATED MONITORING OF A SLOWLY MOVING LANDSLIDE BASED ON TOTAL STATION MEASUREMENTS, MULTI-TEMPORAL TERRESTRIAL LASER SCANNING AND SPACE-BORNE INTERFEROMETRIC SYNTHETIC APERTURE RADAR
Thomas Zieher, Jan Pfeiffer, Austrian Academy of Sciences, Austria; Adriaan van Natijne, Roderik Lindenbergh, Delft University of Technology, Netherlands

WE3.O-13.5 BENEFIT OF MULTISOURCE REMOTE SENSING FOR FLOOD MONITORING: ACTUAL STATUS AND PERSPECTIVES
Hervé Yesou, Nadine Tholey, Université de Strasbourg, France; Jean-François Crétaux, CNES, France; Stephen Clandillon, Université de Strasbourg, France

Wednesday, July 14 14:25 - 15:55 Oral Room 14
Session WE3.O-14 Oral

Ice Sheets and Glaciers III

Session Co-Chairs: Paul T Summers, Stanford Univeristy; Marco Brogioni, IFAC-CNR; Xiaohui Pan, Universiteit Gent

WE3.O-14.1 ULTRAWIDEBAND PROPAGATION EXPERIMENT THROUGH THE ANTARTICA FIRN AT THE CONCORDIA STATION IN THE 0.4 - 2 GHZ FREQUENCY RANGE
Alberto Toccafondi, Federico Puggelli, Matteo Albani, University of Siena, Italy; Ghislain Picard, Institut des Géosciences de l'Environnement IGE (CNRS), France; Francesco Montomoli, Marco Brogioni, Giovanni Macelloni, IFAC-CNR, Italy

WE3.O-14.2 RECENT SURGE OF THE SOUTH RIMO GLACIER, KARAKORAM: DYNAMICS CHARACTERIZATION USING SAR DATA
Shiyi Li, Silvan Leinss, Philipp Bernhard, Irena Hajnsek, Swiss Federal Institute of Technology in Zurich, Switzerland

WE3.O-14.3 CONSTRAINING ICE SHEET BASAL SLIDING AND HORIZONTAL VELOCITY PROFILES USING A STATIONARY PHASE SENSITIVE RADAR SOUNDER
Paul T Summers, Dustin Schroeder, Stanford University, United States; Matthew R Siegfried, Colorado School of Mines, United States

WE3.O-14.4 ANTARCTICA ICE SHEET MELT DETECTION USING A MACHINE LEARNING ALGORITHM BASED ON SMAP MICROWAVE RADIOMETRY
Seyed Mohammad Mousavi, Andreas Colliander, NASA Jet Propulsion Laboratory, California Institute of Technology, United States; Julie Miller, Earth Science and Observation Center, University of Colorado, Boulder, United States; John Kimball, Numerical Terradynamic Simulation Group, University of Montana, Missoula, United States

WE3.O-14.5 LIMITS ON ANTARCTIC ICE SHEET TEMPERATURE ESTIMATION USING 0.5-2 GHZ ULTRA-WIDEBAND RADIOMETRY
Caglar Yardim, Mark Andrews, Joel Johnson, Kenneth Jezek, Ohio State University, United States; Marion Leduc-Leballeur, Giovanni Macelloni, Marco Brogioni, CNR, United States

WE3.O-14.6 A NEW GEOPHYSICAL MODEL BASED ALGORITHM TO DETCET MELT EVENTS OVER THE ANTRACTIC ICE SHEET USING SMAP MICROWAVE RADIOMETRY
Seyed Mohammad Mousavi, Andreas Colliander, NASA Jet Propulsion Laboratory, California Institute of Technology, United States; Julie Miller, Earth Science and Observation Center, University of Colorado, Boulder, United States; John Kimball, Numerical Terradynamic Simulation Group, University of Montana, Missoula, United States

Wednesday, July 14 14:25 - 15:55 Oral Room 15
Session WE3.O-15 Oral

Remote Sensing for Environmental Policy and Support II

Session Co-Chairs: George Komar; Hannes Taubenböck, German Aerospace Center & University of Würzburg; Nimisha Verma, University of Twente

WE3.O-15.1 BLINDED BY THE LIGHT: MONITORING LOCAL ECONOMIC DEVELOPMENT OVER TIME WITH NIGHTLIGHT EMISSIONS
Lukas Kondmann, German Aerospace Center & Technical University of Munich, Germany; Hannes Taubenböck, German Aerospace Center & University of Würzburg, Germany; Xiao Xiang Zhu, German Aerospace Center & Technical University of Munich, Germany

WE3.O-15.2 MONITORING PELAGIC FISHING ACTIVITY IN THE NORTHEAST ATLANTIC
Patrícia Gaspar, Victor Henriques, Paulo Fonseca, Portuguese Institute for Sea and Atmosphere, Portugal; Helena Łoś, Deimos Engenharia, Portugal; Marc Cloarec, Deimos Space, Spain; Nuno Grosso, Raquel Silva, Antonio Jorge Silva, Deimos Engenharia, Portugal; Aida Campos, Portuguese Institute for Sea and Atmosphere, Portugal

WE3.O-15.3 ASSESSMENT OF URBAN LAND-COVER CLASSIFICATION : COMPARISON BETWEEN PIXEL AND OBJECT SCALES
Alexia Cornic, Kenji Ose, Dino Ienco, Eric Barbe, Remi Cresson, INRAE, UMR TETIS, Univ. Montpellier, France

WE3.O-15.4 AN ACTIVE LEARNING TOOL FOR THE GENERATION OF EARTH OBSERVATION IMAGE BENCHMARKS
Wei Yao, Octavian Dumitru, Mihai Datcu, German Aerospace Center (DLR), Germany

WE3.O-15.5 VALUING RADIOMETRIC QUALITY OF REMOTE SENSING DATA FOR DECISIONS
Afreen Siddiqi, Sheila Baber, Olivier de Weck, Massachusetts Institute of Technology, United States

WE3.O-15.6 REMOTE SENSING AND DEEP LEARNING FOR ENVIRONMENTAL POLICY SUPPORT: FROM THEORY TO PRACTICE
Stien Heremans, Katholic University Leuven/Research Institute Nature and Forest, Belgium; Francis Turkelboom, Research Institute Nature and Forest, Belgium; Margot Verhulst, Matthew Blaschko, Ben Somers, Katholic University Leuven, Belgium

Wednesday, July 14 14:25 - 15:55 Oral Room 16
Session WE3.O-16 Oral

Novel Mapping Schemes of Forests

Session Co-Chairs: Laura Martínez-Ferrer, Universitat de València; Francois Demontoux, Bordeaux University - IMS Laboratory; Mehmet Kurum, Mississippi State University

WE3.O-16.1 SLU FOREST MAP - MAPPING SWEDISH FORESTS SINCE YEAR 2000
Jörgen Wallerman, Swedish University of Agricultural Sciences, Sweden; Peder Axensten, Mikael Egberth, Swedish University of Agricultural Sceinces, Sweden; Jonas Jonzén, Emma Sandström, Johan E S Fransson, Mats Nilsson, Swedish University of Agricultural Sciences, Sweden

WE3.O-16.2 A BAND GROUPING BASED APPROACH FOR PHENOTYPE-CLASS MAPPING OF TREE GENOTYPES USING SPECTRO-TEMPORAL INFORMATION IN HYPERSPECTRAL TIME-SERIES UAV DATA.
Aravind Harikumar, Siyu Wang, Ingo Ensminger, University of Toronto Mississauga, Canada

WE3.O-16.3 COMPARISON OF COINCIDENT FOREST CANOPY MEASUREMENTS FROM AIRBORNE LIDAR AND ULTRA-WIDEBAND MICROWAVE RADAR
Jilu Li, University of Kansas, United States; Chris Larsen, University of Alaska Fairbanks, United States; Fernando Rodriguez-Morales, Emily Arnold, Carl Leuschen, John Paden, Jiaxuang Shang, Daniel Gomez-Garcia, University of Kansas, United States

WE3.O-16.4 NON-INTRUSIVE IN-SITU PERMITTIVITY MEASUREMENTS DEDICATED TO THE DEVELOPMENT OF A P AND L BAND DIELECTRIC MODEL OF WOOD
Francois Demontoux, Mehdi Gati, Mohamed El Boudali, Bordeaux University - IMS Laboratory, France; Ludovic Villard, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Jean-Pierre Wigneron, INRAE, UMR 1391 ISPA, France; Thierry Koleck, Arnaud Mialon, Le Toan Thuy, Kerr Yann, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France

WE3.O-16.5 MANGROVE SPECIES MAPPING AND ABOVE-GROUND BIOMASS ESTIMATION IN SURINAME BASED ON FUSED SENTINEL-1 AND SENTINEL-2 IMAGERY AND NATIONAL FOREST INVENTORY DATA
Jasper Feyen, University of Ghent, Belgium; Gianni Wip, Sarah Crabbe, Foundation for Forest Management and Production Control, Suriname; Verginia Wortel, Centre for Agricultural Research in Suriname (CELOS), Suriname; Suci Puspita Sari, Frieke Van Coillie, University of Ghent, Belgium

WE3.O-16.6 UGV-BASED MAPPING OF FOREST TRANSMISSIVITY USING GPS MEASUREMENTS
Mehmet Kurum, Md Mehedi Farhad, Mississippi State University, United States

Wednesday, July 14 14:25 - 15:55 Oral Room 17
Session WE3.O-17 Oral

Crop Mapping and Monitoring using SAR II

Session Co-Chairs: Saeed Khabbazan, Technische Universiteit Delft; Nadia Ouaadi, Cadi Ayyad University; Druti Gangwar

WE3.O-17.1 CROP YIELD FORECAST AT FIELD SCALE USING DEEP NEURAL NETWORK ALGORITHM
Mehdi Hosseini, Inbal Becker-Reshef, Ritvik Sahajpal, University of Maryland College Park, United States; Lucas Fontana, Pedro Lafluf, Guillermo Leale, SIMA, Argentina; Estefania Puricelli, Sergii Skakun, University of Maryland College Park, United States; Mauricio Varela, SIMA, Argentina

WE3.O-17.2 THE IMPORTANCE OF OVERPASS TIME IN AGRICULTURAL APPLICATIONS OF RADAR
Saeed Khabbazan, Paul C. Vermunt, Susan C. Steele-Dunne, Delft University of Technology, Netherlands; Jasmeet Judge, University of Florida, United States

WE3.O-17.3 IRRIGATION WATER RETRIEVAL THROUGH DATA ASSIMILATION OF SURFACE SOIL MOISTURE INTO THE FAO-56 APPROACH IN THE SOUTH MEDITERRANEAN REGION
Nadia Ouaadi, Cadi Ayyad University, Morocco; Lionel Jarlan, University of Toulouse, France; Saïd Khabba, Jamal Ezzahar, Cadi Ayyad University, Morocco; Olivier Merlin, University of Toulouse, France

WE3.O-17.4 SARSENSE: ANALYZING AIR- AND SPACE-BORNE C- AND L-BAND SAR BACKSCATTERING SIGNALS TO CHANGES IN SOIL AND PLANT PARAMETERS OF CROPS
David Mengen, Carsten Montzka, Forschungszentrum Jülich, Germany; Thomas Jagdhuber, Anke Fluhrer, German Aerospace Center (DLR), Germany; Cosimo Brogi, Stephani Baum, Forschungszentrum Jülich, Germany; Dirk Schüttemeyer, European Space Agency (ESA), Netherlands; Bagher Bayat, Heye Bogena, Forschungszentrum Jülich, Germany; Alex Coccia, Gerard Masalias, Metasensing BV, Netherlands; Verena Trinkel, Jannis Jakobi, François Jonard, Yueling Ma, Forschungszentrum Jülich, Germany; Francesco Mattia, Davide Palmisano, Consiglio Nazionale delle Ricerche (CNR), Italy; Uwe Rascher, Forschungszentrum Jülich, Germany; Giuseppe Satalino, Consiglio Nazionale delle Ricerche (CNR), Italy; Maike Schumacher, Aalborg University, Denmark; Christian Koyama, Tokyo Denki University, Japan; Marius Schmidt, Harry Vereecken, Forschungszentrum Jülich, Germany

WE3.O-17.5 PRINCIPAL COMPONENT ANALYSIS BASED POLYNOMIAL CHAOS EXPANSION REGRESSION OF LEAF AREA INDEX FROM POLSAR IMAGERY
Mehmet Furkan Celik, Esra Erten, Istanbul Technical University, Turkey

Wednesday, July 14 14:25 - 15:55 Oral Room 18
Session WE3.O-18 Oral

Evaluation of Satellite Soil Moisture Products

Session Co-Chairs: Simon Yueh, Jet Propulsion Laboratory; Weizhi Deng, University of Iowa; Maciel Zortea, IBM Research

WE3.O-18.1 HINDCAST OF SOIL MOISTURE USING SMAP, LAND SURFACE MODEL OUTPUT DATA, AND REGRESSION METHODS
Maciel Zortea, Miguel Paredes, Leonardo S. A. Martins, IBM Research, Brazil

WE3.O-18.2 IMPLEMENTATION AND ANALYSIS OF THE DUAL-CHANNEL ALGORITHM FOR THE RETRIEVAL OF SOIL MOISTURE AND VEGETATION OPTICAL DEPTH FOR SMAP
Julian Chaubell, Simon Yueh, Steven Chan, Scott Dunbar, Andreas Colliander, NASA Jet Propulsion Laboratory, California Institute of Technology, United States; Dara Entekhabi, Massachusetts Institute of Technology, United States; Fan Chen, USDA Agricultural Research Service, United States; Rajat Bindlish, Peggy O'Neill, NASA Goddard Space Flight Center, United States

WE3.O-18.3 GLOBAL LONG-TERM BRIGHTNESS TEMPERATURE RECORD FROM L-BAND SMOS AND SMAP OBSERVATIONS
Xiaojun Li, Jean-Pierre Wigneron, ISPA/INRAE, France; Frédéric Frappart, Laboratoire d'Etudes en Géophysique et Océanographie Spatiales (LEGOS), France; Lei Fan, Chongqing Jinfo Mountain Karst Ecosystem National Observation and Research Station, School of Geographical Sciences, Southwest University, France; Gabriëlle De Lannoy, KU Leuven, France; Alexandra G. Konings, Stanford University, France; Xiangzhuo Liu, Mengjia Wang, ISAP/INRAE, France; Roberto Fernandez-Moran, University of Valencia, Spain; Amen Al-Yaari, Sorbonne Université, UMR 7619 METIS, France; Hongliang Ma, State Key Laboratory of Information Engineering in Surveying, Mapping, and Remote Sensing, Wuhan University, China; Zanping Xing, Chongqing Jinfo Mountain Karst Ecosystem National Observation and Research Station, School of Geographical Sciences, Southwest University, China; Christophe Moisy, ISPA/INARE, France

WE3.O-18.4 ASSESSING USE OF VEGETATION ATTRIBUTE FROM SAR TO IMPROVE PERFORMANCE OF THE SMAP-SENTINEL ACTIVE-PASSIVE HIGH-RESOLUTION SOIL MOISTURE PRODUCT
Narendra Das, Michigan State University, United States; Dara Entekhabi, Massachusetts Institute of Technology, United States; Gurjeet Singh, NASA Jet Propulsion Laboratory, California Institute of Technology, United States

WE3.O-18.5 ANALYZING THE RADIO FREQUENCY INTERFERENCE ENVIRONMENT AT CAL/VAL SITE LOCATIONS FOR THE SOIL MOISTURE ACTIVE/PASSIVE (SMAP) MISSION
Alexandra Bringer, The Ohio State University, United States; Andreas Colliander, NASA Jet Propulsion Laboratory, California Institute of Technology, United States; Joel Johnson, The Ohio State University, United States; Simon Yueh, Sidharth Misra, NASA Jet Propulsion Laboratory, California Institute of Technology, United States

Wednesday, July 14 14:25 - 15:55 Oral Room 19
Session WE3.O-19 Oral

Remote Sensing Applications in Inland Waters II

Session Co-Chairs: Alba German, CONAE; Jessica Fayne, University of California, Los Angeles; Guichen Zhang, German Aerospace Center (DLR)

WE3.O-19.1 MAPPING SURFACE WATER EXTENT IN MAINLAND ALASKA USING VIIRS SURFACE REFLECTANCE
Wenlong Feng, Huiran Jin, New Jersey Institute of Technology, United States

WE3.O-19.2 MAPPING FLUVIAL INUNDATION EXTENTS WITH GRAPH SIGNAL FILTERING OF RIVER DEPTHS DETERMINED FROM UNSUPERVISED CLUSTERING OF SYNTHETIC APERTURE RADAR IMAGERY
Fernando Aristizabal, Lynker Technologies, United States; Jasmeet Judge, University of Florida, United States

WE3.O-19.3 ESTIMATION OF LAKE HEIGHTS FROM SENTINEL-3 SAR MODE THROUGH NUMERICAL SIMULATIONS
François Boy, CNES, France; Jean-François Crétaux, CNES - LEGOS/OMP, France; Malik Boussaroque, Céline Tison, CNES, France

WE3.O-19.4 CHARACTERIZATION OF NEAR-NADIR KA-BAND SCATTERING FROM WET SURFACES
Jessica Fayne, University of California, Los Angeles, United States; Laurence Smith, Brown University, United States

WE3.O-19.5 AN INNOVATIVE MAPPING OF HYDROCLIMATIC TIME SERIES OF THE NIGER WATERSHED BY INVERTING GRACE KBR RANGES ON A BASIS OF SURFACE SLEPIAN FUNCTIONS
Guillaume Ramillien, Centre National de la Recherche Scientifique (CNRS), France; José Darrozes, Lucia Seoane, Université Paul Sabatier Toulouse (UPS), France

Wednesday, July 14 16:40 - 18:10 Oral Room 1
Session WE4.O-1 Oral-Invited

Advances in GNSS-R for Retrieval of Inland Water Extent and Wetland Characterization

Session Co-Chairs: Carmela Galdi, Università degli Studi del Sannio; Eric Loria, Jet Propulsion Laboratory/California Institute of Technology; Bastien Cerino, Université Savoie Mont Blanc

WE4.O-1.1 STATE OF THE ART IN GNSS-R CAPABILITIES OVER INLAND WATERS
Cinzia Zuffada, NASA Jet Propulsion Laboratory, California Institute of Technology, United States; Brandi Downs, ElectroScience Laboratory, The Ohio State University, United States; Ilaria Mara Russo, University of Sannio, Italy; Eric Loria, NASA Jet Propulsion Laboratory, California Institute of Technology, United States; Andrew O'Brien, ElectroScience Laboratory, The Ohio State University, United States; Carmela Galdi, Maurizio di Bisceglie, University of Sannio, Italy; Valery Zavorotny, CIRES/The University of Colorado Boulder (Ret.), United States; Marco Lavalle, Mary Morris, NASA Jet Propulsion Laboratory, California Institute of Technology, United States

WE4.O-1.3 RESOLVING INLAND WATERWAYS WITH CYGNSS
Christopher Ruf, University of Michigan, United States; Clara Chew, University Corporation for Atmospheric Research, United States; Cynthia Gerlein-Safdi, Lawrence Berkeley National Laboratory, United States; April Warnock, SRI International, United States

WE4.O-1.4 SCATTERING MODELS FOR GNSS-R IN INLAND WATERS
Valery Zavorotny, University of Colorado Boulder, United States; Eric Loria, California Institute of Technology, United States

WE4.O-1.5 OVERCOMING THE CURRENT LIMITATIONS OF GNSS-R OBSERVATION OF WETLANDS AND SURFACE WATER
Andrew O'Brien, The Ohio State University, United States; Eric Loria, NASA Jet Propulsion Laboratory, California Institute of Technology, United States

WE4.O-1.6 COMPARISON OF SAR AND CYGNSS SURFACE WATER EXTENT METRICS OVER THE YUCATAN LAKE WETLAND SITE
Bruce Chapman, NASA Jet Propulsion Laboratory, California Institute of Technology, United States; Ilaria Mara Russo, Carmela Galdi, Università degli Studi del Sannio, Italy; Mary Morris, NASA Jet Propulsion Laboratory, California Institute of Technology, United States; Maurizio de Bisceglie, Università degli Studi del Sannio, Italy; Cinzia Zuffada, Marco Lavalle, NASA Jet Propulsion Laboratory, California Institute of Technology, United States

Wednesday, July 14 16:40 - 18:10 Oral Room 2
Session WE4.O-2 Oral-Invited

Advances in Monitoring Active Volcanoes

Session Co-Chairs: Michael J. Abrams, Jet Propulsion Laboratory, California Institute of Technology; Vincent Realmuto, Jet Propulsion Laboratory; Islam Alam Saad Mansour, German Aerospace Center (DLR)

WE4.O-2.1 REMOTE SENSING OF VOLCANOES AT LOW AND HIGH SPATIAL RESOLUTION: A HISTORICAL PERSPECTIVE AND FUTURE OPPORTUNITIES
Robert Wright, University of Hawaii at Manoa, United States

WE4.O-2.3 ADVANCES IN UV SATELLITE MONITORING OF VOLCANIC EMISSIONS
Simon Carn, Michigan Technological University, United States; Nickolay Krotkov, NASA Goddard Space Flight Center, United States; Nicholas Theys, Royal Belgian Institute for Space Aeronomy, Belgium; Can Li, University of Maryland, United States

WE4.O-2.4 VOLCANO MONITORING WITH GEODETIC AND THERMAL REMOTE SENSING TIME SERIES
Paul Lundgren, NASA Jet Propulsion Laboratory, California Institute of Technology, United States; Társilo Girona, University of Alaska Fairbanks, United States; M. Grace Bato, NASA Jet Propulsion Laboratory, California Institute of Technology, United States

WE4.O-2.5 OPERATIONALIZING GLOBAL VOLCANO MONITORING USING HIGH RESOLUTION ORBITAL REMOTE SENSING
Michael Ramsey, University of Pittsburgh, United States

WE4.O-2.6 SPACE MISSIONS, DRONES AND CAMERAS IN SITU FOR THERMAL ANALYSIS AND GAS RETRIEVAL IN VOLCANIC AREAS
Maria Fabrizia Buongiorno, Malvina Silvestri, Vito Romaniello, Enrica Marotta, Teresa Caputo, Massimo Musacchio, Federico Rabuffi, Eliana Bellucci Sessa, Istituto Nazionale di Geofisica e Vulcanologia, Italy; Jorge Andres Diaz, GasLAB, University of Costa Rica, Costa Rica; Gala Avvisati, Pasquale Belviso, Istituto Nazionale di Geofisica e Vulcanologia, Italy

Wednesday, July 14 16:40 - 18:10 Oral Room 3
Session WE4.O-3 Oral-Invited

Radiometer Technology and Calibration: Recent Advances

Session Co-Chairs: Jinzheng Peng, NASA Goddard Space Flight Center / Universities Space Research Association; William J. Blackwell, MIT Lincoln Laboratory; Wufan Zhao, University of Twente

WE4.O-3.1 IMPROVED RADIOMETRIC CAPABILITIES THROUGH ADVANCES IN MICROWAVE DIGITAL RADIOMETERS
Sidharth Misra, Xavier Bosch-Lluis, Mehmet Ogut, Alan Tanner, Robert Jarnot, NASA Jet Propulsion Laboratory, California Institute of Technology, United States

WE4.O-3.3 RADIOMETER CALIBRATION FOR THE NASA TROPICS CUBESAT MISSION
R. Vincent Leslie, William J. Blackwell, Michael DiLiberto, MIT Lincoln Laboratory, United States

WE4.O-3.4 ACCURACY: A NOVEL APPROACH TO CALIBRATE CUBESAT RADIOMETER CONSTELLATIONS
John Bradburn, Henry Ashley, Mustafa Aksoy, University at Albany, State University of New York, United States

WE4.O-3.5 ARRAY-FED MICROWAVE RADIOMETER
Jeffrey Piepmeier, Thomas Holmes, Rafael Rincon, NASA Goddard Space Flight Center, United States; Ali Mahnad, Science Systems and Applications, Inc., United States; Jinzheng Peng, University Space Research Associates, United States; Paul Racette, Giovanni DeAmici, NASA Goddard Space Flight Center, United States; Jared Jordan, Will Stacey, Cubic Nuvotronics, United States

WE4.O-3.6 LESSONS LEARNED FROM SMAP RADIOMETER PRE-/POST-LAUNCH CALIBRATION
Jinzheng Peng, NASA Goddard Space Flight Center / Universities Space Research Association, United States; Jeffrey Piepmeier, NASA Goddard Space Flight Center, United States; Sidharth Misra, NASA Jet Propulsion Laboratory, United States; Derek Hudson, NASA Goddard Space Flight Center, United States; Priscilla Mohammed, NASA Goddard Space Flight Center / Morgan State University, United States; Giovanni De Amici, NASA Goddard Space Flight Center, United States; Emmanuel Dinnat, NASA Goddard Space Flight Center / Chapman University, United States; David Le Vine, NASA Goddard Space Flight Center, United States; Simon Yueh, NASA Jet Propulsion Laboratory, United States; Thomas Meissner, Remote Sensing Systems, United States

Wednesday, July 14 16:40 - 18:10 Oral Room 4
Session WE4.O-4 Oral-Invited

Research Challenges and Recent Advances for Tropical Forest Monitoring

Session Co-Chairs: Baudouin Desclee, Joint Research Centre - European Commission; Sarah Carter, Wageningen University; Pietro Mastro, Università degli Studi della Basilicata

WE4.O-4.1 RESEARCH AND DEVELOPMENT NEEDS FOR REDD+ AND FOREST MONITORING
Sarah Carter, Martin Herold, Jennifer Murrins Misiukas, Wageningen University, Netherlands

WE4.O-4.3 PERFORMANCE ASSESSMENT OF RECENT TROPICAL FOREST MONITORING PRODUCTS FOR REDD+ OPERATIONAL SERVICES
Baudouin Desclee, Joint Research Center, European Commission, Italy; Peter Navratil, GAF AG, Germany; Mathieu Decuyper, Wageningen University, Netherlands; Hugh Eva, Frederic Achard, Joint Research Center, European Commission, Italy

WE4.O-4.4 ASSESSING THE CAUSES OF TROPICAL FOREST DEGRADATION USING LANDSAT TIME SERIES: A CASE STUDY IN THE BRAZILIAN AMAZON
Julie Betbeder, CIRAD, France; Damien Arvor, CNRS, France; Lilian Blanc, Guillaume Cornu, Clément Bourgoin, Renan Le Roux, Audrey Mercier, Plinio Sist, CIRAD, France; Lucas Mazzei, Embrapa Amazônia Oriental, Brazil; Christian Brenez, Tropical Agricultural Research and Higher Education Center (CATIE), Costa Rica; Hélène Dessard, Isabelle Tritsch, Valéry Gond, CIRAD, France

WE4.O-4.5 FOREST DEGRADATION DERIVED BY A NEWLY DEVELOPED SENTINEL-1 CHANGE DETECTION APPROACH
Andreas Langner, Silvia Carboni, European Commission, Joint Research Centre, Italy

WE4.O-4.6 SENTINEL-1-BASED HUMID TROPICAL FOREST DISTURBANCE ALERS FOR AFRICA
Johannes Reiche, Adugna Mullissa, Yaqing Gou, Bart Slagter, Martin Herold, Wageningen University, Netherlands

Wednesday, July 14 16:40 - 18:10 Oral Room 5
Session WE4.O-5 Oral-Invited

Ground-based Microwave Techniques for Snowpack Monitoring II

Session Co-Chairs: Pedro F. Espín-López, CTTC; Marco Pasian, Università degli Studi di Pavia; Frederik Priem, Vrije Universiteit Brussel

WE4.O-5.1 RETRIEVAL OF DIELECTRIC PROPERTIES OF SOFT MATERIALS USING A LOW COST FMCW 24 GHZ RADAR: INVESTIGATING ITS USE AS SNOWPACK DENSITY PROFILER
Pedro F. Espín-López, Guido Luzi, Riccardo Palamà, CTTC, Spain

WE4.O-5.3 SNOWPACK REMOTE SENSING USING WIDEBAND LONG-WAVELENGTH MICROWAVE RADIOMETRY
Maryam Salim, Roger De Roo, University of Michigan, United States; Mark Andrews, Joel Johnson, Alexandra Bringer, The Ohio State University, United States; Kamal Sarabandi, University of Michigan, United States

WE4.O-5.4 SNOW WATER EQUIVALENT EVOLUTION DURING THE 2019/2020 WINTER PERIOD IN AEMET-FORMIGAL TEST SITE USING A SFCW RADAR
Rafael Alonso, José María García del Pozo, University of Zaragoza, Spain; Samuel T. Buisán, Agencia Estatal de Meteorología (AEMet), Spain; José Adolfo Álvarez, Confederación Hidrográfica del Ebro, Spain

WE4.O-5.5 SHIELDING OF TRI-PATCH ANTENNA USING 3D PRINTED COMPOSITE CARBON/PLA ABSORBER FOR ULTRA WIDEBAND SNOW RADAR SYSTEMS
Kristian Gjertsen Kjelgård, Tor Sverre Lande, University of Oslo, Norway

WE4.O-5.6 IDENTIFICATION OF BEDROCK TOPOGRAPHY-RELATED ICE FRACTURES IN THE PLANPINCIEUX GLACIER USING HELICOPTER-BORNE GPR AND DTM ANALYSIS
Niccolò Dematteis, Research Institute for Hydro-geological Protection, Italian National Research Council, Italy; Fabrizio Troilo, Safe Mountain Foundation, Italy; Melchior Grab, Hansruedi Maurer, ETH Zurich, Switzerland; Daniele Giordan, Research Institute for Hydro-geological Protection, Italian National Research Council, Italy

Wednesday, July 14 16:40 - 18:10 Oral Room 6
Session WE4.O-6 Oral-Invited

Copernicus SAR Missions in C- and L- band: Status, Evolution and Contribution to Advanced Monitoring and Assessment of Natural Disasters II

Session Co-Chairs: Pierre Potin, European Space Agency; Malcolm Davidson, European Space Agency (ESA); Abdelhafid Dahhani, Université Savoie Mont Blanc

WE4.O-6.1 STATUS AND EVOLUTION OF SENTINEL-1 MISSION
Pierre Potin, European Space Agency (ESA), Italy

WE4.O-6.3 SENTINEL-1 MISSION PERFORMANCE AND EVOLUTION OF DATA PRODUCTS
Nuno Miranda, European Space Agency (ESA), Italy; Riccardo Piantanida, Andrea Recchia, Niccolò Franceschi, Aresys s.r.l., Italy; Kersten Schmidt, German Aerospace Center (DLR), Germany; Guillaume Hajduch, Pauline Vincent, CLS, France

WE4.O-6.4 THE NEW, SYSTEMATIC GLOBAL FLOOD MONITORING PRODUCT OF THE COPERNICUS EMERGENCY MANAGEMENT SERVICE
Peter Salamon, Niall McCormick, European Commission, Joint Research Centre, Italy; Christopher Reimer, Tom Clarke, EODC Earth Observation Data Centre for Water Resources Monitoring GmbH, Austria; Bernhard Bauer-Marschallinger, Wolfgang Wagner, Technische Universität Wien, Austria; Sandro Martinis, Candace Chow, Christian Böhnke, German Aerospace Center (DLR), Germany; Patrick Matgen, Marco Chini, Renaud Hostache, Luxembourg Institute of Science and Technology, Luxembourg; Luca Molini, Elisabetta Fiori, Centro Internazionale in Monitoraggio Ambientale – Fondazione CIMA, Italy; Andreas Wallli, GeoVille Information Systems and Data Processing GmbH, Austria

WE4.O-6.5 CYCLONE MONITORING WITH SENTINEL-1: SERVICE DEMONSTRATION
Romain Husson, Collecte Localisation Satellites, France; Alexis Mouche, IFREMER, France; Nicolas Longépé, European Space Agency (ESA), Italy; Olivier Archer, IFREMER, France; Gaël Goimard, Collecte Localisation Satellites, France; Emina Mamaca, IFREMER, France; Henrick Berger, François Soulat, Collecte Localisation Satellites, France; Marie-Hélène Rio, Luca Martino, Pierre Potin, European Space Agency (ESA), Italy

WE4.O-6.6 CONTINUOUS MONITORING OF ICE MOTION AND DISCHARGE OF ANTARCTIC AND GREENLAND ICE SHEETS AND OUTLET GLACIERS BY SENTINEL-1 A & B
Thomas Nagler, Jan Wuite, Ludivine Libert, Markus Hetzenecker, Lars Keuris, Helmut Rott, ENVEO IT GmbH, Austria

Wednesday, July 14 16:40 - 18:10 Oral Room 7
Session WE4.O-7 Oral-Invited

Sentinel-1/2 Multi-Temporal Analysis and Change Detection

Session Co-Chairs: Xavier Neyt, Royal Military Academy; Eric Hallot, Institut Scientifique de Service Public; Shan Wei, University of Hong Kong

WE4.O-7.1 URBAN SITES CHANGE DETECTION BY MEANS OF SENTINEL-1 AND SENTINEL-2 TIME SERIES
Mattia Stasolla, Royal Military Academy, Belgium; Sophie Petit, Coraline Wyard, Gérard Swinnen, Institut Scientifique de Service Public, Belgium; Xavier Neyt, Royal Military Academy, Belgium; Eric Hallot, Institut Scientifique de Service Public, Belgium

WE4.O-7.3 ASSIMILATION OF SENTINEL-1 CHANGE DETECTION IN THE AQUACROP MODEL: CASE OF SUGARCANE
Joost Wellens, University of Liège, Belgium; Mattia Stasolla, Royal Military Academy, Belgium; Mor Talla Sall, Compagnie Sucrière Sénégalaise, Senegal; Bernard Tychon, University of Liège, Belgium; Xavier Neyt, Royal Military Academy, Belgium

WE4.O-7.4 IDENTIFICATION OF RICE FIELDS IN THE LOMBARDY REGION OF ITALY BASED ON TIME SERIES OF SENTINEL-1 DATA
David Marzi, Cristian Garau, Fabio Dell'Acqua, University of Pavia, Italy

WE4.O-7.5 CHANNEL-BASED ATTENTION FOR LAND COVER CLASSIFICATION USING SENTINEL-2 TIME SERIES
Hermann Courteille, Alexandre Benoit, Nicolas Méger, Université Savoie Mont Blanc, France; Dino Ienco, Université Montpellier INRAE, France; Abdourrahmane Atto, Université Savoie Mont Blanc, France

WE4.O-7.6 EXPLOITING MULTI-TEMPORAL INFORMATION FOR IMPROVED SPECKLE REDUCTION OF SENTINEL-1 SAR IMAGES BY DEEP LEARNING
Emanuele Dalsasso, Inès Meraoumia, Télécom Paris, France; Loïc Denis, Université de Lyon, Université Jean-Monnet Saint-Etienne, France; Florence Tupin, Télécom Paris, France

Wednesday, July 14 16:40 - 18:10 Oral Room 8
Session WE4.O-8 Oral-Invited

Technology and Science Advances of SmallSat Distributed SAR Systems

Session Co-Chairs: Marco Lavalle, NASA Jet Propulsion Laboratory; Greg Hurlock, Georgia Tech; Alberto Moreira, DLR

WE4.O-8.1 MULTISTATIC SAR CONSTELLATIONS: AN OPPORTUNITY FOR SCALABLE SYSTEMS WITH SINGLE-PASS INTERFEROMETRIC CAPABILITIES
Marc Rodriguez-Cassola, Nida Sakar, Eduardo Rodrigues-Silva, Jalal Matar, Phuong Mai Nguyen Thi, Luca Dell'Amore, Mariantonietta Zonno, Pau Prats-Iraola, Gerhard Krieger, Alberto Moreira, Nico Gebert, German Aerospace Center (DLR), Germany

WE4.O-8.3 A MIMO MULTI-STATIC SAR SATELLITE FORMATION FOR HIGH RESOLUTION 3D IMAGING AT LONGER WAVELENGTHS
Stefano Tebaldini, Luca Flora, Fabio Rocca, Politecnico di Milano, Italy

WE4.O-8.4 DISTRIBUTED APERTURE RADAR TOMOGRAPHIC SENSORS (DARTS) TO MAP SURFACE TOPOGRAPHY AND VEGETATION STRUCTURE
Marco Lavalle, Ilgin Seker, NASA Jet Propulsion Laboratory, United States; James Ragan, California Institute of Technology, United States; Eric Loria, Razi Ahmed, Brian Hawkins, Samuel Prager, Duane Clark, Robert M. Beauchamp, Mark S. Haynes, Paolo Focardi, Nacer Chahat, NASA Jet Propulsion Laboratory, United States; Matthew Anderson, Kai Matsuka, Vincenzo Capuano, Soon-Jo Chung, California Institute of Technology, United States

WE4.O-8.5 FORMATION OF MIMO SAR MINI-SATELLITES: PERFORMANCE PREDICTION
Davide Giudici, Aresys s.r.l., Italy; Andrea Virgilio Monti-Guarnieri, Politecnico di Milano, Italy; Pietro Guccione, Daniele Mapelli, Adriano Persico, Aresys s.r.l., Italy

WE4.O-8.6 DIMENSION-ADAPTIVE IMAGING WITH A SWARMSAR OF LIGHTWEIGHT S-BAND NODES
Lorenzo Iannini, Ozan Dogan, Peter Hoogeboom, Paco López-Dekker, Delft University of Technology, Netherlands

Wednesday, July 14 16:40 - 18:10 Oral Room 9
Session WE4.O-9 Oral

PS/DS InSAR Monitoring Techniques

Session Co-Chairs: Andy Hooper, University of Leeds; Jingyi Chen, University of Texas at Austin; Miguel Hoyo García, Fondazione Bruno Kessler

WE4.O-9.1 MAXIMUM TEMPORAL BASELINE FOR INSAR TIME SERIES
Howard Zebker, Karissa Pepin, Stanford University, United States

WE4.O-9.2 ANALYSIS OF HETEROGENEOUS PS-INSAR DERIVED SUBSIDENCE RATES USING CATEGORIZED GIS OBJECTS - A CASE STUDY IN THE MEKONG DELTA
Nils Dörr, Andreas Schenk, Stefan Hinz, Karlsruhe Institute of Technology, Germany

WE4.O-9.3 TOWARDS AUTOMATIC FUNCTIONAL MODEL SPECIFICATION FOR DISTRIBUTED SCATTERERS USING T-SNE
Philip Conroy, Ramon F. Hanssen, Delft University of Technology, Netherlands

WE4.O-9.4 ALIASING IN INSAR AND SBAS TIME SERIES
Karissa Pepin, Howard Zebker, Stanford University, United States

WE4.O-9.5 AUTOMATIC DETECTION OF INSAR DEFORMATION SIGNALS USING A REALISTIC TROPOSPHERIC TURBULENCE NOISE MODEL
Scott Staniewicz, Jingyi Chen, University of Texas at Austin, United States

WE4.O-9.6 IMPROVEMENTS IN THE LICSAR GENERATOR OF SENTINEL-1 INTERFEROGRAMS
Milan Lazecky, Yasser Maghsoudi, University of Leeds, United Kingdom; Fabien Albino, University of Bristol, United Kingdom; Andy Hooper, Tim Wright, University of Leeds, United Kingdom

Wednesday, July 14 16:40 - 18:10 Oral Room 10
Session WE4.O-10 Oral-Invited

SMOS to Support Science and Services for the Next Decade

Session Co-Chairs: Klaus Scipal, European Space Agency; Lemma Tsegaye D., Ethiopian Space Science and Technology Institute

WE4.O-10.1 THE FUTURE OF SMOS L-BAND RADIOMETRY IN SUPPORT OF SCIENCE AND OPERATIONAL SERVICES
Yann Kerr, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France

WE4.O-10.3 SMOS LEVEL 3 SALINITY MAPS AT CATDS: WHAT DO WE LEARN WITH RECENT REPROCESSINGS?
Jacqueline Boutin, LOCEAN/CNRS, France; Jean-Luc Vergely, ACRI-st, France; Dimitry Khvorostyanov, LOCEAN/CNRS, France; Stéphane Tarot, IFREMER, France; Sébastien Guimbard, OceanScope, France; Xavier Perrot, LOCEAN/CNRS, France; Nicolas Reul, IFREMER, France; Olivier Vandermarcq, CNES, France

WE4.O-10.4 SMOS SEA ICE THICKNESS DATA PRODUCT QUALITY CONTROL BY COMPARISON WITH THE REGIONAL SEA ICE EXTENT
Lars Kaleschke, Xiangshan Tian-Kunze, Alfred-Wegener-Institute Helmholtz Center for Polar and Marine Research (AWI), Germany

WE4.O-10.5 ESA'S CLIMATE CHANGE INITIATIVE: HOW SMOS CONTRIBUTES
Susanne Mecklenburg, Clément Albergel, Paolo Cipollini, Roberto Sabia, Frank Martin Seifert, Anna Maria Trofaier, European Space Agency (ESA), United Kingdom

WE4.O-10.6 L-BAND DATA FOR NUMERICAL WEATHER PREDICTION AND EMERGENCY SERVICES AT ECMWF
Patricia de Rosnay, Peter Weston, European Centre for Medium-Range Weather Forecasts (ECMWF), United Kingdom; Nemesio Rodríguez-Fernández, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Calum Baugh, David Fairbairn, Francesca Di Giuseppe, Joaquín Munoz-Sabater, Stephen English, Christel Prudhomme, European Centre for Medium-Range Weather Forecasts (ECMWF), United Kingdom; Matthias Drusch, ESA / ESTEC, Netherlands

Wednesday, July 14 16:40 - 18:10 Oral Room 11
Session WE4.O-11 Oral-Invited

Remote Sensing Approaches to Detect and Characterize Marine Plastic Litter

Session Co-Chairs: Paolo Corradi, ESTEC - European Space Agency; Els Knaeps, VITO Remote Sensing; Hira Zafar, Universität Salzburg

WE4.O-11.1 QUANTIFYING FLOATING PLASTIC DEBRIS AT SEA USING VESSEL-BASED OPTICAL DATA AND ARTIFICIAL INTELLIGENCE
Robin de Vries, Matthias Egger, Thomas Mani, Laurent Lebreton, The Ocean Cleanup, Netherlands

WE4.O-11.3 MONITORING SURFACTANTS POLLUTION POTENTIALLY RELATED TO PLASTICS IN THE WORLD GYRES USING RADAR REMOTE SENSING
Morgan Simpson, Armando Marino, University of Stirling, United Kingdom; Peter De Maagt, Erio Gandini, European Space Agency (ESA), Netherlands; Peter Hunter, Evangelos Spyrakos, Andrew Tyler, University of Stirling, United Kingdom; Nicolas Ackermann, Swiss Federal Railways, Switzerland; Irena Hajnsek, ETH Zurich / The German Aerospace Center, Switzerland; Ferdinando Nunziata, The Parthenope University of Naples, Italy; Trevor Telfer, University of Stirling, United Kingdom

WE4.O-11.4 ADVANCES ON REMOTE SENSING OF WINDROWS AS PROXIES FOR MARINE LITTER BASED ON SENTINEL-2/MSI DATASETS
Manuel Arias, ARGANS Ltd., United Kingdom; Romain Sumerot, ACRI-ST, France; James Delaney, ARGANS Ltd., United Kingdom; Fatimatou Coulibaly, ARGANS France, France; Andres Cozar, University of Cadiz, Spain; Stefano Aliani, Giuseppe Suaria, ISMAR-CNR, Italy; Theodora Papadopoulou, ARGANS France, France; Paolo Corradi, ESA / ESTEC, Netherlands

WE4.O-11.5 COMBINING SPECTRAL APPROACHES AND AI FOR MARINE LITTER DETECTION AND IDENTIFICATION
Mehrdad Moshtaghi, Els Knaeps, VITO, Belgium

WE4.O-11.6 A FIRST APPROACH TO THE AUTOMATIC DETECTION OF MARINE LITTER IN SAR IMAGES USING ARTIFICIAL INTELLIGENCE
Salvatore Savastano, isardSAT, United Kingdom; Ivan Cester, Martí Perpinyà, Lobelia Earth, Spain; Laia Romero, Lobelia, Spain

Wednesday, July 14 16:40 - 18:10 Oral Room 12
Session WE4.O-12 Oral

Image Restoration

Session Co-Chairs: Ximena Tagle Casapia, Wageningen University & Research; Patrick Ebel, TU Munich; Qiang Zhang, Wuhan University

WE4.O-12.1 THICK CLOUD REMOVAL FOR SENTINEL-2 TIME-SERIES IMAGES VIA COMBINING DEEP PRIOR AND LOW-RANK TENSOR COMPLETION
Qiang Zhang, Wuhan University, China; Fujun Sun, Beijing Electro-mechanical Engineering Institute, China; Qiangqiang Yuan, Liangpei Zhang, Wuhan University, China

WE4.O-12.2 PARALLAX ESTIMATION FOR PUSH-FRAME SATELLITE IMAGERY: APPLICATION TO SUPER-RESOLUTION AND 3D SURFACE MODELING FROM SKYSAT PRODUCTS
Jérémy Anger, Kayrros, France; Thibaud Ehret, Gabriele Facciolo, Université Paris-Saclay, France

WE4.O-12.3 REMOTE SENSING IMAGE JITTER RESTORATION BASED ON DEEP GENERATIVE ADVERSARIAL NETWORK
Zhaoxiang Zhang, Qing Zhou, Yuelei Xu, Linhua Ma, Akira Iwasaki, Northwestern Polytechnical University, China

WE4.O-12.4 THICK CLOUD REMOVAL FROM REMOTE SENSING IMAGES USING DOUBLE SHIFT NETWORKS
Chaojun Long, Wuhan University, China; Jing Yang, CCCC Second Highway Consultants Co., Ltd, China; Xiaobin Guan, Xinghua Li, Wuhan University, China

WE4.O-12.5 INTERNAL LEARNING FOR SEQUENCE-TO-SEQUENCE CLOUD REMOVAL VIA SYNTHETIC APERTURE RADAR PRIOR INFORMATION
Patrick Ebel, TU Munich, Germany; Michael Schmitt, Hochschule München, DLR, Germany; Xiaoxiang Zhu, TU Munich, DLR, Germany

WE4.O-12.6 HYBRID GAN AND SPECTRAL ANGULAR DISTANCE FOR CLOUD REMOVAL
Omid Ghozatlou, Research Center for Spatial Information (CEOSpaceTech), Romania; Mihai Datcu, German Aerospace Center (DLR), Romania

Wednesday, July 14 16:40 - 18:10 Oral Room 13
Session WE4.O-13 Oral

Topography and Ggeology of Earth, Moon and Mars

Session Co-Chairs: Samuel Favrichon, Observatoire de Paris, PSL University, Sorbonne Université, CNRS; Hamid Daghigh, The University of British Columbia; Jasper Feyen, Universiteit Gent

WE4.O-13.1 THE NEW VERSION 3 ASTER GLOBAL DEM AND THE ASTER WATER BODY DATASET
Michael Abrams, NASA Jet Propulsion Laboratory, United States; Yasushi Yamaguchi, Robert Crippen, None, Japan

WE4.O-13.2 DESCRIBING THE QUALITY ASSESSMENT WORKFLOW DESIGNED FOR DEM PRODUCTS DISTRIBUTED VIA THE COPERNICUS PROGRAMME. CASE STUDY: THE ABSOLUTE VERTICAL ACCURACY OF THE COPERNICUS DEM DATASET IN SPAIN
Luca Cenci, Marco Galli, Giovanna Palumbo, Luca Sapia, Carla Santella, Serco Italia SpA, Italy; Clément Albinet, ESA - European Space Research Institute, Italy

WE4.O-13.3 MAPPING MICROWAVE PENETRATION DEPTHS OVER ARID AREAS
Samuel Favrichon, Catherine Prigent, Observatoire de Paris, PSL University, Sorbonne Université, CNRS, France; Carlos Jimenez, Estellus, France

WE4.O-13.4 DISCONTINUITY PLANE EXTRACTION FROM A ROCK MASS POINT CLOUD USING UNSUPERVISED MACHINE LEARNING
Hamid Daghigh, Dwayne D. Tannant, University of British Columbia, Canada; Majid Jaberipour, Sunnybrook Research Institute, Canada

WE4.O-13.5 EXPLORING THE TRANSMISSION OF VNIR LIGHT THROUGH MARTIAN REGOLITH
Gladimir Baranoski, Mark Iwanchyshyn, Bradley Kimmel, Petri Varsa, Spencer Van Leeuwen, University of Waterloo, Canada

Wednesday, July 14 16:40 - 18:10 Oral Room 14
Session WE4.O-14 Oral

Remote Sensing of Aerosols and Atmospheric Correction II

Session Co-Chairs: Xiaohui Pan, Universiteit Gent; Erwin Wolters, VITO

WE4.O-14.1 PM2.5 CLASSIFICATION THROUGH CONVOLUTIONAL RECURRENT NEURAL NETWORKS APPLIED TO MODIS AOD AND TOA REFLECTANCE IMAGES
Yuwei Zhou, John Kerekes, Rochester Institute of Technology, United States

WE4.O-14.2 ANALYSIS OF AERONET EXTENDED WAVELENGTH RETRIEVALS OF AEROSOL ABSORPTION PARAMETERS INCLUDING 380 NM AND 500 NM FOR DETECTION OF BROWN CARBON IN BIOMASS BURNING AND IRON OXIDES IN DESERT DUST
Thomas Eck, USRA, NASA Goddard Space Flight Center, United States; Brent Holben, NASA Goddard Space Flight Center, United States; Alexander Sinyuk, David Giles, SSAI/GSFC, United States; Antti Arola, Finnish Metereological Institute, Finland; Jeffrey Reid, NRL, United States; Ilya Slutsker, Joel Schafer, Mikhail Sorokin, Alexander Smirnov, Anthony LaRosa, SSAI/GSFC, United States; Jason Kraft, FiberTek/GSFC, United States

WE4.O-14.3 DEEP NEURAL NETWORK ARCHITECTURE SEARCH FOR EMULATING PHYSICAL PARAMETERIZATION OF PLANETARY BOUNDARY LAYER HEIGHT
Phuong Nguyen, Rahul Gite, Zhifeng Yang, Milton Halem, University Of Maryland Baltimore County, United States

WE4.O-14.4 ESTIMATION OF AN AEROSOL PLUME MASS BALANCE FROM PLUME PROPERTY RETRIEVALS COMPUTED BY THE COMBINATION OF THE SENTINEL-2 DATA WITH HYPERSPECTRAL DATA COUPLED WITH AN OPTIMAL ESTIMATION METHOD.
Gabriel Calassou, Pierre-Yves Foucher, ONERA, France; Jean-François Léon, Laboratoire d'Aérologie, France

WE4.O-14.5 IMPLEMENTING PREFERENTIALLY-ALIGNED PARTICLES IN THE OPENSSP PARTICLE AND SCATTERING DATABASE
Ian Adams, NASA Goddard Space Flight Center, United States; Robert Schrom, NASA Goddard Space Flight Center and USRA, United States; Stephen Munchak, NASA Goddard Space Flight Center, United States; Kwo-Sen Kuo, Rachael Kroodsma, NASA Goddard Space Flight Center and ESSIC, United States; Ines Fenni, University of California, Los Angeles and JPL, United States

WE4.O-14.6 MAPPING OF STRATOSPHERIC INTRUSION AND POLAR VORTEX BREAKUP USING OZONE FROM CRIS SFOV RETRIEVALS AND COMPARISON WITH MODEL
Xiaozhen Xiong, Xu Liu, NASA Langley Research Center, United States; Wan Wu, Qiguang Yang, Science Systems and Applications, Inc., United States; Jason Welsh, Universities and Space Research Association (USRA), United States; Daniel K. Zhou, NASA Langley Research Center, United States

Wednesday, July 14 16:40 - 18:10 Oral Room 15
Session WE4.O-15 Oral

Ocean Altimetry

Session Co-Chairs: Nimisha Verma, University of Twente; Anabella Ferral, Centro Espacial Teófilo Tabanera, CONAE; Andrea Marinoni, The Arctic University of Norway

WE4.O-15.1 COMPARISON OF EXTREME SIGNIFICANT WAVE HEIGHT STATISTICS IN THE NORTHWEST PACIFIC
Hye-Jin Woo, Kyung-Ae Park, Seoul National University, Korea (South)

WE4.O-15.3 END-TO-END KALMAN FILTER FOR THE RECONSTRUCTION OF SEA SURFACE DYNAMICS FROM SATELLITE DATA
Said Ouala, Ronan Fablet, Lucas Drumetz, Imt-Atlantique, France; Bertrand Chapron, Ananda Pascual, Ifremer, France; Fabrice Collard, Lucile Gaultier, Ocean Data Lab, France

WE4.O-15.4 END-TO-END LEARNING OF VARIATIONAL INTERPOLATION SCHEMES FOR SATELLITE-DERIVED SSH DATA
Maxime Beauchamp, Mohamed Mahmoud Amar, Quentin Febvre, Ronan Fablet, IMT Atlantique, France

WE4.O-15.5 BENEFITS OF THE "ADAPTIVE RETRACKING SOLUTION" FOR THE JASON-3 GDR-F REPROCESSING CAMPAIGN
Pierre Thibaut, Fanny Piras, Hélène Roinard, Adrien Guerou, Collecte Localisation Satellites, France; François Boy, Claire Maraldi, François Bignalet-Cazalet, Gérald Dibarboure, Nicolas Picot, Centre National d'Etudes Spatiales, France

WE4.O-15.6 NEAR-REAL-TIME SIGNIFICANT WAVE HEIGHTS IN HURRICANES FROM A NEW AIRBORNE KA-BAND INTERFEROMETRIC ALTIMETER
Joe Sapp, Zorana Jelenak, Paul S. Chang, National Oceanic and Atmospheric Administration (NOAA), United States; Jim Carswell, Brian Pollard, Alex Theg, Remote Sensing Solutions, United States

Wednesday, July 14 16:40 - 18:10 Oral Room 16
Session WE4.O-16 Oral

Bistatic and Digital Beamforming SAR

Session Co-Chairs: Antonio Iodice, University of Naples Federico II; Laura Martínez-Ferrer, Universitat de València

WE4.O-16.1 SPACEBORNE-AIRBORNE BISTATIC SAR EXPERIMENT USING GF-3 ILLUMINATOR: DESCRIPTION, PROCESSING AND RESULTS
Zhichao Sun, Junjie Wu, University of Electronic Science and Technology of China, China; Zheng Lv, Institute of Remote Sensing Satellite, China Academy of Space Technology, China; Dongtao Li, Xi'an Branch, China Academy of Space Technology, China; Yuxuan Miao, Tianfu Chen, University of Electronic Science and Technology of China, China; Weihua Zuo, Caipin Li, Xi'an Branch, China Academy of Space Technology, China; Yu Hai, Hongyang An, Jianyu Yang, University of Electronic Science and Technology of China, China; Liangbo Zhao, Qingjun Zhang, Institute of Remote Sensing Satellite, China Academy of Space Technology, China; Chaoran Zhuang, China Center for Resources Satellite Data and Application, China

WE4.O-16.2 ASSESSING THE POTENTIAL OF FULLY-POLARIMETRIC SIMULTANEOUS MONO- AND BISTATIC AIRBORNE SAR ACQUISITIONS IN L-BAND FOR APPLICATIONS IN AGRICULTURE AND HYDROLOGY
Jean Bouchat, Université catholique de Louvain, Belgium; Emma Tronquo, Ghent University, Belgium; Hans Lievens, Katholieke Universiteit Leuven, Belgium; Niko Verhoest, Ghent University, Belgium; Pierre Defourny, Université catholique de Louvain, Belgium

WE4.O-16.3 PERFORMANCE OF CORRELATION-BASED IMAGING WITH A BISTATIC CONFIGURATION TOWARD RESILIENT MULTISTATIC IMAGING OF SPACE DEBRIS
Stacey Huang, Howard Zebker, Annie Nguyen, George Papanicolaou, Stanford University, United States; Arlen Schmidt, Visor Corporation, United States

WE4.O-16.4 FORMATION-FLYING SAR RECEIVERS IN FAR-FROM-TRANSMITTER GEOMETRY: SIGNAL MODEL AND PROCESSING SCHEME
Gerardo Di Martino, Alessio Di Simone, Michele Grassi, Marco Grasso, Maria Daniela Graziano, Antonio Iodice, Antonio Moccia, Alfredo Renga, Daniele Riccio, Giuseppe Ruello, University of Naples Federico II, Italy

WE4.O-16.5 DECONVOLUTION METHOD FOR ELIMINATING REFERENCE SIGNAL COUPLING/REFLECTIONS IN BISTATIC SAR
Filip Rosu, Andrei Anghel, Research Center for Spatial Information (CEOSpaceTech), University POLITEHNICA of Bucharest (UPB), Romania; Remus Cacoveanu, EOS Electronic Systems, Romania, and Research Center for Spatial Information (CEOSpaceTech), University POLITEHNICA of Bucharest (UPB), Romania; Silviu Ciochina, University of Politehnica Bucharest, Romania; Mihai Datcu, Research Center for Spatial Information (CEOSpaceTech), University POLITEHNICA of Bucharest (UPB) and Earth Observation Center (EOC), German Aerospace Center (DLR), Romania

WE4.O-16.6 FREQUENCY DIVERSE ARRAY DESIGN FOR DECEPTIVE JAMMING SUPPRESSION USING PARTICLE SWARM OPTIMIZATION
Yi Liao, Guanghui Zeng, Chunlin Wu, Wen-qin Wang, Zhi Zheng, University of Electronic Science and Technology of China, China

WE4.O-16.7 FORMATION-FLYING SAR RECEIVERS IN FAR-FROM-TRANSMITTER GEOMETRY: X-BAND SAR ANTENNA DESIGN
Gerardo Di Martino, Alessio Di Simone, Michele Grassi, Marco Grasso, Maria Daniela Graziano, Antonio Iodice, Antonio Moccia, Alfredo Renga, Daniele Riccio, Giuseppe Ruello, University of Naples Federico II, Italy

Wednesday, July 14 16:40 - 18:10 Oral Room 17
Session WE4.O-17 Oral

Analysis of Land Cover Dynamics

Session Co-Chairs: Jan Verbesselt, WUR; Davide Castelletti, Capella Space Corporation; Druti Gangwar

WE4.O-17.1 DSAMNET: A DEEPLY SUPERVISED ATTENTION METRIC BASED NETWORK FOR CHANGE DETECTION OF HIGH-RESOLUTION IMAGES
Mengxi Liu, Qian Shi, Sun Yat-Sen University, China

WE4.O-17.2 MULTITEMPORAL CHANGE TYPE IDENTIFICATION IN COASTAL ZONE BASED ON SFANET AND LSTM
Tianzhu Liu, Harbin Institute of Technology, China; Min Yang, North China Sea Marine Technical Support Center, China; Meiling Zhang, Shenzhen Samsung Communication Technology Research Ltd. Company, China

WE4.O-17.3 ESTIMATING THE EFFECT OF INFRASTRUCTURE ON VEGETATION DEGRADATION IN EASTERN MONGOLIA STEPPE USING MACHINE LEARNING AND REMOTE SENSING
Batnyambuu Dashpurev, Thanh Noi Phan, LMU Munich, Germany; Jörg Bendix, Philipps-Universität Marburg, Germany; Lukas Lehnert, LMU Munich, Germany

WE4.O-17.4 THIRTY YEARS OF LAND COVER AND FRACTION COVER CHANGES OVER THE SUDANO-SAHEL USING LANDSAT TIME SERIES
Niels Souverijns, Marcel Buchhorn, VITO, Belgium; Stéphanie Horion, Rasmus Fensholt, University of Copenhagen, Denmark; Hans Verbeeck, UGent, Belgium; Jan Verbesselt, Martin Herold, Nandin-Erdene Tsendbazar, Wageningen University & Research, Netherlands; Paulo N. Bernardino, Ben Somers, KU Leuven, Belgium; Ruben Van De Kerchove, VITO, Belgium

WE4.O-17.5 TOWARDS FREQUENT FLOOD MAPPING WITH THE CAPELLA SAR SYSTEM. THE 2021 EASTERN AUSTRALIA FLOODS CASE
Nestor Yague-Martinez, Nicholas R. Leach, Antara Dasgupta, Elizabeth Tellman, Cloud to Street, United States; Jason S. Brown, Capella Space, United States

WE4.O-17.6 CHARACTERIZING THE ICE-FREE AREA OF CIERVA POINT (ANTARCTIC PENINSULA) USING REFLECTANCE SPECTROSCOPY
Thomas Schmid, Ana Nieto, Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas, Spain; Jerónimo López-Martínez, Universidad Autónoma de Madrid, Spain; Stéphane Guillaso, German Research Center for Geosciences, Germany; Magaly Koch, Boston University, United States; Belén Oliva-Urcia, Universidad Autónoma de Madrid, Spain; Luis Javier Lambán, Instituto Geológico y Minero de España, Spain

Wednesday, July 14 16:40 - 18:10 Oral Room 18
Session WE4.O-18 Oral

Precipitation Modelling

Session Co-Chairs: Tomoo Ushio, Osaka University; Weizhi Deng, University of Iowa; Chandra V Chandrasekar, Colorado State University

WE4.O-18.1 CONVECTIVE PRECIPITATION NOWCASTING USING U-NET MODEL
He Liang, Ocean University of China, China; Haonan Chen, Colorado State University, United States; Wei Zhang, Yurong Ge, Lei Han, Ocean University of China, China

WE4.O-18.2 SOME IMPROVEMENTS IN THE GSMAP_GAUGE ALGORITHM
Tomoaki Mega, Tomoo Ushio, Osaka University, Japan; Takuji Kubota, Tomoko Tashima, Japan Aerospace Exploration Agency (JAXA) / EORC, Japan

WE4.O-18.3 GLOBAL WATER BUDGET OF EXASCALE EARTH SYSTEM MODEL (E3SM) IN CMIP6 AND ERA5
Mohamed Eltahan, University of Cologne, Germany; Nour Daoud, Ain Shams University, Egypt; Sabah Alahmadi, King Abdulaziz City for Science and Technology, Saudi Arabia

WE4.O-18.4 RAIN-F: A FUSION DATASET FOR RAINFALL PREDICTION USING CONVOLUTIONAL NEURAL NETWORK
Yeji Choi, Keumgang Cha, Minyoung Back, Hyunguk Choi, Taegyun Jeon, SI-Analytics, South Korea

WE4.O-18.5 USING EDBF ALGORITHM IN THE PREDICTION AND DOWNSCALING OF HIGH-RESOLUTION ANNUAL PRECIPITATION THROUGH MULTITEMPORAL GPM VARIABLES
Sana Ullah, Zhengkang Zuo, Lei Yan, Peking University, China

WE4.O-18.6 A SCIENCE-FOCUSED, SCALABLE, FLEXIBLE OBSERVING SYSTEM SIMULATION EXPERIMENT (OSSE) TOOLKIT
Derek Posselt, Brian Wilson, NASA Jet Propulsion Laboratory, California Institute of Technology, United States; Rachel Storer, University of California, Los Angeles, United States; Derek Tropf, George Duffy, Matt Lebsock, Vishal Lall, Noppasin Niamsuwan, Simone Tanelli, NASA Jet Propulsion Laboratory, California Institute of Technology, United States

Thursday, July 15 10:30 - 12:00 Oral Room 1
Session TH1.O-1 Oral

Feature Extraction and Reduction in Hyperspectral Images

Session Co-Chairs: Qian Du, Mississippi State University; Khatereh Meshkini, Fondazione Bruno Kessler; Shivam Pande, Indian Institute of Technology Bombay

TH1.O-1.1 ATTENTION BASED CONVOLUTION AUTOENCODER FOR DIMENSIONALITY REDUCTION IN HYPERSPECTRAL IMAGES
Shivam Pande, Biplab Banerjee, Indian Institute of Technology Bombay, India

TH1.O-1.2 BIDIRECTIONAL GRU BASED AUTOENCODER FOR DIMENSIONALITY REDUCTION IN HYPERSPECTRAL IMAGES
Shivam Pande, Biplab Banerjee, Indian Institute of Technology Bombay, India

TH1.O-1.3 LOCAL STRUCTURE GRAPH DISCRIMINANT EMBEDDING FOR HYPERSPECTRAL IMAGE CLASSIFICATION
Zehua Zou, Chongqing University, China; Fulin Luo, Wuhan University, China; Jiamin Liu, Chonqing University, China; Guangyao Shi, Chongqing University of Posts and Telecommunications, China; Yufei Liu, Chonqing University, China

TH1.O-1.4 LOCAL BROWNIAN DESCRIPTOR BASED FEATURE EXTRACTION METHOD FOR HYPERSPECTRAL IMAGE CLASSIFICATION
Shuzhen Zhang, Shutao Li, Ting Lu, Hunan University, China

TH1.O-1.5 HYPERSPECTRAL IMAGE CLASSIFICATION BY FRACTIONAL DISCRETE COSINE TRANSFORM BASED FEATURE EXTRACTION
Helgi Omarsson, Qian Du, Mississippi State University, Iceland

Thursday, July 15 10:30 - 12:00 Oral Room 2
Session TH1.O-2 Oral-Invited

Artificial Intelligence and Machine Learning Methods for Big Earth Data

Session Co-Chairs: Manil Maskey, National Aeronautics and Space Administration (NASA); Weiguo Han, UCAR; Srikumar Sastry, University of Twente

TH1.O-2.1 AUGMENTING DATA SYSTEMS WITH PREDICTION BASED EMBEDDINGS
Rahul Ramachandran, National Aeronautics and Space Administration (NASA), United States; Muthukumaran Ramasubramanian, Iksha Gurung, University of Alabama in Huntsville, United States; Carson Davis, Manufacturing Technical Solutions, United States; Derek Koehl, University of Alabama in Huntsville, United States; Manil Maskey, Tsengdar Lee, National Aeronautics and Space Administration (NASA), United States

TH1.O-2.3 TOWARDS MACHINE LEARNING SUPPORT ON COVERAGES
Otoniel José Campos Escobar, Peter Baumann, Jacobs University Bremen, Germany

TH1.O-2.4 THE CASE FOR OPEN-ACCESS ML-READY GEOSPATIAL TRAINING DATA
Hamed Alemohammad, Radiant Earth Foundation, United States

TH1.O-2.5 APPLYING MACHINE LEARNING TO CROPLAND DATA LAYER FOR AGRO-GEOINFORMATION DISCOVERY
Chen Zhang, George Mason University, United States; Zhengwei Yang, US Department of Agriculture, United States; Liping Di, Li Lin, Pengyu Hao, Liying Guo, George Mason University, United States

TH1.O-2.6 PRELIMINARY REPORT ON DEEP LEARNING-BASED DAYTIME CLEAR-SKY RADIANCE FOR VIIRS
Xingming Liang, University of Maryland, United States; Quanhua Liu, NOAA NESDIS, United States

Thursday, July 15 10:30 - 12:00 Oral Room 3
Session TH1.O-3 Oral

Semantic Segmentation in Optical Data I

Session Co-Chairs: Junli Yang, Beijing University of Posts and Telecommunications; Jiahui Yang, China University of Geosciences; Sina Mohammadi, University of Twente

TH1.O-3.1 UNSUPERVISED DOMAIN ADAPTATION FOR SEMANTIC SEGMENTATION VIA SELF-SUPERVISION
Weifa Shen, Qixiong Wang, Hongxiang Jiang, Sen Li, Jihao Yin, Beihang University, China

TH1.O-3.2 TRIPLE ATTENTION NETWORK FOR MULTI-CLASS SEMANTIC SEGMENTATION IN AERIAL IMAGES
Yu Si, Yuxia Li, University of Electronic Science and Technology of China, China; Huanping Wu, China Meteorological Administration, China; Lang Yuan, University of Electronic Science and Technology of China, China; Yuzhen Li, ChengDu Software Industry Development Center, China; Lei He, Chengdu University of Information Technology, China

TH1.O-3.3 DUAL LIGHTWEIGHT NETWORK WITH ATTENTION AND FEATURE FUSION FOR SEMANTIC SEGMENTATION OF HIGH-RESOLUTION REMOTE SENSING IMAGES
Yijie Zhang, Yulan Chen, Qijun Ma, University of Electronic Science and Technology of China, China; Changtao He, Sichuan Jiuzhou Eletric Group Co., Ltd, China; Jian Cheng, University of Electronic Science and Technology of China, China

TH1.O-3.4 EFFICIENT SEMANTIC SEGMENTATION METHOD WITH STRIP POOLING FOR VHR REMOTE SENSING IMAGES
Yifan Sheng, Junli Yang, Youguang Lin, Yu Lei, Beijing University of Posts and Telecommunications, China

TH1.O-3.5 REAL-TIME SEMANTIC SEGMENTATION OF AERIAL VIDEOS BASED ON BILATERAL SEGMENTATION NETWORK
Yihao Zuo, Junli Yang, Zihao Zhu, Ruizhe Li, Yuhan Zhou, Yutong Zheng, Beijing University of Posts and Telecommunications, China

TH1.O-3.6 UCWATER: UNSUPERVISED CONTENT-ADAPTIVE WATER-BODY EXTRACTION FRAMEWORK FOR HIGH-RESOLUTION SATELLITE IMAGERY
Jiahui Yang, Qiqi Zhu, Jianjun Lv, Qingfeng Guan, China University of Geosciences, China

Thursday, July 15 10:30 - 12:00 Oral Room 4
Session TH1.O-4 Oral

Optical I - Infrastructure Detection

Session Co-Chairs: Wufan Zhao, University of Twente; Xiaoyan Lu, Wuhan university; Marcel Stefko, ETH Zurich

TH1.O-4.1 PROTOCOL DESIGN ISSUES FOR OBJECT DENSITY ESTIMATION AND COUNTING IN REMOTE SENSING
Roland Perko, Joannem Research, Austria; Alexander Almer, Joanneum Research, Austria; Mario Theuermann, Manfred Klopschitz, Thomas Schnabel, Joannem Research, Austria; Peter M. Roth, Technical University of Munich, Germany

TH1.O-4.2 A NOVAL GLOBAL-LOCAL ADVERSARIAL NETWORK FOR UNSUPERVISED CROSS-DOMAIN ROAD DETECTION
Xiaoyan Lu, Yanfei Zhong, Wuhan University, China

TH1.O-4.3 MULTI-SCALE BUILDING INSTANCE EXTRACTION FRAMEWORK IN HIGH RESOLUTION REMOTE SENSING IMAGERY BASED ON FEATURE PYRAMID OBJECT-AWARE CONVOLUTION NEURAL NETWORK
Yong Cai, Jiangsu Province Surveying and Mapping Research Institute, China; Dingyuan Chen, Yuanzhe Tang, State Key Laboratory of Information Engineering in Surveying, Mapping and Remote Sensing, Wuhan University, China; Jian Zhang, Ya Gao, Jiangsu Province Surveying and Mapping Research Institute, China

TH1.O-4.4 END-TO-END ROOFLINE EXTRACTION FROM VERY-HIGH-RESOLUTION REMOTE SENSING IMAGES
Wufan Zhao, Claudio Persello, Alfred Stein, University of Twente, Netherlands

TH1.O-4.5 WEAKLY SUPERVISED SOLAR PANEL MAPPING USING RESIDUAL AGGREGATED NETWORK FOR AERIAL IMAGES
Jue Zhang, Xiuping Jia, Jiankun Hu, University of New South Wales Canberra, Australia

TH1.O-4.6 SCRIBBLE-SUPERVISED ROI EXTRACTION USING RESIDUAL DENSE DILATED NETWORK FOR REMOTE SENSING IMAGES
Jie Ma, Beijing Foreign Studies University, China

Thursday, July 15 10:30 - 12:00 Oral Room 5
Session TH1.O-5 Oral

Remote Sensing Image Classification Using Machine Learning I

Session Co-Chairs: Yakoub Bazi, King Saud University; Willeke A'Campo, Stockholm University; Youngwook Kim, California State University, Fresno

TH1.O-5.1 REMOTE SENSING IMAGERY SCENE CLASSIFICATION BASED ON SPIKING NEURAL NETWORK
Saifei Wu, Jie Li, Xidian University, China; Lin Qi, Ocean University of China, China; Ziming Liu, Xidian University, China; Xinbo Gao, Chongqing University of Posts and Telecommunications, China

TH1.O-5.2 APPLICATION OF COMPOSITIONAL NEURAL NETWORKS FOR ROBUST CLASSIFICATION OF INFRARED IMAGERY
Gregory P. Spell, Leslie M. Collins, Jordan M. Malof, Duke University, United States

TH1.O-5.3 CROSS-SOURCE IMAGE RETRIEVAL BASED ON ENSEMBLE LEARNING AND KNOWLEDGE DISTILLATION FOR REMOTE SENSING IMAGES
Jingjing Ma, Duanpeng Shi, Xu Tang, Xiangrong Zhang, Xidian University, China; Xiao Han, Geovis Spatial Technology Co.,Ltd, China; Licheng Jiao, Xidian University, China

TH1.O-5.4 IMAGE CLASSIFICATION UNIT: A U-NET CONVOLUTIONAL NEURAL NETWORK FOR ON- ORBIT CLOUD DETECTION ABOARD CUBESATS
Timothy Leong, Yasir Abbas, Mark Angelo Purio, Hoda Elmegharbel, Kyushu Institute of Technology, Japan

TH1.O-5.5 FRUGAL LEARNING FOR INTERACTIVE SATELLITE IMAGE CHANGE DETECTION
Hichem Sahbi, CNRS Sorbonne University, France; Sebastien Deschamps, Sorbonne University and Thales, France; Andrei Stoian, Thales, France

TH1.O-5.6 DEEP VISION TRANSFORMERS FOR REMOTE SENSING SCENE CLASSIFICATION
Laila Bashmal, Yakoub Bazi, Mohamad Al Rahhal, King Saud University, Saudi Arabia

Thursday, July 15 10:30 - 12:00 Oral Room 6
Session TH1.O-6 Oral

Remotely Sensed Soil Moisture Retrievals

Session Co-Chairs: Rémi Madelon, CESBIO; Francois Demontoux, Bordeaux University - IMS Laboratory; Shahla Yadollahi, Vrije Universiteit Brussel

TH1.O-6.1 CORRELATED TRIPLE COLLOCATION TO ESTIMATE SMOS, SMAP AND ERA5-LAND SOIL MOISTURE ERRORS
Miriam Pablos, Antonio Turiel, Institut de Ciències del Mar (ICM-CSIC) and Barcelona Expert Center (BEC) on Remote Sensing, Spain; Mercè Vall-llossera, Adriano Camps, Universitat Politècnica de Catalunya (UPC) and Barcelona Expert Center (BEC) on Remote Sensing, Spain; Marcos Portabella, Institut de Ciències del Mar (ICM-CSIC) and Barcelona Expert Center (BEC) on Remote Sensing, Spain

TH1.O-6.2 INCIDENCE ANGLE DIVERSITY ON L-BAND MICROWAVE RADIOMETRY AND ITS IMPACT ON CONSISTENT SOIL MOISTURE RETRIEVALS
Gerard Portal, Mercè Vall-llossera, Polytechnic University of Catalonia and IEEC-UPC & Barcelona Expert Center, Spain; Thomas Jagdhuber, German Aerospace Center & University of Augsburg, Germany; Adriano Camps, Polytechnic University of Catalonia and IEEC-UPC & Barcelona Expert Center, Spain; Miriam Pablos, Barcelona Expert Center & Institute of Marine Sciences, Spanish National Research Council, Spain; Maria Piles, Universitat de València, Spain

TH1.O-6.3 RETRIEVAL OF LAND SURFACE TEMPERATURE AND SOIL MOISTURE FROM PASSIVE MICROWAVE OBSERVATIONS
Xiao-Jing Han, Huajun Tang, Zhao-Liang Li, Si-Bo Duan, Pei Leng, Yongchang Wu, Xueyuan Chen, Chinese Academy of Agricultural Sciences, China

TH1.O-6.4 TOWARDS THE REMOVAL OF MODEL BIAS FROM ESA CCI SM BY USING AN L-BAND SCALING REFERENCE
Rémi Madelon, Nemesio Rodríguez-Fernández, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Robin van der Schalie, VanderSat, Netherlands; Yann Kerr, Ahmad Albitar, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Tracy Scanlon, TU Wien, Austria; Richard De Jeu, VanderSat, Netherlands; Wouter Dorigo, TU Wien, Austria

TH1.O-6.5 A LOW COST DIELECTRIC SPECTROSCOPY INSTRUMENT DEDICATED TO IN-SITU SOIL PERMITTIVITY PROFILE MAPPING
Francois Demontoux, Bordeaux University - IMS Laboratory, France; Jean-Pierre Wigneron, INRAE, UMR 1391 ISPA, France; Arnaud Mialon, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Alex Mavrovic, Alexandre Roy, Université du Québec à Trois-Rivières, Trois-Rivières, Canada; Yann Kerr, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France

TH1.O-6.6 MULTI-CHANNEL COLLABORATIVE ALGORITHM FOR RETRIEVING SOIL MOISTURE AND VEGETATION OPTICAL DEPTH
Tianjie Zhao, Aerospace Information Reasearch Institute, Chinese Academy of Sciences, China; Jiancheng Shi, National Space Science Center, Chinese Academy of Sciences, China; Zhiqing Peng, Panpan Yao, Aerospace Information Reasearch Institute, Chinese Academy of Sciences, China

Thursday, July 15 10:30 - 12:00 Oral Room 7
Session TH1.O-7 Oral

Novel Forest and Vegetation Analysis and Modelling Techniques

Session Co-Chairs: Nazzareno Pierdicca, Sapienza University of Rome; Ilan Havinga, Wageningen University; Luis Gómez-Chova, University of Valencia

TH1.O-7.1 A TEMPORALLY UPSCALED SIF PRODUCT WITH CLEAR-SKY BIAS CORRECTED LEADS TO AN ENHANCED RELATIONSHIP WITH GPP
Jiaochan Hu, Jia Jia, Dalian Maritime University, China; Liangyun Liu, Chinese Academy of Sciences, China; Haoyang Yu, Dalian Maritime University, China

TH1.O-7.2 ALTERNATE INRAE-BORDEAUX VOD INDICES FROM SMOS, AMSR2 AND ASCAT: OVERVIEW OF RECENT DEVELOPMENTS
Jean-Pierre Wigneron, Xiaojun Li, Xiangzhuo Liu, Menjia Wang, INRAE Bordeaux, France; Frédéric Frappart, Laboratoire d'Etudes en Géophysique et Océanographie Spatiales (LEGOS), France; Lei Fan, Nanjing IST, China; Amen Al-Yaari, Sorbonne, France; Roberto Fernandez-Moran, University of Valencia, Spain; Hongliang Ma, Ygoraa Bertrand, INRAE, France; Zanping Xing, Nanjing, France; Erwan Le Masson, Christophe Moisy, INRAE, France; Hui Yang, LSCE, France; Nicolas Baghdadi, INRAE MTD, France; Philippe Ciais, LSCE, France

TH1.O-7.3 A SIMULATOR FOR SENTINEL-3 SAR ALTIMETER WAVEFORMS OVER LAND
Giuseppina De Felice Proia, Leila Guerriero, University of Rome Tor Vergata, Italy; Davide Comite, Nazzareno Pierdicca, Sapienza University of Rome, Italy; Maria Paola Clarizia, Daniel Pascual, Deimos Space UK, United Kingdom; Cristina Vittucci, University of Rome Tor Vergata, Italy; Marco Restano, SERCO, ESA-ESRIN, Italy; Jérôme Benveniste, European Space Agency, ESA-ESRIN, Italy

TH1.O-7.4 IMPROVING LAND SURFACE TEMPERATURE SIMULATION OF NOAH-MP ON THE TIBETAN PLATEAU
Qing He, Hui Lu, Kun Yang, Long Zhao, Tsinghua University, China; Mijun Zou, Tsinghuaan University, China

TH1.O-7.5 TOWARDS A BETTER UNDERSTANDING OF EFFECTIVE TEMPERATURE MODELLING IN THE SMOS-IC RETRIEVAL ALGORITHM
Roberto Fernandez-Moran, Maria Piles, University of Valencia, Spain; Gustau Camps-Valls, Universitat de València, Spain; Wigneron Jean-Pierre, Li Xiaojun, Wang Mengjia, INRAE, France; Lei Fan, Nanjing University of Information Science and Technology, China; Amen Al-Yaari, Sorbonne Université, France; Luis Gómez-Chova, University of Valencia, Spain

TH1.O-7.6 RECENT TRENDS OF DROUGHT USING REMOTELY SENSED AND IN-SITU INDICES: TOWARDS AN INTEGRATED DROUGHT MONITORING SYSTEM FOR SOUTH AFRICA
Mahlatse Kganyago, South African National Space Agency, South Africa; Mxolisi Mukhawana, Department of Water and Sanitation, South Africa; Morwapula Mashalane, South African National Space Agency, South Africa; Aphelele Mgabisa, Simon Moloele, Department of Water and Sanitation, South Africa

Thursday, July 15 10:30 - 12:00 Oral Room 8
Session TH1.O-8 Oral

Monitoring and Modeling the Urban and Built Environment

Session Co-Chairs: Pietro Milillo, University of California; Fabio Dell'Acqua, University of Pavia; Thien-Anh Nguyen, École polytechnique fédérale de Lausanne (EPFL)

TH1.O-8.1 MAKING GREEN TRANSPORT A REALITY: A CLASSIFICATION BASED DATA ANALYSIS METHOD TO IDENTIFY PROPERTIES SUITABLE FOR ELECTRIC VEHICLE CHARGING POINT INSTALLATION
James Flynn, Eleanor Brealy, Cinzia Giannetti, Swansea University, United Kingdom

TH1.O-8.2 INSAR MONITORING OF REGIONAL INFRASTRUCTURE NETWORKS
Valentina Macchiarulo, University of Bath, United Kingdom; Pietro Milillo, University of California, United States; Chris Blenkinsopp, Cormac Reale, University of Bath, United Kingdom; Giorgia Giardina, Delft University of Technology, Netherlands

TH1.O-8.3 GROUND MOTION PATTERNS ANALYSIS FROM THE NATIONAL PERSISTENT SCATTERER DEFORMATION MAP OF ROMANIA
Stefan-Adrian Toma, Military Technical Academy, Romania; Delia Teleaga, Valentin Poncos, Terrasigna, Romania; Cristian Grozea, Fraunhofer Institute for Open Communication Systems FOKUS, Germany

TH1.O-8.4 REVIEW OF THE CONTRIBUTION OF REMOTE SENSING TO THE INVESTIGATION OF THE EFFECTS OF UV-B ON MECHANISMS OF ECOLOGY, BIODIVERSITY, AND CONSERVATION
Costas Varotsos, National and Kapodistrian University of Athens, Greece; Yuri Mazei, Lomonosov Moscow State University, Russia; Yong Xue, China University of Mining and Technology, China

TH1.O-8.5 ATMOSPHERIC ENVIRONMENTAL CAPACITY CALCULATION USING MULTISOURCE REMOTE SENSING DATA
Shuhui Wu, Yong Xue, Xiran Zhou, Kai Qin, Yuxin Sun, Chunlin Jin, China University of Mining and Technology, China

TH1.O-8.6 RETRIEVAL OF HIGH RESOLUTION AEROSOL OPTICAL DEPTH BY SYNERGETIC USE OF GF-1 WFV AND AQUA MODIS DATA OVER LAND
Rui Bai, Yong Xue, Chunlin Jin, Xingxing Jiang, Na Li, Xiaopeng Zhang, China University of Mining and Technology, China

Thursday, July 15 10:30 - 12:00 Oral Room 9
Session TH1.O-9 Oral-Invited

Artificial Intelligence for Earth Observation: Reasoning, Uncertainty and Ethics

Session Co-Chairs: Xiao Xiang Zhu, Technical University of Munich & German Aerospace Center; Devis Tuia, Ecole Polytechnique Fédérale de Lausanne (EPFL); Ines Meraoumia, Télécom Paris

TH1.O-9.1 WHAT'S NEXT IN AI4EO?
Xiao Xiang Zhu, German Aerospace Center & Technical University of Munich, Germany

TH1.O-9.3 RAPIDAI4EO: A CORPUS FOR HIGHER SPATIAL AND TEMPORAL REASONING
Giovanni Marchisio, Planet Labs Inc., United States; Patrick Helber, Benjamin Bischke, Vision Impulse and DFKI, Germany; Timothy Davis, Caglar Senaras, Planet Labs GmbH, Germany; Daniele Zanaga, Ruben Van De Kerchove, VITO NV, Belgium; Annett Wania, Planet Labs GmbH, Germany

TH1.O-9.4 OUTLINE OF A NOVEL APPROACH FOR IDENTIFYING ETHICAL ISSUES IN EARLY STAGES OF AI4EO RESEARCH
Mrinalini Kochupillai, Technical University of Munich, Germany

TH1.O-9.5 REGION OF INTEREST EXTRACTION BASED ON UNSUPERVISED CROSS-DOMAIN ADAPTATION FOR REMOTE SENSING IMAGES
Sijia Ma, Wanning Zhu, Libao Zhang, Beijing Normal University, China

Thursday, July 15 10:30 - 12:00 Oral Room 10
Session TH1.O-10 Oral-Invited

CEOS Virtual Constellation of Ocean Surface Vector Wind: Status and Recent Progresses

Session Co-Chairs: Raj Sharma, Indian Space Research Organisation; Zhendong Lu, University of Iowa; Paul Chang, National Oceanic and Atmospheric Administration (NOAA)

TH1.O-10.1 OVERVIEW OF THE STANDARDS AND METRICS OF OCEAN SURFACE VECTOR WIND BY SPACEBORNE MICROWAVE REMOTE SENSING
Xiaolong Dong, Key Laboratory of Microwave Remote Sensing, National Space Science Center, China; Paul S. Chang, National Oceanic and Atmospheric Administration (NOAA), United States; Ad Stoffelen, Royal Netherlands Meteorological Institute KNMI , Netherlands; Marcos Portabella, Institute of Marine Sciences (ICM-CSIC), Spain; Raj Kumar, Indian Space Research Organisation, India; Stefanie Linow, European Organization for the Exploitation of Meteorological Satellites (EUMETSAT), Germany; Juhong Zou, National Satellite Oceanic Application Service (NSOAS), China; Wenming Lin, Nanjing University of Information Science and Technology, China; Xingou Xu, Key Laboratory of Microwave Remote Sensing, National Space Science Center, China

TH1.O-10.3 THE INDIAN CONTRIBUTION TO THE CEOS-VC
Raj Kumar, Prantik Chakraborty, Devang Mankad, Suchandra A. Bhowmick, Abhisek Chakraborty, Indian Space Research Organisation, India

TH1.O-10.4 CEOS VIRTUAL CONSTELLATION OF OCEAN SURFACE VECTOR WIND: STATUS AND RECENT PROGRESS
Paul S. Chang, National Oceanic and Atmospheric Administration (NOAA), United States; Raj Kumar, Indian Space Research Organisation, India; Stefanie Linow, EUMETSAT, Germany

TH1.O-10.5 HURRICANE OCEAN WIND SPEEDS
Ad Stoffelen, Gert-Jan Marseille, Weicheng Ni, Royal Netherlands Meteorological Institute, Netherlands; Alexis Mouche, IFREMER, France; Federica Polverari, NASA Jet Propulsion Laboratory, United States; Marcos Portabella, Consejo Superior de Investigaciones Cientificas (CSIC), Spain; Wenming Lin, NUIST, China; Joe Sapp, Paul S. Chang, Zorana Jelenak, National Oceanic and Atmospheric Administration (NOAA), United States

Thursday, July 15 10:30 - 12:00 Oral Room 11
Session TH1.O-11 Oral-Invited

Geo-information and integration for Urban Resilience

Session Co-Chairs: Nektarios Chrysoulakis, Foundation for Research and Technology Hellas; Luca Bergamasco, Fondazione Bruno Kessler; Mattia Marconcini, Deutsches Zentrum für Luft- und Raumfahrt

TH1.O-11.1 COPERNICUS FOR URBAN RESILIENCE IN EUROPE: FIRST RESULTS FROM THE CURE PROJECT
Zina Mitraka, Nektarios Chrysoulakis, Foundation for Research and Technology Hellas, Greece; Mattia Marconcini, German Aerospace Center (DLR), Germany; David Ludlow, Zaheer Khan, University of the West of England, United Kingdom; Birgitte Holt Andersen, Louise Kjær-Hansen, CWare, Denmark; Tomas Soukup, Gisat S.R.O., Czech Republic; Mario Dohr, GeoVille Informationssysteme und Datenverarbeitung GMBH, Austria; Alessandra Gandini, TECNALIA, Fundacion Tecnalia Research & Innovation, Spain; Jurgen Kropp, Potsdam Institut fuer Klimafolgenforschung, Germany; Dirk Lauwaet, VITO, Iaamse Instelling voor Technologisch Onderzoek N.V., Belgium; Christian Feigenwinter, Universitaet Basel, Switzerland

TH1.O-11.3 HOW WE LIVE AND WHAT THAT MEANS - A CHARACTER STUDY WITH DATA FROM SPACE
Hannes Taubenböck, German Aerospace Center (DLR), Germany

TH1.O-11.4 URBAN RESILIENCE TO ENVIRONMENTAL STRESSORS VIA EO-BASED SMART SOLUTIONS
Evangelos Gerasopoulos, Eleni Athanasopoulou, Orestis Speyer, Jennifer Bailey, National Observatory of Athens, Greece; David Kocman, Jožef Stefan Institute, Slovenia; Matthias Karl, Helmholtz-Zentrum Geesthacht, Germany

TH1.O-11.5 DEEP LEARNING AND REMOTE SENSING FOR URBAN SUSTAINABILITY
Gustau Camps-Valls, Universitat de València, Spain

TH1.O-11.6 MASK-HEIGHT R-CNN: AN END-TO-END NETWORK FOR 3D BUILDING RECONSTRUCTION FROM MONOCULAR REMOTE SENSING IMAGERY
Sining Chen, Technical University of Munich, Germany; Lichao Mou, Qingyu Li, Yao Sun, Xiao Xiang Zhu, German Aerospace Center (DLR); Technical University of Munich (TUM), Germany

Thursday, July 15 10:30 - 12:00 Oral Room 12
Session TH1.O-12 Oral-Invited

Machine Learning Datasets in Remote Sensing

Session Co-Chairs: Michael Schmitt, Munich University of Applied Sciences; Ronny Hänsch, German Aerospace Center; Laurens Diels, Universiteit Gent

TH1.O-12.1 THERE IS NO DATA LIKE MORE DATA - CURRENT STATUS OF MACHINE LEARNING DATASETS IN REMOTE SENSING
Michael Schmitt, Munich University of Applied Sciences, Germany; Seyed Ali Ahmadi, K. N. Toosi University of Technology, Iran; Ronny Hänsch, German Aerospace Center (DLR), Germany

TH1.O-12.3 TOWARD DATASET CONSTRUCTION FOR REMOTE SENSING IMAGE INTERPRETATION
Yang Long, Gui-Song Xia, Wen Yang, Liangpei Zhang, Deren Li, Wuhan University, China

TH1.O-12.4 ARTIFIVE-POTSDAM: A BENCHMARK FOR LEARNING WITH ARTIFICIAL OBJECTS FOR IMPROVED AERIAL VEHICLE DETECTION
Immanuel Weber, Jens Bongartz, University of Applied Sciences Koblenz, Germany; Ribana Roscher, University of Bonn, Germany

TH1.O-12.5 RSVQA MEETS BIGEARTHNET: A NEW, LARGE-SCALE, VISUAL QUESTION ANSWERING DATASET FOR REMOTE SENSING
Sylvain Lobry, Université de Paris, France; Begüm Demir, Technische Universität Berlin, Germany; Devis Tuia, École Polytechnique Fédérale de Lausanne, Switzerland

TH1.O-12.6 PREDICTING 1-H DEAD FUEL MOISTURE CONTENT AT REGIONAL SCALES USING MACHINE LEARNING FROM HIMAWARI-8 DATA
Chunquan Fan, Binbin He, University of Electronic Science and Technology of China, China; Peng Kong, Hao Xu, Qiang Zhang, Institute of Spacecraft System Engineering (ISSE), China; Xingwen Quan, University of Electronic Science and Technology of China, China

Thursday, July 15 10:30 - 12:00 Oral Room 13
Session TH1.O-13 Oral-Invited

Modern Spaceborne Hyperspectral Imagers for aAquatic Applications: First Experiences and Perspectives

Session Co-Chairs: Héloïse Lavigne, RBINS; Alexandre Castagna Mourão e Lima, University of Gent (UGENT); Kasra Rafiezadeh Shahi, Universiteit Antwerpen

TH1.O-13.1 REALIZING THE POTENTIAL OF HYPERSPECTRAL REMOTE SENSING IN COASTAL AND INLAND WATERS
Heidi Dierssen, University of Connecticut, United States

TH1.O-13.3 HYPERSPECTRAL PRISMA PRODUCTS OF AQUATIC SYSTEMS
Claudia Giardino, Mariano Bresciani, Alice Fabbretto, Nicola Ghirardi, Salvatore Mangano, Andrea Pellegrino, National Research Council of Italy, Italy; Diana Vaiciute, University of Klaipeda, Lithuania; Federica Braga, Vittorio Ernesto Brando, National Research Council of Italy, Italy; Marnix Laanen, Water Insight, Netherlands; Apostolos Tzimas, EMVIS Consultant Engineers S.A., Greece

TH1.O-13.4 CHINESE HYPERSPECTRAL SATELLITE MISSIONS AND PRELIMINARY APPLICATIONS OF AQUATIC ENVIRONMENT
Fang Shen, Haiyang Zhao, Qing Zhu, Xuerong Sun, East China Normal University, China; Yinnian Liu, Shanghai Institute of Technical Physics, China

TH1.O-13.5 EXTENSION OF ATMOSPHERIC CORRECTION POLYMER TO HYPERSPECTRAL SENSORS: APPLICATION TO HICO AND FIRST RESULTS FOR DESIS DATA
Astrid Bracher, Mariana A. Soppa, Alfred-Wegener-Institute Helmholtz Center for Polar and Marine Research (AWI), Germany; Peter Gege, German Aerospace Center (DLR), Germany; Svetlana N. Losa, Brenner G. Silva, Alfred-Wegener-Institute Helmholtz Center for Polar and Marine Research (AWI), Germany; Francois Steinmetz, HYGEOS, France; Iris Dröscher, Landesanstalt für Umwelt Baden-Württemberg, Germany

TH1.O-13.6 RADIOMETRIC MEASUREMENT REQUIREMENTS TO DERIVE INFORMATION ON PHYTOPLANKTON COMMUNITY COMPOSITION FROM SATELLITE
Peter Gege, German Aerospace Center (DLR), Germany

Thursday, July 15 10:30 - 12:00 Oral Room 14
Session TH1.O-14 Oral-Invited

Multi-resolution and Multimodal Remote Sensing Image Processing and Interpretation

Session Co-Chairs: Gemine Vivone, National Research Council - Institute of Methodologies for Environmental Analysis (CNR - IMAA); Adebowale Adebayo, Universität Salzburg; Yang Xu, Nanjing University of Science and Technology

TH1.O-14.1 AN OVERVIEW OF MULTIMODAL REMOTE SENSING DATA FUSION: FROM IMAGE TO FEATURE, FROM SHALLOW TO DEEP
Danfeng Hong, German Aerospace Center (DLR), Germany; Jocelyn Chanussot, Université Grenoble Alpes, INRIA, CNRS, Grenoble INP, LJK, France; Xiao Xiang Zhu, German Aerospace Center (DLR); Technical University of Munich (TUM), Germany

TH1.O-14.3 A FAST AND ROBUST MATCHING SYSTEM FOR MULTIMODAL REMOTE SENSING IMAGE REGISTRATION
Yuanxin Ye, Bai Zhu, Liang Zhou, Bruzzone Lorenzo, Southwest Jiaotong University, China

TH1.O-14.4 A DEEP LEARNING-BASED HETEROGENEOUS SPATIO-TEMPORAL-SPECTRAL FUSION: SAR AND OPTICAL IMAGES
Menghui Jiang, School of Resource and Environmental Sciences, Wuhan University, China; Jie Li, School of Geodesy and Geomatics, Wuhan University, China; Huanfeng Shen, School of Remote Sensing and Information Engineering, Wuhan University, China

TH1.O-14.5 HYPERSPECTRAL AND MULTISPECTRAL IMAGE FUSION: FROM MODEL-DRIVEN TO DATA-DRIVEN
Yongqiang Zhao, Haofang Yan, Northwestern Polytechnical University, China; Sha Liu, Shanghai Institute of Aerospace Technology, China

TH1.O-14.6 A FULL-RESOLUTION TRAINING FRAMEWORK FOR SENTINEL-2 IMAGE FUSION
Matteo Ciotola, Mario Ragosta, Giovanni Poggi, Giuseppe Scarpa, University Federico II, Italy

Thursday, July 15 10:30 - 12:00 Oral Room 15
Session TH1.O-15 Oral-Invited

DEEP Insight SAR III

Session Co-Chairs: Mihai Datcu, Research Center for Spatial Information (CEOSpaceTech), University POLITEHNICA of Bucharest (UPB) and Earth Observation Center (EOC), German Aerospace Center (DLR); Zhongling Huang, Northwestern Polytechnical University; Saeed Khabbazan, Technische Universiteit Delft

TH1.O-15.1 PHYSICS-AWARE FEATURE LEARNING OF SAR IMAGES WITH DEEP NEURAL NETWORKS: A CASE STUDY
Zhongling Huang, Northwestern Polytechnical University, China; Corneliu Octavian Dumitru, German Aerospace Center (DLR), Germany; Jun Ren, Institute of Mechanical and Electrical Engineering, China

TH1.O-15.3 PROPOSAL OF COMPLEX-VALUED RESERVOIR COMPUTING FOR TOPOGRAPHIC ASPECT CLASSIFICATION
Bungo Konishi, Akira Hirose, Ryo Natsuaki, University of Tokyo, Japan

TH1.O-15.4 INTEGRATION OF IEM B, ISMN AND SAR SENTINEL-1 DATA FOR ACCURATE SOIL MOISTURE ESTIMATION USING NEURAL NETWORKS
Leonardo De Laurentiis, University of Rome Tor Vergata, Italy; Daniele Latini, GEO-K s.r.l., Italy; Giovanni Schiavon, Fabio Del Frate, University of Rome Tor Vergata, Italy

TH1.O-15.5 THREE-DIMENSIONAL ASTEROID RECONSTRUCTION VIA MULTI-ASPECT GROUND-BASED SAR IMAGES: AN OPTIMIZATION COMPARISON
Yi Liu, Zegang Ding, Yan Wang, Tao Zeng, Zehua Dong, Beijing Institute of Technology, China

TH1.O-15.6 DERIVING AN EXCLUSION MAP (EX-MAP) FROM SENTINEL-1 TIME SERIES FOR SUPPORTING FLOODWATER MAPPING
Jie Zhao, Ramona Pelich, Renaud Hostache, Patrick Matgen, Luxembourg Institute of Science and Technology, Luxembourg; Senmao Cao, EODC Earth Observation Data Centre, Austria; Wolfgang Wagner, Vienna University of Technology, Austria; Marco Chini, Luxembourg Institute of Science and Technology, Luxembourg

Thursday, July 15 10:30 - 12:00 Oral Room 16
Session TH1.O-16 Oral-Invited

New Global Navigation Satellite Systems reflectometry (GNSS-R) Missions

Session Co-Chairs: Rashmi Shah, Jet Propulsion Laboratory/ California Institute of Technology; Estel Cardellach, Institut de Ciencies de l'Espai (ICE/CSIC-IEEC); Dainius Masiliunas, Wageningen University & Research

TH1.O-16.1 OPERATIONAL AIRBORNE GNSS-R ABOARD AIR NEW ZEALAND DOMESTIC AIRCRAFT
Delwyn Moller, University of Auckland, New Zealand; Chris Ruf, University of Michigan, United States; Ryan Linnabury, Andrew O'Brien, Ohio State University, United States; Stephen Musko, University of Michigan, United States

TH1.O-16.3 GNSS-REFLECTOMETRY ACTIVITIES ON THE DOT-1 MICROSATELLITE IN PREPARATION FOR THE HYDROGNSS MISSION
Martin Unwin, Jonathan Rawlinson, Surrey Satellite Technology Ltd, United Kingdom; Lucinda King, Surrey Space Centre, United Kingdom; Giuseppe Foti, Matthew Hammond, National Oceanography Centre, United Kingdom; Thomas Burger, European Space Agency (ESA), Netherlands

TH1.O-16.4 FSSCAT MISSION DESCRIPTION AND FIRST SCIENTIFIC RESULTS OF THE FMPL-2 ONBOARD 3CAT-5/A
Adriano Camps, Joan Francesc Munoz-Martin, Joan Adrià Ruiz-de-Azua, Lara Fernandez, Adrian Perez-Portero, David Llavería, Christoph Herbert, Universitat Politècnica de Catalunya, Spain; Miriam Pablos, Institut de Ciencies del Mar/CSIC, Spain; Alessandro Golkar, Skolkovo Institute of Science and Technology, Russia; Antonio Gutierrez, Carlos Antonio, Jorge Bandeiras, Joao Andrade, David Cordeiro, Deimos Engenharia, Portugal; Simone Briatore, Nicola Garzaniti, Golbriak Space, Estonia; Fabio Nichele, Raffaele Mozzillo, Alessio Piumatti, Margherita Cardi, Tyvak International, Italy; Marco Esposito, Cosine, Netherlands; Bernardo Carnicero Dominguez, Massimiliano Pastena, ESA / ESTEC, Netherlands; Giancarlo Filippazzo, Amanda Reagan, ESA / ESRIN, Italy

TH1.O-16.5 ADVANCEMENT OF THE SPIRE GNSS-R MISSIONS
Dallas Masters, Stephan Esterhuizen, Philip Jales, Vu Nguyen, Vahid Freeman, Vladimir Irisov, Jessica Cartwright, Takayuki Yuasa, Jakub Skowron, Spire Global, Inc., United States

TH1.O-16.6 GNSS-R FROM THE BUFENG-1 TWIN SATELLITES FOR SEA SURFACE WINDS UNDER HURRICANE CONDITION
Cheng Jing, Xinliang Niu, China Academy of Space Technology-Xi'an (CAST-XIAN), China; Feng Lu, China Meteorological Administration, China; Zhaoguang Bai, DFH Satellite Co. Ltd., China; Wei Wan, Peking University, Spain; Weiqiang Li, Institut d'Estudis Espacials de Catalunya (IEEC), Spain; Yanlei Du, Aerospace Information Reasearch Institute, Chinese Academy of Sciences, China

Thursday, July 15 10:30 - 12:00 Oral Room 17
Session TH1.O-17 Oral-Invited

Processes in Changing Marine Environments Monitored by SAR I: General Aspects

Session Co-Chairs: Xiao-Ming Li, Aerospace Information Research Institute, Chinese Academy of Sciences; Martin Gade, Universität Hamburg; iain Rolland

TH1.O-17.1 SEA SATE AND SEA SURFACE WIND MEASUREMENT BY SPACEBORNE SAR IN THE ARCTIC OCEAN
Bingqing Huang, Ke Wu, Xiao-Ming Li, Aerospace Information Reasearch Institute, Chinese Academy of Sciences, China

TH1.O-17.3 ANALYSIS OF THE EFFECT OF THE INCIDENCE ANGLE ON POLSAR SHIP SCATTERING
Ferdinando Nunziata, Andrea Buono, Adil Muhammad, Università degli Studi di Napoli Parthenope, Italy; Domenico Velotto, University of Bremen, Italy; Maurizio Migliaccio, Università degli Studi di Napoli Parthenope, Italy

TH1.O-17.4 AUTOMATIZED MARINE VESSEL MONITORING FROM SENTINEL-1 DATA USING CONVOLUTION NEURAL NETWORK
Surya Prakash Tiwari, King Fahd University of Petroleum and Minerals, Saudi Arabia; Sudhir Kumar Chaturvedi, University of Petroleum and Energy Studies, India; Subhrangshu Adhikary, Bidhan Chandra Roy Engineering College, India; Saikat Banerjee, Sourav Basu, CubicX, India

TH1.O-17.5 OPTIMAL INSAR CONDITIONS FOR MONITORING CREEK CHANGES IN TIDAL FLATS
Duk-jin Kim, Seoul National University, Korea (South); Changhyun Choi, German Aerospace Center (DLR), Germany; Jungkyo Jung, NASA Jet Propulsion Laboratory, California Institute of Technology, United States; Ji-Hwan Hwang, Seoul National University, Korea (South)

TH1.O-17.6 BACKSCATTERING SIMULATION OF EMULSION OIL COVERED SEA SURFACE
Tingyu Meng, Xiaofeng Yang, Aerospace Information Reasearch Institute, Chinese Academy of Sciences, China; Kun-Shan Chen, Guilin University of Technology, China

Thursday, July 15 10:30 - 12:00 Oral Room 18
Session TH1.O-18 Oral

Satellite Missions Planning

Session Co-Chairs: Parivash Lumsdon, Airbus Defence and Space; Giampaolo Ferraioli, Università degli Studi di Napoli Parthenope; Yinyi Lin

TH1.O-18.1 VENμS: VM1 FINAL RADIOMETRIC ASSESSMENT AND FUTURE PHASES
Arthur Dick, Centre National d'Etudes Spatiales (CNES), France; Gérard Dedieu, Olivier Hagolle, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Jean-Louis Raynaud, Sophie Pelou, Centre National d'Etudes Spatiales (CNES), France; Jean-Pascal Burochin, Magellium, France; Thierry Erudel, CS Group, France

TH1.O-18.2 A FOLLOW-UP FOR THE SOIL MOISTURE AND OCEAN SALINITY MISSION
Nemesio Rodríguez-Fernández, Eric Anterrieu, François Cabot, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Jaqueline Boutin, LOCEAN, France; Ghislain Picard, Thierry Pellarin, IGE, France; Olivier Merlin, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Jerome Vialard, Frederic Vivier, LOCEAN, France; Josiane Costeraste, Baptiste Palacin, Raquel Rodriguez Suquet, Louise Yu, Thierry Amiot, CNES, France; Ali Khazaal, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Thibaut Decoopman, Nicolas Jeannin, Laurent Costes, Romain Caujolle, Maria Jose Escorihuela, Airbus Defence and Space, France; Ahmad Al Bitar, Philippe Richaume, Arnaud Mialon, Christophe Suere, Yann Kerr, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France

TH1.O-18.3 HIGH-LEVEL SYNTHESIS OF A SINGLE/MULTI-BAND OPTICAL AND SAR IMAGE COMPRESSION AND ENCRYPTION HARDWARE ACCELERATOR
Paolo Motto Ros, Michele Caon, Tiziano Bianchi, Maurizio Martina, Enrico Magli, Politecnico di Torino, Italy

TH1.O-18.4 RECENT DEVELOPMENTS OF THE SPACE EXPLORATION SYNTHETIC APERTURE RADAR (SESAR) FOR PLANETARY SCIENCE MISSIONS
Rafael F. Rincon, NASA, United States; Lynn M. Carter, University of Arizona, United States; Roger Banting, Martin Perrine, Cornelis F. du Toit, Peter Steigner, Ken Segal, Babak Farrokh, Michael Choi, Daniel Lu, David Caruth, Iban Ibanez, Tasneem Khan, William Aberdeen, NASA, United States

TH1.O-18.5 SYNCHRONIZATION OF RADIO SIGNALS FOR THE UNCONNECTED L-BAND INTERFEROMETER DEMONSTRATOR (ULID)
Eric Anterrieu, CNRS, France; François Cabot, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Yann Kerr, Thierry Amiot, David Valat, Laurent Lestarquit, CNES, France

TH1.O-18.6 VERIFICATION OF OPERATIONAL APPLICATIONS OF NEW MODES OF TERRASAR-X PAZ CONSTELLATION
Parivash Lumsdon, Wolfgang Koppe, Catherine Hartley, Jürgen Janoth, Hanjo Kahabka, Airbus Defence and Space, Germany; Fernando Cerezo, Hidesat Servicios Estratégicos SA, Spain; Víctor del Estal Fernández, Hisdesat Servicios Estratégicos SA, Spain; Juan Ignacio Cicuendez Pérez, Hidesat Servicios Estratégicos SA, Germany

Thursday, July 15 10:30 - 12:00 Oral Room 19
Session TH1.O-19 Oral

Passive Optical and Hyperspectral Sensors Technology and Applications

Session Co-Chairs: Kevin Ruddick, Royal Belgium Institute of Natural Sciences; Yokoya Naoto, RIKEN; Pratyush Talreja, Indian Institute of Technology Bombay

TH1.O-19.1 ATMOSPHERIC CORRECTION OF SATELLITE DATA BASED ON EMULATION OF ATMOSPHERIC RADIATIVE TRANSFER MODELS
Jorge Vicent Servera, Magellium, France; Jochem Verrelst, University of Valencia, Spain; Juan Pablo Rivera-Caicedo, CONACYT-UAN, Mexico; Jordi Muñoz-Marí, Gustau Camps-Valls, Universitat de València, Spain; Beatrice Berthelot, Magellium, France

TH1.O-19.2 ATMOSPHERIC CORRECTION ASSESSMENT AND NORMALIZATION PROCEDURE FOR COUPLING SENTINEL-2 AND WORLDVIEW-3 IMAGERY
Jose Luis Pancorbo, Universidad Politécnica de Madrid, Spain; Brian Lamb, City College of New York, United States; Miguel Quemada, Universidad Politécnica de Madrid, Spain; Wells Dean Hively, United States Geological Survey, United States; Ignacio González Fernandez, Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas, Spain; Iñigo Molina, Universidad Politécnica de Madrid, Spain

TH1.O-19.3 ATMOSPHERIC COMPOSITION APPLICATIONS WITH IASI AND NEXT-GENERATION HYPERSPECTRAL INFRARED SOUNDERS (IASI-NG AND IRS)
Pierre Coheur, Lieven Clarisse, Martin Van Damme, Bruno Franco, Daniel Hurtmans, Université libre De Bruxelles, Belgium; Cathy Clerbaux, Sorbonne Université, UVSQ, CNRS, Belgium

TH1.O-19.4 DEVELOPMENT OF A COOLED INFRARED CAMERA FOR MEASURING VOLCANIC SO2 GAS CONCENTRATION AND TEMPERATURE DISTRIBUTIONS
Tetsuya Jitsufuchi, National Research Institute for Earth Science and Disaster Resilience, Japan

TH1.O-19.5 SPATIAL LIGHT MODULATOR-BASED ARCHITECTURE TO IMPLEMENT A SUPER-RESOLVED COMPRESSIVE INSTRUMENT FOR EARTH OBSERVATION
Valentina Raimondi, Luigi Acampora, Gabriele Amato, Massimo Baldi, Institute of Applied Physics - National Research Council (CNR-IFAC), Italy; Dirk Berndt, Fraunhofer-Institut für Photonische Mikrosysteme (IPMS), Germany; Alberto Bianchi, LEONARDO S.p.A., Italy; Tiziano Bianchi, Politecnico di Torino – DET, Italy; Donato Borrelli, LEONARDO S.p.A., Italy; Valentina Colcelli, Institute of Applied Physics - National Research Council (CNR-IFAC), Italy; Chiara Corti, Francesco Corti, Marco Corti, SAITEC srl, Italy; Nick Cox, ACRI-ST, France; Ulrike A. Dauderstädt, Peter Dürr, Sara Francés González, Fraunhofer-Institut für Photonische Mikrosysteme (IPMS), Germany; Paolo Frosini, RESOLVO srl, Italy; Donatella Guzzi, Institute of Applied Physics - National Research Council (CNR-IFAC), Italy; Jessica Huntingford, RESOLVO srl, Italy; Detlef Kunze, Fraunhofer-Institut für Photonische Mikrosysteme (IPMS), Germany; Demetrio Labate, LEONARDO S.p.A., Italy; Nicolas Lamquin, ACRI-ST, France; Cinzia Lastri, Institute of Applied Physics - National Research Council (CNR-IFAC), Italy; Enrico Magli, Politecnico di Torino – DET, Italy; Vanni Nardino, Institute of Applied Physics - National Research Council (CNR-IFAC), Italy; Christophe Pache, Centre Suisse d'Electronique et Microtechnique (CSEM), Switzerland; Lorenzo Palombi, Institute of Applied Physics - National Research Council (CNR-IFAC), Italy; Irene Pettinelli, RESOLVO srl, Italy; Giuseppe Pilato, LEONARDO S.p.A., Italy; Alexandre Pollini, Leopoldo Rossini, Centre Suisse d'Electronique et Microtechnique (CSEM), Switzerland; Enrico Suetta, LEONARDO S.p.A., Italy; Davide Taricco, Diego Valsesia, Politecnico di Torino – DET, Italy; Michael Wagner, Fraunhofer-Institut für Photonische Mikrosysteme (IPMS), Germany

TH1.O-19.6 AIRS POINT SPREAD FUNCTION RECONSTRUCTION USING AIRS AND MODIS DATA
Igor Yanovsky, Thomas Pagano, Evan Manning, Steven Broberg, Hartmut Aumann, NASA Jet Propulsion Laboratory, California Institute of Technology, United States; Luminita Vese, University of California, Los Angeles, United States

Thursday, July 15 10:30 - 12:00 Oral Room 20
Session TH1.O-20 Oral

UAV and Close Sensing Applications I

Session Co-Chairs: Amir Behnamian, Physical Scientist/ Environment and Climate Change Canada; Eduard Khachatrian, UiT Norges arktiske universitet; Liesbeth De Keukelaere, VITO

TH1.O-20.1 AUTOMATED UAS MEASUREMENTS OF REFLECTANCE AND SOLAR INDUCED FLORESCENCE (SIF) FOR ASSESSMENT OF THE DINAMICS IN PHOTOSYNTHETIC FUNCTION, APPLICATION FOR MAZE (ZEA MAYS L.) IN GREENBELT, MARYLAND, USA
Petya Campbell, University of Maryland Baltimore County, United States; Philip Townsend, University of Wisconsin, United States; Dan Mandl, James MacKinnon, NASA Goddard Space Flight Center, United States; Lawrence Ong, Science Systems and Applications, Inc., United States

TH1.O-20.2 RANDOM FOREST OUTPERFORMED CONVOLUTIONAL NEURAL NETWORKS FOR SHRUB WILLOW ABOVE GROUND BIOMASS ESTIMATION USING MULTI-SPECTRAL UAS IMAGERY
Haifa Tamiminia, Bahram Salehi, State University of New York, College of Environmental Science and Forestry (ESF), United States; Masoud Mahdianpari, C-CORE and Memorial University of Newfoundland, Canada; Colin M. Beier, Daniel J. Klimkowski, Timothy A. Volk, State University of New York, College of Environmental Science and Forestry (ESF), United States

TH1.O-20.3 MAPPING INVASIVE PHRAGMITES IN SENSITIVE WETLANDS USING UNMANNED AREIAL VEHICLE IMAGERY AND RANDOM FOREST MACHINE LEARNING
Morgan Hrynyk, Amir Behnamian, Sarah Banks, Taylor Harmer, Matt Giles, Lori White, Zhaohua Chen, Ryan Hamilton, Jon Pasher, Jason Duffe, Environment and Climate Change Canada, Canada

TH1.O-20.4 BRDF SAMPLING FROM HYPERSPECTRAL IMAGES: A PROOF OF CONCEPT
Juan M. Jurado, University of Jaén, Spain; Luís Pádua, Jonas Hruska, University of Trás-os-Montes e Alto Douro, Portugal; Roberto Jiménez, Francisco R. Feito, University of Jaén, Spain; Joaquim J. Sousa, Universidade de Trás-os-Montes e Alto Douro, Portugal

TH1.O-20.5 QUANTIFYING TROPICAL FOREST STAND STRUCTURE THROUGH TERRESTRIAL AND UAV LASER SCANNING FUSION
Louise Terryn, Kim Calders, Ghent University, Belgium; Harm Bartholomeus, Wageningen University, Netherlands; Renée Bartolo, Australian Government, Australia; Benjamin Brede, Wageningen University, Netherlands; Barbara D'hont, Ghent University, Belgium; Mathias Disney, University College London, United Kingdom; Martin Herold, Alvaro Lau, Wageningen University, Netherlands; Alexander Shenkin, University of Oxford, United Kingdom; Timothy Whiteside, Australian Government, Australia; Phil Wilkes, University College London, United Kingdom; Hans Verbeeck, Ghent University, Belgium

TH1.O-20.6 MULTI-SCALE ANALYSIS OF DEMS DERIVED FROM UNMANNED AERIAL VEHICLE (UAV) IN PRECISION AGRICULTURE CONTEXT
Abderrazak Bannari, Space-Pix Map, Canada; Ahmed Selouani, Geofly Society of Geomatics, Morocco; Mohamed El-Basri, GRND, Research center CERN2D, ENS - University Mohamed-V, Morocco; Hassan Rhinane, University Hassan II, Morocco; Abderrazak El-Harti, Abderrahman El-Ghmari, University Sultan Moulay Slimane, Morocco

Thursday, July 15 13:00 - 14:10 Multimedia Room 1

Session TH2.MM-1

Machine Learning Applications in Parameter Estimation

Session Co-Chairs: Patricia O'Byrne, Technological University Dublin; Lina Zhuang, University of Hong Kong; Kasra Rafiezadeh Shahi, Universiteit Antwerpen

TH2.MM-1.1 ATTENTION NEURAL NETWORK SEMBLANCE VELOCITY AUTO PICKING WITH REFERENCE VELOCITY CURVE DATA AUGMENTATION
Chenyu Qiu, Bangyu Wu, Delin Meng, Xu Zhu, Xi'an Jiaotong University, China; Meng Li, Nan Qin, Research Institute of Petroleum Exploration & Development, China

TH2.MM-1.2 TCLNET: LEARNING TO LOCATE TYPHOON CENTER USING DEEP NEURAL NETWORK
Chao Tan, Chongqing University of Technology, China

TH2.MM-1.3 UTILITY OF DERIVATIVE ANALYSIS AND LSTM FOR PREDICTION OF DECAY TREND OF PLEUROTUS ERYNGII IN HYPERSPECTRAL IMAGERY
Chia-Jui Wang, Chao-Cheng Wu, National Taipei University of Technology, Taiwan; Min-Shao Shih, Tsang-Sen Liu, Council of Agriculture, Executive Yuan, Taiwan; Yen-Chieh Ouyang, National Chung Hsing University, Taiwan

TH2.MM-1.4 MACHINE LEARNING TECHNIQUES USING ENVIROMENTAL DATA FROM REMOTE SENSING APPLIED TO MODELING DENGUE RISK IN BRAZIL
Joaquim Bauxell, Mercè Vall-llossera, Universitat Politècnica de Catalunya, Spain; Hellen Gurgel, University of Brasilia, Brazil

TH2.MM-1.5 AN EXTREME LEARNING MACHINE CORRECTION NETWORK FOR HIGH PRECISION SATELLITE ATTITUDE DETERMINATION
Kailang Cao, Jiaojiao Li, Rui Song, Yunsong Li, Weijiao Jiang, Xidian University, China

TH2.MM-1.6 FLOOD PREDICTION USING INVERSE DISTANCE WEIGHTED INTERPOLATION OF K-NEAREST NEIGHBOR POINTS
Satria Nusa Paradilaga, Margaretha Sulistyoningsih, Universitas Atma Jaya Yogyakarta, Indonesia; Rosbintarti Kartika Lestari, Institute for Globally Distributed Open Research and Education (IGDORE), Tokyo, Japan & RONIN Institute, Japan; Agatha Padma Laksitaningtyas, Universitas Atma Jaya Yogyakarta, Indonesia

TH2.MM-1.7 TRANSFER LEARNING PERFORMANCE FOR REMOTE PASTURELAND TRAIT ESTIMATION IN REAL-TIME FARM MONITORING
Patricia O'Byrne, Patrick Jackman, Damon Berry, Technological University Dublin, Ireland; Hector-Hugo Franco-Peña, University College Dublin, Ireland; Michael French, Tanco Autowrap, Ireland; Robert John Ross, Technological University Dublin, Ireland

TH2.MM-1.8 GENERATING THE CLOUD MOTION WIND FIELD FROM SATELLITE CLOUD IMAGERY USING DEEP LEARNING APPROACH
Chao Tan, Chongqing University of Technology, China

TH2.MM-1.9 ANGULAR NORMALIZATION OF LAND SURFACE TEMPERATURE USING FEATURE-SPACE METHOD
Yuanjian Teng, Huazhong Ren, Xin Ye, Jinshun Zhu, Qiming Qin, Peking University, China; Yonggang Qian, Chinese Academy of Sciences, China

TH2.MM-1.10 POTIONENTIAL OF SPECTRAL INDICES FOR HALOPHYTE VEGETATION COVER DETECTION IN ARID AND SALT-AFFECTED LANDSCAPE
Zahra M. Al-ali, Arabian Gulf University, Bahrain; Abderrazak Bannari, Space-Pix Map, Canada; Ali El-Battay, International Centre of Bio-saline Agriculture, United Arab Emirates; Hameid Nadir, Arabian Gulf University, Bahrain

Thursday, July 15 13:00 - 14:10 Multimedia Room 2

Session TH2.MM-2

Time Series Data Harmonization and Prediction

Session Co-Chairs: Enrico Cadau, Serco SPA; Srikumar Sastry, University of Twente; Ferdaous Chaabane, SUP'COM

TH2.MM-2.1 ON THE CHARACTERIZATION OF SEN2LIKE SURFACE REFLECTANCE DATA HARMONIZATION AND FUSION PROCESSES
Sebastien Saunier, Vincent Debaecker, Jerome Louis, Kevin Garcia, Cerise Cuny, TELESPAZIO, France; Enrico Cadau, Serco SPA, Italy; Valentina Boccia, Ferran Gascon, ESA / ESRIN, Italy

TH2.MM-2.2 A TEMPORAL ANALYSIS OF THE RELATIONSHIP BETWEEN SYNOPTIC WEATHER STATION AIR TEMPERATURE MEASUREMENT AND SATELLITE-DERIVED LAND SURFACE TEMPERATURE: A CASE STUDY IN PORT AREA, MANILA CITY, PHILIPPINES
Mark Angelo Purio, Mengu Cho, Tetsunobu Yoshitake, Kyushu Institute of Technology, Japan

TH2.MM-2.3 SELF-ATTENTION GENERATIVE ADVERSARIAL NETWORKS FOR TIMES SERIES VHR MULTISPECTRAL IMAGE GENERATION
Ferdaous Chaabane, Safa Réjichi, SUP'COM, Tunisia; Florence Tupin, Telecom Paris - LTCI Institut Polytechnique de Paris, France

TH2.MM-2.4 TIME-SERIES IN STRUCTURE-FROM-MOTION PHOTOGRAMMETRY: TESTING CO-REGISTRATION APPROACHES FOR TOPOGRAPHIC CHANGE ANALYSIS.
Louise Delhaye, Benoît Smets, Royal Museum for Central Africa, Belgium

TH2.MM-2.5 SATELLITE IMAGE FUTURE LANDSCAPE PREDICTION USING CONDITIONAL ADVERSARIAL NETWORKS
Hareem Feroz Ahmed, Hiba Jamal, Muhammad Farhan, Habib University, Pakistan

TH2.MM-2.6 A BLIND CLOUD/SHADOW REMOVAL STRATEGY FOR MULTI-TEMPORAL REMOTE SENSING IMAGES
Jie Lin, Ting-Zhu Huang, Xi-Le Zhao, Meng Ding, University of Electronic Science and Technology of China, China; Yong Chen, Jiangxi Normal University, China; Tai-Xiang Jiang, Southwestern University of Finance and Economics, China

Thursday, July 15 13:00 - 14:10 Multimedia Room 3

Session TH2.MM-3

Object Extraction in Optical Images

Session Co-Chairs: Sina Mohammadi, University of Twente; Leonid Shumilo, Space Research Institute NASU-SSAU; Gencer Sumbul, TU Berlin

TH2.MM-3.1 AN IMPROVED DEEP-LEARNING MODEL FOR ROAD EXTRACTION FROM VERY-HIGH-RESOLUTION REMOTE SENSING IMAGES
Wangyao Shen, Yunping Chen, Yuanlei Cheng, Kangzhuo Yang, Xiang Guo, University of Electronic Science and Technology of China, China; Yuan Sun, Chinese Academy of Sciences, China; Yan Chen, University of Electronic Science and Technology of China, China

TH2.MM-3.2 RE-DLINKNET: BASED ON DLINKNET AND RENET FOR ROAD EXTRACTION FROM HIGH RESOLUTION SATELLITE IMAGERY
Yuchuan Wang, Ling Tong, Jiang Wen, Fanghong Xiao, Yaqi Gao, Liubei He, University of Electronic Science and Technology of China, China; Dingmao Li, Shanxi Luneng Hequ Electric Coal Development Co. Ltd, China

TH2.MM-3.3 A CNN WITH MULTISCALE CONVOLUTION FOR HYPERSPECTRAL IMAGE CLASSIFICATION USING TARGET-PIXEL-ORIENTATION SCHEME
Jayasree Saha, Yuvraj Khanna, Jayanta Mukhopadhyay, Indian Institute of Technology Kharagpur, India

TH2.MM-3.4 IMPROVING MORE INSTANCE SEGMENTATION AND BETTER OBJECT DETECTION IN REMOTE SENSING IMAGERY BASED ON CASCADE MASK R-CNN
Durga Kumar, Xiaoling Zhang, University of Electronic Science and Technology of China, China

TH2.MM-3.5 V2RNET: AN UNSUPERVISED SEMANTIC SEGMENTATION ALGORITHM FOR REMOTE SENSING IMAGES VIA CROSS-DOMAIN TRANSFER LEARNING
Danpei Zhao, Jiayi Li, Bo Yuan, Zhenwei Shi, Image Processing Center, School of Astronautics, Beihang University, China

TH2.MM-3.6 U-NET MODEL FOR LOGGING DETECTION BASED ON THE SENTINEL-1 AND SENTINEL-2 DATA
Leonid Shumilo, Nataliia Kussul, Mykola Lavreniuk, Space Research Institute NASU-SSAU, Ukraine

TH2.MM-3.7 DAMAGED ROAD EXTRACTION BASED ON SIMULATED POST-DISASTER REMOTE SENSING IMAGES
Yansong Huang, Haocai Wei, Junli Yang, Ming Wu, Beijing University of Posts and Telecommunications, China

Thursday, July 15 13:00 - 14:10 Multimedia Room 4

Session TH2.MM-4

Multi-applications of Image Segmentation II

Session Co-Chairs: James Murphy, Tufts University; Krishna Karra, Impact Observatory; Marcel Stefko, ETH Zurich

TH2.MM-4.1 MULTISCALE CLUSTERING OF HYPERSPECTRAL IMAGES THROUGH SPECTRAL-SPATIAL DIFFUSION GEOMETRY
Sam Polk, James Murphy, Tufts University, United States

TH2.MM-4.2 DEEP LEARNING APPLICATION FOR FRACTURE SEGMENTATION OVER OUTCROP IMAGES FROM UAV-BASED DIGITAL PHOTOGRAMMETRY
Ademir Marques Jr., Graciela Racolte, Unisinos University, Brazil; Eniuce de Souza, State University of Maringa, Brazil; Hiduino Domingos, Rafael Kenji Horota, João Gabriel Motta, Daniel Zanotta, Unisinos University, Brazil; Caroline Cazarin, Cenpes, Brazil; Luiz Gonzaga Jr, Maurício Veronez, Unisinos University, Brazil

TH2.MM-4.3 DEEP LEARNING AND GOOGLE EARTH ENGINE APPLIED TO MAPPING EUCALYPTUS
João Otavio Nascimento Firigato, José Marcato Junior, Universidade Federal de Mato Grosso do Sul, Brazil; Wesley Gonçalves, Federal University of Mato Grosso do Sul, Brazil; Vitor Matheus Bacani, Universidade Federal de Mato Grosso do Sul, Brazil

TH2.MM-4.4 SEMANTIC SEGMENTATION OF LAND USE / LAND COVER (LU/LC) TYPES USING F-CNNS ON MULTI-SENSOR (RADAR-IR-OPTICAL) IMAGE DATA
Usman Iqbal Ahmed, Arturo Velasco, Bernhard Rabus, Simon Fraser University, Canada

TH2.MM-4.5 GLOBAL LAND USE / LAND COVER WITH SENTINEL 2 AND DEEP LEARNING
Krishna Karra, Caitlin Kontgis, Zoe Statman-Weil, Joseph Mazzariello, Mark Mathis, Steven Brumby, Impact Observatory, United States

TH2.MM-4.6 BUILDING FOOTPRINT EXTRACTION USING DEEP LEARNING SEMANTIC SEGMENTATION TECHNIQUES: EXPERIMENTS AND RESULTS
Philipe Borba, Felipe de Carvalho Diniz, Brazilian Army Geographic Service, Brazil; Nilton Correia da Silva, Edilson de Souza Bias, University of Brasilia, Brazil

TH2.MM-4.7 CORN CROPS IDENTIFICATION USING MULTISPECTRAL IMAGES FROM UNMANNED AIRCRAFT SYSTEMS
Fedra Trujillano, Pontifical Catholic University of Peru, Peru; Jessenia Gonzalez, Leipzig University, Germany; Carlos Saito, Andres Flores, Pontifical Catholic University of Peru, Peru; Daniel Racoceanu, Sorbonne University, France

TH2.MM-4.8 EVALUATING DIFFERENT DEEP LEARNING MODELS FOR AUTOMATIC WATER SEGMENTATION
Thales Akiyama, José Marcato Junior, UFMS - Federal University of Mato Grosso do Sul., Brazil; Wesley Gonçalves, Federal University of Mato Grosso do Sul, Brazil; Mario Carvalho, UFMS - Federal University of Mato Grosso do Sul., Brazil; Anette Eltner, Technische Universität Dresden, Germany

TH2.MM-4.9 EXPLORING THE FUSION OF SENTINEL-1 SAR AND SENTINEL-2 MSI DATA FOR BUILT-UP AREA MAPPING USING DEEP LEARNING
Sebastian Hafner, Yifang Ban, Andrea Nascetti, KTH Royal Institute of Technology, Sweden

Thursday, July 15 13:00 - 14:10 Multimedia Room 5

Session TH2.MM-5

Applications of Polarimetric, Bistatic and Digital Beamforming SAR II

Session Co-Chairs: Feng Xu, Fudan University; Allan A. Nielsen, Technical University of Denmark; Willeke A'Campo, Stockholm University

TH2.MM-5.1 THREE PROBLEMS IN FOREST HEIGHT INVERSION USING P-BAND REPEAT-PASS POLINSAR DATA
Zhanmang Liao, Binbin He, Yue Shi, Xia Liu, University of Electronic Science and Technology of China, China

TH2.MM-5.2 POLARIMETRIC SAR IMAGE CLASSIFICATION BASED ON EDGE-AWARE DUAL BRANCH FULLY CONVOLUTIONAL NETWORK
Feng Gao, Yanqiao Chen, Xinghua Chai, The 54th Research Institute of China Electronics Technology Group Corporation, China; Bin Wu, Cheng Peng, Ruoting Xing, Yangyang Li, Xidian University, China

TH2.MM-5.3 WEAK SCATTERING MECHANISM EXTRACTION METHOD BASED ON TARGET NULL THEORY
Dongwei Lu, Bo Pang, Shiqi Xing, Dahai Dai, Xuesong Wang, National University of Defence Technology, China

TH2.MM-5.4 THE OPTIMUM BASELINE ANALYSIS FOR POLINSAR FOREST HEIGHT MAPPING
Xiao Wang, Nanjing Tech University, China; Feng Xu, Ya-Qiu Jin, Fudan University, China

TH2.MM-5.5 SUPERPIXEL SEGMENTATION FOR POLSAR IMAGES BASED ON CROSS ITERATION
Meilin Li, Huanxin Zou, National University of Defence Technology, China; Xianxiang Qin, Air Force Engineering University, China; Zhen Dong, Juan Wei, National University of Defence Technology, China

TH2.MM-5.6 DELINEATING STATIONARY/NON-STATIONARY GROUND TARGETS WITH CORRELATION ANALYSIS OF TWO CROSS-POL COMPONENTS IN POLSAR DATA
Yin Zhang, University of Electronic Science and Technology of China, China; Yong Wang, East Carolina University, United States; Dingfeng Duan, University of Electronic Science and Technology of China, China; Hong Li, East Carolina University, United States

TH2.MM-5.7 GRAVITATION-BASED BILATERAL FILTERING OF ALOS-2 PALSAR-2 POLARIMETRIC DATA
Ken Yoong Lee, Chen Guang Hou, Soo Chin Liew, Leong Keong Kwoh, National University of Singapore, Singapore

TH2.MM-5.8 GRAPH REGULAR LOSS FOR SEMI-SUPERVISED POLSAR TERRAIN CLASSIFICATION
Chunlei Han, Yao Lu, Xi'an Research Institute of Navigation Technology, China; Yao Wang, Yuwei Guo, Qi Zang, Baorui Duan, Dong Zhao, Shuang Wang, Xidian University, China

TH2.MM-5.9 RANGE UNAMBIGUOUS WIDE SWATH IMAGING WITH FREQUENCY DIVERSE ARRAY SCANSAR
Yi Liao, Chunlin Wu, Guanghui Zeng, Zhi Zheng, University of Electronic Science and Technology of China, China

TH2.MM-5.10 DETERMINING ICEBERG SCATTERING MECHANISMS IN GREENLAND USING QUAD POL ALOS-2 SAR DATA
Johnson Bailey, Armando Marino, Vahid Akbari, University of Stirling, United Kingdom

Thursday, July 15 13:00 - 14:10 Multimedia Room 6

Session TH2.MM-6

Earth Observation Image Analysis

Session Co-Chairs: Yakoub Bazi, King Saud University; Tom Ainsworth, Naval Research Laboratory; Shahla Yadollahi, Vrije Universiteit Brussel

TH2.MM-6.1 COMPARING TARGET DETECTION PERFORMANCE BETWEEN QUAD-, COMPACT- AND DUAL-POLARIMETRIC SAR SYSTEMS
Wentao Hou, University of Chinese Academy of Science, Aerospace Information Research Institute, China; Fengjun Zhao, Xiuqing Liu, Robert Wang, Aerospace Information Reasearch Institute, Chinese Academy of Sciences, China

TH2.MM-6.2 LIGHTWEIGHT FINE-GRAINED RECOGNITION METHOD BASED ON MULTILEVEL FEATURE WEIGHTED FUSION
Yu Pan, Linbo Tang, Baojun Zhao, Beijing Institute of Technology, China

TH2.MM-6.3 SAR IMAGE OBJECT DETECTION BASED ON IMPROVED CROSS-ENTROPY LOSS FUNCTION WITH THE ATTENTION OF HARD SAMPLES
Yangyang Li, Wenxi Shi, Guangyuan Liu, Licheng Jiao, Xidian University, China; Zhong Ma, Lu Wei, Xi'an Microelectronics Technology Institute, China

TH2.MM-6.4 IMPROVEMENT OF DETECTION ACCURACY OF AIRCRAFT IN REMOTE SENSING IMAGES BASED ON YOLOV5 MODEL
Xindi Liu, Chang'an University, China; Gucheng Tang, Zhejiang Academy of Surveying and Mapping, China; Weibao Zou, Chang'an University, China

TH2.MM-6.5 COMMON REGIONS OF INTEREST EXTRACTION BASED ON SALIENCY STATISTIC ANALYSIS FOR MULTIPLE REMOTE SENSING IMAGES
Xinran Lyu, Lan Zhang, Wanning Zhu, Libao Zhang, Beijing Normal University, China

TH2.MM-6.6 ATTENTION-DRIVEN CROSS-MODAL REMOTE SENSING IMAGE RETRIEVAL
Ushasi Chaudhuri, Biplab Banerjee, Avik Bhattacharya, Indian Institute of Technology Bombay, India; Mihai Datcu, German Aerospace Center (DLR), Germany

TH2.MM-6.7 A NOVEL MULTI-SCAN JOINT METHOD FOR SLOW-MOVING TARGET DETECTION IN THE STRONG CLUTTER VIA RPCA
Jia Su, Guonan Cui, Tao Li, Yifei Fan, Mingliang Tao, Northwestern Polytechnical University, China; Haitao Wang, Guilin University of Electronic Technology, China; Xiang Zhang, Shanghai Institute of Satellite Engineering, China

TH2.MM-6.9 OBJECT DETECTION IN OPTICAL REMOTE SENSING IMAGES BASED ON POSITIVE SAMPLE REWEIGHTING AND FEATURE DECOUPLING
Wenqi Yu, Jiabao Wang, Gong Cheng, Northwestern Polytechnical University, China

TH2.MM-6.10 SPATIAL-TEMPORAL DISTRIBUTION ANALYSIS BASED ON MULTIYEAR HAB EXTRACTION IN THE YELLOW SEA OF CHINA
Lihua Cai, Zhipeng Cao, Mingming Xu, Hui Sheng, Jianhua Wan, China University of Petroleum, China

Thursday, July 15 13:00 - 14:10 Multimedia Room 7
Session TH2.MM-7

Tomography and 3D Mapping

Session Co-Chairs: Hossein Aghababaei, University of Twente; Karl Insfran, Tohoku University; Ilan Havinga, Wageningen University

TH2.MM-7.1 PANORAMIC 3D RECONSTRUCTION METHOD FOR SAR TOMOGRAPHY BASED ON MULTI-AZIMUTH OBSERVATIONS
Dong Han, Liangjiang Zhou, Zekun Jiao, Bingnan Wang, Yachao Wang, Yirong Wu, Aerospace Information Reasearch Institute, Chinese Academy of Sciences, China

TH2.MM-7.2 STEREO MATCHING ALGORITHM FOR HIGH-RESOLUTION REMOTE SENSING IMAGES BASED ON SPARSE CODING AND DICTIONARY LEARNING
Dongyang Liu, Junping Zhang, Youliang Guo, Harbin Institute of Technology, China

TH2.MM-7.3 A POSITION-FIRST 3D INVERSION METHOD FOR TOMOSAR
Ruizhe Shi, Zekun Jiao, Xiaolan Qiu, Chibiao Ding, Aerospace Information Reasearch Institute, Chinese Academy of Sciences, China

TH2.MM-7.4 SUPER-RESOLVING SAR TOMOGRAPHY USING DEEP LEARNING
Kun Qian, Technical University of Munich, Germany; Yuanyuan Wang, German Aerospace Center (DLR), Germany; Yilei Shi, Technical University of Munich, Germany; Xlao Xiang Zhu, German Aerospace Center (DLR), Germany

TH2.MM-7.5 ACCURATE 3D MEASUREMENT FROM TWO SAR IMAGES WITHOUT PRIOR KNOWLEDGE OF SCENE
Karl Insfran, Koichi Ito, Takafumi Aoki, Tohoku University, Japan

TH2.MM-7.6 A POINT CLOUDS FRAMEWORK FOR 3-D RECONSTRUCTION OF SAR IMAGES BASED ON 3-D PARAMETRIC ELECTROMAGNETIC PART MODEL
Zhi-Long Yang, Ruo-Yi Zhou, Feng Wang, Feng Xu, Fudan University, China

TH2.MM-7.7 P-BAND SAR TOMOGRAPHY FOR FOREST TYPE CLASSIFICATION
Dinh Ho Tong Minh, INRAE, France; Yen-Nhi Ngo, Independent researcher, France; Thu Trang Lê, Hanoi University of Mining and Geology, Viet Nam

TH2.MM-7.8 GROUND 3D OBJECT RECONSTRUCTION BASED ON MULTI-VIEW 3D OCCUPANCY NETWORK USING SATELLITE REMOTE SENSING IMAGE
Hao Chen, Wen Chen, Tong Gao, Harbin Institute of Technology, China

TH2.MM-7.9 EFFICIENT SAR TOMOGRAPHIC INVERSION VIA SPARSE BAYESIAN LEARNING
Yuanyuan Wang, Kun Qian, Xiaoxiang Zhu, German Aerospace Center (DLR), Germany

Thursday, July 15 13:00 - 14:10 Multimedia Room 8
Session TH2.MM-8

Subsurface Sensing / Ground Penetrating Radar I

Session Co-Chairs: Kamal Sarabandi, University of Michigan; Abdulrahman Aljurbua, University of Michigan; Thien-Anh Nguyen, École polytechnique fédérale de Lausanne (EPFL)

TH2.MM-8.1 AUTOMATIC SEGMENTATION OF ICE SHELVES WITH DEEP LEARNING
Miguel Hoyo García, Elena Donini, Francesca Bovolo, Fondazione Bruno Kessler, Italy

TH2.MM-8.2 A TECHNIQUE TO DETECT OIL PIPELINE LEAK USING A 3-D BISTATIC IMAGING RADAR
Abdulrahman Aljurbua, Kamal Sarabandi, University of Michigan, United States

TH2.MM-8.3 LOCALIZATION OF SUBSURFACE PIPES IN RADAR IMAGES BY 3D CONVOLUTIONAL NEURAL NETWORK AND KIRCHHOFF MIGRATION
Takahiro Yamaguchi, Tsukasa Mizutani, University of Tokyo, Japan

TH2.MM-8.4 EFFECTS OF GPR WIRELESS SYNCHRONIZATION DURING COMMON DEPTH POINT HODOGRAPH PLOTTING
Oxana Gulevich, Liudmila Volkomirskaya, Alexander Reznikov, IZMIRAN, Russia

TH2.MM-8.5 A METHOD FOR SEPARATING LINEAR SCATTERS IN NOISY CONDITION FROM HIGH ENTROPY SCATTERS
Yue Yu, Changchun Institute of Technology, China; Chi-Chih Chen, The Ohio State University, United States

TH2.MM-8.6 INFLUENCE OF A PRIORI UNCERTAINTY OF DIELECTRIC PERMITTIVITY AND ELECTROMAGNETIC MODEL OF SOIL STRUCTURE ON MEASUREMENT ERRORS IN GROUND PENETRATING RADAR
Alexander Baskakov, Aleksey Komarov, National Research University "Moscow Power Engineering Institute", Russia; Galbaatar Tuvdendorj, Bukhtsooj Odsuren, Institute of Physics and Technology, Mongolia

TH2.MM-8.7 AN EFFICIENT RAY TRACING BASED METHOD OF GROUND PENETRATING RADAR SIMULATION FOR DISPERSIVE MEDIA
Junfa Zhang, Yesheng Gao, Xingzhao Liu, Zhicheng Wang, Shanghai Jiao Tong University, China; Yu Cui, Shanghai Academy of Spaceflight Technology, China

TH2.MM-8.8 APPLICATION OF FULL-POLARIMETRIC GPR TO REBAR CORROSION DETECTION
Hai Liu, Jingyang Zhong, Zefan Yang, Xu Meng, Feng Ding, Guangzhou University, China

TH2.MM-8.9 INTEGRATION OF A GROUND PENETRATING RADAR WITH A RADIOMETER TO INCREASE INFORMATION CONTENT AND ACCURACY IN SUBSURFACE SOUNDING
Alexander Baskakov, Aleksey Komarov, National Research University "Moscow Power Engineering Institute", Russia; Bukhtsooj Odsuren, Galbaatar Tuvdendorj, Institute of Physics and Technology, Mongolia

TH2.MM-8.10 CLUTTER AWARE DEEP DETECTION FOR SUBSURFACE RADAR TARGETS
Fatih Köprücü, Isin Erer, Istanbul Technical University, Turkey; Denİz Kumlu, Navy Research Center, Turkey

Thursday, July 15 13:00 - 14:10 Multimedia Room 9

Session TH2.MM-9

Applications of Remote Sensing

Session Co-Chairs: Ian Brown; Rob Heylen, Flanders Make; Ines Meraoumia, Télécom Paris

TH2.MM-9.1 ANALYZING THE SITUATIONAL AND EVENT-DEPENDENT MARITIME TRAFFIC VARIATIONS USING COSMO-SKYMED SAR IMAGERY IN WUHAN, CHINA, BEFORE AND DURING COVID-19 LOCKDOWN
Hashir Tanveer, Timo Balz, Wuhan University, China; Francesca Cigna, Deodato Tapete, Italian Space Agency (ASI), Italy

TH2.MM-9.2 URBAN BUILDING DETECTION FROM GAOFEN-2 IMAGES BASED ON IMPROVED CENTERMASK
Dengji Zhou, Guojin He, Guizhou Wang, Ranyu Yin, Chinese Academy of Sciences, China; Fangzhou Hong, Zhejiang University, China

TH2.MM-9.3 COUNTING STRAWBERRY FLOWERS ON DRONE IMAGERY WITH A SEQUENTIAL CONVOLUTIONAL NEURAL NETWORK
Rob Heylen, Petra Van Mulders, Flanders Make, Belgium; Nicole Gallace, PCFruit, Belgium

TH2.MM-9.4 A SEMI-SUPERVISED SAR SHIP DETECTION FRAMEWORK VIA LABEL PROPAGATION AND CONSISTENT AUGMENTATION
Chen Wang, Jun Shi, Zongyou Zou, Wei Wang, Yuanyuan Zhou, Xiaqing Yang, University of Electronic Science and Technology of China, China

TH2.MM-9.5 WIND TURBINE DETECTION ON SENTINEL-2 IMAGES
Nicolas Mandroux, Tristan Dagobert, Sébastien Drouyer, Rafael Grompone von Gioi, Université Paris-Saclay, France

TH2.MM-9.6 ILLEGAL MICRO-DUMPS MONITORING: POLLUTION SOURCES AND TARGETS DETECTION IN SATELLITE IMAGES WITH THE SCATTERING TRANSFORM
Sara Parrilli, Luca Cicala, Cesario Vincenzo Angelino, C.I.R.A., Italy; Donato Amitrano, University of Surrey, United Kingdom

TH2.MM-9.7 DETECTION OF SMALL TARGETS BASED ON DUAL-RECEIVE CHANNELS RADAR
Bin Wang, Jie Li, Jinzhi Liu, Kaizhi Wang, Shanghai Jiao Tong University, China

TH2.MM-9.8 A CONTRARIO OIL TANK DETECTION WITH PATCH MATCH COMPLETION
Antoine Tadros, Sébastien Drouyer, Rafael Grompone von Gioi, Centre Borreli - ENS Paris-Saclay, France

TH2.MM-9.9 HIMAWARI THERMAL ANOMALY SCRUTINY WITH DEEP LEARNING
Qurratulain Safder, Haoyu Zhang, University of Electronic Science and Technology of China, China; Mingcang Zhu, Department of Natural Resources of Sichuan Province, China; Fangrong Zhou, Electric Power Research Institute, China; Yong He, Sichuan Research Institute for Eco-System Restoration & Geo-Hazard Prevention, China; Lifeng Liu, Tianjin Chengjian University, China; Zezhong Zheng, University of Electronic Science and Technology of China, China; Zhongnian Li, Central China Normal University, China; Zhiyong Wang, Mingqi Li, Ling Jiang, Qiang Liu, University of Electronic Science and Technology of China, China; Xuemei Li, Chengdu University of Technology, China

TH2.MM-9.10 WIND TURBINE DETECTION WITH SYNTHETIC OVERHEAD IMAGERY
Wei Hu, Tyler Feldman, Yanchen Jessie Ou, Natalie Tarn, Baoyan Ye, Duke University, United States; Yang Xu, University of Science and Technology Beijing, China; Jordan M. Malof, Kyle Bradbury, Duke University, United States

Thursday, July 15 13:00 - 14:10 Multimedia Room 10

Session TH2.MM-10

Scene Classification and Recognition

Session Co-Chairs: lichao mou, German Aerospace Center & Technical University of Munich; Zhendong Lu, University of Iowa; Gabriele Moser, University of Genoa

TH2.MM-10.1 REMOTE SCENE IMAGE SCENE CLASSIFICATION BASED ON ADAPTIVE SEGMENTATION AND DYNAMIC GRAPH CONVOLUTION
Yuqun Yang, Xu Tang, Xidian University, China; Xiao Han, Geovis Spatial Technology Co.,Ltd, China; Jingjing Ma, Xiangrong Zhang, Licheng Jiao, Xidian University, China

TH2.MM-10.2 A MULTI-SCALE FEATURE AGGREGATION NETWORK BASED ON CHANNEL-SPATIAL ATTENTION FOR REMOTE SENSING SCENE CLASSIFICATION
Ming Li, Lin Lei, Xiao Li, Yuli Sun, National University of Defence Technology, China

TH2.MM-10.3 CNN-GCN JOINT NETWORK FOR REMOTE SENSING SCENE CLASSIFICATION
Kejie Xu, Hong Huang, Peifang Deng, Chongqing University, China

TH2.MM-10.4 MEMORY USING DATA GENERATOR IN CONTINUAL LEARNING FOR REMOTE SENSING SCENE CLASSIFICATION
Nassim Ammour, King Saud University, Saudi Arabia

TH2.MM-10.5 MULTI-SCALE META-LEARNING-BASED NETWORKS FOR HIGH-RESOLUTION REMOTE SENSING SCENE CLASSIFICATION
Xu Tang, Weiquan Lin, Chao Liu, Xidian University, China; Xiao Han, Geovis Spatial Technology Co.,Ltd, China; Wenjing Wang, Science and Technology on Electro-optic Control Laboratory, China; Jingjing Ma, Licheng Jiao, Xidian University, China

TH2.MM-10.6 A SEMI-SUPERVISED SIAMESE NETWORK WITH LABEL FUSION FOR REMOTE SENSING IMAGE SCENE CLASSIFICATION
Wang Miao, Jie Geng, Xinyang Deng, Wen Jiang, Northwestern Polytechnical University, China

TH2.MM-10.7 ROBUST REMOTE SENSING SCENE CLASSIFICATION BY ADVERSARIAL SELF-SUPERVISED LEARNING
Yanjie Xu, Hao Sun, National University of Defence Technology, China; Jin Chen, Beijing Institute of Remote Sensing Information, China; Lin Lei, Gangyao Kuang, Kefeng Ji, National University of Defence Technology, China

TH2.MM-10.8 MULTI-OBJECTIVE NET ARCHITECTURE PRUNING FOR REMOTE SENSING CLASSIFICATION
Jiaqi Zhao, Chengrun Yang, Yong Zhou, Yajie Zhou, Zhujun Jiang, Ying Chen, China University of Mining and Technology, China

TH2.MM-10.9 NATURAL SCENE RECOGNITION BASED ON HRRP STATISTICAL MODELING
Shu-Qi Lei, Fudan University, China; Dong-Xiao Yue, Shanghai Maritime University, China; Feng Wang, Key Laboratory for Information Science of Electromagnetic Waves (MoE), China

TH2.MM-10.10 UNCONSTRAINED AERIAL SCENE RECOGNITION WITH DEEP NEURAL NETWORKS AND A NEW DATASET
Yuansheng Hua, Lichao Mou, German Aerospace Center & Technical University of Munich, Germany; Pu Jin, Technical University of Munich, Germany; Xiao Xiang Zhu, German Aerospace Center & Technical University of Munich, Germany

Thursday, July 15 13:00 - 14:10 Multimedia Room 11

Session TH2.MM-11

High Resolution Image Analysis and Classification

Session Co-Chairs: Shutao Li, Hunan University; Luca Bergamasco, Fondazione Bruno Kessler

TH2.MM-11.1 PARALLEL PARTICLE SWARM OPTIMIZATION ALGORITHM FOR CLASSIFICATION OF VERY HIGH RESOLUTION IMAGES BASED ON MATHEMATICAL MORPHOLOGY
Ali Alouache, Agence Spatiale Algérienne, Algeria

TH2.MM-11.2 POINTNET: LEARNING POINT REPRESENTATION FOR HIGH-RESOLUTION REMOTE SENSING IMAGERY LAND-COVER CLASSIFICATION
Longyuan Ding, Jiangsu Provincial Research Institute of Surveying & Mapping, China; JunJue Wang, State Key Laboratory of Information Engineering in Surveying, Mapping and Remote Sensing, Wuhan University, China; Chenyu Zheng, Wuhan University, China; Lei Lei, Ailong Ma, State Key Laboratory of Information Engineering in Surveying, Mapping and Remote Sensing, Wuhan University, China; Yong Cai, Jian Zhang, Ya Gao, Jiangsu Provincial Research Institute of Surveying & Mapping, China

TH2.MM-11.3 A REVIEW ON CONTRASTIVE LEARNING METHODS AND APPLICATIONS TO ROOF-TYPE CLASSIFICATION ON AERIAL IMAGES
Ahmed Ben Saad, Gabriele Facciolo, Sébastien Drouyer, Centre Borelli ENS Paris Saclay, France; Bastien Hell, Sylvain Gavoille, Stephane Gaiffas, NamR, France

TH2.MM-11.4 A CNN CLOUD DETECTOR FOR PANCHROMATIC SATELLITE IMAGES
Mariano Rodríguez, Université Paris-Saclay, France; Jérémy Anger, Carlo de Franchis, Charles Hessel, Université Paris-Saclay & Kayrros, France; Gabriele Facciolo, Rafael Grompone von gioi, Jean-Michel Morel, Université Paris-Saclay, France

TH2.MM-11.5 HIERARCHICAL MULTI-LABEL SHIP RECOGNITION IN REMOTE SENSING IMAGES USING LABEL RELATION GRAPHS
Jingzhou Chen, Yuntao Qian, Zhejiang University, China

TH2.MM-11.6 ATTENTION MECHANISM FOR LAND COVER MAPPING WITH IMAGE-LEVEL LABELS
Teerasit Kasetkasem, Suesarn Wilainuch, Yanatorn Chadavadh, Kulladech Pitakpornkasem, Kasetsart University, Thailand; Teera Phatrapornnant, Sanparith Marukatat, National Electronics and Computer Technology Center, Thailand

TH2.MM-11.7 INFLUENCE OF GEOGRAPHIC DISTANCE ON CNN GENERALIZATION FOR SATELLITE IMAGE CLASSIFICATION
Xiqi Fei, Konrad Wessels, Dieter Pfoser, Andreas Züfle, Olga Gkountouna, George Mason University, United States

TH2.MM-11.8 URBAN TREE SPECIES CLASSIFICATION USING AIRBORNE LIDAR AND HYPERSPECTRAL IMAGERY
Dengkai Chi, Kobe Graulus, KU Leuven, Belgium; Jeroen Degerickx, Flemish Institute for Technological Research-VITO NV, Belgium; Ben Somers, KU Leuven, Belgium

TH2.MM-11.9 PROPORTION ESTIMATION OF URBAN MIXED SCENES BASED ON NONNEGATIVE MATRIX FACTORIZATION FOR HIGH SPATIAL RESOLUTION REMOTE SENSING IMAGES.
Jiale Chen, Qiqi Zhu, China University of Geosciences, China; Xiongli Sun, Wuhan University, China; Qingfeng Guan, China University of Geosciences, China

TH2.MM-11.10 CLASSIFICATION OF SURFACE NATURAL RESOURCES BASED ON HR-NET AND DEM
Mujie Li, University of Electronic Science and Technology of China, China; Mingcang Zhu, Department of Natural Resources of Sichuan Province, China; Yong He, Sichuan Research Institute for Eco-system Restoration & Geo-hazard Prevention, China; Jianying Shu, Pengshan Li, Chengdu Land Planning and Cadastre Center, China; Ankai Hou, Zezhong Zheng, University of Electronic Science and Technology of China, China; Guoqing Zhou, Guilin University of Technology, China; Zhongnian Li, Central China Normal University, China; Zhiyong Wang, Mingqi Li, Ling Jiang, Qiang Liu, University of Electronic Science and Technology of China, China; Xuemei Li, Chengdu University of Technology, China

Thursday, July 15 13:00 - 14:10 Multimedia Room 12

Session TH2.MM-12

Target Detection in Radar Imagery

Session Co-Chairs: Laurens Diels, Universiteit Gent; Zhihang Wang, University of Electronic Science and Technology of China; Giovanni Manfredi, SONDRA, CentraleSupélec, Université Paris Saclay

TH2.MM-12.1 A SUPERPIXEL-BASED NEIGHBORHOOD POLARIMETRIC COVARIANCE MATRIX FOR POLSAR SHIP DETECTION
Tao Zhang, Tsinghua University, China; Jun Shu, Huaihua University, China; Chengtao Ji, University of Groningen, China; Yanlei Du, Tsinghua University, China; Tao Liu, Naval University of Engineering, China; Jian Yang, Tsinghua University, China

TH2.MM-12.2 CLASSIFICATION IN L-BAND OF PHYSICAL ACTIVITIES PERFORMED SIMULTANEOUSLY INTO THE FOREST BY A GROUP OF PERSONS
Giovanni Manfredi, Israel Hinostroza, SONDRA, CentraleSupélec, Université Paris Saclay, France; Michel Menelle, Stephane Saillant, Jean Philippe Ovarlez, ONERA, Université Paris-Saclay, France; Laétitia Thirion-Lefevre, SONDRA, CentraleSupélec, Université Paris Saclay, France

TH2.MM-12.3 PERSYMMETRIC ADAPTIVE CFAR DETECTOR IN COMPOUND GAUSSIAN SEA CLUTTER WITH INVERSE GAUSSIAN TEXTURE
Zhihang Wang, Zishu He, Qin He, Xiaoying Lu, University of Electronic Science and Technology of China, China

TH2.MM-12.4 MOVING TARGET DETECTION FOR SINGLE-CHANNEL CSAR BASED ON DEEP NEURAL NETWORK
Xiaobo Zhang, Di Wu, Xifeng Zhang, Qinghao Yu, Daiyin Zhu, Nanjing University of Aeronautics and Astronautics, China

TH2.MM-12.5 DESIGNING WAVEFORM WITH DESIRED AUTOCORRELATION PROPERTIES FOR COGNITIVE RADAR TARGET DETECTION
Cui Zhang, Jifang Pei, Yin Zhang, Weibo Huo, Yulin Huang, Jianyu Yang, University of Electronic Science and Technology of China, China; Zhiwei Xing, Civil Aviation University of China, China

TH2.MM-12.6 ADAPTIVE NULL OPTIMIZATION METHOD BASED ON FREQUENCY DIVERSE ARRAY
Siqi Li, Zhulin Zong, Libing Huang, Yun Feng, University of Electronic Science and Technology of China, China

TH2.MM-12.7 A BEAM POSITION DESIGN ALGORITHM FOR SPACE-BASED EARLY WARNING RADAR
Jiangyuan Chen, Penghui Huang, Shanghai Jiao Tong University, China; Lihuan Huo, The 54th Research Institute of CETC, China; Dong Yang, Shaoqian Li, Fengwei Shao, Institute of Space Electronics and Information Technology, China; Xingzhao Liu, Shanghai Jiao Tong University, China

TH2.MM-12.8 GROUND MOVING TARGET INDICATION OF MULTI-CHANNEL SAR BASED ON JOINT CSI-RELAX METHOD
Beibei Ge, Daoxiang An, Leping Chen, Dong Feng, National University of Defence Technology, China; Wu Wang, Aerodynamics Research and Development Center, China; Changjiang Liu, Unit 31697 of PLA, China; Zhimin Zhou, National University of Defence Technology, China

TH2.MM-12.9 A MAN-MADE TARGET DETECTION METHOD BASED ON MULTI-ANGULAR PHASE CHARACTERISTIC
Fei Teng, University of Chinese Academy of Sciences, China; Yun Lin, North China University of Technology, China; Shanshan Feng, University of Chinese Academy of Sciences, China; Wen Hong, Chinese Academy of Sciences, China

TH2.MM-12.10 ADAPTIVE CFAR RAO AND WALD DETECTORS FOR COMPOUND GAUSSIAN SEA CLUTTER WITH INVERSE GAUSSIAN TEXTURE
Zhihang Wang, Zishu He, Qin He, Yangjingzhi Zhuang, University of Electronic Science and Technology of China, China

Thursday, July 15 13:00 - 14:10 Multimedia Room 13
Session TH2.MM-13

Applications of Data Fusion

Session Co-Chairs: Khatereh Meshkini, Fondazione Bruno Kessler; Daniel Cerra, German Aerospace Center (DLR); Pedram Ghamisi, HZDR-HIF

TH2.MM-13.1 MONITORING DAILY NIGHTTIME LIGHT BASED ON MODIS AND DEEP LEARNING: A BELGIUM CASE STUDY
Lixian Zhang, Zhehao Ren, Runmin Dong, Bing Xu, Haohuan Fu, Tsinghua University, China

TH2.MM-13.2 INVERSION OF WATER QUALITY PARAMETER BOD5 BASED ON HYPERSPECTRAL REMOTELY SENSED DATA IN QINGHAI LAKE
Lingjuan Cao, Dianjun Zhang, Quan Guo, Jie Zhan, Tianjin University, China

TH2.MM-13.3 A COOPERATIVE CLASSIFICATION METHOD FOR HYPERSPECTRAL IMAGES BASED ON ADAPTIVE CORRECTION
Yue Tang, Peng Fu, Quansen Sun, Nanjing University of Science and Technology, China

TH2.MM-13.4 INFORMATION FUSION OF GF-1 AND GF-4 SATELLITE IMAGERY FOR SHIP SURVEILLANCE
Yong Liu, Pengyu Guo, Lu Cao, Mingjiang Ji, National Innovation Institute of Defense Technology, Academy of Military Sciences, China; Libo Yao, Institute of Information Fusion, Naval Aviation University, China

TH2.MM-13.5 RANDOM FOREST FUSION CLASSIFICATION OF REMOTE SENSING POLSAR AND OPTICAL IMAGE BASED ON LASSO AND IM FACTOR
Fang Hong, Yingying Kong, Nanjing University of Aeronautics and Astronautics, China

TH2.MM-13.6 COMPARISON OF HIGH-RESOLUTION AIRBORNE MWIR DATA WITH SAR AND AIS FOR SHIP DETECTION
Maximilian Rodger, Raffaella Guida, University of Surrey, United Kingdom; Tobias Reinicke, Simon Tucker, Anthony Baker, Satellite Vu, United Kingdom

TH2.MM-13.7 APPLICATION OF CONDITIONAL GENERATIVE ADVERSARIAL NETWORKS FOR GENERATION OF MICRO-DOPPLER SIGNATURES OF DIFFERENT ASPECT ANGLES
Ibrahim Alnujaim, Youngwook Kim, California State University, Fresno, United States

TH2.MM-13.8 MULTIPLE FEATURE FUSION FOR FINE CLASSIFICATION OF CROPS IN UAV HYPERSPECTRAL IMAGERY
Yajing Liang, Lifei Wei, Qikai Lu, Hubei University, China

TH2.MM-13.9 LIDAR-AIDED TOTAL VARIATION REGULARIZED NONNEGATIVE TENSOR FACTORIZATION FOR HYPERSPECTRAL UNMIXING
Atakan Kaya, Kubİlay Ataş, Sevcan Kahraman, Istanbul Gelişim University, Turkey

Thursday, July 15 13:00 - 14:10 Multimedia Room 14
Session TH2.MM-14

Sea Ice I

Session Co-Chairs: Xiaolong Dong, National Space Science Center, Chinese Academy of Science (NSSC-CAS); Eduard Khachatrian, UiT Norges arktiske universitet; Xu Shiming, Tsinghua University

TH2.MM-14.1 REMOTE SENSING OF SEA ICE AT SMALL INCIDENCE ANGLES: VERIFICATION OF THEORETICAL MODELS
Vladimir Karaev, Mariya Panfilova, Mariya Ryabkova, Yury Titchenko, Eugeny Meshkov, Institute of Applied Physics, Russian Academy of Sciences, Russia

TH2.MM-14.2 SYNERGISTIC USE OF SATELLITE SCATTEROMETER, SAR AND ALTIMETER DATA TO STUDY FIRST YEAR SEA ICE PROPERTIES
Elizaveta Zabolotskikh, Ekaterina Balashova, Vladimir Kudryavtsev, Russian State Hydrometeorological University, Russia; Bertrand Chapron, Ifremer , France

TH2.MM-14.3 RETRIEVAL OF THIN ICE THICKNESS FROM FY-3D/MWRI BRIGHTNESS TEMPERATURE IN THE ARCTIC
Ningning Liu, Haihua Chen, Kun Ni, Lele Li, College of Information Science and Engineering Ocean University of China, China

TH2.MM-14.4 VALIDATION OF ADVANCED METHOD FOR SEA ICE CONCENTRATION RETRIEVAL FROM THE AMSR2 MEASUREMENTS AT 89 GHZ.
Margarita Zhivotovskaia, Elizaveta Zabolotskikh, Ekaterina Balashova, Russian State Hydrometeorological University, Russia; Bertrand Chapron, Ifremer, France

TH2.MM-14.5 POLAR SEA ICE DETECTION WITH THE CFOSAT SCATTEROMETER
Liling Liu, China University of Mining and Technology, China; Xiaolong Dong, National Space Science Center, Chinese Academy of Sciences, China; Wenming Lin, Nanjing University of Information Science and Technology, China; Shuyan Lang, National Satellite Ocean Application Service, China; Liting Wang, North China Institute of Computing Technology, China

TH2.MM-14.6 MONITORING ARCTIC SEA ICE DURING ONE YEAR: LINARLY POLARIZED GNSS-REFLECTOMETRY AT THE MOSAIC CAMPAIGN
Estel Cardellach, Weiqiang Li, Serni Ribó, Antonio Rius, Institut de Ciencies de l'Espai (ICE-CSIC) Institut d'Estudis Espacials de Catalunya (IEEC), Spain; Julienne Stroeve, Vishnu Nandan, Centre for Earth Observation Science, University of Manitoba, University College London, Canada; Polona Itkin, UiT The Arctic University of Norway, Norway; Rasmus Tage Tonboe, Danish Meteorological Institute, Denmark; Stefan Hendricks, Alfred-Wegener-Institute Helmholtz Center for Polar and Marine Research (AWI), Germany; Marcus Huntemann, Gunnar Spreen, Institute of Environmental Physics, University of Bremen, Germany; Tânia Casal, Manuel Martin-Neira, European Space Agency, ESTEC, Netherlands

TH2.MM-14.7 ARCTIC SEA ICE THICKNESS ESTIMATION FROM ICESAT-2 USING DIFFERENT PARAMETER SCHEMES
Shuang Liang, Jiangyuan Zeng, Zhen Li, Aerospace Information Reasearch Institute, Chinese Academy of Sciences, China

TH2.MM-14.8 EVALUATION OF A NEURAL NETWORK ON SEA ICE CONCENTRATION ESTIMATION IN MIZ USING PASSIVE MICROWAVE DATA
Armina Soleymani, K. Andrea Scott, University of Waterloo, Canada

TH2.MM-14.9 ARCTIC SEA ICE MAPPING USING SENTINEL-1 SAR SCENES WITH A CONVOLUTIONAL NEURAL NETWORK
Dmitrii Murashkin, University of Bremen, Germany; Anja Frost, German Aerospace Center (DLR), Germany

Thursday, July 15 13:00 - 14:10 Multimedia Room 15
Session TH2.MM-15

Advanced Methods and Services for Land Use Applications

Session Co-Chairs: Saeed Khabbazan, Technische Universiteit Delft; Fernando Camacho, EOLAB; Ignacio Borlaf-Mena, University of Alcalá

TH2.MM-15.1 A CRITICAL ANALYSIS OF DECOMPOSITION STRATEGIES IN PHYSICAL MODEL-BASED DECOMPOSITION TECHNIQUES
Amit Kumar, Indian Institute of Technology Roorkee, India; Arundhati Misra, Space Applications Centre, Indian Space Research Organisation, India; Rajib Panigrahi, Indian Institute of Technology Roorkee, India

TH2.MM-15.2 SUPER-RESOLUTION IMAGING FOR REAL APERTURE RADAR BY TWO-DIMENSIONAL DECONVOLUTION
Xingyu Tuo, Yu Xia, Yin Zhang, Junyu Zhu, Yongchao Zhang, Yulin Huang, Jianyu Yang, University of Electronic Science and Technology of China, China

TH2.MM-15.3 ANGULAR SUPER-RESOLUTION IMAGING BASE ON MULTI-WIENER-WAVELET DECONVOLUTION ALGORITHM FOR SCANNING RADAR
Youxin Deng, Wenchao Li, Junyu Zhu, Yongchao Zhang, Yulin Huang, University of Electronic Science and Technology of China, China

TH2.MM-15.4 COPERNICUS GLOBAL LAND PRODUCTS: REVIEWING PROCESS FOR HIGH QUALITY SERVICES
Pietro Ceccato, Christophe Noel, Arnaud De Groof, SPACEBEL, Belgium; Marie Lang, Bernard Tychon, Université de Liège, Belgium; Michael Cherlet, European Commission, Italy

TH2.MM-15.5 COPERNICUS GLOBAL LAND SERVICE QUALITY ASSESSMENT – BETTER GOOD THAN SORRY!
Fernando Camacho, EOLAB, Spain; Roselyne Lacaze, HYGEOS, France; Else Swinnen, Dennis Clarijs, VITO, Belgium; Nicolas Taburet, CLS, France; Marco Clerici, Nadine Gobron, Joint Research Center, European Commission, Italy; Christophe Lerebourg, ACRI-ST, France; Michael Cherlet, Joint Research Center, European Commission, Italy

TH2.MM-15.6 INFLUENCE OF THE MOSAICKING ALGORITHM ON SENTINEL-1 LAND COVER CLASSIFICATION OVER ROUGH TERRAIN
Ignacio Borlaf-Mena, University of Alcalá, Spain; Ovidiu Badea, Institutul Național de Cercetare-Dezvoltare în Silvicultură (INCDS), Romania; Mihai Andrei Tanase, University of Alcalá, Spain

TH2.MM-15.7 IN-SAT: A NOVEL LAND COVER CLASSIFICATION DATASET FOR INDIAN SUBCONTINENT
Meet Shah, IIIT - Delhi, India; Subramanyam Venkata, Indraprastha Institute of Information Technology, Delhi, India; Gaurav Arora, Economics Division, Dept of Social Sciences and Humanities, IIIT-Delhi, India

TH2.MM-15.8 OBSERVING FREEZE-THAW TRANSITIONS OVER LAND USING CYGNSS MEASUREMENTS
Rajeswari Balasubramaniam, Mahnaz Vahdat, Christopher Ruf, University of Michigan, Ann Arbor, United States

TH2.MM-15.9 SIMULATION AND PREDICTION OF LAND-USE CHANGE IN URBAN AGGLOMERATIONS UNDER DIFFERENT SCENARIOS
Haoran Zhai, Jiaqi Yao, Guanghui Wang, Tao Zhang, Hailun Dai, Land Satellite Remote Sensing Application Center, Ministry of Natural Resources of China, China

Thursday, July 15 13:00 - 14:10 Multimedia Room 16
Session TH2.MM-16

Land Cover Dynamics II

Session Co-Chairs: Dainius Masiliunas, Wageningen University & Research; Jean-Christophe Schyns, Belgian Science Policy Office; Michael Marshall, University of Twente

TH2.MM-16.1 THE DRIVING FACTORS OF GLOBAL LAND SURFACE ALBEDO: AN ANALYSIS WITH THE GLASS AND MERRA-2 DATA
Xijia Li, Jilin Jianzhu University, China; Ying Qu, Mingzhu Lv, Yan Song, Northeast Normal University, China; Xinwei Zhao, Jilin Jianzhu University, China

TH2.MM-16.2 MULTI-TEMPORAL LU/LC CORRELATION IN LUCKNOW CITY
Ravi Verma, Pradeep Kumar Garg, Indian Institute of Technology Roorkee, India

TH2.MM-16.3 A FULLY AUTOMATED APPROACH TO EXTRACT LANDCOVER FEATURES FROM LANDSAT IMAGERIES
Krishnaveni KS, Anilkumar PP, National Institute of Technology Calicut, India

TH2.MM-16.4 DEEP LEARNING CLASSIFICATION EXPERIMENTS ON THE TEXAS COLORADO RIVER DELTA
Lihong Su, James Gibeaut, Jessica Magolan, Texas A&M University - Corpus Christi, United States

TH2.MM-16.5 QUANTIFYING THE EFFECT OF THE WIND ON TREES OBSERVED BY SYNTHETIC APERTURE RADAR SYSTEMS
Michael Benson, Leland Pierce, Kamal Sarabandi, University of Michigan, United States

TH2.MM-16.6 URBAN GROWTH SIMULATION MODELING USING CELLULAR AUTOMATA AND FIREFLY ALGORITHM
Qingmei Li, Bing Han, Chengqi Cheng, Peking University, China

TH2.MM-16.7 HYDROSOIL, SOIL MOISTURE AND VEGETATION PARAMETERS RETRIEVAL WITH A C-BAND GB-SAR: CAMPAIGN IMPLEMENTATION AND FIRST RESULTS
Alberto Aguasca, Antoni Broquetas, Xavier Fabregas, Jordi J. Mallorqui, Pol Vilalvilla, Jordi Biscamps, Jordi Llop, Montserrat Gallart, Emilio Gil, Anna Gras, Universitat Politècnica de Catalunya, Spain

Thursday, July 15 13:00 - 14:10 Multimedia Room 17

Session TH2.MM-17

Retrieval of Forest and Vegetation Structure

Session Co-Chairs: Tianqi Zhang, The Ohio State University; Yiping Chen, Xiamen University; iain Rolland

TH2.MM-17.1 THREE-DIMENSIONAL RECONSTRUCTION OF LEAVES BASED ON LASER POINT CLOUD DATA
Zhonghua Su, Guiyun Zhou, Lihui Song, University of Electronic Science and Technology of China, China; Xukun Lu, China Academy of Electronics and Information Technology, China; Rong Zhao, Xiang Zhou, University of Electronic Science and Technology of China, China

TH2.MM-17.2 DIFFERENCING PHASES OF VOLUME AND DOUBLE SCATTERING COMPONENTS TO IMPROVE TREE HEIGHT ESTIMATE
Yao Chen, University of Electronic Science and Technology of China, China; Yong Wang, East Carolina University, United States; Bao Zhu, University of Electronic Science and Technology of China, China

TH2.MM-17.3 RESEARCH ON LEAF AREA INDEX EXTRACTION ALGORITHM BASED ON 3D RECONSTRUCTION
XueCheng Dai, YunPing Chen, Yan Chen, University of Electronic Science and Technology of China, China; Yuan Sun, Chinese Academy of Sciences, China

TH2.MM-17.4 EVALUATING THE REPRESENTATIVE CANOPY SURFACE OF ARCTICDEM IN BOREAL FORESTS
Tianqi Zhang, Desheng Liu, The Ohio State University, United States

TH2.MM-17.5 ESTIMATION OF LEAF AREA INDEX BASED ON HEMISPHERICAL CANOPY PHOTOGRAPHY
Peicheng Wang, Ling Tong, Xing Zhou, University of Electronic Science and Technology of China, China; Yuan Sun, Aerospace Information Reasearch Institute, Chinese Academy of Sciences, China; Xun Gong, Bo Gao, YuXia Li, University of Electronic Science and Technology of China, China

TH2.MM-17.6 RETRIEVING CANOPY CLUMPING INDEX FROM TERRESTRIAL LASER SCANNING DATA
Yifan Xu, University of Electronic Science and Technology of China, China; Sen Lin, Hulunbuir Discipline Inspection Committee of the Communist Party of China, China; Shihua Li, University of Electronic Science and Technology of China, China

TH2.MM-17.7 RETRIEVAL AND VALIDATION OF VERTICAL FOREST LAI PROFILE FROM AIRBORNE LIDAR DATA
Yao Wang, Hongliang Fang, Yinghui Zhang, Sijia Li, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, China

TH2.MM-17.8 EFFECT OF ROW ORIENTATION ON MAIZE GREEN AREA INDEX RETRIEVAL FROM L-BAND SYNTHETIC APERTURE RADAR IMAGERY
Jean Bouchat, Pierre Defourny, Université catholique de Louvain, Belgium

TH2.MM-17.9 IMPACT OF PLOT SIZE AND EXTENDED EXTRACTION REGIONS OF TANDEM-X PHASE HEIGHT IN RELATION TO FOREST VARIABLES
Ivan Huuva, Henrik Persson, Jörgen Wallerman, Johan E S Fransson, Swedish University of Agricultural Sciences, Sweden

TH2.MM-17.10 MAPPING OF FOREST HEIGHT IN NORTHWEST HUNAN, CHINA USING MULTI-SOURCE SATELLITE DATA
Wankun Min, Wuhan University, China; Jiaqi Ding, Peking University, Wuhan University, China; Wenli Huang, Wuhan University, Chinese Academy of Sciences, China; Yingchun Liu, Academy of Inventory and PlanningNational Forestry and Grassland Administration, China; Yang Hu, Ningxia University, China

Thursday, July 15 13:00 - 14:10 Multimedia Room 18

Session TH2.MM-18

Remote Sensing for Forest and Vegetation Growth and Dynamics I

Session Co-Chairs: Christian Koyama, JAXA; Jie Zhao, Luxembourg Institute of Science and Technology; Alireza Taravat, Deimos Space UK

TH2.MM-18.1 SENTINEL-2 BASED SERVICE FOR IDENTIFY AND MAP WILDFIRE EVENTS
Alireza Taravat, Deimos Space UK, United Kingdom; Helena Łoś, Deimos Engenharia, Portugal

TH2.MM-18.2 COPERNICUS GLOBAL LAND SERVICE NDVI CONTINUITY WITH SENTINEL-3 DATA
Else Swinnen, Carolien Toté, Jonathan Leon Tavares, VITO, Belgium; Roselyne Lacaze, HYGEOS, France

TH2.MM-18.3 MICROTOPOGRAPHICAL CHARACTERISTICS OF FOREST DIEBACK IN A SEMI-ARID REGION RETRIEVED FROM GROUND AND SATELLITE DATA
Buho Hoshino, Daishi Matsukawa, Takashi Sasamura, Rakuno Gakuen University, Japan; Tserendulam Tserenochir, Uuganbayar Ganbold, Hustal National Park, Mongolia; Christopher McCarthy, Johns Hopkins University, United States; Masami Kaneko, Rakuno Gakuen University, Japan; Atsuko Sugimoto, Hokkaido University, Japan

TH2.MM-18.4 A VEGETATION PHENOLOGY MONITORING METHODOLOGY BASED ON SICHUAN PROVINCE
Fan Li, Yuxia Li, Yuan Cheng, University of Electronic Science and Technology of China, China; Cunjie Zhang, China Meteorological Administration, China; Lei He, Chengdu University of Information Technology, China

TH2.MM-18.5 STUDYING SPATIOTEMPORAL FRACTIONAL VEGETATION COVER VARIATIONS FROM 2000 TO 2020 IN CHANGJIANG BASIN, CHINA WITH GOOGLE EARTH ENGINE
Tianxiang Yang, University of Electronic Science and Technology of China, China; Yong Wang, East Carolina University, United States

TH2.MM-18.6 IMPROVING L-BAND SAR FOREST MONITORING BY BIG DATA DEEP LEARNING BASED ON ALOS-2 5 YEARS PAN-TROPICAL OBSERVATIONS
Christian Koyama, Japan Aerospace Exploration Agency (JAXA), Japan; Manabu Watanabe, Tokyo Denki University, Japan; Edson Sano, IBAMA, Brazil; Masato Hayashi, Izumi Nagatani, Takeo Tadono, Japan Aerospace Exploration Agency (JAXA), Japan; Masanobu Shimada, Tokyo Denki University, Japan

TH2.MM-18.7 COMBINING REMOTE SENSING, IN SITU DATA COLLECTION AND NUMERICAL FORECASTS FOR ENHANCING ENVIRONMENTAL PROTECTION IN BRAZILIAN AMAZONIAN SHELF
Mauricio Fragoso, CLS, France; Julio Pellegrini, PROOCEANO, Brazil; Maria Eduarda Pessoa, ENAUTA, Brazil

TH2.MM-18.8 THE INFLUENCE OF SPATIAL RESOLUTION ON THE RETRIEVAL OF CLUMPING INDEX BASED ON POLDER AND MODIS DATA
Siyang Yin, Ziti Jiao, Xiaoning Zhang, Lei Cui, Rui Xie, Jing Guo, Zidong Zhu, Sijie Li, Beijing Normal University, China; Yadong Dong, Aerospace Information Reasearch Institute, Chinese Academy of Sciences, China; Yidong Tong, Beijing Normal University, China

Thursday, July 15 13:00 - 14:10 Multimedia Room 19

Session TH2.MM-19

SAR Focusing and Super-resolution Techniques

Session Co-Chairs: Qi Zhan, University of Electronic Science and Technology of China; Yulei Qian, Nanjing Marine Radar Institute; Pratyush Talreja, Indian Institute of Technology Bombay

TH2.MM-19.1 ONLINE SUPER-RESOLUTION IMAGING FOR AIRBORNE SCANNING RADAR BASED ON SLIDING WINDOW RLS ALGORITHM
Jiawei Luo, Yongchao Zhang, Yongwei Zhang, Yin Zhang, Yulin Huang, Haiguang Yang, Jianyu Yang, University of Electronic Science and Technology of China, China

TH2.MM-19.2 A 2D SPATIAL SMOOTHING MUSIC SUPERRESOLUTION FMCW SAR IMAGING ALGORITHM
Yan Wang, Xuejiao Wen, Xiaolan Qiu, Chinese Academy of Sciences, Aerospace Information Research Institute, China

TH2.MM-19.3 SAR IMAGE SUPER-RESOLUTION RECONSTRUCTION BASED ON AN OPTIMIZE ITERATIVE METHOD FOR REGULARIZATION
Qi Zhan, Yan Chen, Yunping Chen, University of Electronic Science and Technology of China, China; Youchun Lu, Chunliang Xu, China Centre for Resources Satellite Data and Application, China

TH2.MM-19.4 A SUPER-RESOLUTION IMAGING METHOD FOR REAL-APERTURE SCANNING RADAR BASED ON MRF PRIOR MODEL
Ke Tan, Jianchao Yang, Xingyu Lu, Weiming Su, Hong Gu, Nanjing University of Science and Technology, China

TH2.MM-19.5 OPTIMIZATION OF ANTENNA ROTATION SPEED AND SUPER-RESOLUTION IMAGING BASED ON SPLIT BREGMAN ALGORITHM FOR CIRCULAR SCAN ISAR SYSTEMS
Yanli Zhu, Peng Zhou, China University of Petroleum, China; Zhenhua Zhang, Ying Wang, Beijing Research Institute of Telemetry, China; Xi Zhang, First Institute of Oceanography, Ministry of Natural Resources, China

TH2.MM-19.6 MODIFIED GENERALIZED OMEGA-K ALGORITHM FOR LOW EARTH ORBIT HIGH RESOLUTION SPOTLIGHT SPACEBORNE SAR FOCUSING
Yulei Qian, Huaxing Kuang, Nanjing Marine Radar Institute, China; Ying Zhang, Nanjing University of Aeronautics and Astronautics, China; Yutao Zhang, Nanjing Marine Radar Institute, China

TH2.MM-19.7 ROBUST AND EFFICIENT ISAR AUTOFOCUSING BASED ON DEEP CONVOLUTION NETWORK
Jiadian Liang, Shunjun Wei, Xiangfeng Zeng, Shan Liu, Jun Shi, Xiaoling Zhang, University of Electronic Science and Technology of China, China

TH2.MM-19.8 OPTRONIC FOCUSING OF MULTICHANNEL TOPS DATA PROCESSING
Yunlin Yang, Yesheng Gao, Zhicheng Wang, Xingzhao Liu, Shanghai Jiao Tong University, China

TH2.MM-19.9 FOCUSING AZIMUTH PERIODICALLY GAPPED SAR RAW DATA VIA COMPLEX FISTA WITH SUPPRESSED ARTIFICIAL TARGETS
Yulei Qian, Huaxing Kuang, Nanjing Marine Radar Institute, China; Ying Zhang, Nanjing University of Aeronautics and Astronautics, China

TH2.MM-19.10 AUTOFOCUS METHOD FOR SPARSE APERTURE ISAR BASED ON L0 NORM AND NLTV REGULARIZATION
Jianchao Yang, Xingyu Lu, Zheng Dai, Ke Tan, Wenchao Yu, Nanjing University of Science and Technology, China

Thursday, July 15 13:00 - 14:10 Multimedia Room 20

Session TH2.MM-20

Speckle Filtering and Processing of SAR Data

Session Co-Chairs: Andrea Buono, Università di Napoli Parthenope; Neeraj Rajpurohit, Indian Institute of Information Technology Vadodara; Arvind Gauns, University of Twente

TH2.MM-20.1 MULTI-OBJECTIVE NEURAL NETWORK FOR DESPECKLING WITH A GENERAL STATISTICAL MODEL
Sergio Vitale, Università degli Studi di Napoli Parthenope, Italy; Dong-Xiao Yue, Key Lab for Information Science of Electromagnetic Waves, Fudan University, China; Giampaolo Ferraioli, Università degli Studi di Napoli Parthenope, Italy; Feng Xu, Key Lab for Information Science of Electromagnetic Waves, Fudan University, China; Vito Pascazio, Università degli Studi di Napoli Parthenope, Italy; Alejandro C. Frery, Victoria University of Wellington, New Zealand

TH2.MM-20.2 A FAST IDENTIFICATION ALGORITHM FOR GEOMETRIC DISTORTED AREAS OF SAR IMAGES
Shiyu Luo, Ling Tong, University of Electronic Science and Technology of China, China

TH2.MM-20.3 COMPLEX COMPATIBLE-STRUCTURE TENSOR TOTAL VARIATION REGULARIZATION FOR HIGH RESOLUTION SAR IMAGING
Minghui Gai, Su Zhang, Lei Yang, Weitian Sun, Civil Aviation University of China, China

TH2.MM-20.4 A SURE-BASED UNSUPERVISED DEEP LEARNING METHOD FOR SAR DESPECKLING
Neeraj Rajpurohit, Akshita Agarwalla, Jignesh S. Bhatt, Indian Institute of Information Technology Vadodara, India

TH2.MM-20.5 A FILTERING ALGORITHM BASED ON POLARIZATION DECOMPOSITION FOR BETTER PRESERVING POLSAR IMAGE SCATTERING FEATURES
Peng Zhang, Yan Chen, Yunping Chen, Youchun Lu, Chunliang Xu, University of Electronic Science and Technology of China, China

TH2.MM-20.6 PHASE-PRESERVING AMBIGUITY REMOVAL OF STAGGERED SAR IMAGE BASED ON PIXEL-WISE REINFORCEMENT LEARNING
Ning Wu, Zhe Liu, University of Electronic Science and Technology of China, China

TH2.MM-20.7 IMAGING OF UAV SAR IN RANDOM AZIMUTH ACCELERATION
Di Wang, Qiwei Yang, University of Electronic Science and Technology of China, China; Zhe Liu, Qingshuihe Campus of UESTC, China

TH2.MM-20.8 A METHOD OF SUBAPERTURE DIVISION IN CSAR IMAGING
Yuliang Li, Rui Min, Jin Li, Yiming Pi, University of Electronic Science and Technology of China, China; Zou Jie, Jing Gao, Second Research Institute of CAAC, China

TH2.MM-20.9 PROCESSING OF BLURRED IMAGE DATA FROM NUMERICAL COMPUTATION FOR SYNTHETIC APERTURE RADAR
Qianrong Lu, Jian Zhu, Qingqing Li, Ke Du, Panhu Li, Xiangzhen Yu, Shanghai Radio Equipment Research Institute, China

Thursday, July 15 13:00 - 14:10 Multimedia Room 21

Session TH2.MM-21

Crop Mapping and Monitoring using SAR and Optical Data

Session Co-Chairs: Jesus Alvarez-Mozos, Public University of Navarre; Dragomir Atanasov, National Institute of Meteorology and Hydrology

TH2.MM-21.1 POTENTIAL AND COMPLEMENTARITY OF DENSE SAR AND OPTICAL DATA FOR RAPESEED CROPS MONITORING
Aubin Allies, Institut Europlace de Finance, France; Antoine Roumiguié, Airbus Defence and Space, France; Jean-François Dejoux, Rémy Fieuzal, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Luc Champolivier, Terres Inovia, France; Frédéric Baup, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France

TH2.MM-21.2 ASSESSING INSAR COHERENCE FOR QUANTIFICATION OF AGRICULTURE AREA AFFECTED BY RAINFALL EVENTS IN GUJRAT, INDIA
Ankur Pandit, Suryakant Sawant, Jayantrao Mohite, Srinivasu Pappula, Tata Consultancy Services, India

TH2.MM-21.3 RICE PADDY FIELDS IDENTIFICATION BASED ON BACKSCATTER FEATURES OF QUAD-POL RADARSAT-2 DATA AND SIMPLE DECISION TREE METHOD
Ze He, Shihua Li, Yuchuan Deng, Pengfei Zhai, Yueming Hu, University of Electronic Science and Technology of China, China

TH2.MM-21.4 STAPLE CROP MAPPING WITH CHINESE GAOFEN-1 AND GAOFEN -6 SATELLITE IMAGES: A CASE STUDY IN YANSHOU COUNTY, HEILONGJIANG PROVINCE, CHINA
Jiansong Luo, Qifeng Chu, Chang Sun, Yikai Wang, Di Sun, Heilongjiang Institute of Geomatics Engineering, China

TH2.MM-21.5 CORRELATION BETWEEN NDVI AND SENTINEL-1 DERIVED FEATURES FOR MAIZE
Jesus Alvarez-Mozos, Joseba Villanueva, María Arias, Maria Gonzalez-Audicana, Public University of Navarre, Spain

TH2.MM-21.6 A TIME SERIES APPROACH FOR WHEAT CROP HARVEST DETECTION USING MULTISPECTRAL DATA
Harsh Srivastava, Kirti Saini, Triloki Pant, Indian Institute of Information Technology Allahabad, India

TH2.MM-21.7 MAPPING SUGARCANE USING VEGETATION INDICES AND TIME SERIES OF SENTINEL-2 IMAGES
Humberto Cruz, María Guadalupe Sanchez, Tecnológico Nacional de México, Mexico; Juan Pablo Rivera, Universidad Autónoma de Nayarit, Mexico; Himer Avila, Universidad de Guadalajara, Mexico

TH2.MM-21.8 RADAR-CROP-MONITOR – SPATIAL MAPPING AGRICULTURAL CONDITIONS WITH SENTINEL-1 TIME SERIES – AN UPDATE
Linara Arslanova, Christiane Schmullius, Felix Cremer, Nesrin Salepci, Marcel Urban, University of Jena, Germany; Marcel Fölsch, Friedemann Scheibler, CLAAS E-Systems GmbH, Germany

Thursday, July 15 13:00 - 14:10 Multimedia Room 22

Session TH2.MM-22

Classification for Urban Area Characterization

Session Co-Chairs: Fabio Dell'Acqua, University of Pavia; Hongsheng Zhang, The University of Hong Kong; Yue Ying, University of Twente

TH2.MM-22.1 EXTENSION OF COPERNICUS URBAN ATLAS TO NON-EUROPEAN COUNTRIES
Andrii Shelestov, National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute", Ukraine; Hanna Yailymova, Bohdan Yailymov, Leonid Shumilo, Space Research Institute NASU-SSAU, Ukraine; Alla Lavreniuk, National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute", Ukraine

TH2.MM-22.2 DETECTION OF CHANGES IN BUILT-UP AREAS WITH A FULLY CONVOLUTIONAL NETWORK IN THE CONTEXT OF THE EUROPEAN SETTLEMENT MAP
Christina Corbane, Euopean Commission, Joint Research Centre (JRC), Italy; Filip Sabo, Panagiotis Politis, Arhs Developments S.A, Luxembourg; Vasileios Syrris, Euopean Commission, Joint Research Centre (JRC), Italy

TH2.MM-22.3 ASSESSMENT OF A RANDOM FOREST CLASSIFIER IN URBAN LOCAL CLIMATE ZONE CLASSIFICATION USING SENTINEL-2 AND PALSAR-2
Chaomin Chen, Hasi Bagan, Xuan Xie, Luwen Tan, Shanghai Normal University, China; Yoshiki Yamagata, National Institute for Environmental Studies, Japan

TH2.MM-22.4 COVID-19 PANDEMIC ASSESSMENT BY NIGHT-LIGHTS
Demetris Stathakis, Leonidas Liakos, University of Thessaly, Greece; Pavlos Baltas, National Center for Social Research, Greece

TH2.MM-22.5 BUILT-UP AREA EXTRACTION THROUGH DEEP LEARNING
Djamel Mansour, Sid-Ahmed Souiah, Oran2 University mohamed ben Ahmed, Algeria; Mohammed El Amin Larabi, Algerian Space Agency, Algeria

TH2.MM-22.6 MULTI-LABEL LOCAL CLIMATE ZONE MAPPING AS SCENE CLASSIFICATION USING VERY HIGH RESOLUTION IMAGERY: PRELIMINARY RESULT OF HONG KONG
Shengjie Liu, University of Hong Kong, China; Qian Shi, Sun Yat-Sen University, China

TH2.MM-22.7 IDENTIFYING URBAN GREENSPACE IN TAIWAN AND ITS VULNERABILITY TO TYPHOONS
Yuei-An Liou, Kim-Anh Nguyen, Trong Hoang Vo, National Central University, Taiwan

TH2.MM-22.8 MULTISOURCE SHADOW-BASED FUZZY SET (MSFS) APPROACH FOR IMPERVIOUS SURFACES MAPPING FROM OPTICAL AND SAR DATA
Yinyi Lin, Chinese University of Hong Kong, China; Hongsheng Zhang, University of Hong Kong, China; Peifeng Ma, Chinese University of Hong Kong, China; Yu Li, Beijing University of Technology, China

TH2.MM-22.9 ANALYZING LONG-TERM ARTIFICIAL LIGHT AT NIGHT USING VIIRS MONTHLY PRODUCT WITH LAND USE DATA: PRELIMINARY RESULT OF HONG KONG
Shengjie Liu, Chu Wing So, Chun Shing Jason Pun, University of Hong Kong, China

Thursday, July 15 13:00 - 14:10 Multimedia Room 23
Session TH2.MM-23

Remote Sensing Applications in Inland Waters and Wetlands I

Session Co-Chairs: Daniel Odermatt, Eawag, Swiss Federal Institute of Aquatic Science and Technology; Areej Alwahas, King Abdullah University of Science and Technology; Joost Vandenabeele, Belgian Science Policy Office

TH2.MM-23.1 APPROXIMATING LAKE ICE PHENOLOGY WITH SATELLITE SURFACE TEMPERATURE DATA
Sophia Skoglund, Cary Institute of Ecosystem Studies, United States; Abdou Rachid Bah, City University of New York, Graduate Center, United States; Hamidreza Norouzi, New York City College of Technology, United States; Kathleen Weathers, Cary Institute of Ecosystem Studies, United States; Holly Ewing, Bates College, United States; Bethel Steele, Cary Institute of Ecosystem Studies & Bates College, United States; Linda Bacon, Maine Department of Environmental Protection, United States

TH2.MM-23.2 OPTICAL CLOSURE OF REMOTE SENSING REFLECTANCE USING AUTOMATED HYPERSPECTRAL PROFILER DATA
Abolfazl Irani Rahaghi, Eawag, Swiss Federal Institute of Aquatic Science and Technology, Switzerland; Camille Minaudo, Physics of Aquatic Systems Laboratory, Margaretha Kamprad Chair, EPFL, Switzerland; Alexander Damm, University of Zurich, Switzerland; Daniel Odermatt, Eawag, Swiss Federal Institute of Aquatic Science and Technology, Switzerland

TH2.MM-23.3 MONITORING CHLOROPHYLL-A CONCENTRATION IN NEW JERSEY LAKES USING REMOTE SENSING AND GROUND OBSERVATIONS
Marzi Azarderakhsh, Veronica Hernandez, Jaime Mendoza, Fairleigh Dickinson University, United States

TH2.MM-23.4 RESEARCH ON SURFACE WATER MONITORING OF POYANG LAKE BASED ON REMOTE SENSING TECHNOLOGIES
Ke Liu, Yuhang Gan, Lei Du, Zhengyu Luo, Rui Zhang, Zhengbo Fu, Lina Dong, Ministry of Natural Resources of the People's Republic of China, China

TH2.MM-23.5 ANALYZING LAKES SURFACE TEMPERATURE VARIABILITY AT THE GLOBAL SCALE
Abdou Rachid Bah, City University of New York, Graduate Center, United States; Christal Jean-Soverall, Patty Arunyavikul, Ryan Chen, Hamidreza Norouzi, Reginald Blake, New York City College of Technology, United States

TH2.MM-23.6 INVERSION EFFECT OF NITROGEN AND PHOSPHORUS IN INLAND WATER UNDER DIFFERENT APPLICATION SCENARIOS
Tianqi Li, Zheng Zhao, Yongzhi Li, Jie Chen, China Aero Geophysical Survey and Remote Sensing Center for Natural Resources, China

TH2.MM-23.7 MONITORING AQUATIC WEEDS IN INDIAN WETLANDS USING MULTITEMPORAL REMOTE SENSING DATA WITH MACHINE LEARNING TECHNIQUES
Vahid Akbari, Morgan Simpson, Savitri Maharaj, Armando Marino, Deepayan Bhowmik, University of Stirling, United Kingdom; Nagendra Prabhu, University of Kerala, India; Srikanth Rupavatharam, Aviraj Datta, International Crops Research Institute for the Semi-Arid Tropics, India; Adam Kleczkowski, University of Strathclyde, United Kingdom; J. Alice R. P. Sujeetha, National Institute of Plant Health Management, India

TH2.MM-23.8 BEST PRACTICES FOR OPERATIONAL WETLAND CLASSIFICATION USING BIG DATA AND RANDOM FORESTS FAMILY OF CLASSIFIERS
Amir Behnamian, Sarah Banks, Lori White, Environment Canada, Canada; Kathleen Moore, Conservation Planner/Environment Canada, Canada; Erin Roberts, Environment Canada, Canada; Koreen Millard, Assistant Professor/Carleton University, Canada; Ryan Hamilton, Environment Canada, Canada; Deepa Filatow, BC Ministry of Environment and Climate Change Strategy, Canada; Zhaohua Chen, Jon Pasher, Jason Duffe, Environment Canada, Canada

TH2.MM-23.9 FLOOD CLASSIFICATION IN A NATURAL WETLAND FOR EARLY SPRING CONDITIONS USING VARIOUS POLARIMETRIC SAR METHODS
Tomasz Berezowski, Monika Gierszewska, Tomasz Bielinski, Gdansk University of Technology, Poland

Thursday, July 15 13:00 - 14:10 Multimedia Room 24
Session TH2.MM-24

Satellite Missions, Sensors and Calibration II

Session Co-Chairs: Nemesio Rodriguez-Fernandez, CNRS; Garau Cristian, Università degli Studi di Pavia; Filippo Biondi

TH2.MM-24.1 DESIGN OF DOUBLE-MODE INTEGRATED MICROWAVE REMOTE SENSOR FOR OCEAN WAVE OBSERVATION
Hang Li, WenKang Liu, GuangCai Sun, MengDao Xing, National Laboratory of Radar Signal Processing, Xidian University, China; ZhenHua Zhang, Beijing Research Institute of Telemetry; Ocean Telemetry Technology Innovation Center, Ministry of Natural Resources, China; Jie Zhang, First Institute of Oceanography, Ministry of Natural Resources Ocean Telemetry Technology Innovation Center, Ministry of Natural Resources, China

TH2.MM-24.3 CONNECTED AND UNCONNECTED SYNTHETIC APERTURE IMAGING RADIOMETRY: A PRELIMINARY DESIGN FOR SMOS-NEXT ARRAY
Eric Anterrieu, CNRS, France; Nemesio Rodríguez-Fernández, François Cabot, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Ali Khazaal, CNRS, France; Yann Kerr, Thierry Amiot, Louise Yu, CNES, France

TH2.MM-24.4 THE REPROCESSED PROBA-V COLLECTION 2: PRODUCT VALIDATION
Carolien Toté, Else Swinnen, Sindy Sterckx, Iskander Benhadj, Wouter Dierckx, VITO, Belgium; Luis Gómez-Chova, University of Valencia, Spain; Didier Ramon, Hygeos, France; Kerstin Stelzer, Brockmann Consult, Germany; Lieve Van den Heuvel, Dennis Clarijs, VITO, Belgium; Fabrizio Niro, European Space Agency (ESA), Italy

TH2.MM-24.5 NOAA POLAR SATELLITES: OPTIMIZING THE PRESENT AND INVESTING IN THE FUTRE
Bill Sjoberg, Satya Kalluri, JPSS Program - NESDIS NOAA, United States

TH2.MM-24.6 NEWSPACE SAR CONSTELLATION FOR LOW LATENCY APPLICATIONS
Bruno Correia, Sérgio Cunha, Faculty of Engineering of University of Porto, Portugal

TH2.MM-24.7 A NEW PUBLIC ALSAT-2B DATASET FOR SINGLE-IMAGE SUPER-RESOLUTION
Achraf Djerida, Khelifa Djerriri, Moussa Sofiane Karoui, Mohammed El Amin Larabi, Algerian Space Agency, Algeria

TH2.MM-24.8 ASI-PRISMA HYPERSPECTRAL MISSION FOR THE ANALYSIS OF GEOPHYSICAL PHENOMENA
Maria Fabrizia Buongiorno, Massimo Musacchio, Malvina Silvestri, Vito Romaniello, Claudia Spinetti, Federico Rabuffi, Istituto Nazionale di Geofisica e Vulcanologia, Italy

Thursday, July 15 13:00 - 14:10 Multimedia Room 25

Session TH2.MM-25

Small Spaceborne SAR instruments and Calibration

Session Co-Chairs: Sirui Lv, Nanjing University of Information Science and Technology; Samuel Prager, Jet Propulsion Laboratory, California Institute of Technology; Lara Fernandez, Universitat Politecnica de Catalunya

TH2.MM-25.1 CHARACTERIZATION OF CLOCK PHASE ERRORS FOR DISTRIBUTED WIRELESS SYNCHRONIZATION PROTOCOL
Samuel Prager, NASA Jet Propulsion Laboratory, California Institute of Technology, United States; Mahta Moghaddam, University of Southern California, United States; Marco Lavalle, NASA Jet Propulsion Laboratory, California Institute of Technology, United States

TH2.MM-25.2 ON-BOARD INTELLIGENT PROCESSING FOR REMOTE SENSING IMAGES BASED ON 20KG MICRO-NANO SATELLITE
Yuan Yao, Yu Zhou, Chunzhu Yuan, Yingbo Li, DFH Satellite Co., Ltd, China; Haopeng Zhang, Beihang University, China

TH2.MM-25.3 SDR-BASED LORA ENABLED ON-DEMAND REMOTE ACQUISITION EXPERIMENT ON-BOARD THE ALAINSAT-1
Lara Fernandez, Marco Sobrino, Albert Rodriguez, Amadeu Gonga, Carlos Molina, Laura Rayón, Marc Badia, Pau Fabregat, Adrian Perez-Portero, Juan Ramos-Castro, Joan Adrià Ruiz-de-Azua, Anna Calveras, Universitat Politècnica de Catalunya, Spain; Abdul-Halim Jallad, Zulkifli Abdul Aziz, National Space Science and Technology Center, United Arab Emirates

TH2.MM-25.4 RAINFALL ESTIMATION FROM TEMPEST-D CUBESAT OBSERVATIONS
Chandrasekar Radhakrishnan, Chandrasekar V, Wesley Berg, Steven C. Reising, Colorado State University, United States

TH2.MM-25.5 TECHNIQUE TO MINIMISE SAMPLE RATE AND SIMPLIFY HARDWARE REQUIREMENTS FOR FMCW NANOSATELLITE PAYLOADS
Matthew Ash, Cambridge Design Partnership, United Kingdom

TH2.MM-25.6 PROGRESS IN STANDARDIZATION OF CALIBRATION AND VALIDATION OF SAR
Fangfang Li, Aerospace Information Reasearch Institute, Chinese Academy of Sciences, China; Jiankun Guo, National Geomatics Center of China, China; Wen Hong, Chibiao Ding, Aerospace Information Reasearch Institute, Chinese Academy of Sciences, China

TH2.MM-25.7 SYNTHESIZING LOW-BANDWIDTH FAR-FIELD ANTENNA PATTERNS FROM HIGH-BANDWIDTH NEAR-FIELD MEASUREMENTS
Yogendra Sahu, Ameya Kesarkar, Vetal Akshay, Ashok Rohada, Himanshu Sharma, Partha S. Nandy, Swati Shukla, J. Rao, Pankaj K. Nath, Rakesh Bhan, C.V.N. Rao, Rajeev Jyoti, Space Applications Centre, Indian Space Research Organisation, India

TH2.MM-25.8 VICARIOUS RADIOMETRIC CALIBRATION OF SUPERVIEW-1 SENSOR USING RADCALNET TOA REFLECTANCE PRODUCT
Yongguang Zhao, Lingling Ma, Wan Li, The Aerospace Information Research Institute, Chinese Academy of Sciences, China; Huaying He, Xiaoxiang Long, China Centre for Resources Satellite Data and Application, China; Ning Wang, Zhaoyan Liu, Yonggang Qian, Shi Qiu, Yaokai Liu, Min Yang, The Aerospace Information Research Institute, Chinese Academy of Sciences, China

TH2.MM-25.9 DEVELOPING RADIOMETER AND RADAR SYNERGIES USING MACHINE LEARNING
Xavier Bosch-Lluis, Steve Chien, Qin Yue, Jason Swope, Peyman Tavallali, Mehmet Ogut, Isaac Ramos, Pekka Kangaslahti, NASA Jet Propulsion Laboratory, California Institute of Technology, United States; William Deal, Caitlyn Cooke, Northrop Grumman Corporation, United States

TH2.MM-25.10 CALIBRATION AND VALIDATION OF SCATTEROMETER PRODUCT OF CFOSAT AND HY-2 SERIES SATELLITES
Juhong Zou, Bo Mu, National Satellite Ocean Application Service, China; Qingliu Bao, Piesat Information Technology Co, China; Zhixiong Wang, Nanjing University of Information Science and Technology, China; Shuyan Lang, Sheng Yang, Mingsen Lin, National Satellite Ocean Application Service, China

Thursday, July 15 13:00 - 14:10 Multimedia Room 26

Session TH2.MM-26

Passive Optical and Hyperspectral Sensors Characterization and Applications

Session Co-Chairs: Silvia Ullo, Università degli studi del Sannio; Luca Pallotta, University Roma 3; Meiliu Wu, University of Wisconsin-Madison

TH2.MM-26.1 IMPROVING VIIRS THERMAL EMISSIVE BAND CALIBRATION DURING LUNAR INTRUSION INTO SPACE VIEW EVENTS
Wenhui Wang, University of Maryland - College Park, United States; Changyong Cao, NOAA/NESDIS/STAR, United States; Slawomir Blonski, Global Science & Technology, Inc, United States; Xi Shao, University of Maryland - College Park, United States

TH2.MM-26.2 VIGNETTING AND CHROMATIC ABERRATION CORRECTION FOR MULTIPLE SPACEBORNE CCDS
Yongkun Liu, Tengfei Long, Weili Jiao, Guojin He, Bo Chen, Peng Huang, China Remote Sensing Satellite Ground Station, Aerospace Information Research Institute, Chinese Academy of Science, China

TH2.MM-26.3 UNCERTAINTY ANALYSIS FOR SENTINEL-3 OLCI RADIANCE OBSERVATIONS
Jacob Fahy, Samuel Hunt, National Physical Laboratory, United Kingdom

TH2.MM-26.4 DETECTOR NONLINEARITY ONBOARD THE JPSS-2 AND JPSS-3 CROSS TRACK INFRARED SOUNDERS
Peter Beierle, University of Maryland College Park / NOAA, United States; Flavio Iturbide-Sanchez, National Oceanic and Atmospheric Administration (NOAA), United States; David Tobin, Robert Knuteson, University of Madison-Wisconsin, United States; Joe Predina, Logistikos Engineering, United States; Daniel Mooney, Massachusetts Institute of Technology, United States; David Johnson, National Aeronautics and Space Administration (NASA), United States; Denis Tremblay, Global Science & Technology, Inc., United States; Zhipeng Wang, University of Maryland College Park / NOAA, United States; Erin Lynch, Kun Zhang, Global Science & Technology, Inc., United States; Yong Chen, National Oceanic and Atmospheric Administration (NOAA), United States; Lawrence Suwinski, L3 Harris Technologies, United States

TH2.MM-26.5 A NEW TECHNIQUE TO DEFINE THE SPATIAL RESOLUTION OF IMAGING SENSORS
David Conran, Emmett Ientilucci, Rochester Institute of Technology, United States; Stephen Schiller, Raytheon Space and Airborne Systems, United States; Brandon Russell, Jeff Holt, Chris Durell, Will Arnold, Labsphere, Inc., United States

TH2.MM-26.6 PRELIMINARY STUDY ON FEASIBILITY OF A SPECIALIZED GROUND LIGHT SOURCE FOR IMPROVING THE VIIRS DNB LOW LIGHT CALIBRATION
Shi Qiu, Yu Zhang, Key Laboratory of Quantitative Remote Sensing Information Technology, Aerospace Information Research Institute, Chinese Academy of Sciences, China; Benyong Yang, Anhui Institute of Optics and Fine Mechanics, Hefei Institutes of Physical Science, Chinese Academy of Sciences, China; Yonggang Qian, Caixia Gao, Yaokai Liu, Xi Zhang, Key Laboratory of Quantitative Remote Sensing Information Technology, Aerospace Information Research Institute, Chinese Academy of Sciences, China

TH2.MM-26.7 CROP TYPE MAPPING USING PRISMA HYPERSPECTRAL IMAGES AND ONE-DIMENSIONAL CONVOLUTIONAL NEURAL NETWORK
Dario Spiller, Italian Space Agency, Italy; Luigi Ansalone, Italian Space Agency (ASI), Italy; Federico Carotenuto, CNR, Italy; Pierre Philippe Mathieu, European Space Agency (ESA), Italy

TH2.MM-26.8 COPERNICUS SENTINEL-2 GEOMETRIC CALIBRATION STATUS
Sebastien Clerc, ACRI-ST, France; Marion Neveu Van Malle, Thales Alenia Space, France; Stephane Massera, IGN, France; Carine Quang, CS Group, France; Alice Chambrelan, Airbus, France; Francois Guyot, Thales Alenia Space, France; Laetitia Pessiot, CS Group, France; Rosario Quirino Iannone, Valentina Boccia, European Space Agency (ESA), Italy

TH2.MM-26.9 FIRST RESULTS OF HYPERSPECTRAL SCENE GENERATION IN PREPARATION OF THE CHIME IMAGING SPECTROMETER MISSION
Helena Burriel Navarro, Universidad de Valencia, Spain; Francisco Javier Albiol Colomer, Consejo Superior de Investigaciones Cientificas (CSIC), Spain; Luis Alonso Chorda, Jose Moreno, Jochem Verrelst, Universidad de Valencia, Spain

TH2.MM-26.10 CHARACTERISING SPECTRORADIOMETER INSTRUMENTAL SPECTRAL PERFORMANCE AND ITS IMPACT ON RETRIEVED REFLECTANCES
Simon A. Trim, Andreas Hueni, Kimberley Mason, University of Zurich, Switzerland

Thursday, July 15 14:25 - 15:55 Oral Room 1
Session TH3.O-1 Oral-Invited

Remote Sensing of Natural Hazards in Latin America I

Session Co-Chairs: Ivan E. Villalon-Turrubiates, Instituto Tecnologico y de Estudios Superiores de Occidente, ITESO; Raul Garcia-Huerta, Instituto Tecnológico y de Estudios Superiores de Occidente (ITESO); Khatereh Meshkini, Fondazione Bruno Kessler

TH3.O-1.1 RADARSAT-2 AND SENTINEL-1 SAR TO DETECT AND MONITORING FLOODING AREAS IN TABASCO, MEXICO
Jesus Soria-Ruiz, Nat Institute of Research for Forestry Agricultural and Livestok, Mexico; Yolanda M. Fernandez-Ordoñez, Postgraduate College in Agricultural Sciences, Mexico; Bruce Chapman, California Institute of Technology, United States

TH3.O-1.3 MONITORING THE DYNAMICS OF INTERDUNAL PONDS IN THE LENCOIS MARANHENSES NATIONAL PARK, BRAZIL
Théo Le Saint, CNRS, France; André Luis Silva dos Santos, IFMA, Brazil; Ulisses Denache Vieira Souza, UFMA, Brazil; Reinaldo Paul Pérez Machado, Fernando Shinji Kawakubo, University of Sao Paulo, Brazil; Thomas Jefferson Alves Santos, UFMA, Brazil; Julie Betbeder, CIRAD, France; Damien Arvor, CNRS, France

TH3.O-1.4 DATA ASSIMILATION OF REMOTELY SENSED SOIL MOISTURE TO DETECT WATER STRESS PERIODS IN AGRICULTURAL AREAS
Héctor Ernesto Huerta-Bátiz, Daniel Enrique Constantino-Recillas, Alejandro Monsiváis-Huertero, Ramón Sidonio Aparicio García, Eduardo Arizmendi-Vasconcelos, José Carlos Jiménez-Escalona, Cira Francisca Zambrano Gallardo, Instituto Politécnico Nacional, Mexico; Jasmeet Judge, University of Florida, United States

TH3.O-1.5 VALIDATION OF A DROUGHT INDEX BASED ON SMOS SOIL MOISTURE PRODUCT OVER AN AGRICULTURAL AREA IN CENTRAL MEXICO
Enrique Zempoaltecatl-Ramirez, Alejandro Monsiváis-Huertero, Instituto Politécnico Nacional, Mexico; J. Emilio Quiroz-Ibarra, Jorge Ángel González-Ordiano, Universidad Iberoamericana, Mexico

TH3.O-1.6 CONVOLUTIONAL NEURAL NETWORK FOR FLOOD-RISK ASSESSMENT AND DETECTION WITHIN A METROPOLITAN AREA
Ivan E. Villalon-Turrubiates, Instituto Tecnológico y de Estudios Superiores de Occidente (ITESO), Mexico

Thursday, July 15 14:25 - 15:55 Oral Room 2
Session TH3.O-2 Oral-Invited

Deep Learning for Earth Observation Image Understanding in Urban Areas

Session Co-Chairs: Shabnam Jabari, University of New Brunswick; Jonathan Li, University of Waterloo; Srikumar Sastry, University of Twente

TH3.O-2.1 THE IMPACT OF DATA VOLUME ON PERFORMANCE OF DEPP LEARNING BASED BUILDING ROOFTOP EXTRACTION USING VERY HIGH SPATIAL RESOLUTION AERIAL IMAGES
Hongjie He, Ke Yang, Yuwei Cai, Zijian Jiang, Qiutong Yu, Kun Zhao, Junbo Wang, Sarah Narges Fatholahi, Yan Liu, Hasti Andon Petrosians, Bingxu Hu, Liyuan Qing, Zhehan Zhang, Hongzhang Xu, Siyu Li, Kyle Gao, Linlin Xu, Jonathan Li, University of Waterloo, Canada

TH3.O-2.3 BUILDING CHANGE DETECTION IN OFF-NADIR IMAGES USING DEEP LEARNING
Morteza Esfandiari, Ghasem Abdi, Shabnam Jabari, Vasuki Sai Prabhath Lolla, University of New Brunswick, Canada

TH3.O-2.4 REPRESENTATION LEARNING OF REMOTE SENSING KNOWLEDGE GRAPH FOR ZERO-SHOT REMOTE SENSING IMAGE SCENE CLASSIFICATION
Yansheng Li, Deyu Kong, Yongjun Zhang, Ruixian Chen, Wuhan University, China; Jingdong Chen, Ant Group, China

TH3.O-2.5 A NOVEL BASEBAND DOPPLER CENTROID FREQUENCY ESTIMATION METHOD IN MULTICHANNEL HRWS-SAR SYSTEM
He Huang, Penghui Huang, Shanghai Jiao Tong University, China; Jialian Sheng, Shanghai Radio Equipment Research Institute, China; Yunkai Deng, Huaitao Fan, Chinese Academy of Sciences, China; Zhicheng Wang, Shanghai Radio Equipment Research Institute, China; Xingzhao Liu, Shanghai Jiao Tong University, China

Thursday, July 15 14:25 - 15:55 Oral Room 3
Session TH3.O-3 Oral-Invited

International Cooperation to Visualize COVID-19's Impact from Space I

Session Co-Chairs: Shinichi Sobue, Japan aerospace exploration agency; Yves-Louis Desnos, European Space Agency; Sina Mohammadi, University of Twente

TH3.O-3.1 TRI-AGENCY COOPERATION TO IDENTIFY THE IMPACT OF COVID-19
Shin-ichi Sobue, Japan Aerospace Exploration Agency (JAXA), Japan; Yves-Louis Desnos, European Space Agency (ESA), Italy; Kevin J. Murphy, NASA, United States; Anca Anghelea, European Space Agency (ESA), Italy; Manil Maskey, Michael Falkowski, NASA, United States

TH3.O-3.3 JAXA'S EARTH OBSERVATION DATA ANALYSIS ON COVID-19
Ko Hamamoto, Akihiko Kuze, Takeo Tadono, Shin-ichi Sobue, Junichiro Ishizawa, Kei Ohyoshi, Hiroshi Murakami, Kohei Kawamura, Yousuke Ikehata, Japan Aerospace Exploration Agency (JAXA), Japan

TH3.O-3.4 COIVD-19 IMPACT MONITORING OF ECONOMIC ACTIVITIES
Michael Falkowski, Manil Maskey, NASA, United States; Shin-ichi Sobue, Japan Aerospace Exploration Agency (JAXA), Japan; Gordon Campbell, European Space Agency (ESA), Italy; Gerald Bawden, NASA, United States; Takeo Tadono, Japan Aerospace Exploration Agency (JAXA), Japan

TH3.O-3.5 VISUALIZING, EXPLORING, AND COMMUNICATING ENVIRONMENTAL EFFECTS OF COVID-19 USING EARTH OBSERVATION DASHBOARD
Manil Maskey, NASA Marshall Space Flight Center, United States; Michael Falkowski, Kevin Murphy, Olaf Veerman, NASA, United States; Ricardo Mestre, Development Seed, United States; Iksha Gurung, Muthukumaran Ramasubramanian, University of Alabama in Huntsville, United States; Lillianne Thomas, Zhuang-Fang Yi, Drew Bollinger, Development Seed, United States; Abigail Seadler, Yvonne Ivey, NASA, United States

TH3.O-3.6 RAPID ACTION ON COVID-19 AND EARTH OBSERVATION: AN INITTIATIVE FOR SOCIETAL INFORMATION ENABLED BY COPERNICUS SENTINELS DATA
Yves-Louis Desnos, European Space Agency (ESA), Italy; Elisabeth Hamdouch, European Commission, Belgium; Anca Anghelea, Guenther Landgraf, Simonetta Cheli, European Space Agency (ESA), Italy; Julien Turpin, European Commission, Belgium

Thursday, July 15 14:25 - 15:55 Oral Room 5
Session TH3.O-5 Oral-Invited

International Spaceborne Imaging Spectroscopy Missions: Updates and News of Running Missions

Session Co-Chairs: Uta Heiden, German Aerospace Center (DLR); Cindy Ong, CSIRO; Willeke A'Campo, Stockholm University

TH3.O-5.1 CHRIS/PROBA-1 STATUS INCLUDING RADIOMETRIC CALIBRATION
Samantha Lavender, Telespazio Vega, United Kingdom; Giuseppe Ottavianelli, Roberto Biasutti, Peggy Fischer, European Space Agency (ESA), Italy

TH3.O-5.3 CURRENT STATUS AND FUTURE PERSPECTIVES OF THE PRISMA MISSION AT THE TURN OF ONE YEAR IN OPERATIONAL USAGE
Ettore Lopinto, Luca Fasano, Francesco Longo, Giancarlo Natale Varacalli, Patrizia Sacco, Italian Space Agency (ASI), Italy; Leandro Chiarantini, Francesco Sarti, Leonardo Spa, Italy; Luigi Agrimano, Francesca Santoro, Planetek Italia Srl, Italy; Sergio Cogliati, Roberto Colombo, University of Milano - Bicocca, Italy; Mariano Bresciani, Claudia Giardino, Federica Braga, National Research Council of Italy, Italy

TH3.O-5.4 THE STATUS OF HYPERSPECTRAL IMAGER SUITE (HISUI) : ONE YEAR AFTER LAUNCH
Tsuneo Matsunaga, National Institute for Environmental Studies, Japan; Akira Iwasaki, University of Tokyo, Japan; Tetsushi Tachikawa, Jun Tanii, Osamu Kashimura, Koichiro Mouri, Hitomi Inada, Japan Space Systems, Japan; Satoshi Tsuchida, Ryosuke Nakamura, Hirokazu Yamamoto, Koki Iwao, National Institute of Advanced Industrial Science and Technology, Japan

TH3.O-5.5 THE SPACEBORNE IMAGING SPECTROMETER DESIS: DATA ACCESS AND SCIENTIFIC APPLICATIONS
Rupert Müller, Kevin Alonso, Martin Bachmann, German Aerospace Center (DLR), Germany; Kara Burch, Innovative Imaging and Research, Corp., United States; Emiliano Carmona, Daniele Cerra, Daniele Dietrich, Peter Gege, German Aerospace Center (DLR), Germany; Lester Heath, Teledyne, United States; Uta Heiden, Stefanie Holzwarth, German Aerospace Center (DLR), Germany; Uwe Knodt, David Krutz, Innovative Imaging and Research, Corp., Germany; David Marshall, Miguel Pato, Raquel de los Reyes Lopez, Peter Reinartz, Mirco Tegler, German Aerospace Center (DLR), Germany

TH3.O-5.6 EVALUATION OF THE PRISMA HYPERSPECTRAL RADIANCE DATA: THE PRISCAV PROJECT ACTIVITIES IN THE BASILICATA REGION (SOUTHERN ITALY)
Stefano Pignatti, Aldo Amodeo, Lucia Mona, Angelo Palombo, Simone Pascucci, National Council of Research (CNR), Italy; Marco Rosoldi, National Research Council (CNR), Italy; Federico Santini, National Council of Research (CNR), Italy; Raffaele Casa, Università della Tuscia, Italy; Giovanni Laneve, University of Rome, Italy

Thursday, July 15 14:25 - 15:55 Oral Room 6
Session TH3.O-6 Oral-Invited

Mapping, Monitoring and Modelling Savannah Vegetation with Earth Observation I

Session Co-Chairs: Elias Symeonakis, Manchester Metropolitan University; Thomas Higginbottom, University of Manchester; Shahla Yadollahi, Vrije Universiteit Brussel

TH3.O-6.1 ABRUPT CHANGE IN DRYLAND ECOSYSTEM FUNCTIONING: RECENT ADVANCES AND LESSONS LEARNT FROM THE U-TURN PROJECT
Stéphanie Horion, University of Copenhagen, Denmark; Wim Verbruggen, Ghent University, Belgium; Paulo N. Bernardino, KU Leuven, Belgium; Niels Souverijns, VITO remote sensing, Belgium; Wanda de Keersmaecker, Wageningen University and Research, Netherlands; Rasmus Fensholt, Guy Schurgers, University of Copenhagen, Denmark; Ruben Van De Kerchove, VITO remote sensing, Belgium; Hans Verbeeck, Ghent University, Belgium; Jan Verbesselt, Wageningen University and Research, Netherlands; Ben Somers, KU Leuven, Belgium

TH3.O-6.3 MEASURING THE TIMING OF WOODY GREEN-UP IN AFRICAN SAVANNAS – WHICH MODIS DATA TO USE?
Anthony Cizek, Paul Aplin, Ian Powell, Edge Hill University, United Kingdom

TH3.O-6.4 ABOVEGROUND WOODY BIOMASS ESTIMATION OF THE BRAZILIAN CERRADO BIOME USING DATA INTEGRATION
Barbara Zimbres, Environmental Research Institute for the Amazon (IPAM), Brazil; Pedro Rodríguez-Veiga, University of Leicester, United Kingdom; Julia Shimbo, Environmental Research Institute for the Amazon (IPAM), Brazil; Polyanna Bispo, Manchester University, United Kingdom; Heiko Balzter, University of Leicester, United Kingdom; Mercedes Bustamante, Iris Roitman, Universidade de Brasília, Brazil; Ricardo Haidar, Universidade Federal do Tocantins, Brazil; Sabrina Miranda, Universidade Estadual de Goiás, Brazil; Letícia Gomes, Universidade de Brasília, Brazil; Fabrício Alvim, Universidade Federal de Juiz de Fora, Brazil; Eddie Lenza, Universidade Estadual do Mato Grosso, Brazil; Leonardo Maracahipes-Santos, Environmental Research Institute for the Amazon (IPAM), Brazil; Ana Clara Abadia, Universidade do Estado de Mato Grosso, Brazil; Jamir Prado Jr., Universidade Federal de Uberlândia, Brazil; Evandro Machado, Anne Priscila Dias Gonzaga, Universidade Federal dos Vales do Jequitinhonha e Mucuri, Brazil; Marcela de Castro Nunes Santos Terra, Jose Marcio de Mello, Jose Roberto Scolforo, Universidade Federal de Lavras, Brazil; Ane Alencar, Environmental Research Institute for the Amazon (IPAM), Brazil

TH3.O-6.5 FORWARD AND INVERSE L-BAND RADIATIVE TRANSFER MODELING OVER THE DRY CHACO, USING SMOS OBSERVATIONS, LAND SURFACE MODELING AND IN SITU DATA
Frederike Vincent, Michiel Maertens, Michel Bechtold, KU Leuven, Belgium; Esteban Jobbagy, Universidad de San Luis, Argentina; Rolf Reichle, NASA Goddard Space Flight Center, United States; Veerle Vanacker, UC Louvain, Belgium; Jasper Vrugt, University of California, Irvine, United States; Jean-Pierre Wigneron, INRAE, UMR1391 ISPA, Centre Bordeaux-Aquitaine, F-33140, France; Gabriëlle De Lannoy, KU Leuven, Belgium

TH3.O-6.6 FUSION OF SENTINEL-2 DATA WITH HIGH RESOLUTION OPEN ACCESS PLANET BASEMAPS FOR GRAZING LAWN DETECTION IN SOUTHERN AFRICAN SAVANNAHS
Kwame Awuah, Paul Aplin, Edge Hill University, United Kingdom

Thursday, July 15 14:25 - 15:55 Oral Room 7
Session TH3.O-7 Oral-Invited

Modeling of Remote Sensing Observables

Session Co-Chairs: Robert Sundberg, Spectral Sciences, Inc.; Sandra Wiseman, Spectral Sciences, Inc; Ilan Havinga, Wageningen University

TH3.O-7.1 FULL SPECTRUM CLOUDY SCENE SIMULATION FOR REMOTE SENSING ALGORITHM DEVELOPMENT
Robert Sundberg, Steven Richtsmeier, Timothy Perkins, Spectral Sciences, Inc., United States

TH3.O-7.3 MODEL COMPUTATION WITH SECOND-ORDER RADIATIVE TRANSFER EQUATION FOR SNOW MEDIUM USING COUPLED FINITE ELEMENT METHOD AND METHOD OF MOMENT AND RELAXED HIERARCHICAL EQUIVALENT SOURCE ALGORITHM
Hamsalekha A. Kumaresan, Hong Tat Ewe, Gobi Vetharatnam, Universiti Tunku Abdul Rahman, Malaysia; Li Jun Jiang, University of Hong Kong, China

TH3.O-7.4 INVERSION ANALYSIS OF SEA ICE PHYSICAL PARAMETERS THROUGH RADIATIVE TRANSFER MODEL AND SIMULATED ANNEALING METHOD
Yu Jen Lee, Kee Choon Yeong, Universiti Tunku Abdul Rahman (Kampar Campus), Malaysia; Hong Tat Ewe, Universiti Tunku Abdul Rahman (Sungai Long Campus), Malaysia

TH3.O-7.5 ENHANCED TARGET DETECTION UNDER POORLY ILLUMINATED CONDITIONS
Sandra Wiseman, Steve Adler-Golden, Spectral Sciences, Inc, United States; Emmett Ientilucci, Rochester Institute of Technology, United States; Timothy Perkins, Spectral Sciences, Inc, United States

TH3.O-7.6 DEVELOPMENT OF SPACEBORNE SOOP REFLECTOMETRY MODEL FOR COMPLEX TERRAINS
Dylan Boyd, Mehmet Kurum, Mississippi State University, United States; James L. Garrison, Benjamin Nold, Purdue University, United States; Manuel Vega, Rajat Bindlish, Jeffrey Piepmeier, NASA Goddard Space Flight Center, United States

Thursday, July 15 14:25 - 15:55 Oral Room 8
Session TH3.O-8 Oral

From Seabed to Space: A Journey through Advanced Object Detection and Recognition Methods

Session Co-Chairs: Jorge Rodriguez, Universidad Nacional de Colombia; Thien-Anh Nguyen, École polytechnique fédérale de Lausanne (EPFL); Marian-Daniel Iordache, Flemish Institute for Technological Research, Remote Sensing Department (VITO-TAP)

TH3.O-8.1 AUTOMATED DETECTION OF MALE EIDERS OVER MULTISPECTRAL AERIAL PHOTOGRAPHS
Ataollah Haddadi, A&L Canada Laboratories Inc., Canada; Brigitte Leblon, University of New Brunswick, Canada; Scott Gilliland, Matthew Mahoney, Environment and Climate Change Canada, Canada; Angela Douglas, Southern Gulf of St. Lawrence Coalition on Sustainability, Canada

TH3.O-8.2 IMPROVED CLASSIFICATION OF HIGH RESOLUTION REMOTE SENSING IMAGERY WITH DIFFERENTIAL MORPHOLOGICAL PROFILE NEURAL NETWORK
J. Alex Hurt, Trevor Bajkowski, Grant Scott, University of Missouri, United States

TH3.O-8.3 HAZE MITIGATION IN HIGH-RESOLUTION SATELLITE IMAGERY USING ENHANCED STYLE-TRANSFER NEURAL NETWORK AND NORMALIZATION ACROSS MULTIPLE GPUS
Byung Park, Oak Ridge National Laboratory, United States; Somrita Chattopadhyay, Purdue University, United States; John Burgin, Oak Ridge National Laboratory, United States

TH3.O-8.4 AUTOMATIC DETECTION AND MAPPING OF ESPELETIA PLANTS FROM UAV IMAGERY
Jorge Rodriguez, Universidad Nacional de Colombia, Colombia; Ce Zhang, Lancaster University, United Kingdom; Ivan Lizarazo, Flavio Prieto, Universidad Nacional de Colombia, Colombia

TH3.O-8.5 EXPLAINABLE SYSTEMATIC ANALYSIS FOR SYNTHETIC APERTURE SONAR IMAGERY
Sarah Walker, Joshua Peeples, University of Florida, United States; Jeff Dale, James Keller, University of Missouri, United States; Alina Zare, University of Florida, United States

TH3.O-8.6 AUTOMATIC MAASAILAND BOMA MAPPING WITH DEEP NEURAL NETWORKS
Keli Cheng, University of Missouri, United States; Ilinca Popescu, Stanford University, United States; Lincoln Sheets, Grant Scott, University of Missouri, United States

Thursday, July 15 14:25 - 15:55 Oral Room 9
Session TH3.O-9 Oral

Deep Learning for Remote Sensing Image Classification and Clustering

Session Co-Chairs: Mario Parente, University of Massachusetts, Amherst; Shutao Li, Hunan University; Ines Meraoumia, Télécom Paris

TH3.O-9.1 DDIPNET AND DDIPNET+: DISCRIMINANT DEEP IMAGE PRIOR NETWORKS FOR REMOTE SENSING IMAGE CLASSIFICATION
Daniel Santos, Rafael Pires, Leandro Passos, Joao Papa, Sao Paulo State University, Brazil

TH3.O-9.2 AN END-TO-END CLUSTERING FRAMEWORK BASED ON DYNAMIC THRESHOLD FOR SAR IMAGES
Mengsi Yang, Junchuan Guo, Xianyuan Wang, Zongjie Cao, Zongyong Cui, University of Electronic Science and Technology of China, China

TH3.O-9.3 SEMI-SUPERVISED GRAPH PROTOTYPICAL NETWORKS FOR HYPERSPECTRAL IMAGE CLASSIFICATION
Bobo Xi, Jiaojiao Li, Yunsong Li, Xidian University, China; Qian Du, Mississippi State University, United States

TH3.O-9.4 CROSS-MODAL FEATURE FUSION RETRIEVAL FOR REMOTE SENSING IMAGE-VOICE RETRIEVAL
Rui Yang, Yu Gu, Yu Liao, Huan Zhang, Yingzhi Sun, Shuang Wang, Xidian University, China; He Zhang, Northwest University, China; Biao Hou, Licheng Jiao, Xidian University, China

TH3.O-9.5 IMPROVED DEEP CLUSTERING OF MASTCAM IMAGES USING METRIC LEARNING
Tejas Panambur, Mario Parente, University of Massachusetts Amherst, United States

TH3.O-9.6 IMPROVING LAND COVER CLASSIFICATION WITH A SHIFT-INVARIANT CENTER-FOCUSING CONVOLUTIONAL NEURAL NETWORK
Cong Luo, Technical University of Munich, Germany; Yuansheng Hua, Lichao Mou, Xiao Xiang Zhu, Technical University of Munich & German Aerospace Center, Germany

Thursday, July 15 14:25 - 15:55 Oral Room 10
Session TH3.O-10 Oral-Invited

Monitoring the Atmosphere: Ground-based and Satellite Remote Sensing Observations

Session Co-Chairs: Simone Lolli, Kent State University (Florence Campus); Gemine Vivone, National Research Council - Institute of Methodologies for Environmental Analysis (CNR - IMAA); Zhendong Lu, University of Iowa

TH3.O-10.1 THE NASA MICRO PULSE LIDAR NETWORK (MPLNET): EARLY RESULTS FROM DEVELOPMENT OF DIURNAL CLIMATOLOGIES
Ellsworth J. Welton, NASA Goddard Space Flight Center, United States; James R. Campbell, Naval Research Laboratory, United States; Jasper R. Lewis, University of Maryland Baltimore County, United States; Simone Lolli, CNR-IMAA, Italy; Sebastian Stewart, Science Systems and Applications, Inc. / Aether Embedded, United States; Larry Belcher, Science Systems and Applications, Inc., United States; Brent Holben, NASA, United States; David Giles, Ilya Slutsker, Science Systems and Applications, Inc., United States

TH3.O-10.4 COMPARISON BETWEEN SREM AND 6SV ATMOSPHERIC CORRECTION METHODS
Muhammad Bilal, Zhongfeng Qiu, Yu Wang, Md. Arfan Ali, Nanjing University of Information Science and Technology, China

TH3.O-10.5 SUN-TRACKING GROUND-BASED MICROWAVE RADIOMETRY: CHALLENGES AND APPLICATIONS
Frank S. Marzano, Marianna Biscarini, Sapienza Università di Roma, Italy; Lorenzo Luini, Carlo Riva, Politecnico di Milano, Italy; Domenico Cimini, Sabrina Gentile, Saverio Nilo, Francesco Di Paola, Filomena Romano, National Research Council of Italy, Italy; Luca Milani, Antonio Martellucci, European Space Agency (ESA), Germany

TH3.O-10.6 SOLVING GLOBAL CIRRUS CLOUD TOP-OF-THE-ATMOSPHERE RADIATIVE FORCING
James R. Campbell, Naval Research Laboratory, United States; Erica K. Dolinar, American Society for Engineering Excellence, United States; Anne Garnier, Science Systems and Applications, Inc., United States; Jared W. Marquis, University of North Dakota, United States; Theodore M. McHardy, University of Arizona, United States; Ping Yang, Texas A&M University, United States; Jasper R. Lewis, University of Maryland Baltimore County, United States; Ellsworth J. Welton, NASA Goddard Space Flight Center, United States

Thursday, July 15 14:25 - 15:55 Oral Room 11
Session TH3.O-11 Oral-Invited

Multi-band, Multi-sensor, and Polarimetric Radar Techniques for Permafrost Characterization

Session Co-Chairs: Roger Michaelides, Colorado School of Mines; Jessica Fayne, University of California, Los Angeles; Luca Bergamasco, Fondazione Bruno Kessler

TH3.O-11.1 PERMAFROST DYNAMICS OBSERVATORY: RETRIEVAL OF ACTIVE LAYER THICKNESS AND SOIL MOISTURE FROM AIRBORNE INSAR AND POLSAR DATA
Richard Chen, NASA Jet Propulsion Laboratory, California Institute of Technology, United States; Roger Michaelides, Colorado School of Mines, United States; Yuhuan Zhao, University of Southern California, United States; Lingcao Huang, University of Colorado Boulder, United States; Elizabeth Wig, Stanford University, United States; Taylor Sullivan, Andrew Parsekian, University of Wyoming, United States; Howard Zebker, Stanford University, United States; Mahta Moghaddam, University of Southern California, United States; Kevin Schaefer, University of Colorado Boulder, United States

TH3.O-11.3 STUDYING FROZEN GROUND DYNAMICS BY USING GNSS INTERFEROMETRIC REFLECTOMETRY: ACHIEVEMENTS AND POTENTIAL SYNERGY WITH INSAR
Jiahua Zhang, Lin Liu, Chinese University of Hong Kong, China

TH3.O-11.4 UTILITY OF POLARIZATIONS AVAILABLE FROM SENTINEL-1 FOR TUNDRA MAPPING
Annett Bartsch, Georg Pointner, b.geos GmbH, Austria; Helena Bergstedt, University of Alaska Fairbanks, United States; Barbara Widhalm, ZAMG - Zentralanstalt für Meteorologie und Geodynamik, Austria; Anna Wendleder, Achim Roth, German Aerospace Center (DLR), Germany

TH3.O-11.5 POTENTIAL OF FULL-POLARIMETRIC P- AND L-BAND SAR DATA IN CHARACTERIZING POST-FIRE RECOVERY OF ARCTIC TUNDRA
Yonghong Yi, Richard Chen, NASA Jet Propulsion Laboratory, California Institute of Technology, United States; Mahta Moghaddam, University of Southern California, United States; John Kimball, University of Montana, United States; Benjamin Jones, University of Alaska Fairbanks, United States; Charles Miller, NASA Jet Propulsion Laboratory, California Institute of Technology, United States

TH3.O-11.6 MAPS OF ACTIVE LAYER THICKNESS ON THE NORTH SLOPE OF ALASKA BY UPSCALING P-BAND POLARIMETRIC SAR RETRIEVALS
Jane Whitcomb, University of Southern California, United States; Richard Chen, California Institute of Technology, United States; Daniel Clewley, Plymouth Marine Laboratory, United Kingdom; Yonghong Yi, California Institute of Technology, United States; John Kimball, University of Montana, United States; Mahta Moghaddam, University of Southern California, United States

Thursday, July 15 14:25 - 15:55 Oral Room 12
Session TH3.O-12 Oral

Super-resolution

Session Co-Chairs: Gemine Vivone, National Research Council - Institute of Methodologies for Environmental Analysis (CNR - IMAA); Laurens Diels, Universiteit Gent; Andrea Garzelli, Università di Siena

TH3.O-12.1 SENTINEL-3 IMAGE SUPER-RESOLUTION USING DATA FUSION AND CONVOLUTIONAL NEURAL NETWORKS
Rafael Fernandez, Ruben Fernandez-Beltran, Filiberto Pla, University Jaume I, Spain

TH3.O-12.2 TUNING PARAMETER SELECTION FOR SENTINEL-2 SHARPENING USING WALD'S PROTOCOL
Sveinn Eirikur Armannsson, Jakob Sigurdsson, Jóhannes Rúnar Sveinsson, Magnús Örn Ulfarsson, University of Iceland, Iceland

TH3.O-12.3 SHARPENING THE 20 M BANDS OF SENTINEL-2 IMAGE USING AN UNSUPERVISED CONVOLUTIONAL NEURAL NETWORK
Han Van Nguyen, Magnús Örn Ulfarsson, Jóhannes Rúnar Sveinsson, University of Iceland, Iceland

TH3.O-12.4 BLIND SUPER-RESOLUTION ON REMOTE SENSING IMAGES WITH BLUR KERNEL PREDICTION
Runmin Dong, Lixian Zhang, Haohuan Fu, Tsinghua University, China

TH3.O-12.5 SELF-ATTENTION FUSION MODULE FOR SINGLE REMOTE SENSING IMAGE SUPER-RESOLUTION
Han Mei, Haopeng Zhang, Zhiguo Jiang, Beihang University, China

TH3.O-12.6 RESOLUTION ENHANCEMENT OF UNSUPERVISED CLASSIFICATION MAPS THROUGH DATA FUSION OF SPECTRAL AND VISIBLE IMAGES FROM DIFFERENT SENSING INSTRUMENTS
Fadi Kizel, Technion-Israel Institute of Technology, Israel

Thursday, July 15 14:25 - 15:55 Oral Room 13
Session TH3.O-13 Oral-Invited

New Observing Strategies for Natural Hazards

Session Co-Chairs: Michael Seablom, NASA HQ; Ben Smith, NASA Jet Propulsion Lab; Kasra Rafiezadeh Shahi, Universiteit Antwerpen

TH3.O-13.1 THE SCO-FLOODDAM PROJECT : NEW OBSERVING STRATEGIES FOR FLOOD DETECTION, ALERT AND RAPID MAPPING
Peter Kettig, Simon Baillarin, CNES, France; Sophie Ricci, Thanh-Huy Nguyen, CERFACS, France; Thomas Huang, Alphan Altinok, Nga T. Chung, NASA Jet Propulsion Laboratory, United States; Guillaume Valladeau, Vortex.IO, France; Romain Goeury, Airbus Defence and Space, France; Alix Roumagnac, Predict Services, France

TH3.O-13.3 CEOS WGDISASTERS GEO/LEO/SAR FLOOD PILOT: IMPROVING EARTH OBSERVATION FLOOD MONITORING CAPABILITIES THROUGH DATA FUSION
David Borges, National Aeronautics and Space Administration (NASA), United States; Mitch Goldberg, National Oceanic and Atmospheric Administration (NOAA), United States; Andrew L Molthan, NASA Marshall Space Flight Center, United States; Guy Schumann, Remote Sensing Solutions, Luxembourg

TH3.O-13.4 NEW OBSERVING STRATEGIES TESTBED (NOS-T) ARCHITECTURE: EVALUATING DYNAMIC RESPONSE TO EMERGENT EVENTS
Paul Grogan, Hayden Daly, Matthew Brand, Jerry Sellers, Stevens Institute of Technology, United States

TH3.O-13.5 SOIL MOISTURE MONITORING USING AUTONOMOUS AND DISTRIBUTED SPACECRAFT (D-SHIELD)
Sreeja Nag, NASA Ames Research Center/BAER Institute, United States; Mahta Moghaddam, University of Southern California, United States; Daniel Selva, Texas A&M University, United States; Jeremy Frank, NASA Ames Research Center, United States; Vinay Ravindra, NASA Ames Research Center/BAER Institute, United States; Richard Levinson, Amir Azemati, NASA Ames Research Center/KBR Wyle, United States; Benjamin Gorr, Texas A&M University, United States; Alan Li, NASA Ames Research Center/BAER Institute, United States; Ruzbeh Akbar, Massachusetts Institute of Technology, United States

TH3.O-13.6 SATELLITE OBSERVED MULTI-PARAMETER VARIATIONS ASSOCIATED WITH THE 2020 YUTIAN EARTHQUAKE, CHINA
Feng Jing, Institute of Earthquake Forecasting, China Earthquake Administration, China; Ramesh Singh, Chapman University, China

Thursday, July 15 14:25 - 15:55 Oral Room 14
Session TH3.O-14 Oral

Sea Ice II

Session Co-Chairs: Eduard Khachatrian, UiT Norges arktiske universitet; Aikaterini Tavri, University of Victoria; Christoph Herbert, Universitat Politècnica de Catalunya

TH3.O-14.1 PREDICTING DAILY ARCTIC SEA ICE CONCENTRATION IN THE MELT SEASON BASED ON A DEEP FULLY CONVOLUTION NETWORK MODEL
Yibin Ren, Xiaofeng Li, Chinese Academy of Sciences, China

TH3.O-14.2 STUDIES OF THE RETRIEVAL OF SEA ICE THICKNESS AND SALINITY WITH WIDEBAND MICROWAVE RADIOMETRY
Oguz Demir, Kenneth Jezek, The Ohio State University, United States; Marco Brogioni, Giovanni Macelloni, Institute of Applied Physics Nello Carrara, Italy; Lars Kaleschke, Alfred Wegener Institute, Germany; Joel Johnson, The Ohio State University, United States

TH3.O-14.3 PROBABILISTIC INFERENCE METHOD TO DISCRIMINATE CLOSED WATER FROM SEA ICE USING SENTINEL-1 SAR SIGNATURES
Christoph Herbert, Adriano Camps, Mercè Vall-llossera, Universitat Politècnica de Catalunya, Spain

TH3.O-14.4 MULTIYEAR ARCTIC SEA ICE PARAMETERS DERIVED FROM ASCAT DATA USING VOLUME SCATTERING MODEL
Anton I. Kostylev, Russian State Hydrometeorological University, Russia

TH3.O-14.5 ANALYSIS OF THE SYNERGIES BETWEEN PASSIVE RADIOMETER, ALTIMETER, AND SCATTEROMETER, FOR IMPROVED SEA ICE PARAMETER ESTIMATES
Clement Soriot, Catherine Prigent, Observatoire de Paris, France; Frédéric Frappart, Laboratoire d'Etudes en Géophysique et Océanographie Spatiales (LEGOS), France; Lise Kilic, Carlos Jimenez, Observatoire de Paris, France; Fabien Blarrel, LEGOS, France

TH3.O-14.6 MELT SEASON ARCTIC SEA ICE TYPE DISCRIMINATION USING COMPACT POLARIMETRIC SYNTHETIC APERTURE RADAR DATA
Aikaterini Tavri, Randall Scharien, University of Victoria, Canada

Thursday, July 15 14:25 - 15:55 Oral Room 15
Session TH3.O-15 Oral-Invited

New Space SAR Instruments

Session Co-Chairs: José Marquez Martinez, Radarmetric; Delwyn Moller, University of Auckland; Saeed Khabbazan, Technische Universiteit Delft

TH3.O-15.1 NEWSPACE SYNTHETIC APERTURE RADAR INSTRUMENT ACTIVITIES
Jose Marquez-Martinez, Radarmetrics, S.L., Spain

TH3.O-15.3 CAPELLA SPACE FIRST OPERATIONAL SAR SATELLITE
Davide Castelletti, Gordon Farquharson, Craig Stringham, Michael Duersch, Duncan Eddy, Capella Space, United States

TH3.O-15.4 THE LATEST STATUS OF OUR FIRST DEMONSTRATION SATELLITE OF THE COMMERCIAL SMALL SYNTHETIC APERTURE RADAR AFTER THE LAUNCH
Toshihiro Obata, Motoyuki Arai, Shoichiro Asada, Tomoyuki Imaizumi, Yutaka Suzuki, Synspective Inc., Japan

TH3.O-15.5 FROM NOVASAR-S TO S250 RADAR: AIRBUS NEW SPACE PAYLOAD DEVELOPMENTS
Sam Doody, Martin Cohen, Airbus Defence and Space, United Kingdom

TH3.O-15.6 ICEYE MICROSATELLITE SAR CONSTELLATION STATUS UPDATE: LONG DWELL SPOTLIGHT AND WIDE SWATH IMAGING MODES
Vladimir Ignatenko, Matthew Nottingham, Andrea Radius, Leszek Lamentowski, Darren Muff, ICEYE Oy, Finland

Thursday, July 15 14:25 - 15:55 Oral Room 16
Session TH3.O-16 Oral

Biodiversity and Phenology

Session Co-Chairs: Jasper Van doninck, Michigan State University; Dainius Masiliunas, Wageningen University & Research; Frieke Van Coillie, Ghent University

TH3.O-16.1 EXPLAINING PATTERNS OF BIODIVERSITY ACROSS NEON SITES USING LANDSAT-BASED DISTURBANCE METRICS.
Jasper Van doninck, Michigan State University, United States; Annie Smith, Washington State Department of Natural Resources, United States; Jon Knott, Michigan State University, United States; Sydne Record, Bryn Mawr College, United States; Phoebe Zarnetske, Michigan State University, United States

TH3.O-16.2 CROP PHENOLOGY RETRIEVAL THROUGH GAUSSIAN PROCESS REGRESSION
Santiago Belda, University of Valencia, Spain; Luca Pipia, Institut Cartogràfic i Geològic de Catalunya (ICGC), Spain; Eatidal Amin, Matías Salinero, Pablo Reyes, Jochem Verrelst, University of Valencia, Spain

TH3.O-16.3 MAPPING ESSENTIAL VEGETATION VARIABLES OVER EUROPE USING GAUSSIAN PROCESS REGRESSION AND SENTINEL-3 DATA IN GOOGLE EARTH ENGINE
Pablo Reyes, University of Valencia, Spain; Luca Pipia, Institut Cartogràfic i Geològic de Catalunya (ICGC), Spain; Matías Salinero, Charlotte De Grave, Jose Estévez, Santiago Belda, Jochem Verrelst, University of Valencia, Spain

TH3.O-16.4 FUEL BREAK VEGETATION MONITORING WITH SENTINEL-2 NDVI ROBUST TO PHENOLOGY AND ENVIRONMENTAL CONDITIONS
João E. Pereira-Pires, Centre of Technology and Systems/UNINOVA, School of Science and Technology–NOVA University of Lisbon, Portugal; Valentine Aubard, Forest Research Centre, School of Agriculture–University of Lisbon, Portugal; Rita A. Ribeiro, José M. Fonseca, Centre of Technology and Systems/UNINOVA, School of Science and Technology–NOVA University of Lisbon, Portugal; João M. N. Silva, Forest Research Centre, School of Agriculture–University of Lisbon, Portugal; André Mora, Centre of Technology and Systems/UNINOVA, School of Science and Technology–NOVA University of Lisbon, Portugal

TH3.O-16.5 A NOVEL LAND USE CLASSIFIER WITH CONVOLUTIONAL RECURRENT STRUCTURE
Dong Xie, Arthur Depoian, Colleen Bailey, University of North Texas, United States

TH3.O-16.6 MAPPING FOREST THINNING, SYSTEMIC AND SELECTIVE LOGGING OPERATIONS USING VARIOUS IMAGING MODES OF X-BAND SAR IMAGES
Oleg Antropov, Anne Lönnqvist, Yrjö Rauste, VTT Technical Research Centre of Finland, Finland; Kimmo Kortelainen, Tornator Oyj, Finland; Tuomas Häme, VTT Technical Research Centre of Finland, Finland

Thursday, July 15 14:25 - 15:55 Oral Room 17
Session TH3.O-17 Oral

Precision Agriculture II

Session Co-Chairs: Vineet Kumar, Delft University of Technology; Heba Alzaben, University of Waterloo; iain Rolland

TH3.O-17.1 CROP YIELD PREDICTION USING SATELLITE/UAV SYNERGY AND MACHINE LEARNING
Maitiniyazi Maimaitijiang, Vasit Sagan, Saint Louis University, United States; Felix B. Fritschi, University of Missouri, United States

TH3.O-17.2 PANICLE COUNTING IN UAV IMAGES FOR ESTIMATING FLOWERING TIME IN SORGHUM
Enyu Cai, Sriram Baireddy, Changye Yang, Melba Crawford, Edward Delp, Purdue University, United States

TH3.O-17.3 AGRICULTURAL SANDBOXNL: A CROP PARCEL LEVEL DATABASE USING SENTINEL-1 SAR AND GOOGLE EARTH ENGINE
Vineet Kumar, Delft University of Technology, Nicaragua; Manuel Huber, European Space Agency (ESA), Netherlands; Maurice Shorachi, Delft University of Technology, Netherlands; Björn Rommen, European Space Agency (ESA), Netherlands; Susan C. Steele-Dunne, Delft University of Technology, Netherlands

TH3.O-17.4 MACHINE LEARNING MATCHING OF SENTINEL-2 AND GPS COMBINE HARVESTER DATA TO ESTIMATE WITHIN-FIELD WHEAT GRAIN YIELD
Joel Segarra, Jose Luis Araus, Shawn Carlisle Kefauver, University of Barcelona, Spain

TH3.O-17.5 DRONE-ACQUIRED DATA IN SUPPORT OF BELGIAN FRUIT PRODUCTION
Joke Vandermaesen, Bjorn Rombouts, pcfruit vzw, Belgium; Stephanie Delalieux, VITO, Belgium; Dany Bylemans, Serge Remy, pcfruit vzw, Belgium

TH3.O-17.6 EFFECTS OF NITROGEN STRESS ON CROP SURFACE TEMPERATURE AND LEAF THERMAL EMISSIVITY: A GREENHOUSE CASE STUDY
Heba Alzaben, Roydon Fraser, University of Waterloo, Canada; Clarence Swanton, University of Guelph, Canada

Thursday, July 15 14:25 - 15:55 Oral Room 18
Session TH3.O-18 Oral

Soil Moisture Retrievals at High Spatial Resolutions

Session Co-Chairs: Narendra Das, Michigan State University; Pang-Wei Liu, NASA Goddard Space Flight Center; Jie Zhao, Luxembourg Institute of Science and Technology

TH3.O-18.1 ACTIVE-PASSIVE SURFACE SOIL MOISTURE RETRIEVALS WITH L-BAND AND C-BAND ACTIVE AND L-BAND PASSIVE
Narendra Das, Michigan State University, United States; Dara Entekhabi, Massachusetts Institute of Technology, United States; Seyed Mohammad Mousavi, Simon Yueh, Roy Scott Dunbar, Andreas Colliander, NASA Jet Propulsion Laboratory, California Institute of Technology, United States

TH3.O-18.2 QUASI-GLOBAL GNSS-R SOIL MOISTURE RETRIEVALS AT HIGH SPATIO-TEMPORAL RESOLUTION FROM CYGNSS AND SMAP DATA
Fangni Lei, Volkan Senyurek, Mehmet Kurum, Ali Gurbuz, Dylan Boyd, Robert Moorhead, Mississippi State University, United States

TH3.O-18.3 SPATIAL AND TEMPORAL INTERPOLATION OF CYGNSS SOIL MOISTURE ESTIMATIONS
Volkan Senyurek, Ali Gurbuz, Mehmet Kurum, Fangni Lei, Dylan Boyd, Robert Moorhead, Mississippi State University, United States

TH3.O-18.4 OPTIMAL SPATIAL RESOLUTION OF SENTINEL-1 SURFACE SOIL MOISTURE EVALUATED USING INTENSIVE IN SITU OBSERVATIONS
Theresa C. van Hateren, Marco Chini, Patrick Matgen, Luxembourg Institute of Science and Technology, Luxembourg; Luca Pulvirenti, CIMA Research Foundation, Italy; Nazzareno Pierdicca, Sapienza University of Rome, Italy; Adriaan J. Teuling, Wageningen University and Research, Netherlands

TH3.O-18.5 CROP-CASMA - A WEB GIS TOOL FOR CROPLAND SOIL MOISTURE MONITORING AND ASSESSMENT BASED ON SMAP DATA
Zhengwei Yang, USDA National Agricultural Statistics Service, United States; Chen Zhang, Haoteng Zhao, Ziheng Sun, George Mason University, United States; Rajat Bindlish, Pang-Wei Liu, NASA Goddard Space Flight Center, United States; Andreas Colliander, California Institute of Technology, United States; Rick Mueller, USDA National Agricultural Statistics Service, United States; Liping Di, George Mason University, United States; Wade Crow, USDA Agricultural Research Service, United States; Rolf Reichle, NASA Goddard Space Flight Center, United States

TH3.O-18.6 MAPPING TRANSIENT SOIL MOISTURE POST RAINSTORM EVENTS IN HYPER-ARID KARST ENVIRONMENTS USING MULTI-SENSOR OBSERVATIONS
Jonathan Normand, Essam Heggy, University of Southern California, United States

Thursday, July 15 14:25 - 15:55 Oral Room 19
Session TH3.O-19 Oral-Invited

Next Generation of LEO/GEO Microwave and Infrared Sounders

Session Co-Chairs: FLAVIO ITURBIDE-SANCHEZ, National Oceanic and Atmospheric Administration; Satya Kalluri, JPSS/NOAA/NESDIS; Peter Beierle, University of Maryland-College Park / NOAA; Pratyush Talreja, Indian Institute of Technology Bombay

TH3.O-19.1 FUTURE NOAA LEO CONSTELLATION: TEMPERATURE AND MOISTURE SOUNDING FOR NWP AND FUTURE OBSERVATIONS
Vanessa Griffin, Frank Gallagher, David Spencer, National Oceanic and Atmospheric Administration (NOAA), United States

TH3.O-19.3 PERFORMANCE GOALS AND DESIGN CHALLENGES FOR THE NEXT GENERATION OF LEO INFRARED SOUNDERS
David Johnson, National Aeronautics and Space Administration (NASA), United States

TH3.O-19.4 NEXT-GENERATION LEO MICROWAVE SOUNDERS: OPTIONS AND TRADEOFFS
Edward Kim, NASA, United States

TH3.O-19.5 HIMAWARI-8/9 FOLLOW-ON SATELLITE PROGRAM AND IMPACTS OF POTENTIAL USAGE OF HYPERSPECTRAL IR SOUNDER
Kotaro Bessho, Hiromi Owada, Japan Meteorological Agency, Japan; Kozo Okamoto, Tadashi Fujita, Meteorological Research Institute, Japan

TH3.O-19.6 NASA TROPICS PATHFINDER AND CONSTELLATION MISSION PREPARATIONS FOR LAUNCHES IN 2021 AND 2022
William J. Blackwell, MIT Lincoln Laboratory, United States

Thursday, July 15 14:25 - 15:55 Oral Room 20
Session TH3.O-20 Oral

Clouds and Cloud Removal

Session Co-Chairs: Samuel Adewale Adelabu, University of the Free State; Gail Skofronick-Jackson, NASA Headquarters; Max Felius

TH3.O-20.1 USING SLOW FEATURE ANALYSIS AND A CLOUD-FREE AUXILIARY IMAGE TO REMOVE THIN CLOUDS IN LANDSAT-5 VINIR BAND DATA
Yue Gao, University of Electronic Science and Technology of China, China; Yong Wang, East Carolina University, United States; Binxing Zhou, Zhongxing Telecommunication Equipment Technology Corporation, China

TH3.O-20.2 A HYBRID MODEL-BASED AND DATA-DRIVEN APPROACH FOR CLOUD REMOVAL IN SATELLITE IMAGERY USING MULTI-SCALE DISTORTION-AWARE NETWORKS
Weikang Yu, Xiaokang Zhang, Man-On Pun, Chinese University of Hong Kong, Shenzhen, China; Ming Liu, Shanghai CAS-NOVA Satellite Technology Company Limited, China

TH3.O-20.3 ESTIMATING TOTAL PRECIPITABLE WATER DISTRIBUTION ACROSS FREE STATE PROVINCE, SOUTH AFRICA USING REMOTE SENSING DATA AND TOOLS
Adeyemi Oludapo Olusola, Samuel Adewale Adelabu, University of the Free State, South Africa

TH3.O-20.4 ANALYSIS OF THE SEASONAL VARIATION OF HORIZONTAL DELAY GRADIENT FOR THE TROPICAL ISLAND SINGAPORE
*Anik Biswas, Lee Yee Hui, Nanyang Technological University, Singapore; Shilpa Manandhar, Agency for Science, Technology and Research (A*STAR), Singapore*

TH3.O-20.5 EVALUATION OF MACHINE LEARNING BASED NOWCASTING BETWEEN STORMS OVER DIFFERENT GEOGRAPHICAL REGIONS
EunYeol Kim, V. Chandrasekar, Colorado State University, United States

Thursday, July 15 16:40 - 18:10 Oral Room 1
Session TH4.O-1 Oral-Invited

Remote Sensing of Natural Hazards in Latin America II

Session Co-Chairs: Ivan E. Villalon-Turrubiates, Instituto Tecnologico y de Estudios Superiores de Occidente, ITESO; Alejandro Monsivais-Huertero, ESIME Ticomán, Instituto Politécnico Nacional; Kasra Rafiezadeh Shahi, Universiteit Antwerpen

TH4.O-1.1 QUANTIFYING THE INFLUENCE OF INTENSITY CHANNELS FROM POLSAR IMAGES FOR EDGE DETECTION ON INFORMATION FUSION
Anderson A. De Borba, IBMEC-SP, Brazil; Mauricio Marengoni, Universidade Federal de Minas Gerais - UFMG, Brazil; Alejandro C. Frery, Victoria University of Wellington, New Zealand

TH4.O-1.3 WATER POLLUTION DETECTION IN ACAPULCO COASTS USING MERGED DATA FROM THE SENTINEL-2 AND SENTINEL-3 SATELLITES
Roberto Lomeli-Huerta, Himer Avila-George, Universidad de Guadalajara, Mexico; Juan Pablo Rivera-Caicedo, Universidad Autónoma de Nayarit, Mexico; Miguel De-la-Torre, Universidad de Guadalajara, Mexico

TH4.O-1.4 IDENTIFICATION OF DROUGHT PERIODS IN AGRICULTURAL AREAS USING ENHANCED SMAP BRIGHTNESS TEMPERATURE PRODUCT
Juan Carlos Hernández-Sánchez, Alejandro Monsiváis-Huertero, Instituto Politécnico Nacional, Mexico; Jasmeet Judge, University of Florida, United States; Héctor Ernesto Huerta-Bátiz, Daniel Enrique Constantino-Recillas, Eduardo Arizmendi-Vasconcelos, José Carlos Jiménez-Escalona, Instituto Politécnico Nacional, Mexico

TH4.O-1.5 BRAZILIAN BEACHES AND DUNES STATUS: THREE DECADES OF DETECTION USING MACHINE LEARNING
Maria Pinheiro, Luiz Cortinhas, Alexandre Filho, Luis Sadeck, Bruno Haick, Cesar Diniz, Solved Solutions in Geoinformation, Brazil

TH4.O-1.6 VALIDATION OF MICROWAVE MODELS TO IDENTIFY EXTREME CONDITIONS IN MEXICAN ECOSYSTEMS
Daniel Enrique Constantino-Recillas, Alejandro Monsiváis-Huertero, Héctor Ernesto Huerta-Bátiz, Instituto Politécnico Nacional, Mexico

Thursday, July 15 16:40 - 18:10 Oral Room 2
Session TH4.O-2 Oral-Invited

Advanced Polarimetric and Tomographic SAR Processing Techniques for the Characterization of Forests

Session Co-Chairs: Thuy Le Toan, Centre D'Etudes Spatiales de la Biosphère (CESBIO); Srikumar Sastry, University of Twente; Stefano Tebaldini, Politecnico di Milano

TH4.O-2.1 POLARIMETRIC SAR TOMOGRAPHY FOR THE CHARACTERIZATION OF FORESTED AREAS
Stefano Tebaldini, Mauro Mariotti d'Alessandro, Politecnico di Milano, Italy; Thuy Le Toan, Ludovic Villard, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Dinh Ho Tong Minh, National Research Institute for Agriculture, Food and Environment (INRAE), France; Laurent Ferro-Famil, Université de Rennes 1, France

TH4.O-2.2 IMPROVEMENT PROSPECTS OF DTM RECONSTRUCTION FROM P-BAND SAR TOMOGRAPHY OVER TROPICAL DENSE FORESTS
Maël Smessaert, Centre d'Etudes Spatiales de la Biosphère (CESBIO) / Capgemini, France; Ludovic Villard, Laurent Polidori, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Sandrine Daniel, Capgemini, France; Laurent Ferro-Famil, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France

TH4.O-2.3 POL-INSAR FOREST HEIGHT INVERSION USING TOMOSAR REFLECTIVITY PROFILES
Roman Guliaev, Jun Su Kim, Konstantinos P. Papathanassiou, Matteo Pardini, German Aerospace Center (DLR), Germany

TH4.O-2.4 COMPARISON OF BIOMASS ACQUISITION MODES FOR THE CHARACTERIZATION OF FORESTS
Laurent Ferro-Famil, Yue Huang, IETR, University of Rennes 1, France; Ludovic Villard, Thuy Le Toan, Thierry Koleck, Centre d'Etudes Spatiales de la Biosphère (CESBIO), University of Toulouse, France

TH4.O-2.5 DEEP LEARNING FOR MAPPING THE AMAZON RAINFOREST WITH TANDEM-X
José-Luis Bueso-Bello, Andrea Pulella, Francescopaolo Sica, Paola Rizzoli, German Aerospace Center (DLR), Germany

Thursday, July 15 16:40 - 18:10 Oral Room 3
Session TH4.O-3 Oral-Invited

International Cooperation to Visualize COVID-19's Impact from Space II

Session Co-Chairs: Manil Maskey, National Aeronautics and Space Administration (NASA); Sina Mohammadi, University of Twente; Anca Anghelea, ESA

TH4.O-3.1 A MULTI-AGENCY COVID-19 DASHBOARD WITH SATELLITE AIR QUALITY DATA
Barry Lefer, NASA Headquarters, United States; David Crisp, NASA Jet Propulsion Laboratory, United States; Zachary Fasnacht, Lok Lamsal, NASA Goddard Space Flight Center, United States; Kenneth Jucks, Abigail Seadler, NASA Headquarters, United States; Claus Zehner, European Space Agency - ESRIN, Italy

TH4.O-3.3 THE COVID-19 EARTH OBSERVATION DASHBOARD: A NASA-ESA-JAXA COLLABORATIVE PRODUCT
Anca Anghelea, Yves-Louis Desnos, European Space Agency (ESA), Italy; Manil Maskey, NASA, United States; Shin-ichi Sobue, Japan Aerospace Exploration Agency (JAXA), Japan; Stephan Meissl, EOX IT Services GmbH, Austria

TH4.O-3.4 COVID-19 IMPACT MONITORING FOR CLIMATE ENVIRONMENT (GREENHOUSE GASES)
Akihiko Kuze, Yousuke Ikehata, Nobuhiro Kikuchi, Japan Aerospace Exploration Agency (JAXA), Japan; Fumie Kataoka, RESTEC, Japan; Kei Shiomi, Japan Aerospace Exploration Agency (JAXA), Japan; Ken Jucks, NASA, United States; David Crisp, NASA Jet Propulsion Laboratory, United States; Brad Weir, Lesley Ott, NASA, United States

TH4.O-3.5 TRILATERAL WATER QUALITY MONITORING FROM SPACE DURING COVID-19
Marie-Hélène Rio, European Space Agency (ESA), Italy; Laura Lorenzoni, NASA, United States; Hiroshi Murakami, Japan Aerospace Exploration Agency (JAXA), Japan; Federico Falcini, CNR-ISMAR, Italy; Simone Colella, Gianluca Volpe, CNR, Italy; Vittorio Ernesto Brando, National Research Council of Italy, Italy; Federica Braga, CNR, Italy; Javier Concha, Gian Marco Scarpa, CNR-ISMAR, Italy; Maria Tzortziou, Brice K. Grunert, City College of New York, United States; Nima Pahlevan, Armin Mehrabian, Science Systems and Applications, Inc., United States

TH4.O-3.6 COIVD-19 IMPACT MONITORING FOR AGRICULUTRE
Benjamin Koetz, European Space Agency (ESA), Italy; Bradely Doorn, NASA Headquarters, United States; Shin-ichi Sobue, Japan Aerospace Exploration Agency (JAXA), Japan; Inbal Becker-Reshef, GEOGLAM Secretariat, Switzerland; Pierre Defourny, Sophie Bontemps, Philippe Malcorps, Pierre Houdmont, Université catholique de Louvain, Belgium; Brian Barker, Christina Justice, Hannah Kerner, Gabriel Tseng, University of Maryland, United States; Kei Oyoshi, Yoshinobu Sasaki, Keishiro Nakamoto, Japan Aerospace Exploration Agency (JAXA), Japan; Olaf Veerman, Development Seed, Portugal

Thursday, July 15 16:40 - 18:10 Oral Room 4
Session TH4.O-4 Oral-Invited

Data Intensive Computing for Remote Sensing

Session Co-Chairs: Gabriele Cavallaro, Forschungszentrum Jülich; Dora Heras, University of Santiago de Compostela; Marcel Stefko, ETH Zurich

TH4.O-4.1 PRACTICE AND EXPERIENCE IN USING PARALLEL AND SCALABLE MACHINE LEARNING IN REMOTE SENSING FROM HPC OVER CLOUD TO QUANTUM COMPUTING
Morris Riedel, University of Iceland, Iceland; Gabriele Cavallaro, Forschungszentrum Jülich, Germany; Jón Atli Benediktsson, University of Iceland, Iceland

TH4.O-4.3 COMPARING AREA-BASED AND FEATURE-BASED METHODS FOR CO-REGISTRATION OF MULTISPECTRAL BANDS ON GPU
Álvaro Ordóñez, Dora B. Heras, Francisco Argüello, Universidade de Santiago de Compostela, Spain

TH4.O-4.4 AN FPGA-BASED IMPLEMENTATION OF A HYPERSPECTRAL ANOMALY DETECTION ALGORITHM FOR REAL-TIME APPLICATIONS
Maria Diaz, University of Las Palmas de Gran Canaria (ULPGC), Spain; Julian Caba, University of Castilla La Mancha (UCLM), Spain; Raul Guerra, University of Las Palmas de Gran Canaria (ULPGC), Spain; Jesus Barba, University of Castilla La Mancha (UCLM), Spain; Sebastian Lopez, University of Las Palmas de Gran Canaria (ULPGC), Spain

TH4.O-4.5 ENHANCING LARGE BATCH SIZE TRAINING OF DEEP MODELS FOR REMOTE SENSING APPLICATIONS
Rocco Sedona, Gabriele Cavallaro, Forschungszentrum Jülich, Germany; Morris Riedel, Matthias Book, University of Iceland, Iceland

TH4.O-4.6 EVOLUTIONARY OPTIMIZATION OF NEURAL ARCHITECTURES IN REMOTE SENSING CLASSIFICATION PROBLEMS
Daniel Coquelin, Karlsruher Institut für Technologie, Germany; Rocco Sedona, Morris Riedel, Forschungszentrum Jülich / University of Iceland, Germany; Markus Götz, Karlsruher Institut für Technologie, Germany

Thursday, July 15 16:40 - 18:10 Oral Room 5
Session TH4.O-5 Oral

Innovative Approaches for Change Detection and Multi-temporal Analysis

Session Co-Chairs: Igor Yanovsky, Jet Propulsion Laboratory; Eiji Kaneko, NEC corporation; Willeke A'Campo, Stockholm University

TH4.O-5.1 CAPTIONING CHANGES IN BI-TEMPORAL REMOTE SENSING IMAGES
Selova Chouaf, University of Sciences and Technology Houari Boumediene, Algeria; Genc Hoxha, University of Trento, Italy; Youcef Smara, University of Sciences and Technology Houari Boumediene, Algeria; Farid Melgani, University of Trento, Italy

TH4.O-5.2 BLUE NOISE SAMPLING AND NYSTRÖM EXTENSION FOR GRAPH BASED CHANGE DETECTION
David Alejandro Jimenez Sierra, Hernan Darío Benitez Restrepo, Universidad Pontificia Javeria, Colombia; Gonzalo R. Arce, Juan Felipe Flórez Ospina, University of Delaware, United States

TH4.O-5.3 WILDFIRE DETECTION USING STREAMING SATELLITE IMAGERY
Steven Xu, Seunghyun Kong, Zohreh Asgharzadeh, SAS Institute Inc., United States

TH4.O-5.4 INTER-ORBIT CHANGE DETECTION FOR HIGH-RESOLUTION SAR IMAGERY USING CONDITIONAL SIAMESE NETWORK
Eiji Kaneko, Takahiro Toizumi, Kazutoshi Sagi, Masato Toda, NEC corporation, Japan

TH4.O-5.5 SPATIO-TEMPORAL SUPER-RESOLUTION RECONSTRUCTION OF REMOTE SENSING DATA
Igor Yanovsky, NASA Jet Propulsion Laboratory, California Institute of Technology, United States; Jing Qin, University of Kentucky, United States

TH4.O-5.6 TRIAL OF DETECTION ACCURACIES IMPROVEMENT FOR JJ-FAST DEFORESTATION DETECTION ALGORITHM USING DEEP LEARNING
Manabu Watanabe, Tokyo Denki University, Japan; Christian Koyama, Masato Hayashi, Izumi Nagatani, Takeo Tadono, Japan Aerospace Exploration Agency (JAXA), Japan; Masanobu Shimada, Tokyo Denki University, Japan

Thursday, July 15 16:40 - 18:10 Oral Room 6
Session TH4.O-6 Oral-Invited

Mapping, Monitoring and Modelling Savannah Vegetation with Earth Observation II

Session Co-Chairs: Thomas Higginbottom, University of Manchester; Elias Symeonakis, Manchester Metropolitan University; Shahla Yadollahi, Vrije Universiteit Brussel

TH4.O-6.1 MAPPING SAHELIAN ECOSYSTEM VULNERABILITY TO VEGETATION COLLAPSE: VEGETATION MODEL OPTIMIZATION
Wim Verbruggen, Hans Verbeeck, Ghent University, Belgium; Stéphanie Horion, University of Copenhagen, Denmark; Niels Souverijns, Flemish Institute for Technological Research (VITO), Belgium; Guy Schurgers, University of Copenhagen, Denmark

TH4.O-6.3 ESTIMATING SOUTH AFRICAN MAIZE BIOMASS USING INTEGRATED HIGH-RESOLUTION UAV AND SENTINEL 1 AND 2 DATASETS
Laven Naidoo, Russell Main, Moses Cho, Sabelo Madonsela, Nobuhle Majozi, Council for Scientific and Industrial Research (CSIR), South Africa

TH4.O-6.4 MONITORING SAVANNA VEGETATION PHENOLOGY USING ADVANCED HIMAWARI IMAGER
Xuanlong Ma, Lanzhou University, China; Ngoc Nguyen Tran, Song Leng, Qiaoyun Xie, Alfredo Huete, University of Technology Sydney, Australia

TH4.O-6.5 WHICH PIXEL IS A FOREST? TREE CROWN DELINEATION USING VHR IMAGES TO ESTIMATE TREE COVER IN LANDSAT BASED CLASSIFICATION
Banchero Santiago, Verón Santiago, de Abelleyra Diego, Ferraina Antonella, Propato Tamara, Gómez Taffarel María Cielo, INTA, Argentina; Dieguez Hernán, Universidad de Buenos Aires, Argentina

TH4.O-6.6 MACHINE LEARNING CLASSIFICATION OF PLANT FUNCTIONAL TYPES IN SOUTHERN AFRICAN SAVANNAHS USING WORLDVIEW-3 IMAGERY
Paul Aplin, Kwame Awuah, Edge Hill University, United Kingdom; Christopher Marston, Centre for Ecology and Hydrology, United Kingdom; Ian Powell, Edge Hill University, United Kingdom; Izak Smit, Kruger National Park, South Africa

Thursday, July 15 16:40 - 18:10 Oral Room 7
Session TH4.O-7 Oral

SAR Tomography and 3D Mapping

Session Co-Chairs: Yuanyuan Wang, German Aerospace Center (DLR); Simona Verde, CNR; Ilan Havinga, Wageningen University

TH4.O-7.1 DUAL-FREQUENCY SAR TOMOGRAPHY WITH LONG SPARSE NON-UNIFORM BASELINE IN GROUND-BASED LUNAR MAPPING
Ying Li, Yan Wang, Zegang Ding, Tao Zeng, Beijing Institute of Technology, Beijing Institute of Technology Chongqing Innovation Center, China

TH4.O-7.2 NONPARAMETRIC ARRAY MANIFOLD CALIBRATION FOR ICE SHEET SAR TOMOGRAPHY
Theresa Moore, The Johns Hopkins University Applied Physics Laboratory, United States; John Paden, University of Kansas, United States

TH4.O-7.3 3-D TARGET RECONSTRUCTION USING C-BAND CIRCULAR SAR IMAGERY BASED ON BACKGROUND CONSTRAINTS
Hanqing Zhang, Aerospace Information Reasearch Institute, Chinese Academy of Sciences, China; Yun Lin, North China University of Technology, China; Shanshan Feng, Fei Teng, Wen Hong, Aerospace Information Reasearch Institute, Chinese Academy of Sciences, China

TH4.O-7.4 AN ANALYSIS OF INSAR DISPLACEMENT VECTOR DECOMPOSITION FALLACIES AND THE STRAP-DOWN SOLUTION
Wietske Brouwer, Ramon Hanssen, Delft University of Technology, Netherlands

TH4.O-7.5 GENERATION OF LARGE SCALE 3-D CITY MODELS USING INSAR AND OPTICAL DATA
Yilei Shi, Technical University of Munich, Germany; Richard Bamler, Yuanyuan Wang, Xiao Xiang Zhu, German Aerospace Center (DLR), Germany

TH4.O-7.6 3D POINT CLOUD GENERATION USING ADVERSARIAL TRAINING FOR LARGE-SCALE OUTDOOR SCENE
Takayuki Shinohara, Haoyi Xiu, Masashi Matsuoka, Tokyo Institute of Technology, Japan

Thursday, July 15 16:40 - 18:10 Oral Room 8
Session TH4.O-8 Oral

Subsurface Sensing / Ground Penetrating Radar II

Session Co-Chairs: Marwan Younis, German Aerospace Center (DLR); Riley Culberg, Stanford University; Thien-Anh Nguyen, École polytechnique fédérale de Lausanne (EPFL)

TH4.O-8.1 **FREQUENCY-DOMAIN TRAPEZOID GRID ACOUSTIC WAVE SIMULATING METHOD**
Wenzhuo Tan, Bangyu Wu, Wenhao Xu, Xi'an Jiaotong University, China; Jun Lei, Changqing Oilfield Company, China

TH4.O-8.2 **SIMULATIONS OF ENGLACIAL RADIOSTRATIGRAPHY FROM ICE CORE MEASUREMENTS**
Riley Culberg, Dustin Schroeder, Stanford University, United States

TH4.O-8.3 **MEASURING ENGLACIAL TEMPERATURES WITH A COMBINED RADAR-RADIOMETER**
Anna Broome, Dustin Schroeder, Stanford University, United States; Joel Johnson, The Ohio State University, United States

TH4.O-8.4 **ROBUST INVERSION SCHEME FOR LOGGING RESPONSES INTERPRETATION OF MICRO-CYLINDRICALLY FOCUSED LOGGING**
Peng Hao, Yongpeng Zhao, Xiangyang Sun, Zaiping Nie, University of Electronic Science and Technology of China, China

TH4.O-8.5 **AN UNSUPERVISED DEEP LEARNING METHOD FOR SUBSURFACE TARGET DETECTION IN RADAR SOUNDER DATA**
Elena Donini, Francesca Bovolo, Fondazione Bruno Kessler, Italy; Lorenzo Bruzzone, University of Trento, Italy

TH4.O-8.6 **INFLUENCE OF GRAVEL ON OBJECT DETECTION WITH A UAV-BASED GROUND PENETRATING RADAR**
Bernd Arendt, Ralf Burr, Thomas Walter, Ulm University of Applied Sciences, Germany

Thursday, July 15 16:40 - 18:10 Oral Room 9
Session TH4.O-9 Oral

Unconventional SAR Imaging Techniques

Session Co-Chairs: Tobias Bollian, German Aerospace Center (DLR); Ines Meraoumia, Télécom Paris; Felipe Queiroz de Almeida, German Aerospace Center (DLR)

TH4.O-9.1 **SPATIAL RESOLUTION IMPROVEMENT VIA RADAR PARAMETER ADJUSTMENT FOR EXTREMELY-HIGH-SQUINT SPOTLIGHT SAR**
Rui Min, Yan Wang, Zegang Ding, Linghao Li, Beijing Institute of Technology, China

TH4.O-9.2 **ON A DUAL PRI PULSE SEQUENCE MODE FOR HIGH-RESOLUTION WIDE-SWATH SAR IMAGING**
Felipe Queiroz de Almeida, Marwan Younis, Gerhard Krieger, Alberto Moreira, German Aerospace Center (DLR), Germany

TH4.O-9.3 **SQUINT VIDEO SAR BY EXPLOITING FREQUENCY DISPERSION OF WIDEBAND PHASED ARRAY**
Nan Liu, Yuanyuan Chen, Xuyang Wu, Linrang Zhang, Xidian University, China

TH4.O-9.4 **A NOVEL UNAMBIGUOUS IMAGING METHOD FOR GEOSYNCHRONOUS SPACEBORNE-AIRBORNE BISTATIC SAR**
Zhichao Sun, Hongyang An, Junjie Wu, Jianyu Yang, University of Electronic Science and Technology of China, China

TH4.O-9.5 **NAVIGATION-AIDED AUTOMOTIVE SAR IMAGING IN URBAN ENVIRONMENTS**
Marco Rizzi, Dario Tagliaferri, Stefano Tebaldini, Monica Nicoli, Politecnico di Milano, Italy; Ivan Russo, Christian Mazzucco, Huawei Technologies Italia S.r.l., Italy; Andrea Virgilio Monti-Guarnieri, Claudio Maria Prati, Umberto Spagnolini, Politecnico di Milano, Italy

TH4.O-9.6 **NON-LINE-OF-SIGHT IMAGING BY MILLIMETER WAVE RADAR**
Jinshan Wei, Shunjun Wei, Xinyuan Liu, Mou Wang, Jun Shi, Xiaoling Zhang, University of Electronic Science and Technology of China, China

Thursday, July 15 16:40 - 18:10 Oral Room 10
Session TH4.O-10 Oral

Atmospheric Sounding: Technology, Methods and Applications II

Session Co-Chairs: William J. Blackwell, MIT Lincoln Laboratory; Haonan Chen, Colorado State University; Zhendong Lu, University of Iowa

TH4.O-10.1 SHORT-TERM PREDICTION OF PRECIPITATION ASSOCIATED WITH LANDFALLING HURRICANES THROUGH DEEP LEARNING
Shun Yao, Haonan Chen, Colorado State University, United States; Lei Han, Ocean University of China, China

TH4.O-10.2 IMPROVED OBSERVATION OF TRANSIENT PHENOMENA WITH DOPPLER RADARS: A COMMON FRAMEWORK FOR OCEANIC AND ATMOSPHERIC SENSING
Baptiste Domps, Julien Marmain, Degreane Horizon, France; Charles-Antoine Guérin, Université de Toulon, Aix-Marseille Univ., CNRS, IRD, MIO, France

TH4.O-10.3 THE APPLICATION OF THE EXTERNAL RECONSTRUCTION TECHNIQUE TO THE RETRIEVAL OF TROPOSHERIC WATER VAPOR
Agnese Mazzinghi, CNIT, Italy; Luca Facheris, Fabrizio Argenti, University of Florence, Italy; Fabrizio Cuccoli, CNIT, Italy; Andrea Antonini, Lamma, Italy; Luca Rovai, Lamma, CNR IBE, Italy

TH4.O-10.4 USING THE ROTATIONALLY INVARIANT SPECTRUM TO STUDY THE IMPACT OF ASSIMILATING INSAR PRODUCTS IN AN NWP MODEL
Giovanni Nico, Consiglio Nazionale delle Ricerche (CNR), Italy; Pedro Mateus, João Catalão, Universidade de Lisboa, Portugal

TH4.O-10.5 SUBMILLIMETER WAVE DIFFERENTIAL ABSORPTION RADAR – LABORATORY MEASUREMENTS AND CHARACTERIZATION
Omkar Pradhan, Deacon Nemchik, Ken Cooper, Raquel Rodriguez Monje, Bob Dengler, Jose Siles, Adrian Tang, Leslie Tamppari, Brian Drouin, NASA Jet Propulsion Laboratory, California Institute of Technology, United States

TH4.O-10.6 HARNESSING MULTIPLE-PLATFORM/SENSOR REAL-TIME INFORMATION THROUGH COMMUNITY SATELLITE PROCESSING PACKAGE (CSPP)
Allen Huang, University of Wisconsin-Madison, United States; Mitch Goldberg, National Oceanic and Atmospheric Administration (NOAA), United States

Thursday, July 15 16:40 - 18:10 Oral Room 11
Session TH4.O-11 Oral

Water Color Remote Sensing

Session Co-Chairs: Luca Bergamasco, Fondazione Bruno Kessler; Martiwi Diah Setiawati, Indonesian Institute of Sciences; Xiaofeng Yang, Aerospace Information Research Institute, CAS

TH4.O-11.1 ESTIMATING PHYTOPLANKTON ABSORPTION AND BIOMASS IN FRESHWATERS USING HICO IMAGERY
Nima Pahlevan, Brandon Smith, NASA Goddard Space Flight Center / SSAI, United States

TH4.O-11.2 IDENTIFICATION OF COMMERCIAL TUNA HOTSPOT IN THE SOUTHERN WATERS OF JAVA-BALI THROUGH SATELLITE REMOTE SENSING DATA
Martiwi Diah Setiawati, Indonesian Institute of Sciences, Indonesia; Herlambang Aulia Rachman, IPB University, Indonesia; Abd. Rahman As-syakur, Udayana University, Indonesia; Augy Syahailatua, Indonesian Institute of Sciences, Indonesia

TH4.O-11.3 UNCERTAINTIES FROM ANCILLARY DATA IN SEADAS REMOTE SENSING REFLECTANCES USING THE ERA5 ENSEMBLE
Pieter De Vis, Samuel Hunt, National Physical Laboratory, United Kingdom; Frederic Melin, European Commission, Joint Research Centre, Italy

TH4.O-11.4 EVALUATION OF MULTI- AND HYPER- SPECTRAL CHL-A ALGORITHMS IN THE RÍO DE LA PLATA TURBID WATERS DURING A CYANOBACTERIA BLOOM
Ana Inés Dogliotti, Juan Ignacio Gossn, Instituto de Astronomía y Física del Espacio (IAFE) CONICET/UBA, Argentina; Carolina Gonzalez, Lilen Yema, María Laura Sánchez, Inés O'Farrell, Instituto de Ecología, Genética y Evolución (IEGEBA-CONICET) - Dep. de Ecología, Genética y Evolución, Facultad de Ciencias Exactas y Naturales, Universidad de Buenos Aires, Argentina

TH4.O-11.5 CREATION OF HIGH RESOLUTION SUSPENDED PARTICULATE MATTER DATA IN THE NORTH SEA FROM SENTINEL-2 AND SENTINEL-3 DATA.
Aida Alvera-Azcárate, Alexander Barth, Charles Troupin, Jean-Marie Beckers, University of Liège, Belgium; Dimitry Van der Zande, RBINS, Belgium

TH4.O-11.6 SUPPORT VECTOR REGRESSION FOR CHLOROPHYLL-A ESTIMATION USING SENTINEL-2 IMAGES IN SMALL WATERBODIES
Amir Chegoonian, Kiana Zolfaghari, University of Waterloo, Canada; Helen Baulch, University of Saskatchewan, Canada; Claude R. Duguay, University of Waterloo, Canada

Thursday, July 15 16:40 - 18:10 Oral Room 12
Session TH4.O-12 Oral

Ocean Salinity Remote Sensing

Session Co-Chairs: Xavier Perrot, CNRS; Laurens Diels, Universiteit Gent; Wenqing Tang, Jet Propulsion Laboratory

TH4.O-12.1 SMAP SEA SURFACE SALINITY WITH ICE CORRECTION IN ARCTIC OCEAN
Wenqing Tang, Simon Yueh, Alexander Fore, Akiko Hayashi, NASA Jet Propulsion Laboratory, California Institute of Technology, United States

TH4.O-12.2 CCI+SSS, A NEW SMOS L2 REPROCESSING REDUCES ERRORS ON SEA SURFACE SALINITY TIME SERIES
Xavier Perrot, Jacqueline Boutin, LOCEAN-IPSL, France; Jean-Luc Vergely, Frederic Rouffi, ACRI-st, France; Adrien Martin, NOCS, United Kingdom; Sébastien Guimbard, OceanScope, France; Julia Koehler, University of Hamburg, Germany; Nicolas Reul, LOPS-IFREMER, France; Rafael Catany, ARGANS Ltd., United Kingdom; Paolo Cipollini, Roberto Sabia, European Space Agency (ESA), Netherlands

TH4.O-12.3 WIDE BANDWIDTH RADIOMETER SENSITIVITY FOR REMOTE SENSING OF OCEAN SALINITY
David Le Vine, Emmanuel Dinnat, NASA Goddard Space Flight Center, United States

TH4.O-12.4 SEAWATER DIELECTRIC CONSTANT AT L-BAND: HOW CONSISTENT ARE NEW PARAMETRISATIONS INFERRED FROM SMOS AND LABORATORY MEASUREMENTS?
Jacqueline Boutin, CNRS, France; Jean-Luc Vergely, ACRI-st, France; Xavier Perrot, CNRS, France; Yiwen Zhou, George Washington University, United States; Emmanuel Dinnat, NASA Goddard Space Flight Center / Chapman University, United States; Roberto Sabia, European Space Agency (ESA), Italy

TH4.O-12.5 NUMERICAL STUDY ON THE WIND DIRECTION ASYMMETRIES OF FULLY POLARIMETRIC OCEAN EMISSION AT L-BAND
Yanlei Du, Wentao Ma, Xiaofeng Yang, Aerospace Information Reasearch Institute, Chinese Academy of Sciences, China; Jian Yang, Tsinghua University, China

TH4.O-12.6 MONTHLY ACCURACY SIMULATION OF SALINITY MEASUREMENT FOR THE CHINESE OCEAN SALINITY SATELLITE
Yan Li, Xiaobin Yin, Shishuai Wang, Piesat Information Technology Co., Ltd., China; Wu Zhou, Mingsen Lin, National Satellite Ocean Application Service, China

Thursday, July 15 16:40 - 18:10 Oral Room 13
Session TH4.O-13 Oral

Small Satellite Missions

Session Co-Chairs: Steven C. Reising, Colorado State University; Khatereh Meshkini, Fondazione Bruno Kessler

TH4.O-13.1 DESIGN OF A LOW-COST SYNTHETIC APERTURE RADAR FOR CONTINUOUS SHIP MONITORING
Nertjana Ustalli, Michelangelo Villano, Gerhard Krieger, German Aerospace Center (DLR), Germany

TH4.O-13.2 RITA: A 1U MULTI-SENSOR PAYLOAD FOR THE GRSSSAT CONTRIBUTING SOIL MOISTURE, VEGETATION ANALYSIS AND RFI DETECTION
Adrian Perez-Portero, Pau Fabregat, Marc Badia, Marco Sobrino, Carlos Molina, Lara Fernandez, Laura Rayón, Albert Rodriguez, Joan Francesc Munoz-Martin, Amadeu Gonga, Juan Ramos-Castro, Universitat Politècnica de Catalunya, Spain; Abdul-Halim Jallad, Zulkifli Abdul Aziz, National Space Science and Technology Center, United Arab Emirates

TH4.O-13.3 CALIBRATION OF CHAFF: CUBESAT HYPERSPECTRAL APPLICATION FOR FARMING
Callum Middleton, University of Surrey, United Kingdom; Emma Woolliams, Chris Maclellan, National Physical Laboratory, United Kingdom; Craig Underwood, University of Surrey, United Kingdom; Nigel Fox, National Physical Laboratory, United Kingdom

TH4.O-13.4 IN-ORBIT VALIDATION OF THE FMPL-2 DUAL MICROWAVE PAYLOAD ONBOARD THE FSSCAT MISSION
Joan Francesc Munoz-Martin, Lara Fernandez, Adrian Perez, Hyuk Park, Joan Adrià Ruiz-de-Azúa, Adriano Camps, Universitat Politècnica de Catalunya, Spain

TH4.O-13.5 A CUBESAT-READY PHASE SYNCHRONIZATION DIGITAL PAYLOAD FOR COHERENT DISTRIBUTED REMOTE SENSING MISSIONS
Jorge Querol, Juan Carlos Merlano-Duncan, Liz Martinez-Marrero, Jevgenij Krivochiza, Sumit Kumar, Nicola Maturo, University of Luxembourg, Luxembourg; Adriano Camps, Universitat Politècnica de Catalunya, Spain; Symeon Chatzinotas, Björn Ottersten, University of Luxembourg, Luxembourg

TH4.O-13.6 CROSS VALIDATION OF TEMPEST-D AND RAINCUBE OBSERVATIONS
Chandrasekar V, Chandrasekar Radhakrishnan, Steven C. Reising, Wesley Berg, Colorado State University, United States; Shannon T. Brown, Simone Tanelli, Ousmane O. Sy, Gian Franco Sacco, NASA Jet Propulsion Laboratory, California Institute of Technology, United States

Thursday, July 15 16:40 - 18:10 Oral Room 14
Session TH4.O-14 Oral

SAR Instrument Performance Assessment and Calibration

Session Co-Chairs: Delwyn Moller, University of Auckland; José Marquez Martinez, Radarmetric; Eduard Khachatrian, UiT Norges arktiske universitet

TH4.O-14.1 SYSTEM PERFORMANCE AND FLIGHT MODEL EVALUATION OF PALSAR-3 ONBOARD ALOS-4
Masanobu Shibata, Tasuku Kuriyama, Takehiro Hoshino, Shohei Nakamura, Mitsubishi Electric Co, Japan; Yukihiro Kankaku, Takeshi Motohka, Shinichi Suzuki, Japan Aerospace Exploration Agency (JAXA), Japan

TH4.O-14.2 PERFORMANCE ASSESSMENT OF THE FSRETC ALGORITHM FOR THE ESTIMATION OF THE FREQUENCY SWEEP RATE IN AIRBORNE FMCW SAR SYSTEMS
Paolo Berardino, Carmen Esposito, Antonio Natale, IREA-CNR, Italy; Stefano Perna, Università degli Studi di Napoli Parthenope and IREA-CNR, Italy

TH4.O-14.3 AN EFFICIENT TRANSMIT WAVEFORMS DESIGN UNDER CONSTANT MODULUS CONSTRAINT
Chunchun Zheng, University of Electronic Science and Technology of China, China; Pei Li, Xingyi Su, Shanghai Aerospace Electronic Technology Institute, China; Qin He, Yangjingzhi Zhuang, Zishu He, University of Electronic Science and Technology of China, China

TH4.O-14.4 ROBUST RATIONAL POLYNOMIAL CAMERA MODELLING FOR SAR AND PUSHBROOM IMAGING
Roland Akiki, Université Paris-Saclay & Kayrros, France; Roger Marí, Université Paris-Saclay, France; Carlo de Franchis, Université Paris-Saclay & Kayrros, France; Jean-Michel Morel, Gabriele Facciolo, Université Paris-Saclay, France

TH4.O-14.5 ADAPTIVE SINGLE-CHANNEL DIRECT SIGNAL SUPPRESSION FOR AMBIENT NOISE PASSIVE RADAR SOUNDING
Sean Peters, Dustin Schroeder, Stanford University, United States; Andrew Romero-Wolf, NASA Jet Propulsion Laboratory, California Institute of Technology, United States

Thursday, July 15 16:40 - 18:10 Oral Room 15
Session TH4.O-15 Oral

Hyperspectral Sensors Calibration and Validation

Session Co-Chairs: FLAVIO ITURBIDE-SANCHEZ, National Oceanic and Atmospheric Administration; Saeed Khabbazan, Technische Universiteit Delft; Danilo Orlando

TH4.O-15.1 NEW PROCESSOR AND REFERENCE DATASET FOR HYPERSPECTRAL CHRIS-PROBA IMAGES OVER COASTAL AND INLAND WATERS
Héloïse Lavigne, Quinten Vanhellemont, Kevin Ruddick, Royal Belgium Institute of Natural Sciences, Belgium; Ana Inés Dogliotti, Instituto de Astronomía y Física del Espacio (IAFE) CONICET/UBA, Argentina

TH4.O-15.2 AUTOMATED GENERATION OF HYPERSPECTRAL FIDUCIAL REFERENCE MEASUREMENTS OF WATER AND LAND SURFACE REFLECTANCE FOR THE HYPERNETS NETWORKS
Clémence Goyens, Royal Belgium Institute of Natural Sciences, Belgium; Pieter De Vis, Samuel Hunt, National Physical Laboratory, United Kingdom

TH4.O-15.3 RECENT IMPROVEMENTS TO NOAA-20 OZONE MAPPER PROFILER SUITE NADIR PROFILER SENSOR DATA RECORDS
Chunhui Pan, University of Maryland College Park, United States; Banghua Yan, Lawrence Flynn, Trevor Beck, NOAA/STAR, United States; Junye Chen, Jingfeng Huang, ERT, United States

TH4.O-15.4 TOWARD HIGH-QUALITY AND LONG-TERM STABILITY S-NPP AND NOAA-20 CROSS-TRACK INFRARED SOUNDER SENSOR DATA RECORD PRODUCTS
Flavio Iturbide-Sanchez, National Oceanic and Atmospheric Administration (NOAA), United States; Zhipeng Wang, University of Maryland College Park, United States; Kun Zhang, Denis Tremblay, Erin Lynch, Global Science & Technology, Inc., United States; Peter Beierle, University of Maryland College Park, United States; Yong Chen, National Oceanic and Atmospheric Administration (NOAA), United States; David Tobin, University of Wisconsin-Madison, United States; Larrabee Strow, University of Maryland Baltimore County, United States; Joe Predina, Logistikos Engineering, United States; David Johnson, National Aeronautics and Space Administration (NASA), United States; Ninghai Sun, Global Science & Technology, Inc., United States

TH4.O-15.5 PRINCIPAL COMPONENT COMPRESSION OF INTERFEROGRAMS FOR INTERFEROMETER-BASED INFRARED SOUNDERS
Zhipeng Wang, University of Maryland, United States; Flavio Iturbide-Sanchez, National Oceanic and Atmospheric Administration (NOAA), United States; Erin Lynch, Global Science & Technology, Inc., United States; Yong Chen, Changyong Cao, Satya Kalluri, National Oceanic and Atmospheric Administration (NOAA), United States

TH4.O-15.6 INFORMATION CONTENT ANALYSIS ON THE SPECTRAL RANGE 350 - 2500NM USING SPECTRAL CONVOLUTION AND PCA
Mike Werfeli, Helena Kuehnle, Carmen Meiller, Andreas Hueni, Remote Sensing Laboratories, University of Zurich, Switzerland

Thursday, July 15 16:40 - 18:10 Oral Room 16
Session TH4.O-16 Oral

UAV and Airborne Platforms

Session Co-Chairs: Dainius Masiliunas, Wageningen University & Research; Juan Carrillo, Global Spatial Technnology Solutions; Farid Melgani, University of Trento

TH4.O-16.1 EELGRASS MAPPING WITH SENTINEL-2 AND UAV MULTISPECTRAL IMAGERY IN ATLANTIC CANADA
Eleanor Gallant, Armand LaRocque, Brigitte Leblon, University of New Brunswick, Canada; Angela Douglas, Southern Gulf of St. Lawrence Coalition on Sustainability, Canada

TH4.O-16.2 SENSOR-SPECIFIC ADVERSARIAL NETWORK FOR TRANSFERABLE LAND-COVER CLASSIFICATION
Junjue Wang, Yanfei Zhong, Zhuo Zheng, Ailong Ma, Wuhan University, China

TH4.O-16.3 UAV PATH PLANNING FOR OPTIMAL SOIL MOISTURE MAPPING
Ruzbeh Akbar, Massachusetts Institute of Technology, United States; Agnelo Silva, METER Group, United States; Sam Prager, University of Southern California, United States; Dara Entekhabi, Massachusetts Institute of Technology, United States; Mahta Moghaddam, University of Southern California, United States

TH4.O-16.4 UAV MULTISPECTRAL OPTICAL CONTRIBUTION TO COASTAL 3D MODELLING
Dorothée James, Antoine Collin, Antoine Mury, Mathilde Letard, Benoit Guillot, EPHE, PSL Université Paris, CNRS UMR 6554 LETG, France

TH4.O-16.5 THE TOMOSENSE EXPERIMENT: MONO- AND BISTATIC SAR TOMOGRAPHY OF FORESTED AREAS AT P-, L-, AND C-BAND
Stefano Tebaldini, Mauro Mariotti d'Alessandro, Politecnico di Milano, Italy; Lars M.H. Ulander, Chalmers University of Technology, Sweden; Anders Gustavsson, Swedish Defence Research Agency (FOI), Sweden; Alex Coccia, Karlus Macedo, MetaSensing, Netherlands; Mathias Disney, University College London, United Kingdom; Hans-Joachim Spors, Nico Schumacher, Landesbetrieb Wald und Holz Nordrhein-Westfalen, Germany; Jan Hanuš, Jan Novotný, CzechGlobe, Czech Republic; Dirk Dirk Schuettemeyer, Klaus Scipal, European Space Agency (ESA), Netherlands

TH4.O-16.6 RECENT ADVANCES IN ARTIFICIAL INTELLIGENCE AND COMPUTER VISION FOR UNMANNED AERIAL VEHICLES
Juan Carrillo, Katherine Borda, Global Spatial Technnology Solutions, Canada

Thursday, July 15 16:40 - 18:10 Oral Room 17
Session TH4.O-17 Oral-Invited

International Spaceborne Imaging Spectroscopy Missions: Calibration and Validation Activities

Session Co-Chairs: Cindy Ong, CSIRO; Hirokazu Yamamoto, National Institute of Advanced Industrial Science and Technology; iain Rolland

TH4.O-17.1 INITIAL ONBOARD CALIBRATION RESULTS OF THE HISUI HYPERSPECTRAL SENSOR
Minoru Urai, Satoshi Tsuchida, Satoru Yamamoto, National Institute of Advanced Industrial Science and Technology, Japan; Tetsushi Tachikawa, Japan Space Systems, Japan; Akira Iwasaki, University of Tokyo, Japan; Juntaro Ishii, National Institute of Advanced Industrial Science and Technology, Japan

TH4.O-17.3 VICARIOUS CALIBRATION OF THE DESIS IMAGING SPECTROMETER
Emiliano Carmona, Kevin Alonso, Martin Bachmann, German Aerospace Center (DLR), Germany; Kara Burch, Innovative Imaging and Research, Corp. (I2R), United States; Daniele Cerra, Raquel de los Reyes Lopez, Uta Heiden, Uwe Knodt, David Krutz, David Marshall, Rupert Mueller, German Aerospace Center (DLR), Germany; Mary Pagnutti, Innovative Imaging and Research, Corp. (I2R), United States; Peter Reinartz, German Aerospace Center (DLR), Germany; Robert Ryan, Innovative Imaging and Research, Corp. (I2R), United States

TH4.O-17.4 THE FLARE: NETWORK: AUTONOMOUS, ON-DEMAND SPATIAL AND RADIOMETRIC CALIBRATION AND VALIDATION FOR IMAGING SPECTROSCOPY
Brandon Russell, Jeff Holt, Chris Durell, Will Arnold, Labsphere, Inc., United States; David Conran, Rochester Institute of Technology, United States; Stephen Schiller, Raytheon Space/ Airborne Systems, United States

TH4.O-17.5 THE POTENTIAL CALIBRATION AND VALIDATION REQUIREMENTS FOR IMAGING SPECTROSCOPY FOR IRON OXIDE DUST MONITORING
Cindy Ong, Commonwealth Scientific and Industrial Research Organisation (CSIRO), Australia

Thursday, July 15 16:40 - 18:10 Oral Room 18
Session TH4.O-18 Oral

Hazards on Water

Session Co-Chairs: Dominik Günzel, German Aerospace Center (DLR); Apostolos Papakonstantinou, University of the Aegean; Jie Zhao, Luxembourg Institute of Science and Technology

TH4.O-18.1 SAR SATELLITE ON-BOARD SHIP, WIND, AND SEA STATE DETECTION
Stefan Wiehle, Dominik Günzel, Björn Tings, German Aerospace Center (DLR), Germany

TH4.O-18.2 INTEGRATED MONITORING SYSTEM FOR BEACH LITTER PREPAREDNESS AND RESPONSE
Konstantinos Topouzelis, Apostolos Papakonstantinou, Marios Batsaris, Spyros Spondylidis, University of the Aegean, Greece

TH4.O-18.3 VISUAL PREDICTION OF TROPICAL CYCLONES WITH DEEP CONVOLUTIONAL GENERATIVE ADVERSARIAL NETWORKS
Pengfei Xie, Fan Meng, China University of Petroleum (East China), China; Bowen Li, South China University of Technology, China; Ying Li, Zhiyong Yu, Handan Sun, Tao Song, China University of Petroleum (East China), China; Danya Xu, Southern Marine Science and Engineering Guangdong Laboratory (Zhuhai), China

TH4.O-18.4 FLOOD INDEX ESTIMATION USING L-BAND SAR DATA FOR ASSAM FLOOD PRONE REGIONS
Samvedya Surampudi, Vijay Kumar, Vellore Institute of Technology, India; Kiran Yarrakula, Ghani Khan Choudhury Institute of Engineering & Technology, India

TH4.O-18.5 AUTOMATIC COLLECTION OF TRAINING SAMPLES FOR FLOODED AREAS
Luis Moya, Faculty of Civil Engineering, National University of Engineering, Peru; Masakazu Hashimoto, Erick Mas, Shunichi Koshimura, Tohoku University, Japan

TH4.O-18.6 ASSESSMENT AND MONITORING OF HIGH SEA STATE GENERATED BY TROPICAL CYCLONES
Maria Yurovskaya, Marine Hydrophysical Institute, Russia; Vladimir Kudryavtsev, Russian State Hydrometeorological University, Russia; Bertrand Chapron, IFREMER, France

Friday, July 16 10:30 - 12:00 Oral Room 1
Session FR1.O-1 Oral

Feature Learning for Remote Sensing and Earth Observation

Session Co-Chairs: Xiao Xiang Zhu, Technical University of Munich & German Aerospace Center; Sylvain Lobry, Université de Paris; Yogender , University of Twente

FR1.O-1.1 UNSUPERVISED LEARNING OF LOW DIMENSIONAL SATELLITE IMAGE REPRESENTATIONS VIA VARIATIONAL AUTOENCODERS
Silvia Valero, Ferran Agullo, Jordi Inglada, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France

FR1.O-1.2 A DISENTANGLED VARIATIONAL AUTOENCODER FOR PREDICTION OF ABOVE GROUND BIOMASS FROM HYPERSPECTRAL DATA
Parth Naik, University of Trento, Italy; Michele Dalponte, Fondazione Edmund Mach, Italy; Lorenzo Bruzzone, University of Trento, Italy

FR1.O-1.3 DESPECKLING SENTINEL-1 GRD IMAGES BY DEEP-LEARNING AND APPLICATION TO NARROW RIVER SEGMENTATION
Gasnier Nicolas, Dalsasso Emanuele, Télécom Paris, France; Loïc Denis, Laboratoire Hubert Curien, France; Florence Tupin, Télécom Paris, France

FR1.O-1.4 SELF-PACED CURRICULUM LEARNING FOR VISUAL QUESTION ANSWERING ON REMOTE SENSING DATA
Zhenghang Yuan, Lichao Mou, Xiao Xiang Zhu, Technical University of Munich & German Aerospace Center, Germany

FR1.O-1.5 SUBSPACE-BASED FEATURE FUSION FROM HYPERSPECTRAL AND MULTISPECTRAL IMAGES FOR LAND COVER CLASSIFICATION
Juan Ramirez, Universidad Rey Juan Carlos, Spain; Héctor Vargas, Universidad Manuela Beltrán, Colombia; José Ignacio Martínez, Universidad Rey Juan Carlos, Spain; Henry Arguello, Universidad Industrial de Santander, Colombia

FR1.O-1.6 QUANTUM IMAGING FOR REMOTE SENSING AND EARTH OBSERVATION
Francesco V. Pepe, Università degli Studi di Bari Aldo Moro, Italy; Cristoforo Abbattista, Leonardo Amoruso, Planetek Italia srl, Italy; Milena D'Angelo, Università degli Studi di Bari Aldo Moro, Italy

Friday, July 16 10:30 - 12:00 Oral Room 2
Session FR1.O-2 Oral

SAR Image Interpretation

Session Co-Chairs: Gabriele Moser, University of Genoa; Adrien Grivey, École Nationale Supérieure de Techniques Avancées Bretagne; Ana Raquel Carmo, European Space Agency

FR1.O-2.1 DEEP LEARNING APPROACH FOR TROPICAL CYCLONES CLASSIFICATION BASED ON C-BAND SENTINEL-1 SAR IMAGES
Ana Raquel Carmo, Nicolas Longépé, European Space Agency (ESA), Italy; Alexis Mouche, Ifremer, France; Dario Amorosi, Noelle Cremer, European Space Agency (ESA), Italy

FR1.O-2.2 PRIVILEGED KNOWLEDGE DISTILLATION FOR SAR BUILDING EXTRACTION
Eungbean Lee, Somi Jeong, Kwanghoon Sohn, Yonsei University, Korea (South)

FR1.O-2.3 ACCOUNTING FOR VEGETATION DYNAMICS IN SURFACE SOIL MOISTURE RETRIEVALS FROM SENTINEL-1 BACKSCATTER TIME SERIES
Samuel Massart, Vreugdenhil Mariette, Claudio Navacchi, Tobias Stachl, Bernhard Bauer-Marschallinger, Wagner Wolfgang, TU Wien, Austria

FR1.O-2.4 EXPERIMENTAL COMPARISON OF REGISTRATION METHODS FOR MULTISENSOR SAR-OPTICAL DATA
Béatrice Pinel-Puysségur, CEA, France; Luca Maggiolo, University of Genoa, Italy; Michel Roux, Nicolas Gasnier, Télécom Paris, France; David Solarna, Gabriele Moser, University of Genoa, Italy; Sebastiano Serpico, Università degli Studi di Genova, Italy; Florence Tupin, Télécom Paris, France

FR1.O-2.5 A SAR-TO-OPTICAL IMAGE TRANSLATION METHOD BASED ON PIX2PIX
Zongcheng Zuo, Yuanxiang Li, Shanghai Jiao Tong University, China

FR1.O-2.6 ACCELERATED-YOLOV3 FOR SHIP DETECTION FROM SAR IMAGES
Mohammad Alkhaleefah, Shang-Chih Ma, Tan-Hsu Tan, National Taipei University of Technology, Taiwan; Lena Chang, National Taiwan Ocean University, Taiwan; Kuan Wang, National Taipei University of Technology, Taiwan; Chin-Pin Ko, National Taipei University of Technology/Sinotech Engineering Consultants, Taiwan; Chiung-Shen Ku, National Taipei University of Technology, Taiwan; Chiang-An Hsu, Sinotech Engineering Consultants, Taiwan; Yang-Lang Chang, National Taipei University of Technology, Taiwan

Friday, July 16 10:30 - 12:00 Oral Room 3
Session FR1.O-3 Oral

Novel Image Segmentation for Active and Passive Sensors

Session Co-Chairs: Lennert Anston, Universiteit Gent; Konrad Heidler, German Aerospace Center (DLR); Sebastien Lefèvre, Université Bretagne du Sud

FR1.O-3.1 SEEING THE BIGGER PICTURE: ENABLING LARGE CONTEXT WINDOWS IN NEURAL NETWORKS BY COMBINING MULTIPLE ZOOM LEVELS
Konrad Heidler, Lichao Mou, Xiao Xiang Zhu, German Aerospace Center (DLR), Germany

FR1.O-3.2 HED-UNET: A MULTI-SCALE FRAMEWORK FOR SIMULTANEOUS SEGMENTATION AND EDGE DETECTION
Konrad Heidler, Lichao Mou, Celia Baumhoer, Andreas Dietz, Xiao Xiang Zhu, German Aerospace Center (DLR), Germany

FR1.O-3.3 EVOLUTIONS OF SENTINEL-2 LEVEL-2A CLOUD MASKING ALGORITHM: SEN2COR PROTOTYPE FIRST RESULTS
Jérôme Louis, Telespazio France, France; Bringfried Pflug, German Aerospace Center (DLR), Germany; Vincent Debaecker, Telespazio France, France; Uwe Mueller-Wilm, Telespazio Deutschland, Germany; Rosario Quirino Iannone, RHEA SpA, Italy; Valentina Boccia, Ferran Gascon, European Space Agency (ESA), Italy

FR1.O-3.4 POLSAR IMAGE CLASSIFICATION WITH COMPLEX-VALUED RESIDUAL ATTENTION ENHANCED U-NET
Shijie Ren, Feng Zhou, Xidian University, China

FR1.O-3.5 LAND COVER SEMANTIC SEGMENTATION OF HIGH-RESOLUTION GAOFEN-3 SAR IMAGE
Xianzheng Shi, Feng Xu, Fudan University, China

Friday, July 16 10:30 - 12:00 Oral Room 4
Session FR1.O-4 Oral

Interpretation and Application of Polarimetric SAR Imagery

Session Co-Chairs: Paco López-Dekker, Delft University of Technology; Giuseppe Parrella, German Aerospace Center (DLR); Zhilong Yang, Fudan University

FR1.O-4.1 A TARGET-TO-MECHANISM MAPPING NETWORK FOR POLSAR DATA INTERPRETATION
Yan-Cui Duan, Guo-Qing Wu, Shun-Ping Xiao, Si-Wei Chen, National University of Defence Technology, China

FR1.O-4.2 MAN-MADE TARGETS CHARACTERIZATION WITH POLARIMETRIC CORRELATION PATTERN INTERPRETATION TOOL
Haoliang Li, Mingdian Li, Siwei Chen, State Key Laboratory of Complex Electromagnetic Environment Effects on Electronics and Information System (CEMEE), National University of Defense Technology, China

FR1.O-4.3 COMBINATION OF WISHART TEST STATISTICS AND LOEWNER ORDER FOR CHANGE DETECTION IN QUAD/FULL AND DUAL POLARIZATION SAR DATA
Allan A. Nielsen, Henning Skriver, Knut Conradsen, Technical University of Denmark, Denmark

FR1.O-4.4 COMPLEMENTARITY AND POTENTIAL OF POLSAR AND TOMOSAR FOR GLACIER SUBSURFACE CHARACTERIZATION
Giuseppe Parrella, Georg Fischer, Matteo Pardini, Konstantinos P. Papathanassiou, German Aerospace Center (DLR), Germany; Irena Hajnsek, German Aerospace Center (DLR) / ETH Zurich, Germany

FR1.O-4.5 FAST GENERAL POLARIMETRIC MODEL-BASED DECOMPOSITION
Guoqing Wu, Siwei Chen, Yongzhen Li, State Key Laboratory of Complex Electromagnetic Environment Effects on Electronics and Information System (CEMEE), National University of Defense Technology, China

FR1.O-4.6 LINEAR PRINCIPAL POLARIZATIONS IN BISTATIC SAR MISSION COMPANIONS
Lorenzo Iannini, Marcel Kleinherenbrink, Andreas Theodosiou, Paco López-Dekker, Delft University of Technology, Netherlands

Friday, July 16 10:30 - 12:00 Oral Room 5
Session FR1.O-5 Oral

SAR Tomography

Session Co-Chairs: Diego Reale, Institute for Electromagnetic Sensing of the Environment - National Research Council (IREA-CNR); Mengdao Xing, Xidian University; Christel Chappuis, École polytechnique fédérale de Lausanne (EPFL)

FR1.O-5.1 PARTIALLY COHERENT SCATTERERS IN SAR TOMOGRAPHY: AN APPLICATION ON COSMO-SKYMED DATA
Gianfranco Fornaro, Antonio Pauciullo, Diego Reale, Simona Verde, Institute for Electromagnetic Sensing of the Environment - National Research Council (IREA-CNR), Italy

FR1.O-5.2 PERFORMANCE IMPROVEMENT OF SAR TOMOGRAPHY IN URBAN SCENARIOS BASED ON LOCAL-PLANE GLRT
Wenkang Liu, Xidian University, China; Alessandra Budillon, Vito Pascazio, Gilda Schirinzi, Università di Napoli "Parthenope", Italy; Mengdao Xing, Xidian University, China

FR1.O-5.3 DEEP LEARNING BASED JOINT RECONSTRUCTION AND EXTRACTION OF URBAN STRUCTURES FROM TOMOGRAPHIC SAR DATA
Olivier D'Hondt, Olaf Hellwich, Technical University of Berlin, Germany

FR1.O-5.4 TOMOGRAPHIC CALIBRATION OF THE NEW ESA TOMOSENSE CAMPAIGN
Mauro Mariotti d'Alessandro, Yanghai Yu, Stefano Tebaldini, Politecnico di Milano, Italy; Mingsheng Liao, Wuhan University, China

FR1.O-5.5 STATISTICAL REGULARIZATION AS AN ALTERNATIVE TO MODEL ORDER SELECTION
Gustavo Daniel Martín-del-Campo-Becerra, German Aerospace Center (DLR), Germany; Sergio Alejandro Serafín-García, Center for Research and Advanced Studies (Cinvestav), National Polytechnic Institute (IPN), Mexico; Andreas Reigber, German Aerospace Center (DLR), Germany; Susana Ortega-Cisneros, Center for Research and Advanced Studies (Cinvestav), National Polytechnic Institute (IPN), Mexico

FR1.O-5.6 SAR TOMOGRAPHY BASED ON REWEIGHTED ATOMIC NORM MINIMIZATION
Ning Liu, Xinwu Li, Fangfang Li, Wen Hong, Aerospace Information Reasearch Institute, Chinese Academy of Sciences, China

Friday, July 16 10:30 - 12:00 Oral Room 6

Session FR1.O-6 Oral

Machine Learning and AI Methods for Soil Moisture Retrieval

Session Co-Chairs: Mehmet Kurum, Mississippi State University; Emanuele Santi, CNR-IFAC; Simon van Diepen, Technische Universiteit Delft

FR1.O-6.1 CYGNSS SOIL MOISTURE ESTIMATION USING MACHINE LEARNING REGRESSION
Yan Jia, Nanjing University of Posts and Telecommunications, China; Qingyun Yan, Shuanggen Jin, Nanjing University of Information Science and Technology, China; Patrizia Savi, Politecnico di Torino, Italy

FR1.O-6.2 NEURAL NETWORK INTEGRATION OF SMAP AND SENTINEL-1 FOR ESTIMATING SOIL MOISTURE AT HIGH SPATIAL RESOLUTION
Emanuele Santi, Simonetta Paloscia, Simone Pettinato, Giacomo Fontanelli, CNR-IFAC, Italy

FR1.O-6.3 AN EVALUATION OF SOIL MOISTURE RETRIEVAL USING MACHINE LEARNING METHODS: APPLICATION IN ARID REGIONS OF TUNISIA
Noureddine Jarray, Ali Ben Abbes, Imed Riadh Farah, RIADI Laboratory, National School of Computer Science, Tunisia

FR1.O-6.4 MACHINE LEARNING BASED SOIL MOISTURE RETRIEVAL ALGORITHM AND VALIDATION AT SELECTED AGRICULTURAL SITES OVER INDIA USING CYGNSS DATA
Shivani Tyagi, Dharmendra Kumar Pandey, Deepak Putrevu, Space Application Centre Ahmedabad, India; Prashant k. Srivastava, Banaras Hindu University, Varanasi, India; Arundhati Misra, Space Application Centre Ahmedabad, India

FR1.O-6.5 DEEP MULTI-MODAL SATELLITE AND IN-SITU OBSERVATION FUSION FOR SOIL MOISTURE RETRIEVAL
Grigorios Tsagkatakis, Foundation for Research and Technology - Hellas, Greece; Mahta Moghaddam, University of Southern California, United States; Panagiotis Tsakalides, Foundation for Research and Technology - Hellas, Greece

FR1.O-6.6 OBSERVING SOIL MOISTURE CHANGE USING C-BAND INTERFEROMETRY USING MACHINE LEARNING REGRESSION
Nuno Cirne Mira, CINAMIL - Academia Militar, Portugal; João Catalão, IDL, Faculdade de Ciências da Universidade de Lisboa, Portugal; Giovanni Nico, Consiglio Nazionale delle Ricerche, Istituto per le Applicazioni del Calcolo, Italy

Friday, July 16 10:30 - 12:00 Oral Room 7

Session FR1.O-7 Oral

Monitoring Water Contain, Irrigation and Evapotranspiration Using RS Data

Session Co-Chairs: Aurelie de Jong, École polytechnique fédérale de Lausanne (EPFL); Simon De Canniere, Université Catholique de Louvain

FR1.O-7.1 SPATIOTEMPORAL ASSESSMENT OF EVAPOTRANSPIRATION OF DESERT STEPPE IN NORTHERN CHINA: A CASE OF OTOG FRONT BANNER
Jiabin Wu, Institute of Water Resources for Pastoral Area, MWR, China; Lili Xu, Central China Normal University, China; Hexiang Zheng, Xuesong Cao, Haiyuan Lu, Institute of Water Resources for Pastoral Areas, MWR, China

FR1.O-7.2 THE ROLE OF AERODYNAMIC RESISTANCE IN THERMAL REMOTE SENSING-BASED EVAPOTRANSPIRATION MODELS
Ivonne Trebs, Kaniska Mallick, Luxembourg Institute of Science and Technology, Luxembourg; Nishan Bhattarai, University of Michigan, United States; Mauro Sulis, Luxembourg Institute of Science and Technology, Luxembourg; James Cleverly, University of Technology Sydney, Australia; William Woodgate, Commonwealth Scientific and Industrial Research Organisation (CSIRO) Land & Water, Australia; Richard Silberstein, Edith Cowan University, Australia; Nina Hinko-Najera, University of Melbourne, Australia; Jason Beringer, University of Western Australia, Australia; Zhongbo Su, University of Twente, Netherlands; Gilles Boulet, Centre d'Etudes Spatiales de la Biosphère (CESBIO), Université de Toulouse, CNRS, CNES, UPS, IRD, INRAE, France

FR1.O-7.3 DETECTING IRRIGATION EVENTS USING SENTINEL-1 DATA
Hassan Bazzi, Nicolas Baghdadi, Ibrahim Fayad, INRAE, France; Mehrez Zribi, Valerie Demarez, Yann Pageot, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Hatem Belhouchette, IAMM, France

FR1.O-7.4 INFLUENCE OF SURFACE WATER VARIATIONS ON VOD AND BIOMASS ESTIMATES FROM PASSIVE MICROWAVE SENSORS
Emma Bousquet, Arnaud Mialon, Nemesio Rodríguez-Fernández, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Catherine Prigent, Laboratoire d'Études du Rayonnement et de la Matière en Astrophysique et Atmosphères, France; Fabien H. Wagner, GeoProcessing Division, Foundation for Science, Technology and Space Applications, Brazil; Yann Kerr, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France

FR1.O-7.5 MONITORING ECO-HYDROLOGICAL SPRING ONSET OVER ALASKA AND NORTHERN CANADA WITH COMPLEMENTARY SATELLITE REMOTE SENSING DATA
Youngwook Kim, United Arab Emirates University, United Arab Emirates; John Kimball, University of Montana, United States; Nicholas Parazoo, Xiaolan Xu, Scott Dunbar, Andreas Colliander, NASA Jet Propulsion Laboratory, United States; Rolf Reichle, NASA Goddard Space Flight Center, United States

FR1.O-7.6 TRACKING WATER LIMITATION IN PHOTOSYNTHESIS WITH SUN-INDUCED CHLOROPHYLL FLUORESCENCE
Simon De Canniere, François Jonard, Université Catholique de Louvain, Belgium

Friday, July 16 10:30 - 12:00 Oral Room 8
Session FR1.O-8 Oral

Earth Observation Data Processing for Urban/Built Up Area Characterization

Session Co-Chairs: Nektarios Chrysoulakis, Foundation for Research and Technology Hellas; Ferdinando Nunziata, Università degli studi di Napoli Parthenope; Jordi Cortes, Universitat de València

FR1.O-8.1 GEOSPATIAL LANDSCAPE ANALYSIS OF AN URBAN AGGLOMERATION: A CASE STUDY OF NATIONAL CAPITAL REGION OF INDIA
Prathiba A. P., Kamal Jain, Indian Institute of Technology Roorkee, India

FR1.O-8.2 LARGE-SCALE URBAN ROAD VECTORIZATION MAPPING VIA A ROAD NODE PROPOSAL NETWORK FOR HIGH-RESOLUTION REMOTE SENSING IMAGERY
Dingyuan Chen, Yanfei Zhong, Ailong Ma, Wuhan University, China

FR1.O-8.3 TOWARDS A METHODOLOGY FOR MEAN BUILDING HEIGHT ESTIMATION USING TENSORFLOW WITH GOOGLE EARTH ENGINE
Maria Gkolemi, David Parastatidis, Zina Mitraka, Nektarios Chrysoulakis, Foundation for Research and Technology Hellas, Greece

FR1.O-8.4 EARTHQUAKE DAMAGE ASSESSMENT USING C-BAND POLSAR MEASUREMENTS AND GROUND SURVEYS
Emanuele Ferrentino, Ferdinando Nunziata, Università degli studi di Napoli Parthenope, Italy; Christian Bignami, Laura Graziani, Alessandra Maramai, Istituto Nazionale di Geofisica e Vulcanologia, Italy; Maurizio Migliaccio, Università degli studi di Napoli Parthenope, Italy

FR1.O-8.5 BUILDING FACADE COMPLETION USING SEMANTIC-SYNCHRONIZED GAN
Zhenhuang Cai, Yangbin Lin, Jimei University, China; Jialian Li, Xiamen University, China; Zongliang Zhang, Xingwang Huang, Jimei University, China

FR1.O-8.6 POWER PLANT CLASSIFICATION FROM REMOTE IMAGING WITH DEEP LEARNING
Michael Mommert, Linus Scheibenreif, Joelle Hanna, Damian Borth, University of St. Gallen, Switzerland

Friday, July 16 10:30 - 12:00 Oral Room 9
Session FR1.O-9 Oral

Multi-source Data and Fusion Approaches for Change Detection and Multi-temporal Analysis

Session Co-Chairs: Anatol Garioud, IGN & CESBIO; Raj Kishore Parida, APJ Abdul Kalam Technical University; Bertrand Le Saux, ESA - European Space Agency

FR1.O-9.1 SELF-SUPERVISED CHANGE DETECTION BY FUSING SAR AND OPTICAL MULTI-TEMPORAL IMAGES
Yuxing Chen, Lorenzo Bruzzone, University of Trento, Italy

FR1.O-9.2 ASSESSING THE INTEREST OF A MULTI-MODAL GAP-FILLING STRATEGY FOR MONITORING CHANGES IN GRASSLAND PARCELS
Anatol Garioud, IGN & CESBIO, France; Silvia Valero, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Clément Mallet, Institut national de l'information géographique et forestière, France

FR1.O-9.3 CHARACTERISING FOREST DEGRADATION FACTORS WITH SENTINEL-1: A CASE STUDY OF CHARCOAL PRODUCTION IN MOZAMBIQUE
Tristan Williams, Anca Anghelea, European Space Agency (ESA), Italy

FR1.O-9.4 MITIGATING SPATIAL AND SPECTRAL DIFFERENCES FOR CHANGE DETECTION USING SUPER-RESOLUTION AND UNSUPERVISED LEARNING
Jonathan Prexl, Sudipan Saha, Technical University of Munich, Germany; Xiao Xiang Zhu, German Aerospace Center (DLR), Germany

FR1.O-9.5 STYLE TRANSFORMATION-BASED CHANGE DETECTION USING ADVERSARIAL LEARNING WITH OBJECT BOUNDARY CONSTRAINTS
Xiaokang Zhang, Weikang Yu, Man-On Pun, Chinese University of Hong Kong, Shenzhen, China; Ming Liu, Shanghai CAS-NOVA Satellite Technology Company Limited, China

FR1.O-9.6 A GLOBAL REGISTRATION METHOD FOR SATELLITE IMAGE SERIES
Charles Hessel, Carlo de Franchis, Université Paris-Saclay & Kayrros, France; Gabriele Facciolo, Jean-Michel Morel, Université Paris-Saclay, France

Friday, July 16 10:30 - 12:00 Oral Room 10
Session FR1.O-10 Oral-Invited

CEOS Virtual Constellation of Ocean Surface Vector Wind: Consolidation of Standards and Metrics for Optimized Scientific and Operational Applications

Session Co-Chairs: Xiaolong Dong, National Space Science Center, Chinese Academy of Science (NSSC-CAS); Ad Stoffelen, Royal Netherlands Meteorological Institute (KNMI); Jing Ling, University of Hong Kong

FR1.O-10.1 TOWARDS CONSISTENT WIND OBSERVATIONS FROM C- AND KU-BAND SCATTEROMETERS
Wenming Lin, Nanjing University of Information Science and Technology, China; Marcos Portabella, Institute of Marine Sciences (ICM-CSIC), Spain; Sirui Lv, Nanjing University of Information Science and Technology, China; Ad Stoffelen, Royal Netherlands Meteorological Institute (KNMI), Netherlands; Zhixiong Wang, Nanjing University of Information Science and Technology, China

FR1.O-10.3 CONE METRICS FOR C AND KU-BAND SCATTEROMETERS
Ad Stoffelen, Maria Belmonte Rivas, Jeroen Verspeek, Royal Netherlands Meteorological Institute (KNMI), Netherlands

FR1.O-10.4 CONSOLIDATION OF QUALITY CONTROL PROCEDURES FOR SCATTEROMETERS
Marcos Portabella, Institute of Marine Sciences (ICM-CSIC), Spain; Wenming Lin, Nanjing University of Information Science and Technology, China; Ad Stoffelen, Royal Netherlands Meteorological Institute (KNMI), Netherlands; Xingou Xu, Xiaolong Dong, National Space Science Center, Chinese Academy of Science (NSSC-CAS), China

FR1.O-10.5 KU-BAND POLARIZATION DIFFERENCE MODEL FOR THE SCATTEROMETER WIND INVERSION
Alexey Mironov, eOdyn, France; Yves Quilfen, Bertrand Chapron, IFREMER, France; Vladimir Kudryavtsev, Russian State Hydrometeorological University, Russia

Friday, July 16 10:30 - 12:00 Oral Room 11
Session FR1.O-11 Oral

Multiplatform Target Detection

Session Co-Chairs: Wei Li, Beijing Institute of Technology; Yiping Chen, Xiamen University; Suvrat Kaushik, Université Savoie Mont Blanc

FR1.O-11.1 REDUCED-DIMENSION SPACE-TIME ADAPTIVE PROCESSING IN THE PRESENCE OF MULTIPLE TARGETS
Lei Xie, University of Electronic Science and Technology of China, China; Pei Li, Xingyi Su, Shanghai Aerospace Electronic Technology Institute, China; Jun Tong, University of Wollongong, China; Zishu He, Wei Zhang, University of Electronic Science and Technology of China, China

FR1.O-11.2 INFRARED SMALL-TARGET DETECTION BASED ON THREE-ORDER TENSOR CREATION AND TUCKER DECOMPOSITION
Mingjing Zhao, Wei Li, Beijing Institute of Technology, China; Lu Li, Beijing Information Science and Technology University, China; Ran Tao, Beijing Institute of Technology, China

FR1.O-11.3 SUB-PULSE MATCHING CORRECTION FOR RADAR TARGET DETECTION
Mengmeng Shen, Feng He, Zhen Dong, Zhaoke Wang, National University of Defence Technology, China; Manqing Wu, China Electronics Technology Group Corporation, China

FR1.O-11.4 A MACHINE LEARNING APPROACH TO CLUTTER SUPPRESSION FOR MARINE SURVEILLANCE RADAR
Zebiao Wu, Jifang Pei, Weibo Huo, Yulin Huang, Yin Zhang, Haiguang Yang, University of Electronic Science and Technology of China, China

FR1.O-11.5 MOVING TARGET DETECTION IN MULTI UAV PLATFORMS
Qiwei Yang, Di Wang, Hao Zhang, Zhe Liu, University of Electronic Science and Technology of China, China

FR1.O-11.6 MULTIPLE-OVERLAID-TARGETS SEPARATION AND HIGH PRECISION VELOCITY ESTIMATION BASED ON BAYESIAN CRITERION IN VSAR SYSTEM
Yuanlin Hu, Xiaoling Zhang, Xu Zhan, University of Electronic Science and Technology of China, China

Friday, July 16 10:30 - 12:00 Oral Room 12
Session FR1.O-12 Oral

Remote Sensing of Aerosols and Atmospheric Correction I

Session Co-Chairs: Jun Wang, University of Iowa; Thiago Onofre, University of Florida

FR1.O-12.1 RETRIEVAL AND VALIDATION OF LONG-TERM AEROSOL OPTICAL DEPTH FROM AVHRR OVER CHINA MAINLAND
Chunlin Jin, Yong Xue, Xingxing Jiang, Rui Bai, Yuxin Sun, Shuhui Wu, China University of Mining and Technology, China

FR1.O-12.2 ALGORITHMS FOR AEROSOL RETRIEVAL FROM HEAVY BIOMASS BURNING WITH MUTUAL USE OF RADIANCE AND POLARIZATION OBSERVATIONS BY SGLI
Sonoyo Mukai, Kyoto College of Graduate Studies for Informatics, Japan; Itaru Sano, Makiko Nakata, Kindai University, Japan

FR1.O-12.3 A NEW AEROSOL RETRIEVAL ALGORITHM FOR LANDSAT 8 OLI IMAGES OVER URBAN AREAS
Yue Yang, Yunping Chen, Kangzhuo Yang, Yan Chen, University of Electronic Science and Technology of China, China; Yuan Sun, Chinese Academy of Sciences, China; Dan Yang, Sichuan University, China

FR1.O-12.4 ATMOSPHERIC CORRECTION OF GF-6/WFV SENSOR SUPPORTED BY MODIS
Yu Sun, Lin Sun, Chen Jia, Shandong University of Science and Technology, China

FR1.O-12.5 EXPLORING THE LINK BETWEEN GROUND BASED PM2.5 AND REMOTEDLY SENSED AEROSOLS AND GASES DATA TO MAP FINE PARTICULATE MATTERS IN MALAYSIA USING MACHINE LEARNING ALGORITHMS
Kasturi Devi Kanniah, Nurul Amalin Fatihah Kamarul Zaman, Universiti Teknologi Malaysia, Malaysia

Friday, July 16 10:30 - 12:00 Oral Room 13
Session FR1.O-13 Oral-Invited

Processes in Changing Marine Environments Monitored by SAR II: Marine Surface Films

Session Co-Chairs: Martin Gade, Universität Hamburg; Xiao-Ming Li, Aerospace Information Research Institute, Chinese Academy of Sciences; Songyao Huai, Universiteit Gent

FR1.O-13.1 SAR REMOTE SENSING OF MARINE SURFACE FILMS
Martin Gade, Universität Hamburg, Germany

FR1.O-13.3 CHARACTERIZATION OF OFFSHORE OIL SEEPS USING RADARSAT-2 POLARIMETRIC FEATURES
Gordon Staples, MDA, Canada

FR1.O-13.4 STABILITY ANALYSIS OF FREELY FLOATING OIL SLICK IN MULTIFREQUENCY AIRBORNE SAR IMAGERY ACQUIRED IN S- AND L-BAND
Cornelius Quigley, Camilla Brekke, Torbjørn Eltoft, UiT The Arctic University of Norway, Norway

FR1.O-13.5 HOW ENVIRONMENTAL CONDITIONS INFLUENCE THE SAR DETECTABILITY OF A HEAVY FUEL LEAKAGE FROM A SHIP WRECK
Dana King, Martin Gade, Universität Hamburg, Germany

FR1.O-13.6 DETECTION OF BIOGENIC OIL FILM IN AQUACULTURE SITES USING SAR DATA
Andromachi Chatziantoniou, Konstantinos Topouzelis, University of the Aegean, Greece

Friday, July 16 10:30 - 12:00 Oral Room 14
Session FR1.O-14 Oral-Invited

Radio Frequency Interference (RFI) in Active Microwave Sensors

Session Co-Chairs: Tobias Bollian, German Aerospace Center (DLR); Paolo de Matthaeis, NASA Goddard Space Flight Center; Tianchen Zheng, Universiteit Gent

FR1.O-14.1 A GLOBAL C-BAND RFI MONITORING SYSTEM BASED ON SENTINEL-1 DATA
Niccolò Franceschi, Andrea Recchia, Riccardo Piantanida, Davide Giudici, Aresys s.r.l., Italy; Clément Albinet, ESA - European Space Research Institute, Italy; Nuno Miranda, European Space Agency (ESA), Italy

FR1.O-14.3 RADIO FREQUENCY INTERFERENCE DETECTION FOR SAR DATA USING SPECTROGRAM-BASED SEMANTIC NETWORK
Mingliang Tao, Shuting Tang, Jieshuang Li, Northwestern Polytechnical University, China; Xiang Zhang, Shanghai Institute of Satellite Engineering, China; Yifei Fan, Jia Su, Northwestern Polytechnical University, China

FR1.O-14.4 MODELING AND ANALYSIS OF RADIO FREQUENCY INTERFERENCE IMPACTS FROM GEOSYNCHRONOUS SAR ON LOW EARTH ORBIT SAR
Yi Sui, Beijing Institute of Technology, Zimbabwe; Xichao Dong, Beijing Institute of Technology; The Key Laboratory of Electronic and Information Technology in Satellite Navigation; Beijing Institute of Technology Chongqing Innovation Center, China; Peng Yin, Defence Industry Secrecy Examination and Certification Center, China; Cheng Hu, Beijing Institute of Technology; The Key Laboratory of Electronic and Information Technology in Satellite Navigation; Beijing Institute of Technology Chongqing Innovation Center, China; Zhiyang Chen, Yuanhao Li, Beijing Institute of Technology, China

FR1.O-14.5 ON-BOARD RFI DETECTION FOR REFLECTOR-BASED MULTICHANNEL SAR SYSTEMS
Tobias Bollian, Marwan Younis, German Aerospace Center (DLR), Germany

Friday, July 16 10:30 - 12:00 Oral Room 15
Session FR1.O-15 Oral-Invited

Research on Active Remote Sensing Observations of Greenhouse Gases

Session Co-Chairs: Xin Ma, WUHAN UINVERSITY; Wei Gong, Wuhan University; Klara Dvorakova, Université catholique de Louvain

FR1.O-15.1 THE NASA GODDARD CO2 SOUNDER LIDAR: 2017 AIRBORNE CAMPAIGN AS A DEMONSTRATION TOWARD A FUTURE SPACE MISSION
Jianping Mao, University of Maryland, United States; James B. Abshire, University of Maryland and NASA Goddard Space Flight Center, United States; S. Randy Kawa, Haris Riris, Xiaoli Sun, Julie M. Nicely, Paul T. Kolbeck, NASA Goddard Space Flight Center, United States

FR1.O-15.3 OBSERVATION OF GREENHOUSE GASES BY GROUND-BASED FTIR AT HEFEI SITE AND COMPARISON WITH SATELLITE DATA
Cheng Liu, Department of Precision Machinery and Precision Instrumentation, University of Science and Technology of China, China; Wei Wang, Key Laboratory of Environmental Optics and Technology, Anhui Institute of Optics and Fine Mechanics, Chinese Academy of Sciences, China; Youwen Sun, Changgong Shan, Department of Precision Machinery and Precision Instrumentation, University of Science and Technology of China, China

FR1.O-15.4 A COMPARISON OF CO2 FROM AIRCRAFT WITH DATA FROM GOSAT, OCO-2, GEOS-CHEM, AND CT OVER QINHUANGDAO, CHINA
Qin Wang, Lingbing Bu, Farhan Mustafa, Collaborative Innovation Center on Forecast and Evaluation of Meteorological Disasters, Nanjing University of Information Science and Technology, China

FR1.O-15.5 REMOTE SENSING INVERSION OF PM10 BASED ON SPARK PLATFORM
Zhenyu Yu, Zhibao Wang, Northeast Petroleum University, China; Lu Bai, Ulster University, United Kingdom; Liangfu Chen, Jinhua Tao, University of Chinese Academy of Sciences, China

Friday, July 16 10:30 - 12:00 Oral Room 16
Session FR1.O-16 Oral-Invited

SAR Polarimetry: A Useful Tool for Urban Applications

Session Co-Chairs: Hossein Aghababaei, University of Twente; Giampaolo Ferraioli, Università degli Studi di Napoli Parthenope; Elise Dujardin, Université de Liège

FR1.O-16.1 A FRAMEWORK FOR STATISTICAL NONLOCAL MEANS NOISE REDUCTION IN POLSAR DATA
Luis Gomez, Universidad de Las Palmas de Gran Canaria, Spain; Jie Wu, Shaanxi Normal University, China; Alejandro C. Frery, Victoria University of Wellington, New Zealand

FR1.O-16.3 BUILT-UP AREA MAPPING USING FULL AND DUAL POLARIMETRIC SAR DATA
Subhadip Dey, Narayanarao Bhogapurapu, Avik Bhattacharya, Indian Institute of Technology Bombay, India; Alejandro C. Frery, Victoria University of Wellington, New Zealand; Paolo Gamba, University of Pavia, Italy

FR1.O-16.4 POLSAR TOMOGRAPHIC TECHNIQUES USING SURFACE SLOPE PARAMETERS IN URBAN AREAS
Alessandra Budillon, Gilda Schirinzi, University of Napoli Parthenope, Italy

FR1.O-16.5 POLARIMETRIC SAR IMAGES FOR CHARACTERIZATION OF URBAN TARGETS
Hossein Aghababaei, University of Twente, Netherlands; Giampaolo Ferraioli, Roghayeh Zamani, Università di Napoli Parthenope, Italy

FR1.O-16.6 URBAN AREA CHARACTERIZATION USING 2-D AND 3-D SPACEBORNE POLSAR DATA
Yue Huang, Laurent Ferro-Famil, University of Rennes 1, France; Lu Zhang, Key Laboratory of Digital Earth Science, Chinese Academy of Sciences, China; Xing Peng, University of Geosciences, China

Friday, July 16 10:30 - 12:00 Oral Room 17
Session FR1.O-17 Oral

Advanced GNSS Methods for Spatial and Temporal Predictions

Session Co-Chairs: Mostafa Kiani Shahvandi, ETH Zurich; Nikolaos Doulamis, National Technical University of Athens; Alex Levering, Wageningen University & Research

FR1.O-17.1 MODIFIED DEEP TRANSFORMERS FOR GNSS TIME SERIES PREDICTION
Mostafa Kiani Shahvandi, Benedikt Soja, ETH Zurich, Switzerland

FR1.O-17.2 SPATIO-TEMPORAL IONOSPHERIC TEC PREDICTION USING A DEEP CNN-GRU MODEL ON GNSS MEASUREMENTS
Maria Kaselimi, Nikolaos Doulamis, Athanasios Voulodimos, Anastasios Doulamis, Demitris Delikaraoglou, National Technical University of Athens, Greece

FR1.O-17.3 REAL-TIME GNSS METEOROLOGY IN EUROPE – HURRICANE LORENZO CASE STUDY
Tomasz Hadas, University of Stuttgart, Germany; Michael Bender, Deutscher Wetterdienst (DWD), Germany; Grzegorz Marut, Wrocław University of Environmental and Life Sciences, Poland; Thomas Hobiger, University of Stuttgart, Germany

FR1.O-17.4 ESTIMATING HIGH AMPLITUDE WATER LEVEL VARIATIONS DURING ASYMMETRIC TIDES IN THE GARONNE RIVER WITH GNSS-REFLECTOMETRY
Pierre Zeiger, LEGOS, UMR 5566, CNES/CNRS/UPS/IRD, France; Frédéric Frappart, Laboratoire d'Etudes en Géophysique et Océanographie Spatiales (LEGOS), France; José Darrozes, GET, UMR 5563, CNES/CNRS/UPS/IRD, France; Philippe Bonneton, Natalie Bonneton, EPOC, UMR 5805, CNRS/Université de Bordeaux, France

FR1.O-17.5 A PERFORMANCE ASSESSMENT OF POLARIMETRIC GNSS-R SEA LEVEL MONITORING IN THE PRESENCE OF SEA SURFACE ROUGHNESS
Mahmoud Rajabi, Mostafa Hoseini, Hossein Nahavandchi, Norwegian University of Science and Technology NTNU, Norway; Maximilian Semmling, German Aerospace Center (DLR), Germany; Markus Ramatschi, German Research Centre for Geosciences GFZ, Germany; Mehdi Goli, Shahrood University of Technology, Iran; Rudiger Haas, Chalmers University of Technology, Sweden; Jens Wickert, German Research Centre for Geosciences GFZ / Technische Universität Berlin, Germany

FR1.O-17.6 A NEW METHOD FOR OCEAN WIND DIRECTION RETRIEVAL FROM DELAY-DOPPLER MAPS USING STARE PROCESSING AND MACHINE LEARNING: PRELIMINARY SIMULATION RESULTS
Ian Collett, Yunxiang Liu, Y. Jade Morton, University of Colorado Boulder, United States

Friday, July 16 10:30 - 12:00 Oral Room 18

Session FR1.O-18 Oral

Geo-information and Integration for Smart and Green Cities

Session Co-Chairs: Hiep Luong, imec-UGent; Giovanni Nico, Italy's National Research Council; Yue Zhou, Université catholique de Louvain

FR1.O-18.1 A DEEP LEARNING BASED APPROACH FOR ROOFTOP SOLAR POTENTIAL ESTIMATION OF A CITY: A CASE STUDY OF INDIAN METROPOLIS
Prakash P S, Bharath H Aithal, Indian Institute of Technology Kharagpur, India

FR1.O-18.2 MAPPING THE SOUND LANDSCAPE DURING SOCIAL ISOLATION DUE TO COVID-19
Malcon Mora-Araus, Andrés Velastegui-Montoya, Yadira Jaramillo-Lindao, Hector Apolo, Escuela Superior Politécnica del Litoral, Ecuador

FR1.O-18.3 MANAGING THE OCEANS CLEANUP VIA SEA CURRENT ANALYSIS AND BIO-INSPIRED COORDINATION OF USV SWARMS
Manilo Monaco, University of Florence, Italy; Mario Giovanni C. A. Cimino, Gigliola Vaglini, Francesco Fusai, University of Pisa, Italy; Giovanni Nico, Italy's National Research Council, Italy

FR1.O-18.4 GPS-ASSISTED FEATURE MATCHING IN AERIAL IMAGES WITH HIGHLY REPETITIVE PATTERNS
Gonzalo Luzardo, Michiel Vlaminck, imec-UGent, Belgium; Dionysios Lefkaditis, SITEMARK, Belgium; Wilfried Philips, Hiep Luong, imec-UGent, Belgium

FR1.O-18.5 MICROWAVE METHOD FOR DETERMINING THE CONTENT OF HARMFUL GASES IN ATMOSPHERE
Igor Shirokov, Pavel Evdokimov, Mariya Sokolova, Elena Shirokova, Sevastopol State University, Russia

FR1.O-18.6 STREAMLINING EXPERIMENT PROJECTIONS FOR RESOLUTE BAY INCOHERENT SCATTER RADAR (RISR) TO FACILITATE RESEARCH OF SPACE WEATHER DRIVEN GLOBAL POSITIONING SYSTEM SCINTILLATIONS
Adam Hoxeng, Diana Loucks, William Wright, Christopher Oxendine, United States Military Academy, United States

Friday, July 16 10:30 - 12:00 Oral Room 19

Session FR1.O-19 Oral

Monitoring the Impacts of COVID from Space

Session Co-Chairs: Ruyi Feng, China University of Geosciences(Wuhan); Lydia Abady, University of Siena; Linus Scheibenreif, University of St. Gallen

FR1.O-19.1 IMPACT OF RESTRICTION DUE TO COVID-19 ON AIR POLLUTION IN POLAND IN SPIRING 2020
Patryk Tadeusz Grzybowski, Krzysztof Markowicz, University of Warsaw, Poland; Jan Paweł Musiał, Institute of Geodesy and Cartography, Poland

FR1.O-19.2 A NOVEL DATASET AND BENCHMARK FOR SURFACE NO2 PREDICTION FROM REMOTE SENSING DATA INCLUDING COVID LOCKDOWN MEASURES
Linus Scheibenreif, Michael Mommert, Damian Borth, University of St. Gallen, Switzerland

FR1.O-19.3 AIR QUALITY IMPROVEMENT DURING COVID-19 PANDEMIC: STUDY OF LAND AND MARITIME POLLUTION
Pedro Silva, Mariana Ávila, Emanuel Castanho, Atlantic International Research Centre, Portugal

FR1.O-19.4 IMPACT OF COVID19-INDUCED LOCKDOWN ON AIR QUALITY IN IRELAND
Dewansh Kaloni, The ADAPT Centre, Ireland; Yee Hui Lee, Nanyang Technological University, Singapore; Soumyabrata Dev, University College Dublin, Ireland

FR1.O-19.5 AN ANALYSIS FOR THE WORK RESUMPTION UNDER THE COVID-19 EPIDEMIC BASED ON VIIRS-DNB NIGHTTIME LIGHTS IN CHINA
Suzheng Tian, Ruyi Feng, Lizhe Wang, China University of Geosciences, China

FR1.O-19.6 DETECTING AIRPORT ACTIVITY FROM SENTINEL-2 IMAGERY DURING COVID-19 PANDEMIC BY USING DEEP LEARNING
Hang Yang, University of Tokyo, Japan; Toru Kouyama, Fumiharu Suzuki, National Institute of Advanced Industrial Science and Technology, Japan; Shutaro Sato, Ichiro Yoshikawa, University of Tokyo, Japan

Friday, July 16 10:30 - 12:00 Oral Room 20
Session FR1.O-20 Oral

Land Movements Monitoring

Session Co-Chairs: Daniel Raucoules, BRGM; Pierre-Yves Declercq, Royal Belgium Institute of Natural Sciences; Raktim Ghosh, Università degli Studi di Trento

FR1.O-20.1 DYNAMICS OF A GIANT SLOW LANDSLIDE ALONG THE COAST OF THE ARAL SEA (CENTRAL ASIA)
Gökhan Aslan, Marcello De Michele, Daniel Raucoules, BRGM, France; François Renard, University of Oslo, Norway; Ziyadin Cakir, Istanbul Technical University, Turkey

FR1.O-20.2 INSAR DRIVEN LANDSLIDE DETECTION AND MONITORING BASED ON SMALL BASELINE SETS: A CASE STUDY OF JINSHA RIVER VALLEY (DONGCHUAN SECTION)
Hongying Jia, Aerospace Information Reasearch Institute, Chinese Academy of Sciences, China; Yingjie Wang, University of Chinese Academy of Sciences, China; Daqing Ge, China Aero Geophysical Survey and Remote Sensing Center for Natural Resources, China; Yunkai Deng, Robert Wang, Aerospace Information Reasearch Institute, Chinese Academy of Sciences, China

FR1.O-20.3 LAND SUBSIDENCE OBSERVED IN THE MERCHTEM AREA (FLANDERS) – 30 YEARS OF SAR DATA ASSOCIATED TO GROUNDWATER WITHDRAWAL?
Atefe Choopani, Pierre-Yves Declercq, Royal Belgium Institute of Natural Sciences, Belgium; Alain Dassargues, University of Liège, Belgium; Xavier Devleeschouwer, Royal Belgium Institute of Natural Sciences, Belgium

FR1.O-20.4 BRIDGING CONSECUTIVE DINSAR METHOD FOR LONG-TERM LAND DEFORMATION OBSERVATION
Josaphat Tetuko Sri Sumantyo, Chiba University, Japan; Daniele Perissin, Razer Limited, Hong Kong SAR of China; Joko Widodo, The Agency for Assessment and Applications of Technology, Indonesia; Heri Andreas, Ketut Wikantika, Institute of Technology Bandung, Indonesia; Mohammad Rohmaneo Darminto, Akbar Kurniawan, Mokhamad Nur Cahyadi, Teguh Hariyanto, Sepuluh Nopember Institute of Technology, Indonesia

FR1.O-20.5 THE APPLICATION OF HIGH ALTITUDE PSEUDO-SATELLITES FOR A RAPID DISASTER RESPONSE
Vincenzo Rosario Baraniello, Giuseppe Persechino, Cesario Vincenzo Angelino, Francesco Tufano, CIRA Italian Aerospace Research Centre, Italy

FR1.O-20.6 AN ADAPTIVE FCM-BASED APPROACH OF FIRST ARRIVAL TIME PICKING FOR MICROSEISMIC DATA
Zhiqiang Lan, Yaojun Wang, Peng Wang, Peng Gao, Jiandong Liang, University of Electronic Science and Technology of China, China

Friday, July 16 13:00 - 14:10 Multimedia Room 1
Session FR2.MM-1

A Variety of Promising Coastal and Oceanic Applications

Session Co-Chairs: Yogender , University of Twente; Mariano Bresciani, CNR; Liesbeth De Keukelaere, VITO

FR2.MM-1.1 COMBINED USE OF OPTICAL AND SAR IMAGES FOR MAPPING COASTAL EROSION RISK
Mariano Bresciani, Nicola Ghirardi, Gianfranco Fornaro, Virginia Zamparelli, Francesca De Santi, Giacomo De Carolis, CNR, Italy; Deodato Tapete, Italian Space Agency (ASI), Italy; Monica Palandri, e-GEOS S.p.A., Italy; Claudia Giardino, CNR, Italy

FR2.MM-1.2 SUPPORTING ATLANTIC CITIES AND PORTS THROUGH EARTH OBSERVATION
Nina Sofia Wyniawskyj, Deimos Space UK Ltd., United Kingdom; Pedro Ribeiro, CoLAB +ATLANTIC, Portugal; Stefano Ferretti, European Space Agency (ESA), Italy; David Petit, Deimos Space UK Ltd., United Kingdom; Nuno Grosso, Deimos Engenharia, Portugal; Pritimoy Podder, Deimos Space UK Ltd., United Kingdom; Sara Aparicio, Solenix for European Space Agency, Italy

FR2.MM-1.3 MAPPING THE SPATIO-TEMPORAL CHANGES IN MANGROVE VEGETATION ALONG THANE CREEK, INDIA
Nitish Zurmure, Suraj Sawant, Mahesh Shindikar, College of Engineering Pune, India; Nikhil Lele, Space Application Centre, India

FR2.MM-1.4 QUANTITATIVE EVALUATION OF ALGAE DETECTION BASED ON DEEP NEURAL NETWORK MULTI-SOURCE DATA FUSION
Le Gao, Xiaofeng Li, Yuan Guo, Jifeng Qi, Bin Zhang, Institute of Oceanography, Chinese Academy of Sciences, China

FR2.MM-1.5 SEPARATION OF WIND-SEA AND SWELL WAVE HEIGHTS USING ALTIMETER DATA
Zheng Yang, China University of Geosciences, China; Lili Song, National Marine Data and Information Service, China; Lin Mu, Shenzhen University, China; Haoyu Jiang, China University of Geosciences, China

FR2.MM-1.6 COMPARATIVE ANALYSIS OF THE SEMI-EMPIRICAL PHYSICAL MODELS FOR SHALLOW WATER DEPTH INVERSION IN BEIBU GULF
Jiasheng Xu, Guoqing Zhou, Qiaobo Cao, Sikai Su, Zhou Tian, Weiguang Liu, Haocheng Hu, Xiang Zhou, Guilin University of Technology, China

FR2.MM-1.7 EVALUATION OF THE SIGNIFICANT WAVE HEIGHT FROM HY2B/ALT USING CRYOSAT2/SIRAL AND ICESAT2/ATLAS DATA SETS IN THE ARCTIC
Lu Han, Lele Li, Haihua Chen, Ocean University of China, China

FR2.MM-1.8 A DEEP LEARNING MODEL FOR EDDY TRACKING BASED ON MULTI-SOURCE REMOTE SENSING IMAGERY
Qian Liu, Yingjie Liu, Xiaofeng Li, Institute of Oceanology, Chinese Academy of Sciences, China

Friday, July 16 **13:00 - 14:10** **Multimedia Room 2**

Session FR2.MM-2

SAR Image Formation Approaches

Session Co-Chairs: Ferdinando Nunziata, Università degli studi di Napoli Parthenope; Helko Breit, German Aerospace Center (DLR); Adrien Grivey, École Nationale Supérieure de Techniques Avancées Bretagne

FR2.MM-2.1 MOTION COMPENSATION FOR MULTIROTORS MINISAR SYSTEM
Yixiang Luomei, Feng Xu, Fudan University, China

FR2.MM-2.2 UNIFIED COORDINATE SYSTEM FORMATION FOR AIRBORNE VIDEOSAR IMAGING: TOWARD A COMPLETE SCHEME
Ying Zhang, Daiyin Zhu, Nanjing University of Aeronautics and Astronautics, China; Yulei Qian, Nanjing Marine Radar Institute, China; Yuan Cheng, Xinhua Mao, Gong Zhang, Nanjing University of Aeronautics and Astronautics, China; Henry Leung, University of Calgary, Canada

FR2.MM-2.3 A REGULARIZED ITERATIVE ADAPTIVE APPROACH BASED FOR RADAR FORWARD-LOOKING IMAGING
Yongwei Zhang, Jie Li, Yongchao Zhang, Fanyun Xu, Yulin Huang, Jianyu Yang, University of Electronic Science and Technology of China, China

FR2.MM-2.4 AN FPGA HARDWARE IMPLEMENTATION FOR OMEGA-K SAR IMAGING ALGORITHM
Ning Ding, Zhulin Zong, Bolun Liu, Shiwei Yuan, University of Electronic Science and Technology of China, China

FR2.MM-2.5 AN FPGA/MPSOC BASED LOW LATENCY ONBOARD SAR PROCESSOR
Helko Breit, Srikanth Mandapati, Ulrich Balss, German Aerospace Center (DLR), Germany

FR2.MM-2.6 A NEAR-FIELD FAST TIME-FREQUENCY JOINT 3-D IMAGING ALGORITHM BASED ON APERTURE LINEARIZATION
Xuan Zeng, Yuxin Ma, Zhongyu Li, Junjie Wu, Jianyu Yang, University of Electronic Science and Technology of China, Chengdu, China

FR2.MM-2.7 PROCESSING MULTIRECEIVER SAS DATA BASED ON THE PTRS LINEARIZATION
Xuebo Zhang, Northwest Normal University, China; Wenwei Ying, Naval Research Academy, China; Yaqian Liu, Xiangyu Deng, Northwest Normal University, China

FR2.MM-2.8 NOVEL APPROACH OF MOTION COMPENSATION FOR THE TERAHERTZ SAR IMAGING BASED ON MEASURED DATA
Zhaofa Wang, Nanjing Research Institute of Electronics Technology, China; Yong Wang, Harbin Institute of Technology, China; Yang Dong, Xueyong Shen, Gang Tian, Nanjing Research Institute of Electronics Technology, China

FR2.MM-2.9 AN EFFICIENT MOTION ERROR COMPENSATION METHOD FOR LINEAR ARRAY 3-D SAR IMAGING
Xinyu Mao, Zhongyu Li, Yuxin Ma, Yu Hai, Junjie Wu, Jianyu Yang, University of Electronic Science and Technology of China, China

FR2.MM-2.10 AN EFFICIENT PFA SUBAPERTURE ALGORITHM FOR VIDEO SAR IMAGING
Yue Song, Yu Hai, Junjie Wu, Zhongyu Li, Jianyu Yang, University of Electronic Science and Technology of China, China

Friday, July 16 **13:00 - 14:10** **Multimedia Room 3**

Session FR2.MM-3

Multi-temporal / Multi-pass SAR Analysis

Session Co-Chairs: Gianfranco Fornaro, National Research Council (CNR); Bin Zhang, University of Twente; Lennert Anston, Universiteit Gent

FR2.MM-3.1 USE OF SENTINEL-1 TIME-SERIES FOR ARCHAEOLOGICAL STRUCTURES DETECTION
Florent Michenot, Giovanni Manfredi, Régis Guinvarc'h, Laétitia Thirion-Lefevre, SONDRA, CentraleSupélec, Université Paris-Saclay, France

FR2.MM-3.2 REVEALING LONG-TERM DEFORMATION TIME SERIES OF RADAR SCATTERERS USING MULTI-SENSOR SAR DATA
Bin Zhang, Ling Chang, Alfred Stein, University of Twente, Netherlands

FR2.MM-3.3 COHERENT RECONSTRUCTION OF MULTI-PASS COSMO-SKYMED IMAGES
Wenkang Liu, Xidian University, China; Gianfranco Fornaro, National Research Council (CNR), Italy; Vito Pascazio, Gilda Schirinzi, Università di Napoli "Parthenope", Italy; Mengdao Xing, Xidian University, China

FR2.MM-3.4 POLARIMETRIC COHERENCE ANALYSIS FOR MANGROVE TYPES DISCRIMINATION OF PICHAVARAM, INDIA USING SENTINEL-1 SATELLITE DATA
Sandra Maria Cherian, Rajitha K, BITS Pilani, Hyderabad Campus, India

FR2.MM-3.5 RESEARCH ON REGISTRATION ALGORITHM BASED ON HYBIRD FEATURE POINT DETECTION USING GAOFEN-3 IMAGE
Furong Liao, Yan Chen, Yunping Chen, University of Electronic Science and Technology of China, China; Chunliang Xu, Youchun Lu, China Centre for Resources Satellite Data and Application, China; Haichang Wei, University of Electronic Science and Technology of China, China

FR2.MM-3.6 A METHOD FOR EXTRACTING DEM BASED ON SUB-APERTURE IMAGE CORRELATION IN CSAR MODE
Yishi Li, Leping Chen, Daoxiang An, National University of Defence Technology, China

FR2.MM-3.7 THREE DIMENSIONAL SURFACE RECONSTRUCTION WITH MULTISTATIC SAR
Xiaowen Zhang, Wenchao Li, Chuan Huang, Wenjing Wang, Zhongyu Li, Junjie Wu, University of Electronic Science and Technology of China, Chengdu, China

FR2.MM-3.8 TOMOSAR SPARSE 3-D IMAGING VIA DEM-AIDED SURFACE PROJECTION
Shan Liu, Shunjun Wei, Jinshan Wei, Xiangfeng Zeng, Xiaoling Zhang, School of Information and Communication Engineering, University of Electronic Science and Technology of China, China

FR2.MM-3.9 AZIMUTH SPECTRUM RECONSTRUCTION ALGORITHM FOR MULTICHANNEL SQUINT SAR ON HIGH SPEED AIRBORNE PLATFORM
Bowen Bie, Yinghui Quan, Guang-Cai Sun, Wei Feng, Mengdao Xing, Xidian University, China

Friday, July 16 13:00 - 14:10 Multimedia Room 4

Session FR2.MM-4

Applications of Polarimetric, Bistatic and Digital Beamforming SAR I

Session Co-Chairs: Armando Marino, University of Stirling; Giovanni Anconitano, Sapienza University of Rome; Zhilong Yang, Fudan University

FR2.MM-4.1 COMPARISON OF POLARIMETRIC FILTERS TO RETRIEVE FOREST BIOMASS
Henrique Luis Godinho Cassol, Luiz Eduardo Oliveira e Cruz de Aragão, Elisabete Caria Moraes, National Institute for Space Research, Brazil; João Manuel Brito Carreiras, University of Sheffield, United Kingdom; Camila Valéria Jesus Silva, Lancaster University, United Kingdom; Yosio Edemir Shimabukuro, National Institute for Space Research, Brazil

FR2.MM-4.3 COMPARISON OF TARGET DETECTORS TO IDENTIFY ICEBERGS IN QUAD-POLARIMETRIC SAR ALOS-2 IMAGES
Johnson Bailey, Armando Marino, Vahid Akbari, University of Stirling, United Kingdom

FR2.MM-4.4 SENSITIVITY TO SOIL MOISTURE OVER AN AGRICULTURAL AREA BY EXPLOITING A MODEL-BASED POLARIMETRIC DECOMPOSITION
Giovanni Anconitano, Sapienza University of Rome, Italy; Marco Lavalle, NASA Jet Propulsion Laboratory, United States; Nazzareno Pierdicca, Sapienza University of Rome, Italy

FR2.MM-4.5 TROPICAL PEATLAND FOREST BIOMASS ESTIMATION BY EXPLOITING POLARIMETRIC PARAMETERS IN SYNERGY WITH IN-SITU DATA
Mirza Muhammad Waqar, Heein Yang, Myeong Ryong Nam, Lumir Inc, Korea (South); Rahmi Sukmawati, Padang State University, Indonesia

FR2.MM-4.6 AN IMPROVED DUAL-BASELINE POLINSAR METHOD FOR FOREST HEIGHT ESTIMATION BASED ON RMOG MODEL
Yue Shi, Zhanmang Liao, Binbin He, University of Electronic Science and Technology of China, China

FR2.MM-4.7 TRANSIENT REACTIVATION OF KARA-BOGAZ-GOL COASTAL LANDSLIDE, MODULATED BY HYDROLOGICAL FORCES CAPTURED USING INSAR (TURKMENISTAN)
Gökhan Aslan, Marcello De Michele, Daniel Raucoules, Severine Bernardie, BRGM, France; Ziyadin Cakir, Istanbul Technical University, Turkey

FR2.MM-4.8 AN ADAPTIVE MOVING TARGET INDICATION METHOD FOR GEO SPACEBORNE-AIRBORNE BISTATIC SAR
Chang Cui, Xichao Dong, Cheng Hu, Weiming Tian, Beijing Institute of Technology, China

FR2.MM-4.9 JOINT PERFORMANCE OPTIMIZATION OF MONOSTATIC AND BISTATIC SAR CONFIGURATIONS
Nehir Berk Onat, Eindhoven University of Technology, Netherlands; Ozan Dogan, Delft University of Technology, Netherlands; Mario Azcueta, MetaSensing B.V., Netherlands; Ruud J.G. van Sloun, Eindhoven University of Technology, Netherlands

FR2.MM-4.10 ANTI-DECEPTIVE JAMMING OF JAMMER ON THE COAST FOR MULTISTATIC SAR
Wenjing Wang, Junjie Wu, Jifang Pei, Zhichao Sun, Jianyu Yang, University of Electronic Science and Technology of China, China

Friday, July 16 13:00 - 14:10 Multimedia Room 5

Session FR2.MM-5

Deep Learning for Remotely Sensed Image Analysis

Session Co-Chairs: Qian Du, Mississippi State University; Jennifer Adams, ESA; Christel Chappuis, École polytechnique fédérale de Lausanne (EPFL)

FR2.MM-5.1 A FILTERING APPROACH FOR GENERATED SAMPLES BY GANS IN SAR ATR
Changjie Cao, Zongyong Cui, Zongjie Cao, Liying Wang, Jielei Wang, Jianyu Yang, University of Electronic Science and Technology of China, China

FR2.MM-5.2 AUTOMATED COUNTING WILD BIRDS ON UAV IMAGE USING DEEP LEARNING
Kenta Ogawa, Rakuno Gakuen University, Japan; Yuting Lin, Hiroshi Takeda, Kanji Hashimoto, Kokusai Kogyo Co., Ltd, Japan; Yukiko Konno, Kaori Mori, Rakuno Gakuen University, Japan

FR2.MM-5.3 ADVERSARIAL ROBUSTNESS EVALUATION OF DEEP CONVOLUTIONAL NEURAL NETWORK BASED SAR ATR ALGORITHM
Hao Sun, Yanjie Xu, Gangyao Kuang, National University of Defence Technology, China; Jin Chen, Beijing Institute of Remote Sensing Information, China

FR2.MM-5.4 ISAR IMAGES GENERATION VIA GENERATIVE ADVERSARIAL NETWORKS
Ruo-Yi Zhou, Zhi-Long Yang, Feng Wang, Fudan University, China

FR2.MM-5.5 OIL DEPOT DETECTION VIA CNN SEMANTIC SEGMENTATION
Antoine Tadros, Sébastien Drouyer, Rafael Grompone von Gioi, Centre Borreli - ENS Paris-Saclay, France

FR2.MM-5.6 SIAMMRAAN : SIAMESE MULTI-LEVEL RESIDUAL ATTENTION ADAPTIVE NETWORK FOR HYPERSPECTRAL VIDEOS TRACKING
Ye Wang, Shaohui Mei, Shun Zhang, Northwestern Polytechnical University, China; Qian Du, Mississippi State University, United States

FR2.MM-5.7 TRANSFERRED TENSOR DECOMPOSITION-BASED DEEP LEARNING FOR HYPERSPECTRAL ANOMALY DETECTION
Yulei Wang, Fengchao Wang, Qingyu Zhu, Meiping Song, Chunyan Yu, Dalian Maritime University, China

FR2.MM-5.9 URBAN FOREST IDENTIFICATION FROM HIGH-RESOLUTION IMAGES USING DEEP-LEARNING METHOD
Wei Wang, Rongyuan Liu, China Aero Geophysical Survey and Remote Sensing Center for Natural Resources, China; Huiyun Yang, China Research Institute of Radioware Propagation, China; Ping Zhou, China University of Geosciences-Beijing, China; Xiangwen Zhang, Ling Ding, China Aero Geophysical Survey and Remote Sensing Center for Natural Resources, China

FR2.MM-5.10 SAR IMAGE CHANGE DETECTION VIA A FEW-SHOT LEARNING-BASED NEURAL NETWORK
Ronfang Wang, Weidong Wang, Xidian University, China; Pinghai Dong, Tsinghua Shenzhen International Graduate School, China; Haojiang Wei, Licheng Jiao, Jia-Wei Chen, Xidian University, China

Friday, July 16 13:00 - 14:10 Multimedia Room 6

Session FR2.MM-6

Data Analysis Techniques in Remote Sensing

Session Co-Chairs: Mark Andrews, The Ohio State University; Yi-Jie Yang, University of Kiel; Simon van Diepen, Technische Universiteit Delft

FR2.MM-6.1 SCALE EXPANSION PYRAMID NETWORK FOR CROSS-SCALE OBJECT DETECTION IN SAR IMAGES
Zheng Zhou, Rui Guan, Zongyong Cui, Zongjie Cao, Yiming Pi, Jianyu Yang, University of Electronic Science and Technology of China, China

FR2.MM-6.2 A COMPLETE BUILDING EXTRACTION FRAMEWORK FOR AIRBORNE LASER SCANNING POINT CLOUD
Chunhui Zhao, Hemin Lin, Yiming Yan, Nan Su, Harbin Engineering University, China; Shu Tian, Harbin Institute of Technology, China

FR2.MM-6.3 AI MAPPING RISKS TO WILDLIFE IN TANZANIA: RAPID SCANNING AERIAL IMAGES TO FLAG THE CHANGING FRONTIER OF HUMAN-WILDLIFE PROXIMITY
Zhuang-Fang Yi, Development Seed, United States; Howard Frederick, Tanzania Conservation Resource Center, Tanzania; Ruben Lopez, Ryan Avery, Lane Goodman, Development Seed, United States

FR2.MM-6.4 FULLY AUTOMATED SAR BASED OIL SPILL DETECTION USING YOLOV4
Yi-Jie Yang, University of Kiel, Germany; Suman Singha, German Aerospace Center (DLR), Germany; Roberto Mayerle, University of Kiel, Germany

FR2.MM-6.5 ONE-STAGE DETECTOR FROM COARSE TO FINE FOR ROTATING OBJECT OF REMOTE SENSING
Zhiguo Li, Yuan Yuan, Dandan Ma, Northwestern Polytechnical University, China

FR2.MM-6.6 A HOG FEATURE FUSION METHOD TO IMPROVE CNN-BASED SAR SHIP CLASSIFICATION ACCURACY
Tianwen Zhang, Xiaoling Zhang, Jun Shi, Shunjun Wei, University of Electronic Science and Technology of China, China

FR2.MM-6.7 A MOVING TARGET DETECTION METHOD BASED ON YOLO FOR DUAL-BEAM SAR
Xinxin Tang, Xiaoling Zhang, Jun Shi, Shunjun Wei, University of Electronic Science and Technology of China, China

FR2.MM-6.8 ORIENTED SPATIAL CORRELATIVE ALIGNED FEATURE FOR REMOTE SENSING OBJECT DETECTION
Guangmiao Guo, Leyuan Fang, Hunan University, China; Jun Yue, Changsha University of Science and Technology, China

FR2.MM-6.9 AUTOMATIC DETECTION OF BUILDING IN MEDIUM DENSITY IMAGE USING MORPHOLOGICAL OPERATION
Karuna Kirwale, Marathwada University, India

FR2.MM-6.10 INVARIANT SUBMERGED MATERIAL RECOGNITION WITH FLUORESCENCE LIDAR AND SPARSITY-BASED APPROACHES
Stefania Matteoli, Consiglio Nazionale delle Ricerche, Italy; Giovanni Corsini, Università di Pisa, Italy; Marco Diani, Accademia Navale, Italy

Friday, July 16 13:00 - 14:10 Multimedia Room 7

Session FR2.MM-7

DInSAR Applications to Natural Hazard Monitoring

Session Co-Chairs: Javier Duro, Dares Technology; Aurelie de Jong, École polytechnique fédérale de Lausanne (EPFL); Irena Hajnsek, German Aerospace Center (DLR) / ETH Zürich

FR2.MM-7.1 REMODAMS: MONITORING DAMS FROM SPACE USING SATELLITE RADAR INTERFEROMETRY
Antonio Miguel Ruiz-Armenteros, University of Jaén, Spain; Jose Manuel Delgado Blasco, Universidad de Jaén, Spain; Matus Bakon, insar.sk, Slovakia; Joaquim J. Sousa, Universidade de Trás-os-Montes e Alto Douro, Portugal; Francisco Lamas-Fernandez, University of Granada, Spain; Miguel Marchamalo-Sacristan, POLITECHNICAL UNIVERSITY OF MADRID, Spain; Vanesa Sanchez-Ballesteros, University of Jaén, Spain; Juraj Papco, Slovak University of Technology in Bratislava, Slovakia; Beatriz Gonzalez-Rodrigo, POLITECHNICAL UNIVERSITY OF MADRID, Sudan; Milan Lazecky, University of Leeds, United Kingdom; Daniele Perissin, Università degli Studi di Padova, Italy

FR2.MM-7.2 INSAR SURFACE DEFORMATION SIGNATURES OVER THE OMAN OPHIOLITE
Molly Zebker, Jingyi Chen, Marc Hesse, University of Texas at Austin, United States

FR2.MM-7.4 MONITORING BEIJING-TIANJIN REGION LAND SUBSIDENCE USING ALOS-2 SCANSAR IMAGES
Bin Liu, Man Li, Ling Zhang, Daqing Ge, China Aero Geophysical Survey and Remote Sensing Center for Natural Resources, China

FR2.MM-7.5 THE APPLICATION OF INTERFEROMETRIC SYNTHETIC APERTURE RADAR (INSAR) ON DAMAGED AREA MAPPING: THE CASE OF THE 2020 TAAL VOLCANO ERUPTION
Ryan Ramirez, University of Santo Tomas, Philippines

FR2.MM-7.6 DEFORMATION OF CHENGDU DOWNTOWN WITH SENTINEL-1A
Tianming Shao, University of Electronic Science and Technology of China, China; Mingcang Zhu, Department of Natural Resources of Sichuan Province, China; Yong He, Sichuan Research Institute for Eco-System Restoration & Geo-Hazard Prevention, China; Boya Yang, University of Electronic Science and Technology of China, China; Zhanyong He, Sichuan Research Institute for Eco-System Restoration & Geo-Hazard Prevention, China; Fangrong Zhou, Yunnan Power Grid Co., Ltd., China; Juan Ren, Hongqiong Tang, Sichuan Research Institute for Eco-System Restoration & Geo-Hazard Prevention, China; Yao Fu, Zezhong Zheng, University of Electronic Science and Technology of China, China; Zhongnian Li, Central China Normal University, China; Guoqing Zhou, Guilin University of Technology, China; Zhiyong Wang, Mingqi Li, Ling Jiang, University of Electronic Science and Technology of China, China

FR2.MM-7.7 SURFACE DEFORMATION ANALYSIS IN JIUZHAIGOU, CHINA USING SBAS-INSAR TECHNIQUE
Xingyu Lu, Taoli Yang, University of Electronic Science and Technology of China, China; Zhidong Wang, Wei Tang, Second Institute of Surveying and Mapping Geographic Information Engineering of Sichuan Province, China

FR2.MM-7.8 LAND DEFORMATION AT LONGYAO GROUND FISSURE AND ITS SURROUNDINGS REVEALED BY TIME SERIES INSAR
Hongyu Liu, Tongji University; The Hong Kong Polytechnic University, China; Bofeng Li, Tongji University, China

FR2.MM-7.9 INVESTIGATION FOR THE SURFACE DEFORMATION OF TANGGULA MOUNTAIN PERMAFROST USING DISTRIBUTED SCATTERER INSAR
Jing Wang, Chao Wang, Yixian Tang, Hong Zhang, Wei Duan, Longkai Dong, Aerospace Information Reasearch Institute, Chinese Academy of Sciences, China

FR2.MM-7.10 A STUDY ON THE DETECTION OF DEFORMATION OF TUOTUOHE AREA ON THE QINGHAI-TIBET PLATEAU
Xiaokang Kou, Xinda Liu, Yuzhi Zhang, Shijiazhuang Tiedao University, China; Yichi Zhang, Beijing Normal University, China; Tianliang Wang, Shijiazhuang Tiedao University, China; Shuang Yan, Hebei Academy of Sciences, China

Friday, July 16 13:00 - 14:10 Multimedia Room 8

Session FR2.MM-8

Deep Learning for Image Analysis and Classification

Session Co-Chairs: Mihai Datcu, Research Center for Spatial Information (CEOSpaceTech), University POLITEHNICA of Bucharest (UPB) and Earth Observation Center (EOC), German Aerospace Center (DLR); Jordi Cortes, Universitat de València; Weihuan Deng, †China University of Geosciences

FR2.MM-8.1 RETHINKING THE HIGH FREQUENCY COMPONENTS IN DEEP SUB-PIXEL MAPPING NETWORK
Da He, Sun Yat-Sen University, China; Yanfei Zhong, Wuhan University, China; Qian Shi, Xiaoping Liu, Sun Yat-Sen University, China

FR2.MM-8.2 A MULTI-BRANCH NETWORK BASED ON WEIGHT SHARING AND ATTENTION MECHANISM FOR HYPERSPECTRAL IMAGE CLASSIFICATION
Zhen Guo, Caihong Mu, Yi Liu, Xidian University, China

FR2.MM-8.3 DOMAIN ADAPTATION BASED ON GRAPH AND STATISTICAL FEATURES FOR CROSS-SCENE HYPERSPECTRAL IMAGE CLASSIFICATION
Yuxiang Zhang, Wei Li, Ran Tao, Beijing Institute of Technology, China

FR2.MM-8.4 COMPARING CNN ARCHITECTURES FOR LAND COVER CLASSIFICATION ON MULTISPECTRAL IMAGES
Bryce Engelbrecht, Amazon Development Center South Africa, South Africa; Terence Van Zyl, University of Johannesburg, South Africa

FR2.MM-8.5 FEATURE EXCHANGE FOR MULTISOURCE DATA CLASSIFICATION IN WETLAND SCENE
Yunhao Gao, Wei Li, Mengmeng Zhang, Ran Tao, Beijing Institute of Technology, China

FR2.MM-8.6 SEMI-SUPERVISED POLSAR IMAGE CLASSIFICATION BASED ON DEEP CO-TRAINING WITH SUPERPIXEL RESTRAINED STRATEGY
Feng Zhao, Lin Liu, Lu Zhang, Xi'an University of Posts and Telecommunications, China; Hanqiang Liu, Shaanxi Normal University, China; Yanyang Cheng, Xi'an University of Posts and Telecommunications, China

FR2.MM-8.7 DEEP REGRESSOR NETWORKS FOR BLIND IMAGE DEBLURRING
Rafael Pires, Daniel Santos, Leandro Passos, Joao Papa, Sao Paulo State University, Brazil

FR2.MM-8.8 TRUSTWORTHY RESOLUTION ENHANCEMENT FOR SENTINEL 2 SPECTRAL BANDS
Ionut-Marian Oltеanu, Research Center for Spatial Information (CEOSpaceTech), University POLITEHNICA of Bucharest (UPB), Romania; Mihai Datcu, Research Center for Spatial Information (CEOSpaceTech), University POLITEHNICA of Bucharest (UPB) and Earth Observation Center (EOC), German Aerospace Center (DLR), Germany

FR2.MM-8.9 EML-GAN: GENERATIVE ADVERSARIAL NETWORK-BASED END-TO-END MULTI-TASK LEARNING ARCHITECTURE FOR SUPER-RESOLUTION RECONSTRUCTION AND SCENE CLASSIFICATION OF LOW-RESOLUTION REMOTE SENSING IMAGERY
Weihuan Deng, Qiqi Zhu, China University of Geosciences, China; Xiongli Sun, Wuhan University, China; Weihua Lin, Qingfeng Guan, China University of Geosciences, China

Friday, July 16 13:00 - 14:10 Multimedia Room 9

Session FR2.MM-9

Image Classification for Vegetation and Agriculture

Session Co-Chairs: Giovanni Laneve, Sapienza Università di Roma; Jun Li, Sun Yat-Sen University; Raj Kishore Parida, APJ Abdul Kalam Technical University

FR2.MM-9.1 EXPLORING A DEEP CONVOLUTIONAL NEURAL NETWORK AND GEOBIA FOR AUTOMATIC RECOGNITION OF BRAZILIAN PALM SWAMPS (VEREDAS) USING SENTINEL-2 OPTICAL DATA
Hugo Bendini, National Institute for Space Research (INPE), Brazil; Leila Fonseca, National Institute for Space Research, Brazil; Raian Maretto, Universiteit Twente (UT), Netherlands; Bruno Matosak, Evandro Taquary, Philipe Simões, National Institute for Space Research, Brazil; Ricardo Haidar, Federal University of Tocantins, Brazil; Dalton Valeriano, National Institute for Space Research, Brazil

FR2.MM-9.2 SURVEYING GREEN SPACES IN EUROPEAN HUMAN SETTLEMENTS AT 30 M SUB-PIXEL LEVEL
Fei Xu, Ben Somers, KU Leuven, Belgium

FR2.MM-9.3 WOODLAND SEGMENTATION OF GAOFEN-6 REMOTE SENSING IMAGES BASED ON DEEP LEARNING
Yuanyuan Gui, Wei Li, Mengmeng Zhang, Beijing Institute of Technology, China; Anzhi Yue, Chinese Academy of Sciences, China

FR2.MM-9.4 DEMONSTRATION OF WILDFIRE DETECTION USING IMAGE CLASSIFICATION ONBOARD CUBESAT
Muhammad Hasif bin Azami, Necmi Cihan Orger, Victor Hugo Schulz, Kitsune Members, Mengu Cho, Kyushu Institute of Technology, Japan

FR2.MM-9.5 NEW APPROACH OF SAMPLE GENERATION AND CLASSIFICATION FOR WILDFIRE FUEL MAPPING ON HYPERSPECTRAL (PRISMA) IMAGE
Riyaaz Uddien Shaik, Giovanni Laneve, Lorenzo Fusilli, Sapienza Università di Roma, Italy

FR2.MM-9.6 TREE SPECIES MAPPING IN TROPICAL FORESTS USING HYPERSPECTRAL REMOTE SENSING AND MACHINE LEARNING
Anushree Badola, University of Alaska Fairbanks, United States; Hitendra Padalia, Indian Institute of Remote Sensing, ISRO, Dehradun, India; Mariana Belgiu, University of Twente, Netherlands; Prabhakar Alok Verma, Indian Institute of Remote Sensing, ISRO, Dehradun, India

FR2.MM-9.7 A DESCRIPTOR TO SEPARATE URBAN TARGETS WITH LARGE AZIMUTH ORIENTATION ANGLES FROM VEGETATION TARGETS IN POLSAR DATA
Dingfeng Duan, University of Electronic Science and Technology of China, China; Yong Wang, Hong Li, East Carolina University, United States

Friday, July 16 13:00 - 14:10 Multimedia Room 10

Session FR2.MM-10

Calibration, Registration, and Matching

Session Co-Chairs: Anthony Amankwah, Amankwah Consult; Jing Ling, University of Hong Kong; lichao mou, German Aerospace Center & Technical University of Munich

FR2.MM-10.1 SPATIALLY WEIGHTED MUTUAL INFORMATION FOR IMAGE REGISTRATION
Chris Aldrich, Curtin University, Australia; Anthony Amankwah, Amankwah Consult, Ghana

FR2.MM-10.2 MULTI-SCALE FEATURE EXTRACTION AND TOTAL VARIATION BASED FUSION METHOD FOR HSI AND LIDAR DATA CLASSIFICATION
Yingping Tong, Yinghui Quan, Wei Feng, Xidian University, China; Gabriel Dauphin, University Paris XIII, France; Yong Wang, Xidian University, China; Puxia Wu, Shaan Xi Academy of Forestry, China; Mengdao Xing, Xidian University, China

FR2.MM-10.3 MULTI-SCALE HARRIS-PIIFD FEATURES FOR REGISTRATION OF VISIBLE AND INFRARED IMAGES
Chenzhong Gao, Wei Li, Beijing Institute of Technology, China

FR2.MM-10.4 GHOST-FREE FUSION OF MULTI-EXPOSURE IMAGES IN THE GLOBAL GRADIENT REGION UNDER PATCH ALIGNMENT
Yulei Wang, Man Liu, Xi Chen, Enyu Zhao, Dalian Maritime University, China

FR2.MM-10.5 IMPROVING GMI BRIGHTNESS TEMPERATURE DIURNAL CYCLE AT GLOBAL SCALE
Zahra Sharifnezhad, City College of New York, United States; Hamidreza Norouzi, New York City College of Technology, United States; Reginald Blake, CUNY - citytech, United States; Reza Khanbilvardi, City College of New York, United States

FR2.MM-10.6 THE EFFECT OF DEBLURRING ON MATCHING OF MOTION BLURRED REMOTE SENSING IMAGES
Jie Han, Zhen Ye, Songlin Zhang, Hanyu Wang, Tongji University, China

FR2.MM-10.7 A TOPOLOGY DESIGN METHOD BASED ON WAVENUMBER SPECTRUM GENERATION FOR MULTISTATIC SYNTHETIC APERTURE RADAR
Junyu Zhu, Deqing Mao, Yongchao Zhang, Yin Zhang, Yulin Huang, Haiguang Yang, University of Electronic Science and Technology of China, China

FR2.MM-10.8 DEEP GLOBAL FEATURE-BASED TEMPLATE MATCHING FOR FAST MULTI-MODAL IMAGE REGISTRATION
Ruiqi Lei, Bowu Yang, Dou Quan, Yi Li, Baorui Duan, Shuang Wang, Xidian University, China; Huarong Jia, Beijing institute of control and electronic technology, China; Biao Hou, Licheng Jiao, Xidian University, China

FR2.MM-10.9 FISHEYE CAMERA CALIBRATION WITH INDOOR 3D CALIBRATION FIELD
Yongfan Xie, Guoqing Zhou, Qingyang Wang, Ruhao Song, Mengyuan Luo, Guilin University of Technology, China

FR2.MM-10.10 AUTOMATED REGISTRATION OF VECTOR DATA TO OVERHEAD IMAGERY
Jacob McKee, Melanie Laverdiere, U.S. Department of Energy, United States

Friday, July 16 13:00 - 14:10 Multimedia Room 11

Session FR2.MM-11

Remote Sensing for Forest and Vegetation Growth and Dynamics II

Session Co-Chairs: José Miguel Barrios, Royal Meteorological Institute of Belgium; Mengying Cao, guangdong; Yinyi Lin

FR2.MM-11.1 THE B-PARAMETER RELATING L-VOD TO SATELLITE-SCALE CROP PLANT WATER MAY NOT BE CONSTANT OVER A GROWING SEASON
Kati Togliatti, USDA Agricultural Research Service, United States; Colin Lewis-Beck, University of Iowa, United States; Victoria Walker, University of Montana, United States; Theo Hartman, Andy VanLoocke, Brian Hornbuckle, Iowa State University, United States

FR2.MM-11.2 DETECTING THE INFLUENCE OF HYDROCARBON SEEPAGE ON PLANTS: A SPECTROSCOPIC APPROACH
Adnan Ahmad, Arnab Kumar Pal, Shailesh Kumar Yadav, Archana M Nair, Indian Institute of Technology Guwahati, India

FR2.MM-11.3 MACHINE LEARNING APPROACH FOR TREE PLANTATION SUITABILITY MAPPING
Jojene Santillan, Arnaldo Gagula, Meriam Makinano-Santillan, Caraga State University, Philippines

FR2.MM-11.4 EVALUATION OF EIGHT THERMAL INFRARED KERNEL-DRIVEN MODELS USING LIMITED OBSERVATIONS
Xueting Ran, University of Electronic Science and Technology of China, China; Biao Cao, Boxiong Qin, Zunjian Bian, Yongming Du, Hua Li, Qing Xiao, Qinhuo Liu, Chinese Academy of Sciences, China

FR2.MM-11.5 REMOTE SENSING OF EVAPOTRANSPIRATION AND SURFACE HEAT FLUXES IN THE LSA-SAF PROGRAMME
José Miguel Barrios, Alirio Arboleda, Françoise Gellens-Meulenberghs, Royal Meteorological Institute, Belgium

FR2.MM-11.6 WEB-BASED MONITORING OF BORO RICE PRODUCTION USING IMPROVISED NDVI THRESHOLD OF MODIS MOD13Q1 AND MYD13Q1 IMAGES
Kazi Kalpoma, Ahsanullah University of Science and Technology (AUST), Bangladesh; Ashiqur Rahman, Promiti Computers & Network (Pvt.) Ltd., Bangladesh

FR2.MM-11.7 LINKING SAP FLOW MEASUREMENTS WITH EARTH OBSERVATIONS
Enrico Tomelleri, Giustino Tonon, Free University of Bozen/Bolzano, Italy

FR2.MM-11.8 UNCERTAINTIES IN THE S-SEBI MODEL TO ESTIMATE SURFACE ENERGY FLUXES OVER NATURAL GRASSLANDS IN BRAZIL
Pâmela Suélen Käfer, Nájila Souza da Rocha, Universidade Federal do Rio Grande do Sul, Brazil; Drazen Skokovic, Universitat de Valencia, Spain; Gustavo Pujol Veeck, Universidade Federal de Santa Maria, Brazil; Lucas Ribeiro Diaz, Savannah Tamara Lemos da Costa, Universidade Federal do Rio Grande do Sul, Brazil; Débora Regina Robérti, Universidade Federal de Santa Maria, Brazil; José Antonio Sobrino, Universitat de Valencia, Spain; Silvia Beatriz Alves Rolim, Universidade Federal do Rio Grande do Sul, Brazil

FR2.MM-11.9 A DEEP LEARNING METHOD FOR DETECTING LEAF PHENOLOGY FROM PHENOCAM IMAGERY
Mengying Cao, Qinchuan Xin, Guangdong Provincial Key Laboratory of Urbanization and Geo-simulation, School of Geography and Planning, Sun Yat-sen University, China

Friday, July 16 13:00 - 14:10 Multimedia Room 12

Session FR2.MM-12

Forests and Biomass from Space II

Session Co-Chairs: Thiago Onofre, University of Florida; Arnan Araza, Wageningen University and Research; Joost Vandenabeele, Belgian Science Policy Office

FR2.MM-12.1 ESTIMATION OF FOREST SURFACE DEAD FUEL LOADS BASED ON MULTI-SOURCE REMOTE SENSING DATA
Li Yanxi, He Binbin, University of Electronic Science and Technology of China, China; Kong Peng, Xu Hao, Zhang Qiang, Institute of Spacecraft System Engineering (ISSE), China; Quan Xingwen, University of Electronic Science and Technology of China, China

FR2.MM-12.2 THE FIRST ABOVE-GROUND BIOMASS MAP OF THE PHILIPPINES PRODUCED USING REMOTE SENSING AND MACHINE LEARNING
Arnan Araza, Martin Herold, Lars Hein, Wageningen University and Research, Netherlands; Marcela Quiñones, SarVision, Netherlands

FR2.MM-12.3 TEMPORAL MAPPING OF GRASSLAND ABOVEGROUND BIOMASS IN QINGHAI PROVINCE FROM LANDSAT 8 AND SENTINEL-2
Yixin Jiang, University of Electronic Science and Technology of China, China; Peng Kong, Hao Xu, Qiang Zhang, Institute of Spacecraft System Engineering (ISSE), China; Xingwen Quan, Binbin He, University of Electronic Science and Technology of China, China

FR2.MM-12.4 A RESEARCH ON THE INFULUENCE OF CLUMPING INDEX ON ESTIMATION OF GROSS PRIMARY PRODUCTIVITY
Sijie Li, Ziti Jiao, Xiaoning Zhang, Lei Cui, Siyang Yin, Rui Xie, Jing Guo, Zidong Zhu, Yidong Tong, Beijing Normal University, China

FR2.MM-12.5 GEOGRAPHICALLY WEIGHTED REGRESSION MODELING USING OPTICAL AND LIDAR DATA TO MAP ABOVEGROUND BIOMASS OF URBAN TREES
Linze Bai, Yuxuan Shu, Wuhan University, China; Jiaqi Qian, University College London, United Kingdom; Sihang Zhang, Zhenfeng Shao, Wuhan University, China

FR2.MM-12.6 ZERO DEFORESTATION AGREEMENT ASSESSMENT AT FARM LEVEL IN COLOMBIA USING ALOS PALSAR: CHALLENGES OF MONITORING SYSTEMS AIMED TO REDUCE DEFORESTATION
Carlos Pedraza, Earth Big Data / Universidad del Rosario, Colombia; Nicola Clerici, Universidad del rosario, Colombia; Cristhian Fabian Forero, Instituto de Hidrología, Meteorología, y Estudios Ambientales-IDEAM, Colombia; America Melo, The Nature Conservancy, Colombia

FR2.MM-12.7 COMPARISON OF LIGHT USE EFFICIENCY, PLANT PHENOLOGY INDEX, AND LIGHT RESPONSE FUNCTION-BASED GPP MODELS IN THE NORTHERN FOREST LANDSCAPE
Sofia Junttila, Natascha Kljun, Lars Eklundh, Lund University, Sweden

Friday, July 16 13:00 - 14:10 Multimedia Room 13

Session FR2.MM-13

Thermal and Non-optical Monitoring of Urban Areas

Session Co-Chairs: Christian Heipke, Leibnitz Universitaet Hannover (LUH); Jefersson A. dos Santos, Federal University of Minas Gerais, UFMG, Brazil; Songyao Huai, Universiteit Gent

FR2.MM-13.1 TEMPORAL NORMALIZATION OF LAND SURFACE TEMPERATURE RETRIEVED FROM LANDSAT-8 DATA
Jie Wang, Guanghui Wang, Yu Liu, Jianwei Qi, Land Satellite Remote Sensing Application Center of The Ministry of Natural Resources, China

FR2.MM-13.3 DEVELOPMENT OF DOWNSCALED URBAN LAND SURFACE TEMPERATURE FOR NEW YORK CITY
Abdou Rachid Bah, City University of New York, Graduate Center, United States; Hamidreza Norouzi, New York City College of Technology, United States; Satya Prakash, Divecha Centre for Climate Change, Indian Institute of Science, United States; Makini Valentine, Reginald Blake, New York City College of Technology, United States

FR2.MM-13.4 DEVELOPMENT OF A LONG-TERM DATASET OF CHINA SURFACE URBAN HEAT ISLAND FOR POLICY MAKING: SPATIO-TEMPORAL CHARACTERISTICS
Lu Niu, Renmin University of China, China; Zhong Peng, Ronglin Tang, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, China; Zhengfeng Zhang, Renmin University of China, China

FR2.MM-13.5 SEGMENTATION OF TREE CANOPIES IN URBAN ENVIRONMENTS USING DILATED CONVOLUTIONAL NEURAL NETWORK
José Martins, Federal University of Mato Grosso do Sul, Brazil; Keiller Nogueira, University of Stirling, United Kingdom; Pedro Zamboni, Paulo Tarso Sanches de Oliveira, Wesley Nunes Gonçalves, Federal University of Mato Grosso do Sul, Brazil; Jefersson A. dos Santos, Federal University of Minas Gerais, UFMG, Brazil; José Marcato Junior, Federal University of Mato Grosso do Sul, Brazil

FR2.MM-13.6 TOWARDS ENABLING DEEP LEARNING-BASED QUESTION-ANSWERING FOR 3D LIDAR POINT CLOUDS
Rajat Shinde, Surya Durbha, Abhishek Potnis, Pratyush Talreja, Gaganpreet Singh, Indian Institute of Technology Bombay, India

Friday, July 16 13:00 - 14:10 Multimedia Room 14

Session FR2.MM-14

Modeling the Urban Environment

Session Co-Chairs: Tianchen Zheng, Universiteit Gent; Sutapa Bhattacharjee, Indian Institute of Technology Guwahati; Eric Hallot, Institut Scientifique de Service Public

FR2.MM-14.1 SIMULATING CITY EXPANSION USING A CA URBAN GROWTH MODEL, THROUGH A CASE STUDY OF NAIROBI, KENYA
Lingfei Shi, Feng Zhang, Zhenhong Du, Zhejiang University, China

FR2.MM-14.2 MODELLING THE IMPACT OF URBANIZATION ON SURFACE RUNOFF USING GEOSPATIAL TECHNIQUES
Sutapa Bhattacharjee, Rishikesh Bharti, Indian Institute of Technology Guwahati, India

FR2.MM-14.3 SECTORAL ENERGY-CONSUMPTION ESTIMATION BY UNMIXED NIGHTTIME LIGHT IN SHANGHAI, CHINA
Zhehao Ren, Lixian Zhang, Ministry of Education Key Laboratory for Earth System Modeling, China; Bin Chen, University of California, Davis, United States; Haohuan Fu, Bing Xu, Ministry of Education Key Laboratory for Earth System Modeling, China

FR2.MM-14.4 ANALYSIS OF THE INFLUENCE OF SKY VIEW FACTOR ON URBAN SURFACE TEMPERATURE BASED ON MULTI-SOURCE DATA
Qianhao Cheng, Qiang Chen, Yuanyuan Li, Beilei Cao, Beijing University of Civil Engineering and Architecture, China

FR2.MM-14.5 MONITORING ARTIFICIAL ISLANDS SUBSIDENCE IN NORTH JAKARTA USING PERSISTENT AND DISTRIBUTED SCATTERERS INSAR ANALYSIS
Jumpei Takami, University of Washington, Japan

FR2.MM-14.6 ASSESSMENT OF SKY DIFFUSE IRRADIANCE AND BUILDING REFLECTED IRRADIANCE IN CAST SHADOWS
Manchun Lei, French National Institute of Geographic and Forest Information, France; Yulu Xi, Ecole nationale des sciences géographiques, France; Jean-Philippe Gastellu-Etchegorry, Centre d'Etudes Spatiales de la Biosphère (CESBIO), CNES-CNRS-IRD-UPS, University of Toulouse, France

FR2.MM-14.7 APPLICATION OF TRANSPORTATION SUPERIORITY IN BEIJING-TIANJIN-HEBEI REGION BASED ON HIGH-RESOLUTION SATELLITE REMOTE SENSING DATA
Shulei Zheng, Hailun Dai, Guanghui Wang, Land Satellite Remote Sensing Application Center, China; Lei Miao, Beijing Siwei Space Digital Technology Co. Ltd, China; Wei Zhang, Land Satellite Remote Sensing Application Center, China

FR2.MM-14.8 TOWARDS AN INTEGRATE SOLUTION FUSING SATELLITE AND IN-SITU MEASUREMENTS FOR A FULL-ASSESSMENT OF TRANSPORT INFRASTRUCTURES
Chiara Clementini, Fabio Del Frate, Daniele Latini, Giovanni Schiavon, Tor Vergata University of Rome, Italy

FR2.MM-14.9 WETLANDS IN URBAN CONTEXTS: A CASE OF BHOJ WETLAND
Nirupam Das, Surabhi Mehrotra, Maulana Azad National Institute of Technology Bhopal, India

FR2.MM-14.10 EXTRACTION OF EARTHQUAKE-INDUCED BUILDING DAMAGE USING BI-TEMPORAL SPECTRAL AND HEIGHT DATA
Peijun Li, Yuanchu Ke, Xiaoxue Feng, Peking University, China

Friday, July 16 13:00 - 14:10 Multimedia Room 15

Session FR2.MM-15

Remote Sensing Applications for Soils and Soil Moisture

Session Co-Chairs: Emna Ayari, Université de Carthage, Institut National Agronomique de Tunisie / Centre d'Etudes de la Biosphère (CNES/CNRS/INRAE/IRD/UPS); Sushant Shekhar, Graphic Era Deemed University; Klara Dvorakova, Université catholique de Louvain

FR2.MM-15.1 STAND-ALONE RETRIEVALS OF SOIL MOISTURE AND VEGETATION OPACITY USING THE CYGNSS DATA
Qingyun Yan, Shuanggen Jin, Nanjing University of Information Science and Technology, China; Weimin Huang, Memorial University of Newfoundland, Canada; Yan Jia, Nanjing University of Posts and Telecommunications, China

FR2.MM-15.2 SOIL MOISTURE RETRIEVAL USING STACKED GENERALIZATION: AN ENSEMBLE MACHINE LEARNING METHOD
Yuan Cheng, Yuxia Li, University of Electronic Science and Technology of China, China; Huanping Wu, China Meteorological Administration, China; Fan Li, University of Electronic Science and Technology of China, China; Yuzhen Li, ChengDu Software Industry Development Center, China; Lei He, Chengdu University of Information Technology, China

FR2.MM-15.3 SOIL MOISTURE ESTIMATION OVER CEREAL FIELDS BASED ON SAR ALOS-2 DATA
Emna Ayari, Université de Carthage, Institut National Agronomique de Tunisie / Centre d'Etudes de la Biosphère (CNES/CNRS/INRAE/IRD/UPS), Tunisia; Zeineb Kassouk, Zohra Lili Chabaane, Université de Carthage, Institut National Agronomique de Tunisie, Tunisia; Safa Bousbih, Université de Carthage, Institut National Agronomique de Tunisie / Centre d'Etudes de la Biosphère (CNES/CNRS/INRAE/IRD/UPS), Tunisia; Nicolas Baghdadi, University of Montpellier, France; Mehrez Zribi, Centre d'Etudes Spatiales de la Biosphère (CNES/CNRS/INRAE/IRD/UPS), France

FR2.MM-15.4 SMAP VALIDATION EXPERIMENT 2019-2022 (SMAPVEX19-22): DETECTION OF SOIL MOISTURE UNDER TEMPERATE FOREST CANOPY
Andreas Colliander, NASA Jet Propulsion Laboratory, California Institute of Technology, United States; Michael Cosh, US Department of Agriculture, United States; Sidharth Misra, NASA Jet Propulsion Laboratory, California Institute of Technology, United States; Laura Bourgeau-Chavez, Michigan Tech Research Institute, United States; Vicky Kelly, Cary Institute of Ecosystem Studies, United States; Paul Siqueira, University of Massachusetts Amherst, United States; Alexandre Roy, University of Quebec at Trois-Rivieres, United States; Tarendra Lakhankar, NOAA Center for Earth System Sciences and Remote Sensing Technologies (CESSRST), United States; Simon Kraatz, University of Massachusetts Amherst, United States; Alexandra G. Konings, Stanford University, United States; Mehmet Kurum, Mississippi State University, United States; Dara Entekhabi, Massachusetts Institute of Technology, United States; Peggy O'Neill, NASA Goddard Space Flight Center, United States; Simon Yueh, NASA Jet Propulsion Laboratory, California Institute of Technology, United States

FR2.MM-15.5 GLOBAL ESTIMATION OF SURFACE SOIL MOISTURE USING NEURAL NETWORKS TRAINED BY IN-SITU MEASUREMENTS AND PASSIVE L-BAND TELEMETRY
Alireza Mahmoodi, Nemesio Rodríguez-Fernández, Philippe Richaume, Yann Kerr, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France

FR2.MM-15.6 SENSITIVITY OF MULTIPATH PEAK FREQUENCY OF NAVIGATION WITH INDIAN CONSTELLATION (NAVIC) TOWARDS SURFACE SOIL MOISTURE OVER BARE LAND
Sushant Shekhar, Rishi Prakash, Graphic Era Deemed University, India; Dharmendra Kumar Pandey, Indian Space Research Organisation, India; Anurag Vidyarthi, Graphic Era Deemed University, India; Shivani Tyagi, Deepak Putrevu, Arundhati Misra, Indian Space Research Organisation, India

FR2.MM-15.7 SOIL MOISTURE TEMPORAL STABILITY ANALYSIS IN GENHE WATERSHED OBSERVATION NETWORK
Xiyao Fang, Lingmei Jiang, Beijing Normal University, China

Friday, July 16 13:00 - 14:10 Multimedia Room 16

Session FR2.MM-16

Remote Sensing Applications in Inland Waters and Wetlands II

Session Co-Chairs: Robrecht Moelans, VITO Remote Sensing; Elise Dujardin, Université de Liège

FR2.MM-16.1 MAPEO-WATER: DRONE DATA PROCESSING INTO WATER QUALITY PRODUCTS
Liesbeth De Keukelaere, Robrecht Moelans, Els Knaeps, VITO, Belgium

FR2.MM-16.2 HIGH-RESOLUTION MAPPING OF RAINWATER HARVESTING SYSTEM CAPACITY FROM SATELLITE DERIVED PRODUCTS IN SOUTH INDIA
Claire Pascal, Université Paul Sabatier, France; Sylvain Ferrant, Institut de Recherche pour le Développement (IRD), France; Adrien Selles, Jean-Christophe Maréchal, Université de Montpellier, France; Simon Gascoin, Olivier Merlin, Centre National de la Recherche Scientifique (CNRS), France

FR2.MM-16.3 FY-3D/MERSI GLOBAL SURFACE WATER EXTRACTION BASED ON DNN METHOD
Kuanle Bao, University of Electronic Science and Technology of China, China; Jinlong Fan, China Meteorological Administration, China; Wenbo Xu, University of Electronic Science and Technology of China, China; Chunliang Zhao, Wenhui Du, Chinese Academy of Agricultural Sciences, China

FR2.MM-16.4 RIVER DETECTION AND WIDTH CALCULATION
Bocheng Peng, Yan Chen, Yunping Chen, Youchun Lu, Chunliang Xu, University of Electronic Science and Technology of China, China

FR2.MM-16.5 MAPPING OF PEATLAND DRAINAGE CANALS IN INDONESIA USING POLARIZATION DATA OF ALOS-2 PALSAR-2
Haemi Park, Takeo Tadono, Japan Aerospace Exploration Agency (JAXA), Japan

FR2.MM-16.6 CO2 MODELLING FROM EDDY COVARIANCE MEASUREMENTS FOR BIEBRZA WETLANDS
Katarzyna Misiura, IGIK, Poland; Katarzyna Dąbrowska-Zielińska, Radosław Gurdak, Institute of Geodesy and Cartography, Poland; Patryk Tadeusz Grzybowski, University of Warsaw, Poland; Marcin Kluczek, IGIK, Poland

FR2.MM-16.7 MONITORING PHOSPHATE LEVELS USING UNMANNED AERIAL VEHICLES ON GEOTHERMAL WATER POOLS
Cesar Ivan Alvarez Mendoza, Victor Noroña, Universidad Politécnica Salesiana, Ecuador; Ana Cláudia Teodoro, Universidade do Porto, Portugal

Friday, July 16 13:00 - 14:10 Multimedia Room 17

Session FR2.MM-17

Clouds and Aerosol detection

Session Co-Chairs: V Chandrasekar, Colorado State University; Alex Levering, Wageningen University & Research; Gail Skofronick-Jackson, NASA Headquarters

FR2.MM-17.1 SIMULATION STUDY OF PRECIPITATION USING SPACEBORNE SYNTHETIC APERTURE RADAR
Shashank S Joshil, V Chandrasekar, Colorado State University, United States; Kevin R Maschhoff, Martin F Ryba, BAE Systems, United States; Yanting Wang, U.S. Naval Research Laboratory, United States

FR2.MM-17.2 PRECIPITATION RETRIEVAL USING THE MWHTS AND MWTS ON CHINA METEOROLOGICAL SATELLITE
Na Li, Shengwei Zhang, Jieying He, Chinese Academy of Sciences, China

FR2.MM-17.3 POWER SPECTRAL RATIO FOR ESTIMATING THE LIQUID WATER CONTENT BETWEEN TWO COROTATING LEO SATELLITES
Fabrizio Cuccoli, CNIT, Italy; Luca Facheris, Fabrizio Argenti, University of Florence, Italy; Agnese Mazzinghi, CNIT, Italy; Andrea Antonini, Lamma, Italy; Luca Rovai, Lamma, CNR IBE, Italy

FR2.MM-17.4 A CLOUD DETECTION ALGORITHM FOR ENTEROMORPHA IN YELLOW SEA: PSEUDO-INVARIANT FEATURE-BASED RELATIVE RADIOMETRIC CORRECTION ALGORITHM
Xianci Wan, Jianhua Wan, Mingming Xu, Hui Sheng, China University of Petroleum (East China), China

FR2.MM-17.5 CLOUD SEGMENTATION OF SENTINEL-2 IMAGES USING CONVOLUTIONAL NEURAL NETWORK WITH DOMAIN ADAPTATION
Antonio Mazza, Pasquale Sepe, Giovanni Poggi, Giuseppe Scarpa, University Federico II, Italy

FR2.MM-17.6 BIAS CORRECTION OF SATELLITE RETRIEVALS OF OROGRAPHIC PRECIPITATION
Luyao Sun, Ocean University of China and Colorado State University, United States; Haonan Chen, Colorado State University, United States; Lei Han, Ocean University of China, China

FR2.MM-17.7 A NOVEL WAY TO CALCULATE SHORTWAVE BLACK CARBON DIRECT RADIATIVE FORCING
Wei Chen, Zhe Wang, Hengyang Wang, Xuepeng Zhang, China University of Mining and Technology, China

FR2.MM-17.8 ANALYSIS OF FACTORS AFFECTING PM2.5 CONCENTRATION IN THE MOUNTAINOUS AREAS OF JAPAN THROUGH GROUND OBSERVATIONS AND SIMULATIONS
Makiko Nakata, Tatsuaki Moriyama, Itaru Sano, Kindai University, Japan; Sonoyo Mukai, Kyoto College of Graduate Studies for Informatics, Japan

FR2.MM-17.9 MEASURING CO2 CONCENTRATION BY AIRBORNE LIDAR
Tianqi Shi, Ge Han, Xin Ma, Wuhan University, China

Friday, July 16 13:00 - 14:10 Multimedia Room 18

Session FR2.MM-18

Atmospheric Applications: Weather and Aerosol monitoring

Session Co-Chairs: Yue Zhou, Université catholique de Louvain; Jun Wang, University of Iowa

FR2.MM-18.1 A SNOW WATER EQUIVALENT RETRIEVAL FRAMEWORK COUPLING MICROWAVE REMOTE SENSING AND HYDROLOGY MODEL
Chunzeng Luo, Shurun Tan, Zhejiang University, China; Do-Hyuk Kang, University of Maryland, United States

FR2.MM-18.2 METHODS OF THE POLAR LOW MONITORING AND MODELING
Alexandra Kuznetsova, Alexander Dosaev, Nikita Rusakov, Evgeny Poplavsky, Yuliya Troitskaya, Institute of Applied Physics, Russian Academy of Sciences, Russia

FR2.MM-18.3 EVALUATION OF 3DVAR DATA ASSIMILATION WITH AUTOMATIC WEATHER STATION DATA FOR HEAVY RAINFALL FORECASTING IN THAILAND
Thippawan Thodsan, Falin Wu, Beihang University, China; Kritanai Torsri, Ministry of Higher Education Science Research and Innovation, Thailand; Gongliu Yang, Beihang University, China

FR2.MM-18.4 USE OF DAILY LAND SURFACE TEMPERATURE FOR LOCAL CLIMATE MODELLING: APPLY TO THE GIRONDE AREA
Gwenael Morin, Pierre-Gilles Lemasle, Université Rennes 2, France; Renan Leroux, Centre de coopération internationale en recherche agronomique pour le développement, France; Herve Quenol, Université Rennes 2, France

FR2.MM-18.5 GENERATING SPATIAL DISTRIBUTION OF VOLCANIC ASH SPREAD
Malini Krishnan, International Institute of Information Technology - Hyderabad, India; Krishnan Sundara Rajan, International Institute of Information Technology, Hyderabad, India

FR2.MM-18.6 GROUND POLLUTION SOURCE TARGET DETECTION BASED ON MODIS AND SENTINEL-5P PRODUCTS
Ziwei Yuan, Yunping Chen, Yue Yang, Yuanlei Cheng, Xiang Guo, University of Electronic Science and Technology of China, China; Yuan Sun, Aerospace Information Reasearch Institute, Chinese Academy of Sciences, China; Yan Chen, University of Electronic Science and Technology of China, China

FR2.MM-18.7 VARIATION OF SATELLITE-DERIVED AEROSOL OPTICAL DEPTH OVER CHINA BEFORE AND AFTER THE COVID-19 PANDEMIC
Qingmiao Ma, Yingjie Li, Shuguo Wang, Peipei Cui, Jiangsu Normal University, China

FR2.MM-18.8 SENSITIVITY OF MIXING STATES ON ABSORPTION OF BLACK CARBON AEROSOLS WITH DIVERSE MONOMER SIZES
Lijuan Zheng, Land Satellite Remote Sensing Application Center, Ministry of Natural Resources of China, China; Yu Wu, Aerospace Information Reasearch Institute, Chinese Academy of Sciences, China

FR2.MM-18.9 REMOTE ESTIMATION OF SULFUR CONTENT IN FUEL FROM SO2 AND CO2 QUANTIFICATION OF SHIP EXHAUST PLUMES
Jean-Philippe Gagnon, Martin Martin Larivière-Bastien, Jacob Thibodeau, Stephane Boubanga Tombet, Telops inc,, Canada

Friday, July 16 13:00 - 14:10 Multimedia Room 19

Session FR2.MM-19

Ocean Surface Winds

Session Co-Chairs: Xingou Xu, Key Laboratory of Microwave Remote Sensing, National Space Science Center; Ad Stoffelen, Royal Netherlands Meteorological Institute (KNMI); Lydia Abady, University of Siena

FR2.MM-19.1 MULTI-OBSERVABLE WIND SPEED RETRIEVAL BASED ON SPACEBORNE GNSS-R DELAY DOPPLER MAPS
Jinwei Bu, Kegen Yu, Shuai Han, Changyang Wang, China University of Mining and Technology, China

FR2.MM-19.2 A COMPARISON OF QUALITY INDICATORS FOR KU-BAND WIND SCATTEROMETRY & FOR TYPHOONS LEKIMA AND KROSA
Xingou Xu, Key Laboratory of Microwave Remote Sensing, National Space Science Center, China; Ad Stoffelen, Royal Netherlands Meteorological Institute KNMI , Netherlands; Marcos Portabella, Institute of Marine Sciences (ICM-CSIC), Spain; Wenming Lin, School of Marine Sciences, China; Xiaolong Dong, Key Laboratory of Microwave Remote Sensing, National Space Science Center, China

FR2.MM-19.3 WIND DIRECTION ESTIMATION AND ACCURACY RETRIEVAL FROM SENTINEL-1 SAR IMAGES UNDER THERMAL AND DYNAMICAL UNSTABLE CONDITIONS
Romain Husson, Collecte Localisation Satellites, France; Nicolas Longépé, European Space Agency (ESA), Italy; Alexis Mouche, IFREMER, France; Henrick Berger, Chunze Lin, Collecte Localisation Satellites, France; Olivier Archer, IFREMER, France; Aurélien Colin, Collecte Localisation Satellites, France

FR2.MM-19.4 BIOGEOCHEMICAL RESPONSE OF THE UPPER OCEAN TO TWO SEQUENTIAL TROPICAL CYCLONES
Jue Ning, Qing Xu, Hohai University, China

FR2.MM-19.5 ASSESSMENT OF CYGNSS OCEAN WIND SPEED PRODUCTS
Matthew Hammond, Giuseppe Foti, Christine Gommenginger, Meric Srokosz, National Oceanography Centre, United Kingdom; Nicolas Floury, ESA / ESTEC, United Kingdom

FR2.MM-19.6 UMASS SIMULTANEOUS FREQUENCY MICROWAVE RADIOMETER (USFMR) INSTRUMENT DESCRIPTION, CURRENT AND FUTURE WORK
Jezabel Vilardell Sanchez, University of Massachusetts Amherst, United States; Joseph Sapp, Global Science & Technology, Inc, United States; Zorana Jelenak, Paul S. Chang, NOAA/ NESDIS/STAR, United States; Stephen Frasier, University of Massachusetts Amherst, United States

FR2.MM-19.7 WIND SPEED RETRIEVAL ALGORITHM FOR KU-BAND RADAR ONBOARD GPM SATELLITE
Mariya Panfilova, Vladimir Karaev, Leonid Mitnik, Institute of Applied Physics, Russian Academy of Sciences, Russia

Friday, July 16 13:00 - 14:10 Multimedia Room 20

Session FR2.MM-20

Ocean Colour, Temperature and Salinity

Session Co-Chairs: Xiaofeng Li, Institute of Oceanology, Chinese Academy of Sciences; Robert Frouin, Scripps Institution of Oceanography (UCSD); Raktim Ghosh, Università degli Studi di Trento

FR2.MM-20.1 VALIDATION SATELLITE SEA SURFACE TEMPERATURE IN THE COASTAL REGIONS
Eun-Young Lee, Kyung-Ae Park, Seoul National University, South Korea

FR2.MM-20.2 ACCURACY OF SEA SURFACE TEMPERATURE FROM SMR OF THE HY-2B COMPARED WITH IN-SITU DATA IN 2020
Shishuai Wang, Beijing Piesat Information Technology Co., Ltd., China; Wu Zhou, National Satellite Ocean Application Service, China; Xiaobin Yin, Yan Li, Beijing Piesat Information Technology Co., Ltd., China

FR2.MM-20.3 RETRIEVAL OF SEA SURFACE SKIN TEMPERATURE FROM FY-3C/VIRR DATA IN THE ARCTIC
Zhuomin Li, Lei Guan, Mingkun Liu, Ocean University of China, China

FR2.MM-20.4 TWO-STEP ALGORITHM FOR SEA SURFACE TEMPERATURE DETERMINATION
Roberto Alonso, National Commission of Space Activities (CONAE), Argentina; Robert Frouin, Scripps Institution of Oceanography (UCSD), United States

FR2.MM-20.5 SMAP AND IN SITU SALINITY OBSERVATIONS ARROUND THE GREENLAND AND IN THE BERING STRAIT
Wenqing Tang, Simon Yueh, Alexander Fore, Akiko Hayashi, Jorge Vazquez, NASA Jet Propulsion Laboratory, California Institute of Technology, United States; Chelle Gentleman, Farallon Institute, United States

FR2.MM-20.6 REMOTE SENSING BASED ANALYSIS OF CHANGES IN WATER QUALITY - CASE STUDY AT QUINTERO BAY (CHILE)
Kevin Salazar, Guido Staub, University of Concepción, Chile

FR2.MM-20.7 MAPPING BENTHIC SUBSTRATE TYPE IN A SHALLOW COASTAL AREA USING AIRBORNE HYPERSPECTRAL IMAGES
Wonkook Kim, Pusan National University, Korea (South); Sung Hak Kim, Geostory, Korea (South); Sueng-il Baek, Pusan National University, Korea (South); Hyunkyum Kim, Korea Fisheries Resources Agency, Korea (South); Jaehong Oh, Korea Maritime and Ocean University, Korea (South)

FR2.MM-20.8 THE WATERCOLOURS PROJECT - PRELIMINARY ASSESSMENT OF CHLOROPHYLL-A VARIABILITY IN THE MALTA SHELF AREA
Adam Gauci, Ankita Misra, University of Malta, Malta; Nikola Krlovic, Mundus Noster Engineering, Serbia; Aldo Drago, University of Malta, Malta; Daniele Ciani, Federico Falcini, Consiglio Nazionale delle Ricerche (CNR-ISMAR), Italy

Friday, July 16 13:00 - 14:10 Multimedia Room 21

Session FR2.MM-21

Sensor Calibration in UAV and Ground Systems

Session Co-Chairs: Fabio Del Frate, University of Rome; Brian Terry, Analytical Mechanics Associates; Samer Karam, University of Twente; Sirui Lv, Nanjing University of Information Science and Technology

FR2.MM-21.1 EVOLVING REMOTE SENSING APPLICATIONS AS SYSTEM-OF-SYSTEMS
Ramakrishnan Raman, Honeywell Technology Solutions, India

FR2.MM-21.2 A MODIFIED SINGLE-CHANNEL ALGORITHM FOR ESTIMATING LAND SURFACE TEMPERATURE FROM UAV TIR IMAGERY
Letian Wei, University of Chinese Academy of Sciences, China; Hua Wu, Chinese Academy of Sciences, China; Xiao-Guang Jiang, Chen Ru, University of Chinese Academy of Sciences, China; Ya-Zhen Jiang, Cai-Xia Gao, Chinese Academy of Sciences, China

FR2.MM-21.3 TOTAL SUSPENDED SOLIDS (TSS) ESTIMATION OVER A SECTION OF THE UPPER BOGOTA RIVER BASIN (COLOMBIA) THROUGH PROCESSING MULTISPECTRAL IMAGES CAPTURED USING UAV
Carol Chicuazuque, Javier Sarmiento, Universidad Distrital Francisco José de Caldas, Colombia; Jorge Rodríguez, Universidad Nacional de Colombia, Colombia; Erika Upegui, Universidad Distrital Francisco José de Caldas, Colombia

FR2.MM-21.4 UAV-BASED OBSERVATIONS FOR SURFACE BRDF CHARACTERIZATION
Daniele Latini, GEO-K, Italy; Ilaria Petracca, Giovanni Schiavon, University of Rome, Italy; Fabrizio Niro, SERCO for ESA, Italy; Stefano Casadio, SERCO, Italy; Fabio Del Frate, University of Rome, Italy

FR2.MM-21.5 AN END-TO-END PIPELINE FOR ACQUIRING, PROCESSING, AND IMPORTING UAS DATA FOR USE IN THE OPEN DATA CUBE (ODC)
Brian Terry, Joshua Baptist, John Rattz, Otto Wagner, Oguz Yetkin, Sanjay Gowda, Analytical Mechanics and Associates, Inc., United States

FR2.MM-21.6 ON THE INTERFEROMETRIC CAPABILITIES OF THE PULSON P440 UWB RADAR
Adrian Focsa, Stefan-Adrian Toma, Damian Gorgoteanu, Military Technical Academy, Romania

FR2.MM-21.7 COMPARISON BETWEEN THREE REGISTRATION METHODS IN THE CASE OF NON-GEOREFERENCED CLOSE-RANGE MULTISPECTRAL IMAGES
Claudio Fernandez, University of New Brunswick, Canada; Ataollah Haddadi, A&L Canada Laboratories Inc., Canada; Brigitte Leblon, University of New Brunswick, Canada; Jinfei Wang, Western University, Canada; Keri Wang, A&L Canada Laboratories Inc., Canada

FR2.MM-21.8 AN EXTREMELY-LOW COST GROUND-BASED WHOLE SKY IMAGER
Mayank Jain, Isabella Gollini, Michela Bertolotto, Gavin McArdle, Soumyabrata Dev, University College Dublin, Ireland

FR2.MM-21.9 SIMULATION AND EVALUATION OF AN MM-WAVE MIMO GROUND-BASED SAR IMAGING SYSTEM FOR DISPLACEMENT MONITORING
Benyamin Hosseiny, Jalal Amini, University of Tehran, Iran; Safieddin Safavi-Naeini, University of Waterloo, Canada

Friday, July 16 13:00 - 14:10 Multimedia Room 22

Session FR2.MM-22

Advanced GNSS Methods and Systems for Spatial and Temporal Predictions

Session Co-Chairs: Mostafa Kiani Shahvandi, ETH Zurich; Cai Wu, University of Twente; Valentin Sokolow, UCLouvain

FR2.MM-22.1 SCANNING GNSS-R BEAMS FROM CUBESATS USING SEQUENTIALLY ROTATED DEPLOYABLE DIPOLES
Valentin Sokolow, Farzad Jabbarigargari, Paul Fisette, Christophe Craeye, UCLouvain, Belgium

FR2.MM-22.2 IMPROVING SMARTPHONES GNSS ELEVATION ACCURACY USING EMBEDDED SENSORS AND EXTERNAL SOURCES
Elias Issawy, Sagi Dalyot, The Technion, Israel

FR2.MM-22.3 AMPLITUDE ESTIMATION OF DOMINANT TIDAL CONSTITUENTS USING GNSS INTERFEROMETRIC REFLECTOMETRY TECHNIQUE
Yusof Ghiasi, University of Waterloo, Canada; Saeed Farzaneh, Kamal Parvazi, University of Tehran, Iran; Claude R. Duguay, University of Waterloo, Canada

FR2.MM-22.4 GNSSPY: PYTHON TOOLKIT FOR GNSS DATA
Mustafa Serkan Işık, Volkan Özbey, Serdar Erol, Ergin Tarı, Istanbul Technical University, Turkey

FR2.MM-22.5 ANALYSIS OF THE EFFECT OF GNSS INTERFERENCE ON HIGH-PRECISION POSITIONING APPLICATIONS OF SATELLITE NAVIGATION SYSTEMS
Yixu Liu, Shengli Wang, Liangliang Hu, Chao Han, Shandong University of Science and Technology, China; Dashuai Chai, Shandong Jianzhu University, China

FR2.MM-22.6 GNSS-BASED PASSIVE RADAR FOR TARGET DETECTION ALGORITHM AND EXPERIMENTS
Zhenyuan Ji, Leiyu Zhang, Qiankun Xu, School of Electronic and Information Engineering, Harbin Institute of Technology; Key Laboratory of Marine Environmental Monitoring and Information Processing, Ministry of Industry and Information Technology, China; Guangteng Fan, National Innovation Institute of Defense Technology, Academy of Military Sciences, China; Xin Qi, Yun Zhang, Jin Wei, School of Electronic and Information Engineering, Harbin Institute of Technology; Key Laboratory of Marine Environmental Monitoring and Information Processing, Ministry of Industry and Information Technology, China

Friday, July 16 13:00 - 14:10 Multimedia Room 23

Session FR2.MM-23

Hazard Detection and Monitoring I

Session Co-Chairs: Rommel H. Maneja, KING FAHD UNIVERSITY OF PETROLEUM AND MINERALS; Wanghao Xiao, Universiteit Gent; Bo Peng, University of Wisconsin - Madison

FR2.MM-23.1 SPATIOTEMPORAL CONTRASTIVE REPRESENTATION LEARNING FOR BUILDING DAMAGE CLASSIFICATION
Bo Peng, Qunying Huang, Jinmeng Rao, University of Wisconsin-Madison, United States

FR2.MM-23.2 STUDY ON THE EXTRACTION OF BUILDING DAMAGE CAUSED BY EARTHQUAKE FROM POLARIMETRIC SAR IMAGE BASED ON IMPROVED FREEMAM DECOMPOSITION
Heng Miao, Xiaoqing Wang, Ling Ding, Xiang Ding, Institute of Earthquake Forecasting, CEA, China

FR2.MM-23.3 BUILDING DAMAGE DETECTION IN VHR SATELLITE IMAGES VIA MULTI-SCALE SCENE CHANGE DETECTION
Wenjun Zhang, Li Shen, Wenfan Qiao, Southwest Jiaotong University, China

FR2.MM-23.4 MARINE SHIP TARGET DETECTION IN SAR IMAGE BASED ON GOOGLE EARTH ENGINE
Yu Lei, National University of Defence Technology, China; Xiang Guang Leng, National Defense University of Technology, China; Ke Feng Ji, National University of Defence Technology, China

FR2.MM-23.5 USING SYNTHETIC APERTURE RADAR AND RADIOMETER OBSERVATIONS TO ESTIMATE TROPICAL CYCLONE WIND STRUCTURE AND INTENSITY
Ziqiang Zhu, Nanjing University of Information Science and Technology, China; Ailing Lv, Shubo Liu, Xi'an Institute of Space Radio Technology, China; Biao Zhang, Nanjing University of Information Science and Technology, China

FR2.MM-23.6 MARINE LITTER SURVEY AT THE MAJOR SEA TURTLE NESTING ISLANDS IN THE ARABIAN GULF USING IN-SITU AND REMOTE SENSING METHODS
Rommel H. Maneja, King Fahd University of Petroleum and Minerals, Saudi Arabia; Rejoice Thomas, Chapman University, United States; Jeffrey D. Miller, King Fahd University of Petroleum and Minerals, Saudi Arabia; Wenzhao Li, Hesham El-Askary, Chapman University, United States; Ace Vincent B. Flandez, Joselito Francis A. Alcaria, Jinoy Gopalan, Abdulrahman Jukhdar, Abdullajid U. Basali, Joshua Dagoy, King Fahd University of Petroleum and Minerals, Saudi Arabia; Sachi Perera, Chapman University, United States; Perdana K. Prihartato, Ronald A. Loughland, Tyas I. Hikmawan, Ali Qasem, SAUDI ARAMCO, Saudi Arabia; Mohamed A. Qurban, Ministry of Environment, Water and Agriculture, Saudi Arabia; Daniele Struppa, Chapman University, United States

FR2.MM-23.7 SURFACE-DOWNHOLE JOINT REAL-TIME MICROSEISMIC MONITORING SYSTEM: A CASE STUDY IN A COALMINE LOCATED IN SICHUAN BASIN, CHINA
Zhiqiang Lan, Yaojun Wang, Peng Wang, Peng Gao, Jiandong Liang, University of Electronic Science and Technology of China, China

FR2.MM-23.8 SMOULDER DETECTION USING SPLIT-WINDOW ALGORITHM: A CASE STUDY FROM BAGHJAN OILFIELD, ASSAM, INDIA
Sandeep Kumar Mondal, Rishikesh Bharti, Indian Institute of Technology Guwahati, India

FR2.MM-23.9 APPLICATION OF OBJECT BASED IMAGE ANALYSIS IN EARTHQUAKE EMERGENCY PRODUCTS
Yayhui Chen, Xiaoyue Gao, Xiaoli Li, Yihao Duan, China Earthquake Networks Center, China

Friday, July 16 13:00 - 14:10 Multimedia Room 24

Session FR2.MM-24

Hazard Detection and Monitoring II

Session Co-Chairs: Fangli Guan, Universiteit Gent; Omar Barrilero, European Union Satellite Centre; Shimrit Maman-Tirosh

FR2.MM-24.1 ASSESSMENT OF THE CAPABILITY TO MONITOR OIL INVENTORIES DURING THE COVID-19 PANDEMIC BY USING SENTINEL-1 DATA
Omar Barrilero, Michele Lazzarini, Adrian Luna, Paula Saameno, Sergio Albani, Andrea Patrono, European Union Satellite Centre, Spain

FR2.MM-24.2 SUBSURFACE VOIDS DETECTION FROM LIMITED GROUND PENETRATING RADAR DATA USING GENERATIVE ADVERSARIAL NETWORK AND YOLOV5
Guanyi Chen, Xu Bai, Gang Wang, Long Wang, Xuerong Luo, Mingjie Ji, Pengfei Feng, Yang Zhang, Harbin Institute of Technology, China

FR2.MM-24.3 MONITORING INTERTIDAL BARS AND 3D COASTAL MAPPING USING AN AUTOMATIC ALGORITHM ON A LIDAR DATASET
Anne-Lise Montreuil, Margaret Chen, Vrije Universiteit Brussel, Belgium; Robrecht Moelans, Wouter Dierckx, VITO, Belgium; Rik Houthuys, Geoconsultant, Belgium; Albert Pintor Klein, Vrije Universiteit Brussel, Belgium; Patrick Bogaert, UC Louvain, Belgium

FR2.MM-24.4 URBAN FLOOD MAPPING OF THE JULY 2020 KYUSHU, JAPAN HEAVY RAIN BASED ON INTERFEROMETRIC COHERENCE OF SENTINEL-1 IMAGES
Hiroyuki Miura, Naoko Takeya, Hiroshima University, Japan

FR2.MM-24.5 UTILIZING THE SAR, GIS, AND NOVEL HYBRID METAHEURISTIC-GMDH ALGORITHM FOR FLOOD SUSCEPTIBILITY MAPPING
Fatemeh Rezaie, Korea Institute of Geoscience and Mineral Resources (KIGAM), Korea (South); Sayed M. Bateni, University of Hawaii at Manoa, United States; Essam Heggy, University of Southern California, United States; Saro Lee, Korea Institute of Geoscience and Mineral Resources (KIGAM), Iran

FR2.MM-24.6 DROUGHT MONITORING METHOD BASED ON MULTISCALE REMOTE SENSING DATA FUSION
Huayu Li, Jianhua Wan, Shanwei Liu, Jixiang Zhao, China University of Petroleum (East China), China

FR2.MM-24.7 ANOMALY DETECTION IN POST FIRE ASSESSMENT
Mihai Coca, Research Center for Spatial Information (CEOSpaceTech), University POLITEHNICA of Bucharest (UPB) and Computer Science and Cyber Security Laboratory, Military Technical Academy Ferdinand I of Bucharest, Romania; Mihai Datcu, Research Center for Spatial Information (CEOSpaceTech), University POLITEHNICA of Bucharest (UPB) and Earth Observation Center (EOC), German Aerospace Center (DLR), Romania

Friday, July 16 13:00 - 14:10 Multimedia Room 25

Session FR2.MM-25

Hazard Assessment: Methodology

Session Co-Chairs: Ahmad Al Bitar, CESBIO/CNRS; Chenchen Xu, Universiteit Gent; Igor Shirokov, Sevastopol State University

FR2.MM-25.1 USING VLF TIME SERIES FROM THE INFREP NETWORK FOR THE STUDY OF PRE-SEISMIC RADIO ANOMALIES
Manilo Monaco, University of Florence, Italy; Giovanni Nico, National Research Council (CNR), Italy; Pier Francesco Biagi, University of Bari, Italy; Anita Ermini, University of Tor Vergata, Italy; Aleksandra Nina, University of Belgrade, Serbia; Mario Giovanni C. A. Cimino, Gigliola Vaglini, University of Pisa, Italy

FR2.MM-25.2 GLOBAL ASSESSMENT OF DROUGHTS IN THE LAST DECADE FROM SMOS ROOT ZONE SOIL MOISTURE
Ahmad Al Bitar, Ali Mahmoodi, Centre d'Etudes Spatiales de la Biosphère (CESBIO), CNRS, France; Yann Kerr, Nemesio Rodríguez-Fernández, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France; Marie Parrens, Dynafor, France; Stephane Tarot, Ifremer, France

FR2.MM-25.3 STUDY OF THE EARTH'S MAGNETIC FIELD
Igor Shirokov, Sevastopol State University, Russia; Vladimir Minligareev, David Arutyunyan, E. K. Fedorov Institute of Applied Geophysics, Russia; Kirill uznetcov, Moscow State University, Russia

FR2.MM-25.4 A NEW COMPREHENSIVE DROUGHT INDEX BASED ON RESPONSE ADJUSTMENT FOR VEGETATION TYPES
Guoying Yin, Hongyan Zhang, Liangpei Zhang, Wuhan University, China

FR2.MM-25.5 ESTIMATION OF THE ATMOSPHERIC MICROWAVE RADIATION PARAMETERS IN TROPICAL CYCLONES FROM THE AMSR2 MEASUREMENT DATA
Elizaveta Zabolotskikh, Russian State Hydrometeorological University, Russia; Bertrand Chapron, Ifremer, France

FR2.MM-25.6 CAUSATION DISCOVERY OF WEATHER AND VEGETATION CONDITION ON GLOBAL WILDFIRE USING THE PCMCI APPROACH
Yuquan Qu, Carsten Montzka, Harry Vereecken, Juelich Research Center, Germany

FR2.MM-25.7 WILDFIRE DANGER ASSESSMENT OVER SOUTHWEST CHINA BASED ON SHORT-TERM FEATURES OF WEATHER AND FUEL VARIABLES
Qian Xie, Xingwen Quan, Binbin He, University of Electronic Science and Technology of China, China

FR2.MM-25.8 SPATIO-TEMPORAL ASSESSMENT OF HUMAN WILDFIRE EXPOSURE IN CHINA FROM 2001 TO 2019
Yufu Liu, Shuhan Lou, Yuqi Bai, Tsinghua University, China

FR2.MM-25.9 AN ONLINE PLATFORM FOR FULLY-AUTOMATED EO PROCESSING WORKFLOWS FOR DEVELOPERS AND END-USERS ALIKE
Guy Schumann, RSS-Hydro/WASDI, Luxembourg; Paolo Campanella, Fadeout Software/ WASDI, Italy; Alberto Tasso, Fadeout Software, Italy; Laura Giustarini, RSS-Hydro, Luxembourg; Patrick Matgen, Marco Chini, Lucien Hoffmann, Luxembourg Institute of Science and Technology, Luxembourg

FR2.MM-25.10 VQA-AID: VISUAL QUESTION ANSWERING FOR POST-DISASTER DAMAGE ASSESSMENT AND ANALYSIS
Argho Sarkar, Maryam Rahnemoonfar, University of Maryland Baltimore County, United States

Friday, July 16 13:00 - 14:10 Multimedia Room 26

Session FR2.MM-26

Precision Agriculture I

Session Co-Chairs: Leila Maria Garcia Fonseca, National Institute for Space Research (INPE); Katarzyna DABROWSKA-ZIELINSKA, kierownik Centrum Teledetekcji IGiK; Stella Gachoki, University of Twente

FR2.MM-26.1 VIRTUAL ENVIRONMENTS & PRECISION VITICULTURE: A CASE STUDY
João Lourenço, João Teixeira, Paulo Carvalho, Luís Pádua, Telmo Adão, Emanuel Peres, Joaquim J. Sousa, Universidade de Trás-os-Montes e Alto Douro, Portugal

FR2.MM-26.2 THE ADDED VALUE OF CYCLE-GAN FOR AGRICULTURE STUDIES
Ecre Sener, Istanbul Technical University, Turkey; Emre Colak, Chemnitz University of Technology, Germany; Esra Erten, Gülşen Taşkın, Istanbul Technical University, Turkey

FR2.MM-26.3 DETECTION OF AGRICULTURAL ACTIVITY IN CENTER PIVOT AREAS IN SOUTHEASTERN BRAZIL
Felipe Rafael de Sá Menezes Lucena, Aline Casassola, Thales Sehn Körting, Leila Maria Garcia Fonseca, Hermann Johann Heinrich Kux, National Institute for Space Research (INPE), Brazil

FR2.MM-26.4 WEED IDENTIFICATION USING K-MEANS CLUSTERING WITH COLOR SPACES FEATURES IN MULTI-SPECTRAL IMAGES TAKEN BY UAV
Rashi Agarwal, UIET, Chhatrapati Shahu Ji Maharaj University, India; Hariharan S Nair, University of Madras, India; Nagabhushana Rao, Vidya Jyothi Institute of Technology, India; Abhishek Agarwal, IIIT Bhubaneshwar, India

FR2.MM-26.5 USE OF HYPERSPECTRAL PRISMA LEVEL-1 DATA AND ISDA SOIL FERTILITY MAP FOR SOIL MACRONUTRIENT AVAILABILITY QUANTIFICATION IN A MOROCCAN AGRICULTURAL LAND
Khalil Misbah, Ahmed Laamrani, Mohammed VI Polytechnic University, Morocco; Abdelghani Chehbouni, Université de Toulouse, France; Driss Dhiba, Mohammed VI Polytechnic University, Morocco; Jamal Ezzahar, Université Cadi Ayyad, Morocco

FR2.MM-26.6 GRAPEVINE VARIETY IDENTIFICATION THROUGH GRAPEVINE LEAF IMAGES ACQUIRED IN NATURAL ENVIRONMENT
Gabriel Carneiro, Luís Pádua, University of Trás-os-Montes e Alto Douro, Portugal; Joaquim J. Sousa, Universidade de Trás-os-Montes e Alto Douro, Portugal; Emanuel Peres, Raul Morais, António Cunha, University of Trás-os-Montes e Alto Douro, Portugal

FR2.MM-26.7 INVESTIGATING THE PERFORMANCE OF HYPERSPECTRAL AND SIMULATED SENTINEL-2 DATA FOR SOYBEAN CANOPY NITROGEN ESTIMATION
Jayantrao Mohite, Suryakant Sawant, Ankur Pandit, Ajay Mittal, Srinivasu Pappula, Tata Consultancy Services, India

FR2.MM-26.8 ASSESSMENT OF WATER-DEMAND INDEX USING THE SMAP-SENTINEL HIGH-RESOLUTION SOIL MOISTURE PRODUCT
Gurjeet Singh, NASA Jet Propulsion Laboratory, California Institute of Technology, United States; Narendra Das, Michigan State University, United States

Friday, July 16 14:25 - 15:55 Oral Room 1

Session FR3.O-1 Oral-Invited

Optical and Microwave Sensing for Mapping, Monitoring and Early Warning of Natural Hazards

Session Co-Chairs: Ramesh Singh, Chapman University; Lixin Wu, Central South University; Yogender , University of Twente

FR3.O-1.1 NASA DISASTERS PROGRAM: EARTH OBSERVATION FOR ACTIONABLE KNOWLEDGE
David Green, National Aeronautics and Space Administration (NASA), United States

FR3.O-1.3 THE NISAR MISSION'S CAPABILITIES FOR NATURAL HAZARDS MONITORING
Cathleen Jones, NASA Jet Propulsion Laboratory, California Institute of Technology, United States; Manjusree P, National Remote Sensing Centre, Indian Space Research Organisation, India; Srinivasa Rao, Indian Space Research Organisation, India

FR3.O-1.4 MONITORING OF COASTAL SUBSIDENCE BY COMBINING MULTIPLE SENSORS
Michael Willis, Eduard Heijkoop, Kristy Tiampo, Steven Nerem, University of Colorado Boulder, United States

FR3.O-1.5 SATELLITE REMOTE SENSING FOR FINE SCALE MAPPING AND IMPACT ASSESSMENT OF FIRES IN AGROFOREST ECOSYSTEMS
Dimitris Poursanidis, Foundation for Research and Technology Hellas, Greece; Anna Kagiambaki, Region of Crete, Greece; Nektarios Chrysoulakis, Foundation for Research and Technology Hellas, Greece

Friday, July 16 **14:25 - 15:55** **Oral Room 2**
Session FR3.O-2 **Oral**

Noise and Azimuth Ambiguity Suppression Techniques for SAR Data

Session Co-Chairs: Davide Castelletti, Capella Space Corporation; Rifat Afroz, The University of Adelaide; Adrien Grivey, École Nationale Supérieure de Techniques Avancées Bretagne

FR3.O-2.1 **ANALYSIS AND SUPPRESSION FOR PERIODICITY TRANSMITTED NARROW-BAND INTERFERENCE FOR SAR**
Muyang Zhan, Penghui Huang, Shanghai Jiao Tong University, China; Dong Yang, Weiwei Wang, Academy of Space Electronic Information Technology, China; Jialian Sheng, Shanghai Radio Equipment Research Institute,, China; Zhicheng Wang, Xingzhao Liu, Shanghai Jiao Tong University, China

FR3.O-2.2 **AZIMUTH AMBIGUITIES SUPPRESSION FOR MULTICHANNEL SAR IMAGING BASED ON L_(2,Q) REGULARIZATION: INITIAL RESULTS OF NON-SPARSE SCENARIO**
Mingqian Liu, Jie Li, Zhe Zhang, Bingchen Zhang, Yirong Wu, Aerospace Information Reasearch Institute, Chinese Academy of Sciences, China

FR3.O-2.3 **LINEAR PROGRAMMING BASED SIDELOBE SUPPRESSION FOR SAR IMAGE OPTIMIZATION**
Ruyi Deng, Xiang Tian, University of Electronic Science and Technology of China, China; Zhen-Mei Kang, Southwest China Institute of Electronic Technology, China; Bingqing Hong, University Of Electronic Science And Technology Of China, China; Wen-Q Wang, University of Electronic Science and Technology of China, China

FR3.O-2.4 **IMPROVED SUBAPERTURE BASED APERTURE-DEPENDENT MOTION COMPENSATION BASED ON ADAPTIVE BLOCKING AND APODIZATION**
Rifat Afroz, University of Adelaide, Australia; Rolf Scheiber, German Aerospace Center (DLR), Germany; Brian Ng, Derek Abbott, University of Adelaide, Australia

FR3.O-2.5 **EXPLOITING AERIAL IMAGERY FOR SUPERVISED LEARNING OF SAR DESPECKLING NEURAL NETWORKS**
Lloyd Hughes, Shaunak De, Davide Castelletti, Ganesh Yalla, Capella Space Corporation, United States

Friday, July 16 **14:25 - 15:55** **Oral Room 3**
Session FR3.O-3 **Oral**

Sensors and Calibration

Session Co-Chairs: Lennert Anston, Universiteit Gent; Filippo Biondi; Shaunak De, IEEE

FR3.O-3.1 **LOW PAPR OFDM-CHIRP MODULATION SIGNALING SCHEME**
Wenkai Jia, Wen-Qin Wang, Jie Cheng, Yudian Hou, University of Electronic Science and Technology of China, China; Zhenmei Kang, Southwest China Institute of Electronic Technology, China

FR3.O-3.2 **HEIGHT MEASUREMENT OF MICRO-UAVS WITH L-BAND STARING RADAR**
Rui Guo, Yue Zhang, Biao Tian, Shiyou Xu, Zengping Chen, Sun Yat-Sen University, China

FR3.O-3.3 **USING AN INERTIAL NAVIGATION SYSTEM FOR GRAVIMETRIC APPLICATIONS. A COMPARATIVE STUDY BETWEEN AN INS, A MICROGRAVITY METER AND A SEISMOMETER.**
Benjamin Beirens, José Darrozes, Guillaume Ramillien, Seoane Lucia, Geosciences Environnement Toulouse, France

FR3.O-3.4 **ATMOSPHERIC PHASE DRIFT ANALYSIS AND COMPENSATION IN PERMANENT GB-SAR MONITORING OF CROP FIELDS**
Hector Palacio, Antoni Broquetas, Alberto Aguasca, Universitat Politècnica de Catalunya, Spain

FR3.O-3.5 **IN SITU EXPLORATION OF SOIL LEAD IN RESIDENTIAL COMMUNITIES USING X-RAY FLUORESCENCE AND GEOSPATIAL VISUALIZATION**
Benjamin Roth, Krystle Harrell, Benjamin Wallen, Mindy Kimball, William Wright, US Military Academy, United States

Friday, July 16 14:25 - 15:55 Oral Room 4
Session FR3.O-4 Oral-Invited

Remote Sensing of Atmospheric Pollution I

Session Co-Chairs: Yong Xue, China University of Mining and Technology; Xiran Zhou, China University of Mining and Technology; Zhilong Yang, Fudan University

FR3.O-4.1 ASSESSMENT OF SIBERIAN PERMAFROST IN THE CLIMATE CHANGE REGIME
Costas Varotsos, National and Kapodistrian University of Athens, Greece; Vladimir Krapivin, Kotelnikov's Institute of Radioengineering and Electronics, Fryazino Branch, Russian Academy of Sciences, Russia; Yong Xue, China University of Mining and Technology, China

FR3.O-4.3 YET MORE EVIDENCE AGAINST THE 2D-3D TURBULENCE MODEL: CLOUDSAT CLOUD DISTRIBUTIONS CONFIRM THE 23/9 (2.55 D) SCALING, STRATIFIED, TURBULENCE MODEL
Shaun Lovejoy, McGill University, Canada

FR3.O-4.4 FY-4A AOD BASED ESTIMATES THE MASS CONCENTRATION OF PM2.5 AND PM10 ON LAND
Yuxin Sun, Yong Xue, Kai Qin, Xiran Zhou, Xingxing Jiang, Chunlin Jin, Shuhui Wu, China University of Mining and Technology, China

FR3.O-4.5 ADVANCED ALGORITHM FOR AEROSOL RETRIEVAL FROM SENTINEL-2 MULTISPECTRAL INSTRUMENT DATA
Yingjie Li, Fang Chen, Shuguo Wang, Ming Li, Qingmiao Ma, Jiangsu Normal University, China

FR3.O-4.6 VALIDATION AND LONG TERM VARIATION ANALYSIS OF SATELLITE-DERIVED AIR POLLUTION COMPONENTS
Fang Chen, Yingjie Li, Qingmiao Ma, Shuguo Wang, Jiangsu Normal University, China

Friday, July 16 14:25 - 15:55 Oral Room 5
Session FR3.O-5 Oral-Invited

International Spaceborne SAR Missions Coordination and Collaboration

Session Co-Chairs: Charles Elachi, Caltech, USA; Maurice Borgeaud, ESA; Christel Chappuis, École polytechnique fédérale de Lausanne (EPFL)

FR3.O-5.1 INTERNATIONAL COORDINATION OF FUTURE SPACEBORNE SAR MISSIONS - AN OVERVIEW
Maurice Borgeaud, European Space Agency (ESA), Italy; Charles Elachi, California Institute of Technology, United States

FR3.O-5.3 A REVIEW OF SAR OBSERVATION REQUIREMENTS FOR GLOBAL AND TARGETED SCIENCE APPLICATIONS
Ake Rosenqvist, solo Earth Observation (soloEO), Japan; Cathleen Jones, NASA Jet Propulsion Laboratory, California Institute of Technology, United States; Eric Rignot, University of California, Irvine, United States; Mark Simons, California Institute of Technology, United States; Paul Siqueira, University of Massachusetts Amherst, United States; Takeo Tadono, Japan Aerospace Exploration Agency (JAXA), Japan

FR3.O-5.4 FUTURE SAR IMAGING SYSTEMS: GOALS, PLANS, CHALLENGES AND OPPORTUNITIES
Paul Rosen, NASA Jet Propulsion Laboratory, California Institute of Technology, United States; Martin Suess, European Space Agency (ESA), Netherlands; Manfred Zink, German Aerospace Center (DLR), Germany

FR3.O-5.5 PRESENT AND FUTURE DATA VISIBILITY AND ACCESS OF INTERNATIONAL VIRTUAL SAR CONSTELLATION
Shin-ichi Sobue, Japan Aerospace Exploration Agency (JAXA), Japan; Gerald Bawden, NASA, United States; Raj Kumar, Indian Space Research Organisation, India; Shiro Kawakita, Japan Aerospace Exploration Agency (JAXA), Japan; Manil Maskey, NASA, United States; Wasanchai Vongsantivanich, GISTDA, Thailand; David Sandwell, UCSD, United States

FR3.O-5.6 SAOCOM-1B INDEPENDENT COMMISSIONING PHASE RESULTS
Laura Fioretti, Davide Giudici, Pietro Guccione, Andrea Recchia, Martin Steinisch, Aresys s.r.l., Italy

Friday, July 16 14:25 - 15:55 Oral Room 6
Session FR3.O-6 Oral-Invited

Thermal Remote Sensing for Advanced Monitoring and Assessment of Natural and Anthropogenic Hazards

Session Co-Chairs: George Xian, United States Geological Survey (USGS) Earth Resources Observation and Science Center; Vasco Mantas, University of Coimbra; Simon van Diepen, Technische Universiteit Delft

FR3.O-6.1 MONITORING MULTI-DECADAL VARIATIONS OF URBAN HEAT ISLAND INTENSITY
George Xian, United States Geological Survey (USGS) Earth Resources Observation and Science Center, United States; Hua Shi, ASRC Federal Data Solutions (AFDS), Contractor to the USGS EROS, United States; Kevin Gallo, NOAA/NESDIS, Center for Satellite Applications and Research, United States

FR3.O-6.2 SATIRIM: TOWARDS A THERMAL IR SMALL SATELLITES CONSTELLATION
Joris Blommaert, VITO, Belgium; Stefan Lesschaeve, OIP, Belgium; Jonathan Leon Tavares, Dirk Nuyts, Bavo Delauré, Anne Gobin, Jan Dries, VITO, Belgium; Lieve De Vos, OIP, Belgium

FR3.O-6.3 INTEGRATING SATELLITE THERMAL IMAGERY AND GLOBAL WEATHER DATASETS FOR OPERATIONAL ACTUAL EVAPOTRANSPIRATION MAPPING AND DROUGHT EARLY WARNING APPLICATIONS
Gabriel Senay, U.S. Geological Survey, United States; Stefanie Kagone, ASRC Federal Data Solutions LLC, United States; Claudia Young, Innovate!, United States; Cheryl Holen, Maxwell Mcelhone, KBR, United States; Michael Budde, James Rowland, U.S. Geological Survey, United States

FR3.O-6.4 TEXTURE FEATURE ANALYSIS OF THERMAL INFRARED IMAGE IN EARTHQUAKE DAMAGED AREAS
Xiwei Fan, Gaozhong Nie, Xun Zeng, Chaoxu Xia, Institute of Geology, China Earthquake Administration, China

FR3.O-6.5 LAND SURFACE TEMPERATURE DIFFERENCES BETWEEN NATURAL AND ARTIFICIAL TURF SPORTS FIELDS AS ESTIMATED FROM SATELLITE: EXAMPLES FROM THE UNITED STATES AND EUROPE
Vasco Mantas, University of Coimbra, Portugal; George Xian, U.S. Geological Survey, United States

Friday, July 16 14:25 - 15:55 Oral Room 7
Session FR3.O-7 Oral

Multi-temporal DInSAR Data Processing

Session Co-Chairs: Antonio Pepe, Institute for the Electromagnetic Sensing of the Environment (IREA) - National Research Council (CNR); Francesco De Zan, German Aerospace Center (DLR); Aurelie de Jong, École polytechnique fédérale de Lausanne (EPFL)

FR3.O-7.1 NON-GAUSSIAN EXTENSIONS FOR THE DETECTION OF PERSISTENT SCATTERERS: ADDRESSING THE LIMITATIONS OF GAUSSIAN MODELS FOR INSAR IMAGERY
Stacey Huang, Howard Zebker, Stanford University, United States

FR3.O-7.2 TROPOSPHERIC EXCESS PATH DELAY COMPENSATION ON WRAPPED GROUND-BASED SAR INTERFEROGRAMS
Francesco Falabella, University of Basilicata, Italy; Angela Perrone, Tony Alfredo Stabile, Institute of Methodologies for Environmental Analysis (IMAA) - National Research Council (CNR), Italy; Antonio Pepe, Institute for the Electromagnetic Sensing of the Environment (IREA) - National Research Council (CNR), Italy; Carmine Serio, University of Basilicata, Italy

FR3.O-7.3 A NEW PHASE UNWRAPPING METHOD COMBINING MINIMUM COST FLOW WITH DEEP LEARNING
Zhipeng Wu, Aerospace Information Reasearch Institute, Chinese Academy of Sciences, China; Teng Wang, Peking University, China; Yingjie Wang, Aerospace Information Reasearch Institute, Chinese Academy of Sciences, China; Daqing Ge, China Aero Geophysical Survey and Remote Sensing Center for Natural Resources, China

FR3.O-7.4 FADING SIGNAL: AN OVERLOOKED ERROR SOURCE FOR DISTRIBUTED SCATTERER INTERFEROMETRY
Homa Ansari, Francesco De Zan, Alessandro Parizzi, German Aerospace Center (DLR), Germany

FR3.O-7.5 A STOCHASTIC MODEL FOR INSAR TIMESERIES: ESTIMATION AND PROPAGATION FOR REDUCED DATASETS
Sami Samiei-Esfahany, University of Tehran, Iran; Freek J. van Leijen, Ramon F. Hanssen, Delft University of Technology, Netherlands

FR3.O-7.6 IMPACT OF SAR IMAGE RESOLUTION ON THE PERFORMANCE OF THE AMPLITUDE DISPERSION OPTIMIZATION FOR POLARIMETRIC PERSISTENT SCATTERER INTERFEROMETRY
Feng Zhao, China University of Mining and Technology, China; Jordi J. Mallorqui, CommSensLab, Universitat Politècnica de Catalunya, Spain; Juan M. Lopez-Sanchez, IUII, Universitat d'Alacant, Spain

Friday, July 16 14:25 - 15:55 Oral Room 8

Session FR3.O-8 Oral

Data Processing for Hyperspectral Unmixing and Target Detection

Session Co-Chairs: Stefania Matteoli, National Research Council (CNR) of Italy; Amanda Ziemann, Los Alamos National Laboratory; Jordi Cortes, Universitat de València

FR3.O-8.1 GRADIENT-BASED NMF METHODS FOR HYPERSPECTRAL UNMIXING ADDRESSING SPECTRAL VARIABILITY WITH A MULTIPLICATIVE-TUNING LINEAR MIXING MODEL
Fatima Zohra Benhalouche, Moussa Sofiane Karoui, Agence Spatiale Algérienne, Centre des Techniques Spatiales, Algeria; Yannick Deville, Institut de Recherche en Astrophysique et Planétologie, France

FR3.O-8.2 HOW TO CONSTRUCT A DEEP NETWORK-BASED HYPERSPECTRAL TARGET DETECTOR? —– A LSTM INSPIRED METHOD
Dehui Zhu, Bo Du, Liangpei Zhang, Wuhan University, China

FR3.O-8.3 MULTIPLE INSTANCE CONSTRAINED ENERGY MINIMIZATION FOR DISCRIMINATIVE HYPERSPECTRAL TARGET CHARACTERIZATION
Changzhe Jiao, Bo Yang, Jinjian Wu, Xidian University, China

FR3.O-8.4 LEARNING BASED ATMOSPHERIC COMPENSATION: RESULTS ON PRISMA DATA
Nicola Acito, University of Pisa, Italy; Marco Diani, Accademia Navale, Italy; Giovanni Corsini, University of Pisa, Italy

FR3.O-8.5 DYNAMIC UPDATE OF KRONECKER LEAST ANGLE REGRESSION FOR FAST UNMIXING OF HYPERSPECTRAL IMAGING DATA
Ahmed Elrewainy, Military Technical College, Egypt; Sherif Sherif, University of Manitoba, Canada

FR3.O-8.6 BAYESIAN DETECTION OF SOLID SUBPIXEL TARGETS
James Theiler, Los Alamos National Laboratory, United States; Stefania Matteoli, National Research Council (CNR), Italy; Amanda Ziemann, Los Alamos National Laboratory, United States

Friday, July 16 14:25 - 15:55 Oral Room 9

Session FR3.O-9 Oral

Information Extraction and Classification for Remote Sensing Images

Session Co-Chairs: Qian Du, Mississippi State University; Genc Hoxha, University of Trento; Raj Kishore Parida, APJ Abdul Kalam Technical University

FR3.O-9.1 MODIFIED STRUCTURE-AWARE COLLABORATIVE REPRESENTATION FOR HYPERSPECTRAL IMAGE CLASSIFICATION
Chiranjibi Shah, Qian Du, Mississippi State University, United States

FR3.O-9.2 INTEGRATED GABOR-BASED DECISION FUSION FOR HYPERSPECTRAL IMAGE CLASSIFICATION
Runlin Cai, Chenying Liu, Jun Li, Sun Yat-Sen University, China

FR3.O-9.3 POLYGONAL PARTITION-BASED HYPERSPECTRAL IMAGE CLASSIFICATION WITH SINGLE LABELED SAMPLE
Shuo Zhang, Xiaohui Wei, Xudong Kang, Puhong Duan, Shutao Li, Hunan University, China

FR3.O-9.4 AN ACTIVE LEARNING STRATEGY FOR SVM-BASED CAPTIONING
Genc Hoxha, Farid Melgani, University of Trento, Italy

FR3.O-9.5 MULTI-LABEL HYPERSPECTRAL CLASSIFICATION WITH DISCRIMINATIVE FEATURES
Shuai Fang, Kun Zhang, YiBin Wang, Jing Zhang, Hefei University of Technology, China; Yang Cao, University of Science and Technology of China, China; WeiKai Shi, Macau University of Science and Technology, China

FR3.O-9.6 FAST ACCURATE SUPERVISED CLOUD ANNOTATION
Christien Williams, Massachussetts Institute of Technology, United States; Tristan Dagobert, Université Paris-Saclay, France; Carlo de Franchis, Université Paris-Saclay & Kayrros, France; Jean-Michel Morel, Université Paris-Saclay, France; Charles Hessel, Université Paris-Saclay & Kayrros, France

Friday, July 16 14:25 - 15:55 Oral Room 10
Session FR3.O-10 Oral-Invited

CEOS and the Private Sector: Interactions and Early Progress on Analysis Ready Data

Session Co-Chairs: Brian Killough, NASA; Jing Ling, University of Hong Kong; Jonathon Ross, Geoscience Australia

FR3.O-10.1 CEOS ANALYSIS READY DATA AND THE PRIVATE SECTOR: EARLY PROGRESS AND THE WAY FORWARD
Adam Lewis, Andreia Siqueira, Jonathon Ross, Geoscience Australia, Australia; Alex Held, Flora Kerblat, Commonwealth Scientific and Industrial Research Organisation (CSIRO), Australia

FR3.O-10.3 USGS CEOS ANALYSIS READY DATA FOR LAND ACHIEVEMENTS AND FUTURE PLANS
Christopher Barnes, KBR contractor to the U.S. Geological Survey, United States; Andreia Siqueira, Geoscience Australia, Australia; Steven Labahn, U.S. Geological Survey, United States

FR3.O-10.4 ANALYSIS READY DATA FOR AFRICA
Fang Yuan, Adam Lewis, Alex Leith, Tishampati Dhar, David Gavin, Geoscience Australia, Australia

FR3.O-10.5 ADVANCEMENTS IN THE OPEN DATA CUBE AND THE USE OF ANALYSIS READY DATA IN THE CLOUD
Brian Killough, NASA, United States; Syed Rizvi, Andrew Lubawy, Analytical Mechanics and Associates, Inc., United States

FR3.O-10.6 INTERCOMPARISON OF SENTINEL-1 DATASETS FROM GOOGLE EARTH ENGINE AND THE SINERGISE SENTINEL HUB CARD4L TOOL
George Dyke, Symbios Communications, Australia; Ake Rosenqvist, solo Earth Observation, soloEO, Japan; Brian Killough, NASA Langley, United States; Fang Yuan, Geoscience Australia, Australia

Friday, July 16 14:25 - 15:55 Oral Room 11
Session FR3.O-11 Oral

Coastal Topography

Session Co-Chairs: Alfredo Renga, University of Naples Federico II; Robrecht Moelans, VITO Remote Sensing; Yinyi Lin

FR3.O-11.1 AN IMPROVED APPROACH FOR MONITORING INTERTIDAL TOPOGRAPHY USING THE WATERLINE METHOD
Edward Salameh, CNRS/M2C, France; Frédéric Frappart, Laboratoire d'Etudes en Géophysique et Océanographie Spatiales (LEGOS), France; Imen Turki, Benoit Laignel, University of Rouen Normandy/M2C, France

FR3.O-11.2 MULTIMISSION/MULTIFREQUENCY SAR FOR IMPROVING THE MONITORING OF COASTAL AREAS
Maria Daniela Graziano, Roberto Del Prete, Alfredo Renga, University of Naples Federico II, Italy

FR3.O-11.3 MONITORING THE INTERTIDAL TOPOGRAPHY USING THE FUTURE SWOT MISSION
Edward Salameh, CNRS/M2C, France; Frédéric Frappart, Laboratoire d'Etudes en Géophysique et Océanographie Spatiales (LEGOS), France; Damien Desroches, CNES, France; Imen Turki, University of Rouen Normandy/M2C, France; Denis Carbonne, CNES, France; Benoit Laignel, University of Rouen Normandy/M2C, France

FR3.O-11.4 ADVANCED COASTAL OCEAN WAVE, BATHYMETRY, AND CURRENT RETRIEVALS FROM SPOTLIGHT-MODE SAR DATA
Roland Romeiser, University of Miami - Rosenstiel School of Marine and Atmospheric Science, United States; Hans Graber, University of Miami, United States

FR3.O-11.5 DETECTING INTERTIDAL PRESSURES FROM REMOTE SENSING IMAGERY USING ARTIFICIAL INTELLIGENCE
Shannon White, University of Portsmouth, United Kingdom; Patrick Talon, Deimos Space UK Ltd., United Kingdom; Gordon Watson, University of Portsmouth, United Kingdom; Alireza Taravat, Deimos Space UK Ltd., United Kingdom; Marc Paganini, European Space Agency (ESA), Italy; Nina Sofia Wyniawskyj, William Ray, Pritimoy Podder, Elisabeth Petersen, David Petit, Deimos Space UK Ltd., United Kingdom

FR3.O-11.6 RECONSTRUCTION OF MISSING DATA IN SATELLITE IMAGES OF THE SOUTHERN NORTH SEA USING A CONVOLUTIONAL NEURAL NETWORK (DINCAE)
Alexander Barth, Aida Alvera-Azcárate, Charles Troupin, Jean-Marie Beckers, University of Liège, Belgium; Dimitry Van der Zande, Royal Belgium Institute of Natural Sciences, Belgium

Friday, July 16 14:25 - 15:55 Oral Room 12

Session FR3.O-12 Oral

Multimodal Data Analysis

Session Co-Chairs: Gemine Vivone, National Research Council - Institute of Methodologies for Environmental Analysis (CNR - IMAA); Benoit Vozel, University of Rennes 1; Thiago Onofre, University of Florida

FR3.O-12.1 MULTI-MODAL SELF-SUPERVISED REPRESENTATION LEARNING FOR EARTH OBSERVATION
Pallavi Jain, Bianca Phelan, Robert John Ross, Technological University Dublin, Ireland

FR3.O-12.2 SIMILARITY MEASURE WITH ADDITIONAL MODALITY INFORMATION FOR MULTIMODAL REMOTE SENSING IMAGES
Mykhail M. Uss, National Aerospace University, Ukraine; Benoit Vozel, University of Rennes 1, France; Vladimir V. Lukin, National Aerospace University, Ukraine; Kacem Chehdi, University of Rennes 1, France

FR3.O-12.3 SUBSPACE OPTIMAL TRANSPORT FOR SPATIAL BIAS CORRECTION OF SOCIAL MEDIA DATA: A CASE STUDY OF 2013 BOULDER FLOOD EVENT
Zhenjie Liu, Jun Li, Sun Yat-Sen University, China; Javier Plaza, Antonio Plaza, University of Extremadura, Spain

FR3.O-12.4 BUILDING FUNCTION CLASSIFICATION USING MULTILINGUAL TWEETS AND VERY HIGH RESOLUTION REMOTE SENSING IMAGES
Matthias Häberle, German Aerospace Center (DLR), Germany; Eike Jens Hoffmann, Technical University of Munich (TUM), Germany; Xiao Xiang Zhu, German Aerospace Center (DLR), Germany

FR3.O-12.5 THE FIELD CAMPAIGN EXPLORER
Geoffrey Stano, Yuling Wu, Navaneeth Selvaraj, University of Alabama in Huntsville, United States; Manil Maskey, Ajinkya Kulkarni, National Aeronautics and Space Administration (NASA), United States

FR3.O-12.6 CUMULATIVE ASSESSMENT FOR URBAN 3D MODELING
Shea Hagstrom, Hee Won Pak, Stephanie Ku, Sean Wang, Gregory Hager, Myron Brown, Johns Hopkins University, United States

Friday, July 16 14:25 - 15:55 Oral Room 13

Session FR3.O-13 Oral-Invited

Geoinformation for Hazards Monitoring, Disaster Risk Reduction and Emergency Response

Session Co-Chairs: Romy Schlögel, United Nations Institute for Training and Research; Francesca Cigna, Italian Space Agency (ASI); Songyao Huai, Universiteit Gent

FR3.O-13.1 SAR AMPLITUDE EXPLOITATION FOR SYSTEMATIC LANDSLIDE FAILURE DETECTION
Alessandro Mondini, Consiglio Nazionale delle Ricerche, Italy

FR3.O-13.3 MONITORING NATURAL AND ANTHROPOGENIC GEOHAZARDS WITH SAR BIG DATA: SUCCESSFUL EXPERIENCES USING THE GEOHAZARDS EXPLOITATION PLATFORM
Francesca Cigna, Deodato Tapete, Italian Space Agency (ASI), Italy

FR3.O-13.4 RAPID MAPPING OF LANDSLIDES TRIGGERED BY THE STORM ALEX, OCTOBER 2020
Nikhil Prakash, Andrea Manconi, ETH Zurich, Switzerland

FR3.O-13.5 LANDSLIDE INFORMATION SYSTEM FOR DISASTER RISK FINANCING: EARTH OBSERVATION AND MODELLING PRODUCTS FOR NEAR-REAL-TIME ASSESSMENT
Clément Michoud, Terranum Sàrl, Switzerland; Jean-Philippe Malet, Ecole et Observatoire des Sciences de la Terre, CNRS/Université de Strasbourg, France; Thiery Oppikofer, Terranum Sàrl, Switzerland; Robert Emberson, Dalia Kirschbaum, NASA Goddard Space Flight Center, United States; Fabrizio Pacini, Terradue srl., Italy; Pascal Horton, Terranum Sàrl, Switzerland; Anne Puissant, Laboratoire Image Ville Environnement, CNRS/Université de Strasbourg, France; Paolo Mazzanti, NHAZCA srl, Italy; Mélanie Pateau, Agence Nationale de la Recherche, France; Abder Oulidi, Abderrahim Chaffai, Lahsen Ait Brahim, Fonds de Solidarité contre les Évènements Catastrophiques - FSEC, Morocco

FR3.O-13.6 IN-SITU AND PROXIMAL SENSING TECHNIQUES FOR MONITORING NATURALS HAZARDS TO MITIGATE RISK IN TOURISM ACTIVITIES: A CASE STUDY IN THE GEOPARC BLETTERBACH, ITALY
Abraham Mejia-Aguilar, Eurac Research, Italy; Giulio Maria Bianco, Tor Vergata University of Rome, Italy; Gaetano Marrocco, University of Rome Tor Vergata, Italy; Anna Voegele, Michiel Jan van Veelen, Giacomo Strapazzon, Eurac Research, Italy

Friday, July 16 14:25 - 15:55 Oral Room 14
Session FR3.O-14 Oral-Invited

Radio Frequency Interference (RFI) in Passive Microwave Sensors

Session Co-Chairs: Roger Oliva, Zenithal Blue Technologies; Paolo de Matthaeis, NASA Goddard Space Flight Center; Tianchen Zheng, Universiteit Gent

FR3.O-14.1 A PRE-CORRELATION RFI MITIGATION ALGORITHM FOR L-BAND INTERFEROMETRIC RADIOMETERS
Jorge Querol, University of Luxembourg, Luxembourg; Adriano Camps, Adrian Perez, Universitat Politècnica de Catalunya, Spain; Roger Oliva, Raul Onrubia, Zenithal Blue Technologies, Spain; Juan Ignacio Ramirez-Martinez, Albert Zurita, Airbus Defence and Space, Spain; Martin Suess, Manuel Martin-Neira, European Space Agency (ESA), Netherlands

FR3.O-14.3 ON THE DETECTION OF RFI THROUGH THE CORRELATION ANOMALY AT DIFFERENT TIME LAGS
Raúl Díez-García, Adriano Camps, Universitat Politècnica de Catalunya, Spain

FR3.O-14.4 RESULTS FROM THE GROUND RFI DETECTION SYSTEM FOR PASSIVE MICROWAVE EARTH OBSERVATION DATA
Roger Oliva, Raul Onrubia, Zenithal Blue technologies, Spain; Antonio Martellucci, Elena Daganzo-Eusebio, Flavio Jorge, Yan Soldo, ESA / ESTEC, Netherlands; Stephen English, Patricia de Rosnay, Peter Weston, European Centre for Medium-Range Weather Forecasts (ECMWF), United Kingdom; Jose Barbosa, Ioannis Nestoras, Research and Development in Aerospace GmbH, Switzerland

FR3.O-14.5 SMOS RFI DETECTION BASED ON REWEIGHTED L1-NORM MINIMIZATION
Dong Zhu, Huazhong University of Science and Technology, China; Gang Li, Tsinghua University, China

FR3.O-14.6 ARCTIC SEA ICE MONITORED AT L-BAND: INITIAL RESULTS AND RFI FINDINGS
Steen Savstrup Kristensen, Sten Schmidl Søbjærg, Jan E. Balling, Niels Skou, Technical University of Denmark, Denmark

Friday, July 16 14:25 - 15:55 Oral Room 15
Session FR3.O-15 Oral-Invited

IEEE GRSS Data Fusion Contest I

Session Co-Chairs: Pedram Ghamisi, HZDR-HIF; Ronny Hänsch, German Aerospace Center; Klara Dvorakova, Université catholique de Louvain

FR3.O-15.1 IEEE DATA FUSION CONTEST OVERVIEW I

FR3.O-15.2 MULTISOURCE DATA FUSION FOR THE DETECTION OF SETTLEMENTS WITHOUT ELECTRICITY
Yanbiao Ma, Yuxin Li, Kexin Feng, Xueli Geng, Licheng Jiao, Fang Liu, Yuting Yang, Xidian University, China

FR3.O-15.3 A MULTI-MODEL FUSION OF CONVOLUTION NEURAL NETWORK AND RANDOM FOREST FOR DETECTING SETTLEMENTS WITHOUT ELECTRICITY
Yu Xia, Qi Huang, Hongyan Zhang, Wuhan University, China

FR3.O-15.4 MULTI-BRANCH DEEP LEARNING MODEL FOR DETECTION OF SETTLEMENTS WITHOUT ELECTRICITY
Thomas Di Martino, ONERA, CentraleSupélec, Université Paris-Saclay, France; Maxime Lenormand, Independent, France; Elise Colin Koeniguer, ONERA, Université Paris-Saclay, France

FR3.O-15.5 DO-UNET, DO-LINKNET: UNET, D-LINKNET WITH DO-CONV FOR THE DETECTION OF SETTLEMENTS WITHOUT ELECTRICITY CHALLENGE
Ruoxian Feng, Mengjiao Wang, Xuanming Zhang, Jun Zhang, Licheng Jiao, Xu Liu, Fang Liu, Xidian University, China

Friday, July 16 14:25 - 15:55 Oral Room 16
Session FR3.O-16 Oral

Vegetation Retrievals Using Fluorescence and other Optical Methods

Session Co-Chairs: Thomas Jagdhuber, German Aerospace Center (DLR); Elise Dujardin, Université de Liège; Melba Crawford, Purdue University

FR3.O-16.1 ANALYSIS OF THE INFLUENCE OF LEAF INCLINATION ANGLE DISTRIBUTION ON THE LEAF AREA INVERSION OF ISOLATED TREE BASED ON TERRESTRIAL LASER SCANNING
Shiyu Cheng, Guangjian Yan, Beijing Normal University, China; Ronghai Hu, University of Chinese Academy of Sciences, China; Hailan Jiang, Beijing Normal University, China

FR3.O-16.2 GLOBAL L-BAND VEGETATION VOLUME FRACTION ESTIMATES FOR MODELING VEGETATION OPTICAL DEPTH
David Chaparro, Universitat Politècnica de Catalunya, Spain; Thomas Jagdhuber, German Aerospace Center (DLR), Germany; Maria Piles, Universitat de València, Spain; Dara Entekhabi, Massachusetts Institute of Technology, United States; François Jonard, Forschungszentrum Jülich, Germany; Anke Fluhrer, German Aerospace Center (DLR), Germany; Andrew Feldman, Massachusetts Institute of Technology, United States; Mercè Vall-llossera, Adriano Camps, Universitat Politècnica de Catalunya, Spain

FR3.O-16.3 FIRST RETRIEVALS OF ASCAT IB VOD (VEGETATION OPTICAL DEPTH) AT GLOBAL SCALE
Xiangzhuo Liu, Université de Bordeaux, France; Jean-Pierre Wigneron, INRAE, France; Frédéric Frappart, Laboratoire d'Etudes en Géophysique et Océanographie Spatiales (LEGOS), France; Nicolas Baghdadi, University of Montpellier, France; Mehrez Zribi, Université de Toulouse, France; Thomas Jagdhuber, German Aerospace Center (DLR), Germany; Philippe Ciais, Université Paris-Saclay, France; Xiaojun Li, Université de Bordeaux, France; Mengjia Wang, Beijing Normal University, China; Lei Fan, Southwest University, China; Bertrand Ygorra, Université de Bordeaux, France; Hongliang Ma, Wuhan University, China; Zanpin Xing, Southwest University, China; Amen Al-Yaari, Sorbonne Université, France; Roberto Fernandez-Moran, University of Valencia, Spain; Christophe Moisy, INRAE, France

FR3.O-16.4 VEGETATION OPTICAL DEPTH RETRIEVAL FROM CYGNSS DATA
Xiaolan Xu, Simon Yueh, Rashmi Shah, Akiko Hayashi, NASA Jet Propulsion Laboratory, United States

FR3.O-16.5 SOLAR-INDUCED CHLOROPHYLL FLUORESCENCE IS VERY SENSITIVE TO DROUGHT
Ruonan Qiu, Ge Han, Xin Ma, Wei Gong, Wuhan University, China

FR3.O-16.6 EMULATION OF SUN-INDUCED FLUORESCENCE FROM RADIANCE DATA RECORDED BY THE HYPLANT AIRBORNE IMAGING SPECTROMETER
Miguel Morata Dolz, Universidad de Valencia, Spain; Bastian Siegmann, Forschungszentrum Jülich, Germany; Pablo Morcillo-Pallarés, Universidad de Valencia, Spain; Juan Pablo Rivera-Caicedo, Universidad Autonoma de Nayarit, Mexico; Jochem Verrelst, Universidad de Valencia, Spain

Friday, July 16 14:25 - 15:55 Oral Room 17
Session FR3.O-17 Oral

Crop Assessment, Yield Estimation and Modeling

Session Co-Chairs: Abdelhakim Amazirh, Mohammed VI Polytechnic University (UM6P), Morocco, Center for Remote Sensing Applications (CRSA); Richard Cirone, Iowa State University; Alex Levering, Wageningen University & Research

FR3.O-17.1 FORECASTING WHEAT YIELD USING REMOTE SENSING: THE ARYA FORECASTING SYSTEM
Belen Franch, Universitat de Valencia, Spain / University of Maryland, United States; Eric Vermote, NASA Goddard Space Flight Center, United States; Sergii Skakun, Andres Santamaria-Artigas, Natacha Kalecinski, Jean-Claude Roger, University of Maryland / NASA GSFC, United States; Inbal Becker-Reshef, Brian Barker, University of Maryland, United States; José Antonio Sobrino, Universitat de Valencia, Spain; Chris Justice, University of Maryland, United States

FR3.O-17.2 IMPROVING SURFACE EVAPOTRANSPIRATION COMPONENTS THROUGH ASSIMILATING SOIL MOISTURE AND LAND SURFACE TEMPERATURE INTO FAO-56 MODEL
Abdelhakim Amazirh, Mohammed VI Polytechnic University (UM6P), Morocco, Center for Remote Sensing Applications (CRSA), Morocco; Salah Er-Raki, Mohammed VI Polytechnic University (UM6P), Center for Remote Sensing Applications (CRSA); ProcEDE, Département de Physique Appliquée, Faculté des Sciences et Techniques, Université Cadi Ayyad, Morocco; Olivier Merlin, Centre d'Etudes Spatiales de la Biosphère (CESBIO), Université de Toulouse, CNES, CNRS, IRD, UPS, France; Abdelghani Chehbouni, Mohammed VI Polytechnic University (UM6P), Center for Remote Sensing Applications (CRSA); Centre d'Etudes Spatiales de la Biosphère (CESBIO), Université de Toulouse, CNES, CNRS, IRD, UPS, Morocco

FR3.O-17.3 ALTERNATIVE SIMULATION OF CROP WATER RADIOMETRY
Richard Cirone, Brian Hornbuckle, Iowa State University, United States; Anton Kruger, University Of Iowa, United States

FR3.O-17.4 MODELING SPATIAL-TEMPORAL WINE YIELD BASED ON LAND SURFACE TEMPERATURE, VEGETATION INDICES AND GIS - THE CASE OF THE DOURO WINE REGION
Pedro Moreira, Faculty of Sciences of the University of Porto, Portugal; Lia Duarte, Mário Cunha, Ana Cláudia Teodoro, Faculty of Sciences of the University of Porto; Institute for Systems and Computer Engineering, Technology and Science (INESC-TEC), Portugal

FR3.O-17.5 INCLUDING RADAR SOIL MOISTURE INTO TWO-SOURCE ENERGY BALANCE MODEL FOR IMPROVING TURBULENT FLUXES ESTIMATES
Bouchra Ait Hssaine, Abdelghani Chehbouni, Mohammed VI Polytechnic University, Morocco; Salah Er-Raki, Saïd Khabba, Jamal Ezzahar, Nadia Ouaadi, Cadi Ayyad University, Morocco; Vincent Rivalland, Olivier Merlin, Centre d'Etudes Spatiales de la Biosphère (CESBIO), France

FR3.O-17.6 ESTIMATION OF NORMAL RICE YIELD CONSIDERING HEADING STAGE BASED ON OBSERVATION DATA AND SATELLITE IMAGERY
Yuki Sofue, Chiharu Hongo, Naohiro Manago, Chiba university, Japan; Gunardi Sigit, Regional Office of Food Crops Service West Java Province, Indonesia; Koki Homma, Tohoku University, Japan; Baba Barus, Bogor Agricultural University, Indonesia

Friday, July 16 14:25 - 15:55 Oral Room 18
Session FR3.O-18 Oral

Remote Sensing of Soil Properties

Session Co-Chairs: Leila Farhadi, George Washington University; Yue Zhou, Université catholique de Louvain; Asif Mahmood, George Washington University

FR3.O-18.1 ON THE RED TO FAR-RED RATIOS OF LIGHT PROPAGATED BY SAND-TEXTURED SOILS
Gladimir Baranoski, Mark Iwanchyshyn, Bradley Kimmel, Petri Varsa, Spencer Van Leeuwen, University of Waterloo, Canada

FR3.O-18.2 ASSESSMENT OF FOUR MODEL-BASED SURFACE SOIL TEMPERATURE PRODUCTS UNSING GLOBAL DENSE IN SITU OBSERVATIONS
Hongliang Ma, Wuhan University, China; Jiangyuan Zeng, Chinese Academy of Sciences, China; Jean-Pierre Wigneron, INRAE, France; Xiang Zhang, Nengcheng Chen, Wuhan University, China; Xiaojun Li, INRAE, France; Amen Al-Yaari, Sorbonne Université, France; Xiangzhuo Liu, Mengjia Wang, INRAE, France; Lei Fan, Southwest University, China; Frédéric Frappart, Laboratoire d'Etudes en Géophysique et Océanographie Spatiales (LEGOS), France

FR3.O-18.3 ALL-WEATHER DAILY EVAPOTRANSPIRATION DATA PRODUCT BASED ON MICROWAVE AND THERMAL INFRARED SATELLITE OBSERVATIONS
Li Fang, University of Maryland, United States; Xiwu Zhan, Mitchell Schull, Satya Kalluri, NOAA/STAR, United States; Christopher Hain, NASA/SPoRT, United States; Martha Anderson, USDA Agricultural Research Service, United States; Istvan Laszlo, NOAA/STAR, United States

FR3.O-18.4 A FRAMEWORK FOR COUPLED ESTIMATION OF EVAPOTRANSPIRATION AND RECHARGE FLUX BY ASSIMILATING REMOTELY SENSED LAND SURFACE TEMPERATURE AND SOIL MOISTURE OBSERVATION
Asif Mahmood, Leila Farhadi, Parisa Heidary, George Washington University, United States

FR3.O-18.5 A REDUCED-ADJOINT VARIATIONAL DATA ASSIMILATION FOR ESTIMATING SOIL MOISTURE PROFILE FROM SURFACE SOIL MOISTURE OBSERVATIONS
Parisa Heidary, Leila Farhadi, George Washington University, United States; Muhammad Umer Altaf, King Abdullah University of science and Technology, Saudi Arabia

FR3.O-18.6 INVERSION OF TOTAL COPPER CONTENT IN MINING SOILS WITH DIFFERENT SPECTRAL PRETREATMENT TECHNIQUES USING AHSI/ZY1-02D DATA
Kun Shang, Land Satellite Remote Sensing Application Center, Ministry of Natural Resources of China, China; He Gu, Beijing SatImage Information Technology Co. Ltd., China; Yayu Yang, China University of Geosciences, China

Friday, July 16 14:25 - 15:55 Oral Room 19
Session FR3.O-19 Oral

High Temperature Hazards

Session Co-Chairs: Giovanni Laneve, Sapienza University of Rome; Lydia Abady, University of Siena; Erwin Wolters, VITO

FR3.O-19.1 SPECTRAL RULE-BASED EXPERT SYSTEM FOR AUTOMATIC NEAR REAL-TIME THERMAL ANOMALIES DETECTION IN GEOSTATIONARY GOES-16 ABI IMAGERY
Luiz Fernando Rocha de Carvalho, Luiss Guido Carli University, Brazil; Giovanni Laneve, Sapienza University of Rome, Italy; Andrea Baraldi, Italian Space Agency, Italy; Giancarlo Santilli, University of Brasilia, Brazil

FR3.O-19.2 SHORT-TERM RESPONSES OF LAND SURFACE TEMPERATURE ANOMALIES TO EARTHQUAKES IN CHINA
Zhong-Hu Jiao, Xinjian Shan, Institute of Geology, China Earthquake Administration, China

FR3.O-19.3 NEAR REAL-TIME WILDFIRE DETECTION IN SOUTHWESTERN CHINA USING HIMAWARI-8 DATA
Yongqin Zhang, Binbin He, University of Electronic Science and Technology of China, China; Peng Kong, Hao Xu, Qiang Zhang, Institute of Spacecraft System Engineering, China; Xingwen Quan, Gengke Lai, University of Electronic Science and Technology of China, China

FR3.O-19.4 MAPPING SAVANNA WILDFIRES IN SOUTHERN BELIZE USING SENTINEL-1 SAR AND OBJECT BASED IMAGE ANALYSIS
Christopher Halliday, Neil Stuart, University of Edinburgh, United Kingdom; Iain Cameron, Environment Systems Ltd, United Kingdom

FR3.O-19.5 APPLICATION OF S-BAND NOVASAR-1 TO BUSHFIRES IN AUSTRALIA
Amy Parker, Catherine Ticehurst, Zheng-Shu Zhou, Commonwealth Scientific and Industrial Research Organisation (CSIRO), Australia; Tristan Ward, University of Western Australia, Australia

FR3.O-19.6 THE 2019 RAIKOKE ERUPTION: ASH DETECTION AND RETRIEVALS USING S3-SLSTR DATA
Ilaria Petracca, Davide De Santis, Tor Vergata University of Rome, Italy; Stefano Corradini, Lorenzo Guerrieri, Istituto Nazionale di Geofisica e Vulcanologia, Italy; Matteo Picchiani, GEO-K s.r.l, Italy; Luca Merucci, Dario Stelitano, Istituto Nazionale di Geofisica e Vulcanologia, Italy; Fabio Del Frate, Tor Vergata University of Rome, Italy; Fred Prata, AIRES Pty Ltd., Australia; Giovanni Schiavon, Tor Vergata University of Rome, Italy

Friday, July 16 14:25 - 15:55 Oral Room 20
Session FR3.O-20 Oral-Invited

Remote sensing for Mineral and Oil & Gas Exploration, Production and Monitoring

Session Co-Chairs: Carlos Roberto de Souza Filho, University of Campinas (UNICAMP); Dominique Dubucq, TOTAL S.E.; Raktim Ghosh, Università degli Studi di Trento

FR3.O-20.1 IMAGING SPECTROSCOPY APPLIED TO MINERAL MAPPING OVER LARGE AREAS: IMPACT OF RESIDUAL ATMOSPHERIC ARTEFACTS IN REFLECTANCE SPECTRA ON MINERAL IDENTIFICATION AND MAPPING
Raymond Kokaly, Gregg Swayze, K. Eric Livo, Todd Hoefen, Bernard Hubbard, John Meyer, Evan Cox, Will Gnesda, US Geological Survey, United States

FR3.O-20.3 MINERAL MAPPING OF THE BATTLE MOUNTAIN DISTRICT, NEVADA, USA, USING AVIRIS-CLASSIC AND SPECTIR INC. AISAFENIX 1K IMAGING SPECTROMETER DATASETS
John Meyer, Colorado School of Mines - U.S. Geological Survey, United States; Elizabeth Holley, Colorado School of Mines, United States; Todd Hoefen, Raymond Kokaly, Gregg Swayze, US Geological Survey, United States

FR3.O-20.4 HOW CAN DRONES CONTRIBUTE TO MINERAL EXPLORATION?
René Booysen, Sandra Lorenz, Robert Jackisch, Richard Gloaguen, Yuleika Madriz, Helmholtz-Zentrum Dresden-Rossendorf, Germany

FR3.O-20.5 ASSESSING SCIENTIFIC AND INDUSTRY GRADE SWIR AIRBORNE IMAGING SPECTROMETERS FOR CH4 MAPPING
Rebecca D.P.M. Scafutto, University of Campinas – UNICAMP, Brazil; Harald van der Werff, Wim H. Bakker, Freek van der Meer, ITC - University of Twente, Netherlands; Carlos Roberto de Souza Filho, University of Campinas – UNICAMP, Brazil

FR3.O-20.6 AN INFORMED NMF-BASED UNMIXING APPROACH FOR MINERAL DETECTION AND MAPPING IN THE ALGERIAN CENTRAL HOGGAR USING PRISMA REMOTE SENSING HYPERSPECTRAL DATA
Fatima Zohra Benhalouche, Oussama Benabbou, Lahsen Wahib Kebir, Ahmed Bennia, Moussa Sofiane Karoui, Agence Spatiale Algérienne, Centre des Techniques Spatiales, Algeria; Yannick Deville, Institut de Recherche en Astrophysique et Planétologie, France

Friday, July 16 16:40 - 18:10 Oral Room 1
Session FR4.O-1 Oral-Invited

Italian SAR Technology and Programmes for Earth Advanced Monitoring and Assessment of Hazards

Session Co-Chairs: Maria Libera Battagliere, Italian Space Agency; Yogender , University of Twente; Giorgio Licciardi, Italian Space Agency

FR4.O-1.1 ASI ROADMAP IN TECHNOLOGY AND PROGRAMMES FOR EARTH ADVANCED MONITORING AND ASSESSMENT OF HAZARDS
Roberto Formaro, Francesco Longo, Giancarlo Natale Varacalli, Luca Fasano, Vincenzo Pulcino, Italian Space Agency (ASI), Italy

FR4.O-1.3 HIGH-RESOLUTION COSMO-SKYMED DATA FOR THE PRESERVATION OF THE VITTORIANO MONUMENT IN ROME
Francesca Bozzano, Paolo Ciampi, Federico Innocca, Paolo Mazzanti, Earth Sciences Department - Sapienza of Rome, Italy, Italy; Matteo Rompato, University of Cassino and Southern Lazio, Italy; Stefano Scancella, NHAZCA S.r.l. - Spin-off of Sapienza University Rome, Italy, Italy; Gabriele Scarascia Mugnozza, Earth Sciences Department - Sapienza of Rome, Italy, Italy

FR4.O-1.4 COSMO-SKYMED SECOND GENERATION UPDATE
Luigi Dini, Italian Space Agency (ASI), Italy

FR4.O-1.5 SATELLITE SAR DATA EXPLOITATION: INNOVATIONS AND POTENTIALITIES FOR EARTH OBSERVATION ADVANCED MONITORING AND SERVICING
Axel Oddone, Filippo Daffinà, Dino Quattrociocchi, Elena Francioni, Vittorio Gentile, Federica Pieralice, Lucio Cesarano, Filippo Britti, Luca Pietranera, Federico Minati, Lucia Luzietti, Domenico Grandoni, Pier Francesco Cardillo, Mariano Alfonso Biscardi, Francesca Bonetto, e-GEOS SpA, Italy

FR4.O-1.6 NOVEL PERSPECTIVES IN THE MONITORING OF TRANSPORT INFRASTRUCTURES BY SENTINEL-1 AND COSMO-SKYMED MULTI-TEMPORAL SAR INTERFEROMETRY
Valerio Gagliardi, Luca Bianchini Ciampoli, Fabrizio D'Amico, Roma Tre University, Italy; Amir M. Alani, Fabio Tosti, University of West London (UWL), United Kingdom; Maria Libera Battagliere, Italian Space Agency (ASI), Italy; Andrea Benedetto, Roma Tre University, Italy

Friday, July 16 16:40 - 18:10 Oral Room 2
Session FR4.O-2 Oral-Invited

Mass Processing and Time-series Analysis of Remote Sensing Data for the Study and Monitoring of Geohazards

Session Co-Chairs: Benoît Smets, Royal Museum for Central Africa; Delphine Smittarello, European Center for Geodynamics and Seismology; Adrien Grivey, École Nationale Supérieure de Techniques Avancées Bretagne

FR4.O-2.1 TERRASCOPE ENABLES GEOHAZARD MONITORING USING THE SENTINEL SATELLITE CONSTELLATION
Jurgen Everaerts, Dennis Clarijs, VITO, Flemish Institute for Technological Research, Belgium

FR4.O-2.3 MASTER: A FULL AUTOMATIC MULTI-SATELLITE INSAR MASS PROCESSING TOOL FOR RAPID INCREMENTAL 2D GROUND DEFORMATION TIME SERIES
Nicolas d'Oreye, National Museum of Natural History/European Center for Geodynamics and Seismology, Luxembourg; Dominique Derauw, Universidad Nacional de Rio Negro, Argentina; Sergey Samsonov, Canada Centre for Mapping and Earth Observation, Natural Resources Canada, Canada; Maxime Jaspard, Delphine Smittarello, European Center for Geodynamics and Seismology, Luxembourg

FR4.O-2.4 VOLCANIC HAZARD MONITORING USING MULTI-SOURCE SATELLITE IMAGERY
Gaetana Ganci, Giuseppe Bilotta, Sonia Calvari, Annalisa Cappello, Ciro Del Negro, Istituto Nazionale di Geofisica e Vulcanologia, Italy; Alexis Herault, Conservatoire national des arts et métiers, France

FR4.O-2.5 TERRAIN DEFORMATION MEASUREMENTS FROM OPTICAL SATELLITE IMAGERY: ON-LINE PROCESSING SERVICES FOR GEOHAZARDS MONITORING
Floriane Provost, Jean-Philippe Malet, Ecole et Observatoire des Sciences de la Terre, CNRS UMS 830 - Université de Strasbourg, France; David Michéa, Application Satellite Survey, A2S - CNRS/Université de Strasbourg, France; Marie-Pierre Doin, Pascal Lacroix, Institut des Sciences de la Terre, CNRS UMR 5275 - OSUG/Université Grenoble-Alpes, France; Enguerran Boissier, Terradue, France; Elisabeth Pointal, ForM@Ter - Pôle de Données Terre Solide, CNRS, Université Paris Diderot, France; Philippe Bally, European Space Agency - ESA/ESRIN, France

FR4.O-2.6 GLOBAL MONITORING OF VOLCANIC SO2 DEGASSING USING SENTINEL-5 PRECURSOR TROPOMI
Nicolas Theys, Royal Belgian Institute for Space Aeronomy, Belgium; Hugues Brenot, Isabelle De Smedt, Christophe Lerot, BIRA-IASB, Belgium; Pascal Hedelt, Diego Loyola, German Aerospace Center (DLR), Belgium; Jonas Vlietinck, Huan Yu, BIRA-IASB, Belgium; Benoît Smets, François Kervyn, Royal Museum for Central Africa (RMCA), Belgium; Julien Barrière, Adrien Oth, Nicolas d'Oreye, European Center for Geodynamics and Seismology (ECGS), Belgium; Michel Van Roozendael, BIRA-IASB, Belgium

Friday, July 16 16:40 - 18:10 Oral Room 3
Session FR4.O-3 Oral-Invited

Measuring and Understanding the Dynamic Nature of Solar-induced Fluorescence and Photosynthesis across Scales

Session Co-Chairs: Uwe Rascher, FZ Julich; Christiaan van der Tol, University of Twente; Lennert Anston, Universiteit Gent

FR4.O-3.1 ADVANCES IN THE RETRIEVAL AND INTERPRETATION OF SOLAR-INDUCED VEGETATION CHLOROPHYLL FLUORESCENCE USING PASSIVE REMOTE SENSING TECHNIQUES
Jose Moreno, University of Valencia, Spain

FR4.O-3.3 GLOBAL MONITORING OF SUN-INDUCED FLUORESCENCE WITH TROPOMI
Luis Guanter, Universitat Politècnica de València, Spain; Cedric Bacour, NOVELTIS, France; Andreas Schneider, Ilse Aben, SRON Netherlands Institute for Space Research, Netherlands; Fabienne Maignan, Laboratoire des Sciences du Climat et de l'Environnement (LSCE), France

FR4.O-3.4 MEASURING SOLAR-INDUCED FLUORESCENCE FROM UNMANNED AIRCRAFT SYSTEMS FOR OPERATIONAL USE IN PLANT PHENOTYPING AND PRECISION FARMING
Juliane Bendig, Forschungszentrum Jülich, Germany; Christine Yao-Yun Chang, Cornell University, United States; Na Wang, Wageningen University, Netherlands; Jonathan M. Atherton, University of Helsinki, Finland; Zbyněk Malenovský, University of Tasmania, Australia; Uwe Rascher, Forschungszentrum Jülich, Germany

FR4.O-3.5 BEYOND APAR AND NPQ: FACTORS COUPLING AND DECOUPLING SIF AND GPP ACROSS SCALES
Albert Porcar-Castell, University of Helsinki, Finland; Zbyněk Malenovský, University of Tasmania, Australia; Troy Magney, University of California, Davis, United States; Shari Van Wittenberghe, University of Valencia, Spain; Beatríz Fernández-Marín, University of La Laguna, Spain; Fabienne Maignan, Université Paris-Saclay, France; Yongguang Zhang, Nanjing University, China; Kadmiel Maseyk, The Open University, United Kingdom; Jonathan M. Atherton, University of Helsinki, Finland; Loren P. Albert, West Virginia University, United States; Thomas Matthew Robson, University of Helsinki, Finland; Feng Zhao, Beihang University, China; Jose-Ignacio Garcia-Plazaola, University of the Basque Country, Spain; Ingo Ensminger, University of Toronto, Canada; Paulina A. Rajewicz, University of Helsinki, Finland; Steffen Grebe, Mikko Tikkanen, University of Turku, Finland; James R. Kellner, Brown University, United States; Janne A. Ihalainen, University of Jyväskylä, Finland; Uwe Rascher, Forschungszentrum Jülich, Germany; Barry Logan, Bowdoin College, United States

FR4.O-3.6 ON THE COMPLEMENTARITY BETWEEN SIF, NIRV AND OTHER MEASURES FOR VEGETATION MONITORING.
Benjamin Dechant, Youngryel Ryu, Seoul National University, Korea (South); Grayson Badgley, Black Rock Forest, United States; Yelu Zeng, University of Wisconsin-Madison, United States; Dalei Hao, Pacific Northwest National Laboratory, United States; Uwe Rascher, Forschungszentrum Jülich, Germany; Philipp Köhler, California Institute of Technology, United States; Yongguang Zhang, Nanjing University, China; Yves Goulas, Ecole Polytechnique, France; Minseok Kang, National Center for Agro-Meteorology, Korea (South); Min Chen, University of Wisconsin-Madison, United States; Joseph A. Berry, Carnegie Institution for Science at Stanford, United States

Friday, July 16 16:40 - 18:10 Oral Room 4
Session FR4.O-4 Oral-Invited

Remote Sensing of Atmospheric Pollution II

Session Co-Chairs: Yong Xue, China University of Mining and Technology; Xiran Zhou, China University of Mining and Technology; Zhilong Yang, Fudan University

FR4.O-4.1 RETRIEVAL OF AEROSOL OPTICAL DEPTH OVER LAND USING FY-4A AGRI GEOSTATIONARY SATELLITE DATA
Xingxing Jiang, Yong Xue, Chunlin Jin, Rui Bai, Na Li, Yuxin Sun, China University of Mining and Technology, China

FR4.O-4.3 RANDOM FOREST MODEL FOR PM2.5 CONCENTRATION IN CHINA USING HIMAWARI-8 HOURLY AOD PRODUCT
Xin Li, Yingjie Li, Qingmiao Ma, Shuguo Wang, Jiangsu Normal University, China

FR4.O-4.4 THE IMPACT OF THE "AIR POLLUTION PREVENTION AND CONTROL ACTION PLAN" ON PM 2.5 CONCENTRATION IN CHINA DURING 2014-2019
Xin Li, Qingmiao Ma, Yingjie Li, Shuguo Wang, Jiangsu Normal University, China

Friday, July 16 16:40 - 18:10 Oral Room 5
Session FR4.O-5 Oral

SAR Simulations, Imaging and Image Filtering

Session Co-Chairs: Kruspe Anna, German Aerospace Center (DLR); Technical University of Munich (TUM); Marko Jakovljevic, Stanford University; Raktim Ghosh, Università degli Studi di Trento

FR4.O-5.1 ASSESSMENT OF NONLOCAL MEANS STOCHASTIC DISTANCES SPECKLE REDUCTION FOR SAR TIME SERIES
Juan Doblas, INPE, Brazil; Alejandro C. Frery, Victoria University of Wellington, New Zealand; Sidnei Sant'Anna, Arian Carneiro, INPE, Brazil; Yosio Edemir Shimabukuro, National Institute for Space Research, Brazil

FR4.O-5.2 ADAPTATION OF A RANGE-DOPPLER ALGORITHM TO MULTISTATIC SIGNALS FROM ULTRASOUND ARRAYS
Marko Jakovljevic, Stanford University, United States; Roger Michaelides, Colorado School of Mines, United States; Ettore Biondi, Stanford University, United States; Carl Herickhoff, University of Memphis, United States; Dongwoon Hyun, Howard Zebker, Jeremy Dahl, Stanford University, United States

FR4.O-5.3 DESIGN OF LOOK FILTERS IN LOOK DIFFERENCE METHOD FOR SAR GMTI
Wang Li, Junfeng Wang, Xingzhao Liu, Shanghai Jiao Tong University, China

FR4.O-5.4 RCS CALCULATION BASED ON NEAR-FIELD L1-REGULARIZED SAR IMAGING
Yangyang Wang, Yang Li, Xiaoling Zhang, University of Electronic Science and Technology of China, China

FR4.O-5.5 RESEARCH ON ACCELERATION ALGORITHM FOR RAW DATA SIMULATION OF HIGH RESOLUTION SQUINT SPOTLIGHT SAR
Zewen Fu, Lan Bai, Zhengwei Guo, Lin Min, Ning Li, Henan University, China

FR4.O-5.6 AIRBORNE SAR EXPERIMENT TO SIMULATE GEOSYNCHRONOUS HYDROTERRA DATA AND INVESTIGATE THE DETECTION OF DIURNAL CHANGES
Valeria Gracheva, Rolf Scheiber, Pau Prats, Ralf Horn, Martin Keller, Jens Fischer, Alberto Moreira, German Aerospace Center (DLR), Germany; Julia Kubanek, Roger Haagmans, ESA / ESTEC, Netherlands

Friday, July 16 16:40 - 18:10 Oral Room 6
Session FR4.O-6 Oral-Invited

Terrestrial Radar/SAR Systems and Applications

Session Co-Chairs: Carlos López-Martínez, Universitat Politècnica de Catalunya; Othmar Frey, Gamma Remote Sensing / ETH Zurich; Simon van Diepen, Technische Universiteit Delft

FR4.O-6.1 A MULTI-FREQUENCY FMCW GBSAR: SYSTEM DESCRIPTION AND FIRST RESULTS
Adrià Amézaga Sàrries, Carlos López-Martínez, Universitat Politècnica de Catalunya, Spain; Roger Jové Casulleras, Balam Ingeniería de Sistemas, SL, Spain

FR4.O-6.3 APERTURE SYNTHESIS AND CALIBRATION OF THE WBSCAT GROUND-BASED SCATTEROMETER
Charles Werner, Othmar Frey, Gamma Remote Sensing AG, Switzerland; Reza Naderpour, Swiss Federal Institute WSL, Switzerland; Andreas Wiesmann, Gamma Remote Sensing AG, Switzerland; Martin Suess, ESA / ESTEC, Netherlands; Urs Wegmüller, Gamma Remote Sensing AG, Switzerland

FR4.O-6.4 KAPRI: A BISTATIC FULL-POLARIMETRIC INTERFEROMETRIC REAL-APERTURE RADAR SYSTEM FOR MONITORING OF NATURAL ENVIRONMENTS
Marcel Stefko, Othmar Frey, ETH Zurich, Switzerland; Charles Werner, Gamma Remote Sensing, Switzerland; Irena Hajnsek, ETH Zurich, Switzerland

FR4.O-6.5 TOWER-BASED RADAR FOR MONITORING A BOREAL FOREST: MEASUREMENT PERFORMANCE AND DESIGN TRADE-OFFS
Albert Monteith, Lars M.H. Ulander, Chalmers University of Technology, Sweden

FR4.O-6.6 COMPARISON OF RADAR IMAGING CONFIGURATIONS FOR THE CHARACTERIZATION AND DIAGNOSIS OF ROADWAYS
Mengda Wu, Laurent Ferro-Famil, University of Rennes 1, France; Yide Wang, Polytech Nantes, France

Friday, July 16 16:40 - 18:10 Oral Room 7
Session FR4.O-7 Oral

DInSAR Wide Area Monitoring and Applications

Session Co-Chairs: Mario Costantini, e-GEOS, an Italian Space Agency and Telespazio company; Aurelie de Jong, École polytechnique fédérale de Lausanne (EPFL); Michael Foumelis, Aristotle University of Thessaloniki (AUTh)

FR4.O-7.1 EO4SD DISASTER RISK REDUCTION TERRAIN MOTION PRODUCTS IN SUPPORT OF THE CITY RESILIENCE PROGRAM
Michael Foumelis, Aristotle University Of Thessaloniki, Greece; Alberto Lorenzo-Alonso, Indra, Spain; Ross Eisenberg, The World Bank, United States; Ángel Utanda González, Indra, Spain; Christoph Aubrecht, Philippe Bally, European Space Agency (ESA), Italy; Jan Kolomaznik, Gisat, Czech Republic; Vincenzo Massimi, Planetek Italia, Italy; Steven Rubinyi, The World Bank, United States; Francisco Cano Gonzalez, María Encina Aulló-Maestro, Indra, Spain; Francesco Casu, CNR-IREA, Italy; Fabrizio Pacini, Terradue, Italy

FR4.O-7.2 EUROPEAN GROUND MOTION SERVICE (EGMS)
Mario Costantini, Federico Minati, Francesco Trillo, e-GEOS, an Italian Space Agency and Telespazio company, Italy; Alessandro Ferretti, Fabrizio Novali, Emanuele Passera, TRE Altamira, Italy; John Dehls, Geological Survey of Norway, Norway; Yngvar Larsen, NORCE - Norwegian Research Centre, Norway; Petar Marinkovic, PPO.labs, Netherlands; Michael Eineder, Ramon Brcic, German Aerospace Center (DLR), Germany; Robert Siegmund, Paul Kotzerke, Markus Probeck, GAF AG, Germany; Ambrus Kenyeres, Satellite Geodetic Observatory, Hungary; Sergio Proietti, e-GEOS, an Italian Space Agency and Telespazio company, Italy; Lorenzo Solari, CTTC, Spain; Henrik Andersen, European Environment Agency, Denmark

FR4.O-7.3 INSAR PERFORMANCE FOR LARGE-SCALE DEFORMATION MEASUREMENT: IMPACT OF TROPOSPHERIC CORRECTIONS AND VALIDATIONS
Alessandro Parizzi, Ramon Brcic, Francesco De Zan, German Aerospace Center (DLR), Germany

FR4.O-7.4 INSAR DISPLACEMENT TIME SERIES MINING: A MACHINE LEARNING APPROACH
Homa Ansari, German Aerospace Center (DLR), Germany; Marc Rußwurm, Technical University of Munich (TUM), Germany; Mohsin Ali, Sina Montazeri, Alessandro Parizzi, Xiao Xiang Zhu, German Aerospace Center (DLR), Germany

FR4.O-7.5 SEISMIC SOURCE QUANTITATIVE PARAMETERS INVERSION BASED ON INSAR DATA AND RESNET MODEL
Xin Zhao, Chao Wang, Yixian Tang, Hong Zhang, Key Laboratory of Digital Earth Science, Aerospace Information Research Institute, Chinese Academy of Sciences, China

FR4.O-7.6 LANDSLIDE CHANGE DETECTION MONITORING WITH A BENCHMARKED RADARSAT CONSTELLATION MISSION HIGH TEMPORAL RESOLUTION DATASET
David Huntley, Drew Rotheram-Clarke, Robert Cocking, Jamel Joseph, Geological Survey of Canada, Canada

Friday, July 16 16:40 - 18:10 Oral Room 8
Session FR4.O-8 Oral

Nonlinear Methods for Hyperspectral Snmixing

Session Co-Chairs: Lianru Gao, Aerospace Information Research Institute, Chinese Academy of Sciences; Zhu Han, Aerospace Information Research Institute, Chinese Academy of Sciences; Jordi Cortes, Universitat de València

FR4.O-8.1 ENDMEMBER CONSTRAINT NON-NEGATIVE TENSOR FACTORIZATION VIA TOTAL VARIATION FOR HYPERSPECTRAL UNMIXING
Jin-Ju Wang, Ding-Cheng Wang, Ting-Zhu Huang, Jie Huang, University of Electronic Science and Technology of China, China

FR4.O-8.2 SPARSITY CONSTRAINED CONVOLUTIONAL AUTOENCODER NETWORK FOR HYPERSPECTRAL IMAGE UNMIXING
Zhengang Zhao, Hao Wang, Yuchen Liang, Tao Huang, Yi Xiao, Xianchuan Yu, Beijing Normal University, China

FR4.O-8.3 SPECTRAL UNMIXING USING AUTOENCODER WITH SPATIAL AND SPECTRAL REGULARIZATIONS
Jignesh Patel, Manjunath Joshi, Dhirubhai Ambani Institute of Imformation and Communication Technology, India; Jignesh Bhatt, Indian Institute of Information Technology Vadodara, India

FR4.O-8.4 EVONAS: EVOLVABLE NEURAL ARCHITECTURE SEARCH FOR HYPERSPECTRAL UNMIXING
Zhu Han, Aerospace Information Reasearch Institute, Chinese Academy of Sciences, China; Danfeng Hong, German Aerospace Center (DLR), Germany; Lianru Gao, Aerospace Information Reasearch Institute, Chinese Academy of Sciences, China; Jocelyn Chanussot, Université Grenoble Alpes, France; Bing Zhang, Aerospace Information Reasearch Institute, Chinese Academy of Sciences, China

FR4.O-8.5 PIXELS-TO-ABUNDANCES TRANSLATION WITH SPATIAL-SPECTRAL CONDITIONAL GENERATIVE ADVERSARIAL NETWORKS FOR HYPERSPECTRAL UNMIXING
Li Wang, Xiaohua Zhang, Shengyuan Zheng, Tianrui Li, Jing Wang, Xidian University, China

FR4.O-8.6 WEIGHTED SPARSITY CONSTRAINT TENSOR FACTORIZATION FOR HYPERSPECTRAL UNMIXING
Yuan Yuan, Northwestern Polytechnical University, China; Le Dong, Xi'an Institute of Optics and Precision Mechanics, Chinese Academy of Sciences, China

Friday, July 16 16:40 - 18:10 Oral Room 9
Session FR4.O-9 Oral-Invited

GIS Integration of Remote Sensing Data for Damage and Risk Assessment of the Built Environment

Session Co-Chairs: Giorgia Giardina, Delft University of Technology; Pietro Milillo, University of California; Raj Kishore Parida, APJ Abdul Kalam Technical University

FR4.O-9.1 INTEGRATION OF REMOTE SENSING DATA WITH BRIDGE GEOMETRIC AND NUMERICAL MODELS FOR DETECTION OF UNUSUAL BEHAVIOURS
Zahra Sadeghi, COMET, School of Earth and Environment, University of Leeds, United Kingdom; Tim Wright, Andrew Hooper, University of Leeds, United Kingdom; Sivasakthy Selvakumaran, University of Cambridge, United Kingdom

FR4.O-9.3 CITY SCALE INSAR MONITORING OF (BUILDINGS BEHIND) QUAY WALLS
Mandy Korff, Deltares / Delft University of Technology, Netherlands; Arjan Venmans, Deltares, Netherlands; Patrick Stoppelman, Skygeo, Netherlands

FR4.O-9.4 A GENERIC STORAGE METHOD FOR COHERENT SCATTERERS AND THEIR CONTEXTUAL ATTRIBUTES
Marc Bruna, Freek J. van Leijen, Ramon F. Hanssen, Delft University of Technology, Netherlands

FR4.O-9.5 SATELLITE-BASED MONITORING OF URBAN DEEP EXCAVATIONS
Stefan Ritter, Regula Frauenfelder, Malte Vöge, Norwegian Geotechnical Institute (NGI), Norway

FR4.O-9.6 EO4SD-DRR EARTH OBSERVATION TO SUPPORT THE RECONSTRUCTION AND REHABILITATION IN THE AFTERMATHS OF TSUNAMI AND EARTHQUAKE
Vincenzo Massimi, Angelo Amodio, Sergio Samarelli, Planetek Italia, Italy; Alberto Lorenzo-Alonso, Ángel Utanda González, INDRA, Spain; Michael Foumelis, French Geological Survey; Aristotle University of Thessaloniki, Spain; Floriane Provost, Philippe Bally, ESA / ESRIN, France; Raffaele Nutricato, Davide Oscar Nitti, Geophysical Applications Processing, Italy

Friday, July 16 16:40 - 18:10 Oral Room 10
Session FR4.O-10 Oral-Invited

CEOS Land Product Validation: Sampling-based Estimation of Area and Accuracy for Land Cover Products

Session Co-Chairs: Sophie Bontemps, UCLouvain-Geomatics; Jing Ling, University of Hong Kong; Astrid Verhegghen, Joint Research Center, European Commission

FR4.O-10.1 UPDATES TO GOOD PRACTICES FOR ESTIMATING AREA AND ASSESSING ACCURACY OF LAND COVER AND LAND COVER CHANGE PRODUCTS
Pontus Olofsson, Boston University, United States

FR4.O-10.3 TOWARDS A MULTI-LEVEL SAMPLING SCHEME FOR LAND COVER AND LAND COVER CHANGE VALIDATION. LESSONS LEARNED FROM THE LAND COVER CLIMATE CHANGE INITIATIVE.
Céline Lamarche, Université Catholique de Louvain, Belgium; Sophie Bontemps, Quentin Marissiaux, Pierre Defourny, UCLouvain, Belgium; Olivier Arino, European Space Agency (ESA), Italy

FR4.O-10.4 ACCURACY ASSESSMENT OF THE FIRST EU-WIDE CROP TYPE MAP WITH LUCAS DATA
Astrid Verhegghen, Raphaël d'Andrimont, François Waldner, Marijn Van der Velde, Joint Research Center, European Commission, Italy

FR4.O-10.5 COPERNICUS SENTINEL-2 DATA FROM A CARD4L PERSPECTIVE: PRELIMINARY SELF-ASSESSMENT PERFORMED BY ESA
Valentina Boccia, European Space Agency (ESA), Italy; Rosario Quirino Iannone, Rhea Group S.p.A., Italy; Ferran Gascon, European Space Agency (ESA), Italy

FR4.O-10.6 SENTINEL-1 AND SENTINEL-2 TIME SERIES BREAKPOINT DETECTION AS PART OF THE SOUTH AFRICAN LAND DEGRADATION MONITOR (SALDI)
Marcel Urban, Friedrich Schiller University Jena, Germany; Andreas Hirner, German Aerospace Center (DLR), Germany; Jonas Ziemer, Marlin Mueller, Friedrich Schiller University Jena, Germany; Ursula Gessner, German Aerospace Center (DLR), Germany; Jussi Baade, Friedrich Schiller University Jena, Germany; Buster Magonong, South African Environmental Observation Network, South Africa; Theunis Morgenthal, Department of Agriculture, Land Reform and Rural Development, South Africa; Gregor Feig, South African Environmental Observation Network, South Africa; Abel Ramoelo, South African National Parks, South Africa; Kai Heckel, Hilma Nghiyalwa, Christiane Schmullius, Friedrich Schiller University Jena, Germany

Friday, July 16 16:40 - 18:10 Oral Room 11
Session FR4.O-11 Oral

Coastal Environment and Beyond

Session Co-Chairs: Bart Deronde, VITO Remote Sensing; Avi Putri Pertiwi, German Aerospace Center (DLR)

FR4.O-11.1 USING ICESAT-2 TO CHARACTERIZE COASTAL ECOSYSTEMS
Nathan Thomas, NASA Goddard Space Flight Center, United States; Avi Putri Pertiwi, Dimosthenis Traganos, German Aerospace Center (DLR), Germany; David Lagomasino, East Carolina University, United States; Dimitris Poursanidis, Foundation for Research and Technology Hellas, Greece; Shalimar Moreno, East Carolina University, United States; Lola Fatoyinbo, NASA Goddard Space Flight Center, United States

FR4.O-11.2 DETECTION OF MUSSEL BEDS USING AIRBORNE POLARIMETRIC SAR DATA
Sylvia Schmitz, Karlsruhe Institute of Technology, Germany; Eva Wortmeyer, Lower Saxony Water Management, Coastal Defence and Nature Conservation Agency, Germany; Antje Thiele, Fraunhofer Institute of Optronics, System Technologies and Image Exploitation IOSB, Germany; Holger Dirks, Andreas Wurpts, Lower Saxony Water Management, Coastal Defence and Nature Conservation Agency, Germany

FR4.O-11.3 COASTAL MARINE DEBRIS DENSITY MAPPING USING A SEGMENTATION ANALYSIS OF HIGH-RESOLUTION SATELLITE IMAGERY
Kenichi Sasaki, William Emery, University of Colorado Boulder, United States; Tatsuyuki Sekine, Louis Burtz, Yu Kudo, Amanogi, Japan

FR4.O-11.4 EVALUATION AND MITIGATION OF RAIN EFFECT ON WAVE DIRECTION ESTIMATION FROM X-BAND MARINE RADAR DATA
Zhiding Yang, Weimin Huang, Xinwei Chen, Memorial University of Newfoundland, Canada

FR4.O-11.5 LAND CONTAMINATION CORRECTION FOR AMSR2
Suleiman Alsweiss, Zorana Jelenak, Joseph Sapp, Paul Chang, National Oceanic and Atmospheric Administration (NOAA), United States

FR4.O-11.6 SATELLITE BASED ANALYSES ON POTENTIAL EFFECTS OF THE COVID19 LOCKDOWN OVER COASTAL AREAS: THE ESA-RACE SOON PROJECT
Federico Falcini, Federica Braga, CNR, Italy; Vittorio Ernesto Brando, National Research Council of Italy, Italy; Daniele Ciani, Simone Colella, Javier Concha, Claudia Giardino, Emanuele Organelli, Jaime Pitarch, Gian Marco Scarpa, Gianluca Volpe, CNR, Italy; Marie-Hélène Rio, European Space Agency (ESA), Italy

Friday, July 16 16:40 - 18:10 Oral Room 12
Session FR4.O-12 Oral-Invited

GNSS-R Modeling

Session Co-Chairs: Davide Comite, La Sapienza University of Rome; Thiago Onofre, University of Florida; James Campbell, University of Southern California

FR4.O-12.1 INTERCOMPARISON OF MODELS FOR CYGNSS DELAY-DOPPLER MAPS AT A VALIDATION SITE IN THE SAN LUIS VALLEY OF COLORADO
James Campbell, University of Southern California, United States; Ruzbeh Akbar, Massachusetts Institute of Technology, United States; Amir Azemati, University of Southern California, United States; Alexandra Bringer, Ohio State University, United States; Davide Comite, La Sapienza University of Rome, Italy; Laura Dente, University of Rome Tor Vergata, Italy; Scott Gleason, University Corporation for Atmospheric Research (UCAR), United States; Leila Guerriero, University of Rome Tor Vergata, Italy; Erik Hodges, University of Southern California, United States; Joel Johnson, Ohio State University, United States; Seung-Bum Kim, California Institute of Technology, United States; Amer Melebari, University of Southern California, United States; Nazzareno Pierdicca, La Sapienza University of Rome, Italy; Bowen Ren, Christopher Ruf, Leung Tsang, Haokui Xu, Jiyue Zhu, University of Michigan, United States; Mahta Moghaddam, University of Southern California, United States

FR4.O-12.3 SIMULATION OF GNSS-R SIGNALS IN ARBITRARY VIEWING GEOMETRY WITH A CLOSED-FORM BISTATIC TWO-SCALE MODEL
Gerardo Di Martino, Alessio Di Simone, Antonio Iodice, Daniele Riccio, Giuseppe Ruello, University of Naples Federico II, Italy

FR4.O-12.4 PARAMETER CONSIDERATIONS FOR THE RETRIEVAL OF SURFACE SOIL MOISTURE FROM SPACEBORNE GNSS-R
Joan Francesc Munoz-Martin, Raul Onrubia, Daniel Pascual, Hyuk Park, Adriano Camps, Universitat Politècnica de Catalunya, Spain; Christoph Rüdiger, Jeffrey P. Walker, Monash University, Australia; Alessandra Monerris, University of Melbourne, Australia

FR4.O-12.5 TEMPORAL DECORRELATION OF SCATTERED GNSS SIGNALS
Davide Comite, Nazzareno Pierdicca, Sapienza University of Rome, Italy

FR4.O-12.6 STUDIES OF TERRAIN SURFACE ROUGHNESS AND ITS EFFECT ON GNSS-R SYSTEMS USING AIRBORNE LIDAR MEASUREMENTS
Alexandra Bringer, Joel Johnson, Charles Toth, Chris Ruf, The Ohio State University, United States; Mahta Moghaddam, University of Southern California, United States

Friday, July 16 16:40 - 18:10 Oral Room 13
Session FR4.O-13 Oral-Invited

Machine Learning with Small Earth Observation Datasets

Session Co-Chairs: Matthieu Molinier, VTT Technical Research Centre of Finland Ltd; Hanna Meyer, University of Münster; Songyao Huai, Universiteit Gent

FR4.O-13.1 THE TRAP OF RANDOM SAMPLING AND HOW TO AVOID IT - ALTERNATIVE SAMPLING STRATEGIES FOR A REALISTIC ESTIMATE OF THE GENERALIZATION ERROR IN REMOTE SENSING
Ronny Hänsch, German Aerospace Center (DLR), Germany

FR4.O-13.3 INVESTIGATING THE IMPACT OF THE TRAINING SET SIZE ON DEEP LEARNING-POWERED HYPERSPECTRAL UNMIXING
Lukasz Tulczyjew, KP Labs, Poland; Jakub Nalepa, KP Labs / Silesian University of Technology, Poland

FR4.O-13.4 ESTIMATING THE AREA OF APPLICABILITY OF REMOTE SENSING-BASED MACHINE LEARNING MODELS WITH LIMITED TRAINING DATA
Hanna Meyer, Edzer Pebesma, University of Münster, Germany

FR4.O-13.5 TRUSTING SMALL TRAINING DATASET FOR SUPERVISED CHANGE DETECTION
Sudipan Saha, Technical University of Munich, Germany; Biplab Banerjee, Indian Institute of Technology Bombay, India; Xiao Xiang Zhu, German Aerospace Center (DLR), Germany

FR4.O-13.6 PATCH SIZE SELECTION FOR ANALYSIS OF SUB-METER RESOLUTION HYPERSPECTRAL IMAGERY OF FORESTS
Matti Mõttus, Matthieu Molinier, Eelis Halme, VTT Technical Research Centre of Finland, Finland; Hai Cu, Jorma Laaksonen, Aalto University, Finland

Friday, July 16 16:40 - 18:10 Oral Room 14
Session FR4.O-14 Oral-Invited

Radio Frequency Interference (RFI) and Spectrum Management in Passive Microwave Remote Sensing

Session Co-Chairs: Paolo de Matthaeis, NASA Goddard Space Flight Center; Thomas von Deak, Science Services - SME; Tianchen Zheng, Universiteit Gent

FR4.O-14.1 RECENT EVOLVING ASPECTS OF RFI DETECTION
Edward Kim, NASA, United States

FR4.O-14.3 WRC-23 AGENDA ITEMS 1.16 AND 1.17 IN REGARDS TO PASSIVE REMOTE SENSING OPERATIONS IN THE 18.6-18.8 GHZ FREQUENCY BAND
Thomas von Deak, Science Services - SME, United States

FR4.O-14.4 ANALYZING THE IMPACT OF OCEAN-REFLECTED RFI ON GMI CLEARSKY RETRIEVALS
Ian Adams, Stephen Munchak, NASA Goddard Space Flight Center, United States

FR4.O-14.5 STUDY OF A STRONG RFI SOURCE AT L-BAND USING SMAP RADIOMETER DATA
Paolo de Matthaeis, David Le Vine, NASA Goddard Space Flight Center, United States; Yan Soldo, ESA / ESTEC, Netherlands; Alvaro Llorente, ESA / ESAC, Spain

FR4.O-14.6 UPDATE ON ACTIVITIES OF THE U.S. NATIONAL ACADEMIES' COMMITTEE ON RADIO FREQUENCIES
Mahta Moghaddam, University of Southern California, United States; Liese van Zee, Indiana University, United States; Nathaniel Livesey, NASA Jet Propulsion Laboratory, California Institute of Technology, United States; Tomas Gergely, Independent Consultant, United States; Nancy Baker, Naval Research Laboratory, United States; Darrel Emerson, National Radio Astronomy Observatory, United States; William Emery, University of Colorado Boulder, United States; Dara Entekhabi, Massachusetts Institute of Technology, United States; Philip Erickson, Haystack Observatory, Massachusetts Institute of Technology, United States; Kelsey Johnson, University of Virginia, United States; Karen Masters, Haverford College, United States; Scott Paine, Center for Astrophysics | Harvard & Smithsonian, United States; Frank Schinzel, National Radio Astronomy Observatory, United States; Gail Skofronick-Jackson, NASA Headquarters, United States

Friday, July 16 16:40 - 18:10 Oral Room 15
Session FR4.O-15 Oral-Invited

IEEE GRSS Data Fusion Contest II

Session Co-Chairs: Pedram Ghamisi, HZDR-HIF; Yokoya Naoto, RIKEN; Yuting Yang, Universiteit Gent

FR4.O-15.1 IEEE DATA FUSION CONTEST OVERVIEW II

FR4.O-15.2 CHANGE CROSS-DETECTION BASED ON LABEL IMPROVEMENTS AND MULTI-MODEL FUSION FOR MULTI-TEMPORAL REMOTE SENSING IMAGES
Zhuohong Li, Fangxiao Lu, Hongyan Zhang, Guangyi Yang, Liangpei Zhang, Wuhan University, China

FR4.O-15.3 HIGH-RESOLUTION LAND COVER CHANGE DETECTION USING LOW-RESOLUTION LABELS VIA A SEMI-SUPERVISED DEEP LEARNING APPROACH – 2021 IEEE DATA FUSION CONTEST TRACK MSD
Lilin Tu, Jiayi Li, Xin Huang, Wuhan University, China

FR4.O-15.4 MRTA: MULTI-RESOLUTION TRAINING ALGORITHM FOR MULTITEMPORAL SEMANTIC CHANGE DETECTION
Qianyue Bao, Yang Liu, Zixiao Zhang, Dafan Chen, Yuting Yang, Licheng Jiao, Fang Liu, Xidian University, China

FR4.O-15.5 WEAKLY SUPERVISED SEMANTIC CHANGE DETECTION VIA LABEL REFINEMENT FRAMEWORK
Zhuo Zheng, Yinhe Liu, Shiqi Tian, Junjue Wang, Ailong Ma, Yanfei Zhong, Wuhan University, China

Friday, July 16 16:40 - 18:10 Oral Room 16
Session FR4.O-16 Oral-Invited

Next Generation Land Cover Monitoring Services: Towards a Flexible, User-oriented Approach

Session Co-Chairs: Zoltan Szantoi, European Commission - Joint Research Centre; Elise Dujardin, Université de Liège; Nandin-Erdene Tsendbazar, Wageningen University and Research

FR4.O-16.1 NEXT GENERATION LAND COVER MONITORING SERVICES: TOWARDS A FLEXIBLE, USER-ORIENTED APPROACH
Zoltan Szantoi, European Commission, Joint Research Centre, Italy; Ruben van de Kerchove, Vlaamse Instelling Voor Technologisch Onderzoek (VITO) Research Organisation, Belgium; Nandin-Erdene Tsendbazar, Martin Herold, Wageningen University and Research, Netherlands

FR4.O-16.3 FOREST MONITORING: ISSUES AND GOOD PRACTICES IN SAMPLE-BASED AREA ESTIMATION
Inge Jonckheere, FAO of the UN, Italy; Randy Hamilton, Silvacarbon, United States; Jose Maria Michel, Emily Donegan, FAO of the UN, Italy

FR4.O-16.4 CLC+ BACKBONE: SET THE SCENE IN COPERNICUS FOR THE COMING DECADE
Markus Probeck, Inés Ruiz, Gernot Ramminger, Christoff Fourie, Pirmin Maier, Martin Ickerott, Cornelia Storch, Anna Homolka, Sybrand Jacobus Muller, Himanshu Tiwari, André Stumpf, Sooyeon Chun, Cristina Mattos, Amelie Lindmayer, Fahad Jahangir, Pilar Endara, Fabian Berndt, GAF, Germany; Mario Dohr, Wolfgang Kapferer, Christian Schleicher, Stefan Ralser, Florian Innerbichler, Michael Riffler, Martin Siklar, GeoVille, Austria; Dora Aifantopoulou, Sideris Paralykidis, Geoapikonisis, Greece; Camille Pinet, Gabriel Jaffrain, Ingénierie Géographique Numérique Française à l'International, France; Annalaura di Federico, Marco Corsi, e-GEOS, Italy; Tobias Langanke, Hans Dufourmont, European Environment Agency, Denmark

FR4.O-16.5 ESA WORLDCOVER & COPERNICUS GLOBAL LAND COVER LAYERS: OPERATIONAL GLOBAL LAND COVER MAPPING AT 10-100 M RESOLUTION TAILORED TO THE USER NEEDS
Daniele Zanaga, Ruben Van De Kerchove, Marcel Buchhorn, Bruno Smets, Niels Souverijns, VITO, Belgium; Nandin-Erdene Tsendbazar, Martin Herold, Wageningen University and Research, Netherlands; Myroslava Lesiv, Steffen Fritz, International Institute for Applied Systems Analysis, Austria

FR4.O-16.6 TOWARDS OPERATIONAL LAND COVER VALIDATION AT HIGH RESOLUTION ADDRESSING MULTIPLE USER NEEDS
Nandika Tsendbazar, Martin Herold, Linlin Li, Dainius Masiliunas, Wageningen University, Netherlands; Myroslava Lesiv, Steffen Fritz, International Institute for Applied Systems Analysis, Austria

Friday, July 16 16:40 - 18:10 Oral Room 17
Session FR4.O-17 Oral-Invited

Physics-aware AI4EO and Simulation

Session Co-Chairs: Bertrand Le Saux, ESA - European Space Agency; Nicolas Longepe, ESA; Alex Levering, Wageningen University & Research

FR4.O-17.1 PHYSICS-AWARE MACHINE LEARNING FOR GEOSCIENCES AND REMOTE SENSING
Gustau Camps-Valls, Daniel H. Svendsen, Jordi Cortés, Alvaro Moreno-Martínez, Adrián Pérez-Suay, Jose Adsuara, Irene Martin, Maria Piles, Jordi Muñoz-Marí, Luca Martino, Universitat de València, Spain

FR4.O-17.3 ZOOMING INTO UNCERTAINTIES: TOWARDS FUSING MULTI ZOOM LEVEL IMAGERY FOR URBAN LAND USE SEGMENTATION
Eike Jens Hoffmann, Technical University of Munich (TUM), Germany; Mohsin Ali, German Aerospace Center (DLR), Germany; Xiao Xiang Zhu, Technical University of Munich (TUM) / German Aerospace Center (DLR), Germany

FR4.O-17.4 LIVEABILITY FROM ABOVE: UNDERSTANDING QUALITY OF LIFE WITH OVERHEAD IMAGERY AND DEEP NEURAL NETWORKS
Alex Levering, Diego Marcos, Wageningen University, Netherlands; Devis Tuia, École Polytechnique Fédérale de Lausanne, Switzerland

FR4.O-17.5 CLASSIFICATION AND GENERATION OF EARTH OBSERVATION IMAGES USING A JOINT ENERGY-BASED MODEL
Javiera Castillo-Navarro, ONERA / Université Bretagne Sud, France; Bertrand Le Saux, European Space Agency (ESA), Italy; Alexandre Boulch, valeo.ai, France; Sébastien Lefèvre, Université Bretagne Sud, France

FR4.O-17.6 HAZE AND SMOKE REMOVAL FOR VISUALIZATION OF MULTISPECTRAL IMAGES: A DNN PHYSICS AWARE ARCHITECTURE
Iulia Coca Neagoe, Corina Vaduva, Research Center for Spatial Information (CEOSpaceTech), University POLITEHNICA of Bucharest (UPB), Romania; Mihai Datcu, Research Center for Spatial Information (CEOSpaceTech), University POLITEHNICA of Bucharest (UPB) and Earth Observation Center (EOC), German Aerospace Center (DLR), Romania

Friday, July 16 16:40 - 18:10 Oral Room 18
Session FR4.O-18 Oral-Invited

Multiple Hazard Monitoring and Management in Urban Deprived Areas

Session Co-Chairs: Sabine Vanhuysse, Université libre de Bruxelles (ULB); Yue Zhou, Université catholique de Louvain

FR4.O-18.1 EO-BASED LOW-COST FRAMEWORKS TO ADDRESS GLOBAL URBAN DATA GAPS ON DEPRIVATION AND MULTIPLE HAZARDS
Monika Kuffer, University of Twente, Netherlands; Dana R. Thomson, University of Southampton, United Kingdom; Andrew Maki, Justice & Empowerment Initiatives, Nigeria; Sabine Vanhuysse, Stefanos Georganos, Université libre De Bruxelles, Belgium; Richard Sliuzas, Claudio Persello, University of Twente, Netherlands

FR4.O-18.3 GRIDDED URBAN DEPRIVATION PROBABILITY FROM OPEN OPTICAL IMAGERY AND DUAL-POL SAR DATA
Sabine Vanhuysse, Stefanos Georganos, Université libre De Bruxelles, Belgium; Monika Kuffer, University of Twente, Netherlands; Taïs Grippa, Moritz Lennert, Eléonore Wolff, Université libre De Bruxelles, Belgium

FR4.O-18.4 EXTRACTING URBAN DEPRIVATION INDICATORS USING SUPERSPECTRAL VERY-HIGH-RESOLUTION SATELLITE IMAGERY
Stefanos Georganos, Sabine Vanhuysse, Université libre De Bruxelles, Belgium; Ángela Abascal, Universidad de Navarra, Spain; Monika Kuffer, University of Twente, Netherlands

FR4.O-18.5 MANAGING MULTI-HAZARDS RISK OF URBAN DEPRIVATION IN THE CONTEXT OF URBAN PLANNING AND DESIGN
Jiong Wang, University of Twente, Netherlands

FR4.O-18.6 DEVELOPMENT OF A MULTI-CITY DEPRIVED AREA MAPPING ECOSYSTEM
Ryan Engstrom, George Washington University, United States; Dana R. Thomson, University of Southampton, United Kingdom; Julia Ek, George Washington University, United States; Monika Kuffer, University of Twente, United States

Friday, July 16 16:40 - 18:10 Oral Room 19
Session FR4.O-19 Oral

Advanced Applications and Pre-processing Methods in Change Detection and Multi-temporal Analysis

Session Co-Chairs: Francesca Bovolo, Fondazione Bruno Kessler; Thibaud Ehret, Université Paris-Saclay; Lydia Abady, University of Siena

FR4.O-19.1 AN UNSUPERVISED CHANGE DETECTION TECHNIQUE BASED ON A SUPER-RESOLUTION CONVOLUTIONAL AUTOENCODER
Luca Bergamasco, Fondazione Bruno Kessler, Italy; Luca Martinatti, University of Trento, Italy; Francesca Bovolo, Fondazione Bruno Kessler, Italy; Lorenzo Bruzzone, University of Trento, Italy

FR4.O-19.2 OBSERVATION OF AN OPEN-PIT COPPER MINE USING INSAR COHERENCE-BASED NORMALIZED DIFFERENCE ACTIVITY INDEX (NDAI)
Jihyun Moon, Hoonyol Lee, Kangwon National University, Korea (South)

FR4.O-19.3 SPATIO-TEMPORAL FEATURES PROCESSING NETWORK FOR CHANGE DETECTION IN REMOTE SENSING IMAGES
Zihao Yang, Zhaobin Cao, Xiaohua Wan, Fa Zhang, Guangming Tan, Institute of Computing Technology, Chinese Academy of Sciences, China

FR4.O-19.4 DETECTING RECENT CHANGES OF ICE-FREE EXTENSIONS ON LIVINGSTON ISLAND, NORTHERN ANTARCTIC PENINSULA REGION USING LANDSAT DATA
Ana Nieto Garcia, Thomas Schmid, CIEMAT (Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas), Spain; Jerónimo López Martínez, UAM (Universidad Autónoma de Madrid), Spain

FR4.O-19.5 BENCHMARKING CHANGE DETECTION IN URBAN 3D POINT CLOUDS
Iris de Gélis, Magellium, France; Sébastien Lefèvre, Université Bretagne Sud, France; Thomas Corpetti, Centre National de la Recherche Scientifique, France; Thomas Ristorcelli, Chloé Thénoz, Magellium, France; Pierre Lassalle, Centre National d'Etudes Spatiales, France

FR4.O-19.6 AUTOMATIC MONITORING OF WATER LEVEL IN SMALL LAKES USING PLANETSCOPE
Thibaud Ehret, Université Paris-Saclay, France; Simon Lajouanie, Victor Lefrançois, Kayrros, France; Carlo de Franchis, Université Paris-Saclay & Kayrros, France

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IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing

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Along with the conference, a special issues of the IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing (J-STARS) has been planned, open to the authors of all papers presented during the conference.

Please note that papers submitted to this J-STARS special issue should NOT be the same as the IGARSS conference papers. A 2 to 3 times longer paper is typically expected, with a more detailed presentation of the work, enhanced techniques and approaches, including additional data sets and comparisons in an enhanced experimental section.

In the cover letter, please provide the corresponding paper number for IGARSS 2021. If this information is not provided, the paper will be considered as a regular submission.

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Schedule

Jun. 25, 2021: Submission system opening
Dec. 31, 2021: Submission system closing

Guest Editors

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