

2021 International Geoscience and Remote Sensing Symposium (IGARSS)

NASA Earth Science Technology Office (ESTO)

Sessions, papers, and presentations prepared by members of the ESTO community

Monday, July 12

Keynote Presentation: Vehicular Robotics for Responsive Environmental Monitoring

(08:00 – 10:00 EDT) Sreeja Nag

M01.0-1.4 The Eigenvector-Eigenvalue Identity and Radar Polarimetry (11:15 – 11:30 EDT) Scott Hensely

M01.0-7.1 NASA's Surface Biology and Geology Concept Study: Status and Next Steps (11:00 – 11:15 EDT) David Thompson; etc.

M01.0-7.5 NASA's Earth Surface Mineral Dust Source Investigation: An Earth Venture Imaging Spectrometer Science Mission (11:30 – 11:45 EDT) Robert Green; David Thompson

M01.0-9.3 The Important Role of Antenna Pattern Characterization in the Absolute Calibration of GNSS-R Measurements (11:00 – 11:15 EDT) Tianlin Wang; Christopher Ruff; Andrew O'Brien; Scott Gleason; Darren McKague; Anthony Russel

M01.0-9.5 Global Surface Roughness Effect Retrieved From CYGNSS (11:30 – 11:45 EDT) Xiaolan Xu; Simon Shah; Simon Yueh

M01.0-9.6 Retrieval of Root-Zone Soil Moisture Profiles From Multi-Frequency Signals of Opportunity: A Simulation Study (11:45 – 12:00 EDT) Rashmi Shah; Estel Cardellach

SESSION M01.0-10 Future Technology Demonstration through Compact Instruments on CubeSat and SmallSat (10:30 – 12:00 EDT) Sachidananda Babu; Michelangelo Villano

M01.0-18.5 NASA's Global Assets for Disaster Risk Assessment (11:30 – 11:45 EDT) Batuhan Osmanoglu; etc.

Tuesday, July 13

TU1.0-1.6 A KU-Band Airborne INSAR for Snow Characterization at Trail Valley Creek (05:45 – 06:00 EDT) Paul Siqueira; etc.

TU2.MM-5.7 Multi-frequency NMM3D Simulations of Wave Propagation in Vegetation for Remote Sensing of Soil Moisture (07:30 – 07:35 EDT) Weihui Gu etc.

TU2.MM-17.6 Feasibility of Estimating Snow Emissivity via Assimilation of Multifrequency Passive Microwave Data (07:25 – 07:30 EDT) Sayed M. Bateni; etc.

TU3.0-2.6 Earth Observation Simulator (EO-SIM): An Open-Source Software for Observation Systems Design (09:40 – 09:55 EDT) Vinay Ravindra; Ryan Ketzner; Sreeja Nag

TU3.0-18.2 Soil Moisture Retrieval using a Time-series Ration Algorithm for the NISAR Mission (08:40 – 08:55 EDT) Jeongwhan Park; etc.

TU3.0-20.5 Sampling Evaluation to Measure Observing System Representativeness (09:25 – 09:40 EDT) Jordan Stern, Paul Grogan

TU4.0-2.4 NISAR's Capabilities in Support of the Applications Community (11:10 – 11:25 EDT) Cathleen Jones; Batuhan Osmanoglu; Nathan Torbick

TU4.02.4 NISAR Requirements and Validation Approach for Solid Earth Science (11:25 – 11:40 EDT) Mark Simons; etc.

TU4.0-3.1 *Integrating Hydrologic Models and Earth Observation Data for Global Flood Forecasting and Alerting in Near Real-Time* (10:40 – 11:10 EDT)

Margaret Glasscoe, etc.

TU4.0-3.6 *Implications of a New Normal urban Air Quality* (11:55 – 12:10 EDT) Shobha Kondragunta;

Hai Zhang; Zigang Wei

TU4.0-5.1 *New Space CAL/VAL Maturity Assessment Initiatives at ESA and NASA* (10:40 – 11:10 EDT)

Clement Albinet; Alreda Hall; Kevin Murphy; etc.

TU4.0-5.4 *Commercial SmallSAT Data Acquisition: Program Update* (11:25 – 11:40 EDT) Manil Maskey;

Alfreda Hall; Kevin Murphy; etc.

TU4.0-6.6 *L-Band INSAR Depth Change Retrieval During the NASA SnowEx 2020 Campaign: Grand Mesa, Colorado* (11:55 – 12:10 EDT) Hans-Peter

Marshall; etc.

TU4.0-7.6 *Experiments with Small UAS to Support SAR Tomographic Mission Formulation* (11:55 – 12:10 EDT) Brian Hawkins; etc.

TU4.0-8.3 *Debris: Distributed Element Beamformer Radar for Ice and Subsurface Sounding* (11:10 – 11:25 EDT) Mark S. Haynes; etc.

Wednesday, July 14

WE1.0-18.5 *Updates to the Special Sensor Microwave Imager / Sounder (SSMIS) Calibration for the GPM V07 Data Release* (05:30 – 5:45 EDT)

Rachael Kroodsma; etc.

WE2.MM-17.3 *Enabling Discovery and Access Across NASA's Science Mission Directorate (SMD)* (07:10 – 07:15 EDT) Kaylin Bugbee; etc.

WE3.0-2.1 *Station-Keeping Manoeuvre Detection for Autonomous Precise Interferometric Tracking of Geosynchronous Satellites* (08:25 – 08:40 EDT) David

Long; etc.

WE3.0-2.6 *Heterogeneous Constellation Design for a Smart Soil Moisture Radar Mission* (09:40 – 09:55

EDT) Ben Gorr; etc.

WE3.0-3.2 *Freeze / Thaw Retrieval Over High Altitude Areas with CYGNSS* (08:40 – 8:55 EDT) Hugo Carreno-Luengo; Christopher Ruf; etc.

WE3.0-4.1 *A New Hail Product for GPM DPR* (08:25 – 08:55 EDT) Minda Le; V. Chandrasekar

WE3.0-6.6 *Imaging Complex Fault Slip of Large Earthquakes with SENTINEL-1 and ALOS-2 SAR Analysis* (9:40 – 09:55 EDT) Eric J. Fielding; etc.

WE3.0-18.2 *Implementation and Analysis of the Dual-Channel Algorithm for the Retrieval of Soil Moisture and Vegetation Optical Depth for SMAP*

(08:40 – 08:55 EDT) Julian Chaubell; etc.

WE4.0-1.3 *Resolving Inland Waterways with CYGNSS* (11:10 – 11:25 EDT) Christopher Ruf; Clara Chew;

Cynthia Gerlein-Safdi; etc.

WE4.0-2.1 *Remote Sensing of Volcanoes at Low and High Spatial Resolution: A Historical Perspective and Future Opportunities* (10:40 – 11:10 EDT) Robert

Wright

WE4.0-5.3 *Snowpack Remote Sensing Using Wideband Long-Wavelength Microwave Radiometry*

(11:10 – 11:25 EDT) Maryam Salim; etc.

WE4.0-8.4 *Distributed Aperture Radar Tomographic Sensors (DARTS) to Map Surface Topography and Vegetation Structure* (11:25 – 11:40 EDT) Marco

Lavalle; etc.

WE4.0-18.6 *A Science-Focused, Scalable, Flexible Observing System Simulation Experiment (OSSE) Toolkit* (11:55 – 12:10 EDT) Derek Posselt; etc.

Thursday, July 15

TH1.0-16.1 *Operational Airborne GNSS-R Aboard New Zealand Domestic Aircraft* (04:13 – 05:00 EDT)

Delwyn Moller; etc.

TH1.0-20.1 *Automated UAS Measurements of Reflectance and Solar Induced Fluorescence (SIF) for Assessment of the Dynamics in Photosynthetic Function, Application for Maze* (04:30 – 04:45 EDT)

Petya Campbell

TH2.MM-8.5 *A Method for Separating Linear Scatters in Noisy Condition from High Entropy Scatters* (07:20 – 07:25 EDT) Yue Yu; Chi-Chih Chen

TH2.MM-25.1 *Characterization of Clock Phase Errors for Distributed Wireless Synchronization Protocol* (07:00 – 07:05 EDT) Samuel Prager; Mahta Moghaddam; Marco Lavallo

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TH2.MM-25.4 *Rainfall Estimation from TEMPEST-D CubeSat Observations* (07:15 – 07:20 EDT) Chandrasekar Radhaskrishnan; Chandrasekar V; Steven Reising

TH2.MM-25.9 *Developing Radiometer and Radar Synergies using Machine Learning* (07:40 – 07:45 EDT) Xavier Bosch-Lluis; Steve Chien; Qin Yue; etc.

TH3.0-3.1 *Tri-Agency Cooperation to Identify the Impact of COVID-19* (08:25 – 08:55 EDT) Shinchi Sobue; Yves-Louis Desnos; Kevin Murphy; etc.

TH3.0-3.5 *Visualizing, Exploring, and Communicating Environmental Effects of COVID-19 Using Earth Observation Dashboard* (09:25 – 09:40 EDT) Manil Maskey; Michael Falkowski; Kevin Murphy

TH3.0-7.6 *Development of Spaceborne SOOP Reflectometry Model for Complex Terrains* (09:40 – 09:55 EDT) Dylan Boyd; Mehmet Kurum; James Garrison; etc.

TH3.0-11.6 *Maps of Active Layer Thickness on the North Slope of Alaska by Upscaling P-Band Polarimetric SAR Retrievals* (09:40 – 09:55 EDT) Mahta Moghaddam; Richard Chen; Daniel Clewley; etc.

SESSION TH3.0-13 *New Observing Strategies for Natural Hazards* (08:25 – 9:55 EDT) Michael Seabloom; Ben Smith

TH3.0-20.5 *Evaluation of Machine Learning Based Nowcasting Between Storms Over Different Geographical Regions* (09:25 – 09:40 EDT) Eun-Yeol Kim; Chandrasekar V

TH4.0-13.6 *Cross Validation of TEMPEST-D and RainCube Observations* (11:55 – 12:10 EDT) Chandrasekar V; Chandrasekar Radhaskrishnan; Steven C. Reising

TH4.0-16.3 *UAV Path Planning for Optimal Soil Moisture Mapping* (11:10 – 11:25 EDT) Ruzbeh Akbar; Agnelo Silva; Sam Prager; Dara Entekhabi; Mahta Moghaddam

Friday, July 16

FR2.MM-17.1 *Simulation Study of Precipitation Using Spaceborne Synthetic Aperture Radar* (07:00 – 07:05 EDT) Shashank S Joshil; Chandrasekar V

FR2.MM-20.4 *Two-Step Algorithm for Sea Surface Temperature Determination* (07:15 – 07:20 EDT) Robert Alonso; Robert Frouin

FR3.0-1.3 *The NISAR Mission's Capabilities for Natural Hazards Monitoring* (08:55 – 09:10 EDT) Cathleen Jones; Manjusree P; Srinivasa Rao

FR3.0-5.3 *A Review of SAR Observation Requirements for Global And Targeted Science Applications* (08:55 – 09:10 EDT) Cathleen Jones; Manjusree P; Srinivasa Rao

FR3.0-12.5 *The Field Campaign Explorer* (09:25 – 09:40 EDT) Geoffrey Stano; Yuling Wu; Navaneeth Selvaraj; etc.

FR4.0-12.6 *Studies of Terrain Surface Roughness and its Effect on GNSS-R Systems Using Airborne Lidar Measurements* (11:55 – 12:10 EDT) Alexandra Bringer; Joel Johnson; Chris Ruf; etc.

FR4.0-14.4 *Analyzing the Impact of Ocean Reflected RFI on GMI Clear Sky Retrievals* (11:25 – 11:40 EDT) Ian Adams; Stephen Munchak

FR4.0-14.6 *Update on Activities of the U.S. National Academies' Committee on Radio Frequencies* (11:25 – 11:40 EDT) Mahta Moghaddam; Liese van Zee; Nathaniel Livesey; etc.

