

2021 AGU Fall Meeting

NASA Earth Science Technology Office (ESTO) ESTO-Funded and ESTO-Affiliated Presentations, Posters, and Events



Exhibit Talk (anytime, via the NASA Virtual Exhibit)
Emerging Technology and Applied Science Informing Ocean Biology and Biogeochemistry – Joel Scott

Monday, December 13

Presentation H11E-01 (8:00, Room 260-262)
Small Satellite Constellations: TEMPEST-D Demonstration of the Potential to Enable Temporal Observations of Cloud and Precipitation Processes – Steve Reising

Presentation GC11A-01 (8:05, Room 203-205)
HyTI: High spatial and spectral resolution thermal remote sensing from a cube satellite – Robert Wright

eLightning Presentation H11G-10 (8:27, eLightning Theater VI)
Compact Hyperspectral Prism Spectrometer (CHPS) for Marine Plastic Debris Sensing – Betsy Maria Farris (T. Kampe)

Presentation IN11A-06 (8:28, Room 288-290)
Integration of in situ Wireless Sensor Networks and UAVs for Soil Moisture Mapping – Ruzbeh Akbar

Presentation IN11A-08 (8:38, Room 288-290)
StereoBit on the SpaceCube Mini – James Carr

Presentation A11A-08 (8:51, New Orleans Theater B)
CHAPS: A New, Compact Instrument for Air Quality Remote Sensing – William Swartz

eLightning SESSION SY12B (9:45-11:00, eLightning Theater VI)
Toward Earth-System Digital Twins II eLightning
Conveners: Jacqueline LeMoigne, Marge Cole, Michael Seablom, Lawrence Friedl

SY12B-01 *Using a Digital Twin Weather Research and Forecasting (WRF) Model for Machine Learning of Deep Convective Ice Storms* – Jason Swope (S. Chien)

SY12B-02 *NASA ESD's Digital Twin Earth* – Elena Steponaitis

SY12B-03 *Next Generation Web-based Digital Twin Systems for Hydrological Research and Education* – Ibrahim Demir

SY12B-04 *Simulating the Impact of Agile, Heterogeneous, Distributed Spacecraft with Intelligent Scheduling (D-SHIELD) to reduce global Soil Moisture Uncertainty* – Sreeja Nag

SY12B-05 *Leveraging Adaptive Viewing to Improve the Efficacy of Space-Borne Retrievals for Terrestrial Hydrology Applications within an Observing System Simulation Experiment (OSSE)* – Colin McLaughlin

SY12B-06 *High-resolution snow modeling and data assimilation techniques for the next generation of remotely sensed observations on a snow-covered digital twin* – Ethan D Gutmann

SY12B-07 *Creating Global Digital Twins to Improve Air Quality and COVID Outcomes* – Jeanne Holm

Presentation B12A-01 (9:50, Room 252-254)
Predicting global biodiversity dynamics with new data and technologies – Walter Jetz

Presentation B12A-02 (9:55, Room 252-254)
Biodiversity across scales: From fine-scale understanding of animal movements to global-scale assessment of data coverage – Ruth Oliver (W. Jetz)

Presentation A12B-11 (10:40, Room 275-277)
Initial Results from the Compact Midwave Imaging System (CMIS) Airborne Test Campaign – Michael Kelly

Presentation B13A-07 (13:20, Room 252-254)
Wildlife Insights: How Camera Trap Data Can Foster Global Biodiversity Conservation – Fabiola Iannarilli (W. Jetz)

SESSION SY14A (14:30-15:45, Room 298-299)
Toward Earth-System Digital Twins
Conveners: Jacqueline LeMoigne, Marge Cole, Michael Seablom, Lawrence Friedl

SY14A-01 *Europe's Destination Earth - Towards Digital Twins of the Earth* – Peter Bauer

SY14A-02 *Building a Digital Twin of the Dangermond Preserve – the Last Coastal Wilderness in Southern California* – Kelly Easterday

SY14A-03 *High Fidelity Digital Twins of Urban Systems as Components in Earth System Digital Twins* – Jibonananda Sanyal

SY14A-04 *NASA Earth Science Technology for Earth System Digital Twins (ESDT)* – Nikunj Oza

SY14A-05 *Integrated Digital Earth Analysis System (IDEAS)* – Thomas Huang

SY14A-06 *Networked Digital Earth for Digital Twins of Earth Systems* – Jack Watson

SY14A-07 *Merging Analytic Collaborative Frameworks with New Observing Strategies Toward a Digital Twin: Earth – Episodic Pulse Event Impacts on the Ocean Carbon Cycle as an Example* – Laura Rogers

SY14A-08 *Towards a Cancer Patient Digital Twin: Inspiring, Building and Enabling Community Efforts to Advance Precision Oncology Using Digital Twin Approaches* – Eric Stahlberg

SY14A-09 *Earth Information System (EIS)-Freshwater: A cloud-based open system for integrated hydrological cycle studies* – Sujay V Kumar

SY14A-10 *AI4GEO: Toward an Earth Digital Twin to Handle Urban and Peri-Urban Challenges* – Simon Baillarin

Poster A15N-1851 (16:00-18:00, Poster Hall D-F)
Destructive Interference: Future Long-term Greenhouse Gas Monitoring with Dual-Comb Spectroscopy Needs More Accurate Spectroscopic Parameters – Newton Nguyen (K. Cossel)

Poster G15A-0336 (16:00-18:00, Poster Hall D-F)
Towards Better Characterization of Terrestrial Water Storage in Land Surface Models via Multivariate Assimilation of GRACE / GRACE-FO, GPS-derived Surface Deformation, and Leaf Area Index – Alireza Moghaddasi (B. Forman)

Poster G15A-0341 (16:00-18:00, Poster Hall D-F)
Detailed Modeling of Acceleration Noise in a Simplified Gravitational Reference Sensor for Future Earth Geodesy Missions – Aaron Knudtson (J. Conklin)

Poster G15A-0343 (16:00-18:00, Poster Hall D-F)
Simplified Gravitational Reference Sensors for Future Earth Geodesy Missions – John Conklin

Poster G15A-0344 (16:00-18:00, Poster Hall D-F)
Drag Compensation Control System for the Simplified Gravitational Reference Sensor for Earth Geodesy – Unmil Patel (J. Conklin)

Poster GC15B-0667 (16:00-18:00, Poster Hall D-F)
Detailed Design of the Reduced Envelope Multispectral Infrared Radiometer (REMIR): An Airborne Demonstrator for Future Sustained Land Imaging Architectures Beyond Landsat 10 – Michael S Veto

Poster GC15B-0674 (16:00-18:00, Poster Hall D-F)
Compact Hyperspectral Prism Spectrometer (CHPS) and Reduced Envelope Multispectral Imager (REMI) Airborne Science Demonstrations for Sustainable Land Imaging – Zachary Rovig (T. Kampe)

Poster GC15B-0678 (16:00-18:00, Poster Hall D-F)
Snapshot hyperspectral imaging of evapotranspiration dynamics
– Tomasz Tkaczyk

Poster GC15B-0699 (16:00-18:00, Poster Hall D-F)
Operations Update for CIRiS, a Cubesat Thermal Infrared Imaging Radiometer with On-orbit Calibration System – David Osterman

Poster H15K-1165 (16:00-18:00, Poster Hall D-F)
The Fluorescence Ocean Return and Observations (FLORO) Experiment: An investigation of marine plastic debris using fluorescence spectra and lifetime – Madeline Cowell

Poster H15Q-1246 (16:00-18:00, Poster Hall D-F)
Cross Validation of TEMPEST-D Observations and GPM Products over the Precipitating Systems – Chandrasekar Radhakrishnan (S. Reising)

Tuesday, December 14

Presentation A21D-02 (8:05, Room 283-285)
Techniques, Technologies and Sampling Strategies Toward a Global PBL Observing System – Amin Nehrir

Presentation A21D-04 (8:15, Room 283-285)
Differential Absorption Lidar (DIAL) for Water Vapor and Aerosol Profiling from Airborne and Space-based Platforms
– Brian Carroll (A. Nehrir)

Town Hall TH23D (11:15-12:15, Room 350-351)
The NASA Surface Biology and Geology Designated Observable: The Earth in Living Color

Presentation A24E-12 (15:32, Room 283-285)
The Tropospheric Emissions, Monitoring of Pollution Continuity Instrument (TEMPO-CI) and the early realization of the benefits of the Atmospheric Composition Spectrometer (ACX) – Dennis Nicks

eLightning Presentation A25A-03 (16:06, eLightning Theater VI)
Accurate Greenhouse Gas Remote Sensing using Open-Path Dual-Comb Spectroscopy – Kevin Cossel

Poster A25B-1660 (16:00-18:00, Poster Hall D-F)
Cloud-based Analytic Framework for Precipitation Research (CAPRI) to Enhance the Spatial Resolution of GPM Data – Sravani Koppala

Poster B25E-1504 (16:00-18:00, Poster Hall D-F)
Combined LiDAR and Hyperspectral Imagery for Landscape Forest Reproduction across the United States – Tong Qiu (J. Swenson)

Wednesday, December 15

Presentation U32A-01 (9:45, Hall D-2)
Observing Earth's Surface Topography and Vegetation Structure in the Next Decade: Science Objectives and Needs – Andrea Donnellan

Presentation U32A-02 (10:00, Hall D-2)
Observing Earth's Surface Topography and Vegetation Structure in the Next Decade: Technology Gaps and Gap Filling Activities
– David Harding

Presentation IN32B-04 (10:14, Room 288-290)
Advancing Precipitation Research with Cloud-based Technologies
– John Beck

Town Hall TH33F (11:15-12:15, Room 353-355)
NASA's Earth Science Division (ESD)

Town Hall TH33K (11:15-12:15, Room 393-394)
An Update on NASA's Surface Deformation and Change Mission Study

SESSION A33C (12:45-1500, Room 280-282)
Small Satellites as Pathfinders for New Mission Capabilities
Conveners: William H Swartz, Charles D Norton, Pamela Millar, David M Klumpar

A33C-01 *New Ways to Explore Mars with Small Spacecraft*
– Charles D Edwards

A33C-02 *LICIACube the "Light Italian Cubesat for Imaging of Asteroid" and its data exploitation* – Elisabetta Dotto

A33C-03 *Distributed Space Telescopes Enabled by Constellation of Small Satellites* – Farzad Kamalabadi

A33C-04 *EZIE: A Three-CubeSat Constellation Mission to Study Ionospheric Electrojets* – Jeng-Hwa Yee

A33C-05 *Hydrology Remote Sensing using P-band Signals of Opportunity (SoOp), the SNOOPI Demonstration Mission*
– James L Garrison

A33C-06 *Transformative Science Opportunities with Small Satellites in NASA Science Mission Directorate* – Florence Tan

Town Hall TH35E (18:15-19:15, Room 352)
Access2Space: NASA Science Mission Directorate Rideshare Opportunities and Lessons Learned for Enabling SmallSat Missions, Instruments, and Technology

Poster C35G-0945 (16:00-18:00, Poster Hall D-F)
Implementing SnowModel into the Land Information System Framework to Support High Resolution Modeling of Snow Heterogeneity
– Kristi R Arsenault (E. Gutmann)

Poster U34D-0531 (16:00-18:00, Poster Hall D-F)
Satellite Formation Flying for Surface Topography and Vegetation (STV) Mapping: The Distributed Aperture Radar Tomographic Sensors (DARTS) – Marco Lavalle

Thursday, December 16

eLightning Presentation A41H-02 (8:03, eLightning Theater III)
Development of a Multi-View Satellite Instrument for Global Stratospheric Aerosol Measurements – Matthew DeLand

Town Hall TH43H (11:15-12:15, Room 386-387)
NASA's Decadal Survey Study: Aerosols, Clouds, Convection, Precipitation (ACCP)

eLightning Presentation IN45A-01 (16:00, eLightning Theater IV)
Nowcasting Earthquakes by Visualizing the Earthquake Cycle with Machine Learning: A Comparison of Two Methods
– John Rundle (A. Donnellan)

Friday, December 17

Presentation A52F-01 (9:45-9:50, Room 275-277)
Characterizing the Wildland Fire Environment for Smoke Modeling and Air Quality Mapping – Nancy French (Janice Coen)

Presentation H52A-01 (09:45, Room 243-245)
Modeled snow intercomparison over Fairbanks, Alaska domain
– Melissa Wrzesien (E. Gutmann)

Presentation H54G-02 (14:35, Room 271-273)
High performance computing for high-resolution snow modeling – Ross Mower (E. Gutmann)

Poster ED55C-0304 (16:00-18:00, Poster Hall D-F)
GeoGateway GIS for Learning about Geodynamics, Data Analysis and Applications to Natural Hazards – Lisa Grant Ludwig (A. Donnellan)

Poster H55C-0773 (16:00-18:00, Poster Hall D-F)
Forecasting global geophysical states using a deep learning model for constellation scheduling and planning – Archana Kannan (S. Nag)

Virtual Poster T55F-12 (16:00-17:15, online only)
Fault Zone Processes Revealed by UAVSAR: Distributed San Andreas Fault Deformation Above a Shallow Locking Depth
– Jay Parker (A. Donnellan)