**2020 AGU Fall Meeting**  
NASA Earth Science Technology Office (ESTO)  
ESTO-Funded and ESTO-Affiliated Presentations, Posters, and Events

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**Thursday, December 3**  
**Decadal Survey Surface Topography & Vegetation Incubation Study Town Hall** (07:00 - 08:00 PST) — Andrea Donnellan and David J Harding

**Monday, December 7**  
**Poster A003-0019** (04:00 - 20:59 PST)  

**Poster C002-0010** (04:00 - 20:59 PST)  
Which Family Trees of Snow Interception Modeling History have the Essentials for Success? – Jessica D Lundquist

**eLightning IN003-08** (07:00 - 08:00 PST)  
Harnessing Emerging High-Performance Computing, Cloud, and Data Analytics Capabilities: Preparing the Climate, Solid Earth, Space, and Geospatial Sciences for Exascale – Sudhir R Shrestha

**Presentation A017-05** (07:36 - 07:44 PST)  
The Observed Relationship Between GOES-16 Derived Overshooting Top Area and Midlevel Updraft Area – Maxwell Grover

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**Tuesday, 8 December 2020**  
**eLightning IN009-06** (10:30 - 11:30 PST)  
Solving Training Data Bottlenecks for Artificial Intelligence/ Machine Learning in Earth Science – Ved Chirayath

**Wednesday, 9 December 2020**  
**Poster A060-0011** (04:00 - 20:59 PST)  
Using Machine Learning to Identify Planetary Boundary Layer Heights for Ceilometer-Based Aerosol Backscatter Retrievals – Jennifer Sleeman

**Poster A068-0010** (04:00 - 20:59 PST)  
Machine Learning for Emulating Physical Parameterization of Planetary Boundary Layer Height – Phuong Nguyen

**eLightning H082-11** (04:30 - 04:33 PST)  
Development of a “nature run” for observation system simulation experiments (OSSE) for snow mission development – Melissa Wrzesien

**eLightning H093-11** (06:00 - 06:03 PST)  
Towards an Integrated Terrestrial Freshwater Remote Sensing System using the NASA Land Information System, Data Assimilation, and Synthetic Retrievals of Snow, Soil Moisture, and Vegetation over Western Colorado – Lizhao Wang

**eLightning Session IN019 (cont.)**

**Presentation IN019-03** (10:36 - 10:39 PST)  
Optimal Sensing of Tropical Cyclones (TCs) by Constellation of Low Earth Orbiting Satellites, Guided by Numerical Weather Prediction Model Ensemble Track Forecasts and Assimilation of Observed/ Missed TC Center Position Measurements – Vinay Ravindra

**eLightning IN019-05** (10:42 - 10:45 PST)  
NACHOS: A High-Resolution Hyperspectral Imager for Atmospheric Trace Gas Monitoring in a CubeSat Configuration – Kirk Post

**Presentation IN019-06** (10:45 - 10:48 PST)  
Space Ground Sensor Webs for Volcano Monitoring – Steve Chien

**eLightning IN019-07** (10:48 - 10:51 PST)  
Co-Design and Co-Simulation Infrastructure for a New Observing Strategies Testbed – Jim Carr

**eLightning IN019-08** (10:51 - 10:54 PST)  
Evaluation of Remote-Sensing Architectures using the Virtual Constellation Engine – Marco Paoloeri

**Presentation IN019-09** (10:54 - 10:57 PST)  

**Presentation IN019-11** (11:00 - 11:03 PST)  
Distributed Spacecraft with Heuristic Intelligence to Enable Logistical Decisions (D-SHIELD) for Soil Moisture Monitoring – Sreeja Nag

**Presentation IN019-12** (11:03 - 11:06 PST)  
StereoBit: Onboard Intelligence for a Stereo Winds Constellation – James Carr

**Presentation IN019-13** (11:06 - 11:09 PST)  
Quantifying Uncertainty and Kinematics of Earth Systems (QUAKES) Analytic Center Framework and Imager – Andrea Donnellan

**Friday, 11 December 2020**  
**Poster B062-0002** (04:00 - 20:59 PST)  
Airborne Sensor Combination for Calibration, Validation, and Research in Dynamic Aquatic Systems – Liane Guild

**NASA Earth Science Division Town Hall** (10:30 - 11:30 PST) – Sandra Cauffman, Paula S Bontempi, Charles E Webb, Lawrence Friedl, Pamela Millar, and Kevin J Murphy

**Presentation IN025-04** (10:39 - 10:42 PST)  
Designing a Disruption Tolerant Network for Reactive Spacecraft Constellations – Sreeja Nag

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**ESTO**

**Earth Science Technology Office**
Friday, 11 December 2020 (cont.)
Presentation A128-14 (11:09 - 11:12 PST)
Assessment of lidar XCH4 measurements during ACT-America 2019 for boundary layer methane and emission model constraint – Rory Barton-Grimley

Presentation B073-08 (20:58 - 21:02 PST)
Dynamic responses of ground beetles to climate change and habitat characteristics – Tong Qiu

Monday, 14 December 2020
Poster A141-0012 (04:00 - 20:59 PST)
Comparison of Co-Incident MISR, Terra MODIS and ISS-CATS Cloud Top Heights – Arka Mitra

Presentation IN032-06 (10:30 - 10:35 PST)
Fusion and Visualization of Planetary Boundary Layer Height from Ceilometer and WRF-Chem – David Chapman

Presentation IN033-02 (11:35 - 11:40 PST)
Compressive Sensing and Deep Learning framework for Multiple Satellite Sensor Data Fusion – Rahul Gite

Presentation A171-05 (20:46 - 20:50 PST)
Simultaneous Lidar Profiling of Water Vapor, Aerosol, and Wind over the Eastern Pacific and Implications for Observational Challenges on Clouds, Circulation, and Climate Sensitivity – Brian J. Carroll

Tuesday, 15 December 2020
Poster A175-0014 (04:00 - 20:59 PST)
Open-path Dual-comb Spectroscopy in the 4.5 to 4.9 μm Region for Measurements of CO2, N2O, CO, and O3 – Kevin Cossel

Poster A180-0002 (04:00 - 20:59 PST)
A Small Satellite Constellation of Compact, Multi-angle, Multi-Spectral Imagers for Global Observation of the Planetary Boundary Layer – Mike Kelly

Presentation A192-04 (05:42 - 05:46 PST)
Exploring Lateral Boundary Forcings on High Resolution Regional Sub-Seasonal Prediction Performance – Carlos Cruz

Presentation A197-09 (10:24 - 10:27 PST)
A Continuity Microwave Limb Sounder (MLS) instrument to augment the record from Aura MLS – Nathaniel Livesey

eLightning A197-10 (10:27 - 10:30 PST)

Panel A198 (11:30 - 12:30 PST)
Achieving Breakthrough Science with Small Satellites: A Pathway to Knowledge and Mission Success I – Pamela Millar, J Daniel Moses, Michael Garcia, and William Horne

Presentation A206-06 (21:05 - 21:12 PST)
Measurement of Trace Gases from an Unconventional Oil and Gas Development Site Using Mid-Infrared Dual Comb Spectroscopy – Eleanor Waxman

Wednesday, 16 December 2020
Poster A215-0003 (04:00 - 20:59 PST)
Assimilation of the ceilometer observed planetary boundary layer height into WRF-Chem/DART – Zhifeng Yang

Presentation IN041-01 (04:00 - 04:03 PST)
NASA’s Advanced Information Systems Technology (AIST) Program: Technology Enabling Earth Science Understanding – Laura Rogers

Presentation IN041-03 (04:06 - 04:09 PST)
SISTER: SBG Space-based Imaging Spectroscopy and Thermal PathfindER – Philip Townsend

Presentation IN041-05 (04:12 - 04:15 PST)
Imaging Spectroscopy Processing Environment on the Cloud (ImgSPEC) – E. Natasha Stavros

Presentation IN041-06 (04:15 - 04:18 PST)
Statistical Inference for Spatiotemporal Trends in Remote-Sensing Data – Anthony Ives

Presentation IN041-07 (04:18 - 04:21 PST)
Integrating Point-Source Methane Emissions from Imaging Spectroscopy Data into the Multi-scale Methane Analytic Framework (M2AF) Information System – E. Natasha Stavros

Presentation IN041-09 (04:24 - 04:27 PST)
Distributed Machine Learning and Data Fusion for Flood Detection and Monitoring – Thomas Huang

Presentation IN041-14 (04:39 - 04:42 PST)
Multi-agent multi-scale observations of soil moisture via SPCTOR: Sensing Policy Controller and Optimizer – Mahta Moghaddam

eLightning A235-08 (07:22 - 07:25 PST)
Melt extent and melt volume attributed to distinct causal mechanisms – Wenshan Wang

Presentation H206-03 (10:08 - 10:12 PST)
Cloud-based Analytical Framework for Precipitation Research (CAPRI) – John Beck

Presentation H212-11 (18:00 - 18:03 PST)
Understanding Heterogeneity to Improve Snow-albedo Feedbacks in a Simplified Regional Climate Mode – Ethan Gutmann

Thursday, 17 December 2020
Presentation C068-01 (04:03 - 04:07 PST)
Multi-scale Snow-Atmosphere Interactions Over Mountain Snowpack for Climate Applications – Ethan Gutmann

Presentation A249-02 (04:04 - 04:08 PST)
Airborne differential absorption radar measurements with the 167-174.8 GHz Vapor In-cloud Profiling Radar (VIPR) – Richard Roy

Presentation A252-05 (05:46 - 05:50 PST)
The Future of CubeSat Constellations of Microwave Atmospheric Sounders: Temporal Experiment for Storms and Tropical Systems (TEMPEST) Mission – Steven C Reising

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