2023 AGU Fall Meeting
NASA Earth Science Technology Office (ESTO)
ESTO-Affiliated Presentations, Posters, and Events *(all times PST)*

Monday, December 11

Poster A11I-2105 (08:30-12:50, Poster Hall A-C)
Investigating the Interplay Between Climate Change Feedback, Forest Fire Dynamics and Smoke for Global Forests: Insights from Numerical Experiments with a Global Climate Model
- Debanjana Das (Milton Halem)

Poster C11C-1047 (08:30-12:50, Poster Hall A-C)
Developing a Cloud Computing Module for Mining Geophysical Properties of Sea Ice from High Spatial Resolution Imagery
– Xin Miao (Chaowei Phil Yang)

Poster SH11D-2626 (08:30-12:50, Poster Hall A-C)
A Digital Impedance Probe to Measure the Damping of Ionospheric Plasma Resonances at a High Sample Rate
- Benjamin Lewis (Charles Swenson)

Presentation A12A-08 (11:30, 3002 West)
Intelligent Long Endurance Observing System
Presenter: Bryan Duncan (Meghan Chandarana)

Presentation A12A-09 (11:40, 3002 West)
CHAPS: A New, Compact Hyperspectral Imager for Targeted Air Pollution Remote Sensing
- William Swartz

Poster EP13F-1826 (14:10-18:30, Poster Hall A-C)
Stratospheric Interferometric Synthetic Aperture Radar for STV
- Lauren Wye

Poster EP13F-1835 (14:10-18:30, Poster Hall A-C)
Improved satellite stereo processing, pointing knowledge refinement, and stereo-lidar fusion for STV
- David Shean

Poster EP13F-1844 (14:10-18:30, Poster Hall A-C)
Embedded Positioning Navigation and Timing Module for Precision 3-Dimensional STV Observations
- Patrick Rennich

Presentation A13G-01 (14:15, 3005 West)
Relationship Between Lower Moments of the Lidar Multiple Scattering Measurements and Physical Properties of Dense Scattering Media
- Yongxiang Hu (Carl Weimer)

Tuesday, December 12

Poster A21D-2277 (08:30-12:50, Poster Hall A-C)
An interactive web interface to reproduce key plots in the Fifth National Climate Assessment report using the Localized Constructed Analogs 2 (LOCA2)
- Hugo Lee

Poster G21B-0475 (08:30-12:50, Poster Hall A-C)
Interferometer Design to Test the Stability of a Simplified Gravitational Reference Sensor for Geodesy and Performance Testing of a Triple Mirror Assembly
- Cole Perkins (John Conklin)

Poster GC21G-0993 (08:30-12:50, Poster Hall A-C)
Estimating the Environmental Sensitivity of Agricultural Ammonia and Methane Emissions using Directed Acyclic Graphs
- Griffin Mead (Kevin Cossel)

NASA Exhibit Demo (10:00-10:30, Exhibit Hall)
Apache Science Data Analytics Platform (SDAP)
Nga Chung / Stepheny Perez (Thomas Huang)

Presentation NG22A-06 (11:10, 205-206 South)
Why Considering Only "Systematic Error" and "Random Error" (or "Accuracy" and "Precision") can be Problematic – Some Examples From the Aura Microwave Limb Sounder (MLS)
- Nathaniel Livesey

TOWN HALL TH23K (13:00-14:00, 2020 West)
NASA Earth System Observatory

Presentation SH24B-08 (17:15, 213-214 South)
The Space Weather Probes Instrumentation Suite
- Rowan Antonuccio (Charles Swenson)

Poster A23Q-2586 (14:10-18:30, Poster Hall A-C)
Model Averaging Toolbox for Climate Change Projections: Methodology and Implementation
- Shamik Bhattacharya (Hugo Lee)

TOWN HALL TH25D (18:30-19:30, 2020 West)
NASA Earth Science Division

Wednesday, December 13

Poster A31M-2563 (08:30-12:50, Poster Hall A-C)
Remotely Sounding the thermodynamic environment of Fire weather conditions at a Sub-Kilometer Spatial Resolution using the Pyro-atmosphere InfraRed Sounder (PIRS) Instrument
- Robert Chris Wilson (Sun Wong)

Poster C31C-1354 (08:30-12:50, Poster Hall A-C)
Deep Learning Image Classification: A Comprehensive, Customizable Multi-GPU Image Classification Program with Application to Arctic Sea Ice Imagery Analysis and Environmental Science
- Theodore Spanbauer (Chaowei Phil Yang)

Poster G31B-0512 (08:30-12:50, Poster Hall A-C)
A Simplified Gravitational Reference Sensor for Future Earth Geodesy
- John Siu (John Conklin)

Poster G31B-0513 (08:30-12:50, Poster Hall A-C)
Adhesion Force Measurement and Release Simulation of a Test Mass for a Satellite Geodesy Inertial Sensor
- Anthony Davila Alvarez (John Conklin)

Poster GH31A-1044 (08:30-12:50, Poster Hall A-C)
Testing and Calibrating Purple Air Sensors for Reliable Air Pollution Detection
- Jiakang Liu (Chaowei Phil Yang)

Poster OS31A-1574 (08:30-12:50, Poster Hall A-C)
Integration of Coastal Water Quality Observations and Models to Inform Resource Managers and Decision-makers
- Stephanie Schollaert Uz

Poster OS31A-1577 (08:30-12:50, Poster Hall A-C)
Filling Gaps in Data Coverage for Coastal Resource Managers: Using Boat Mounted Sensors to Augment Broad-Area Coverage by Earth Observing Satellites
- Samantha L. Smith (Stephanie Schollaert Uz)

Poster OS31A-1578 (08:30-12:50, Poster Hall A-C)
Increasing the Spatial Coverage of Labeled Data for Satellite Image Based – Machine Learning Derived – Estimates of Water Quality
- Blake Clark (Stephanie Schollaert Uz)

Wednesday continued -->

Presentation H31J-06 (09:20, 3016 West)
Validation of Retrievals of Water Vapor, Clouds and Precipitation Processes near Convective Storms from TEMPEST-D and the TEMPEST Instrument on the ISS - Steven C. Reising

Presentation GC32A-04 (10:53, 2008 West)
Profiling Multivariate Climate Hazards and Impacts in the Arabian Peninsula - Colin Raymond (Hugo Lee)

Poster A33J-2676 (14:10-18:30, Poster Hall A-C)
Atmospheric Interactions with Boreal Forest Wildfires: A Vicious Cycle
- Milton Halem

Poster AE33A-2828 (14:10-18:30, Poster Hall A-C)
Evaluating the Detection Efficiency of VHF Lightning Emissions Observed in Low-Earth Orbit
- Nikhil Pailoor (Sonja Behnke)

Poster AE33A-2830 (14:10-18:30, Poster Hall A-C)
Improvements to the Simulated CubeSpark Satellite Constellation and Their Effects on Lightning Geolocation Accuracy from Orbit
- Jackson Remington (Sonja Behnke)

Poster AE33A-2831 (14:10-18:30, Poster Hall A-C)
Evaluation of present and future spaceborne lightning observations during the ALOFT campaign
- Timothy Lang (Patrick Gatlin)

Poster G33A-0536 (14:10-18:30, Poster Hall A-C)
Optomechanical Triaxial Accelerometer for low-frequency inertial sensing applications
- Guillermo Valdes (Felipe Guzman)

Poster IN33C-0736 (14:10-18:30, Poster Hall A-C)
Transitioning a Training Dataset Labeling Tool (TDLT) to Support Discoveries in Earth Science and Heliophysics
- Chaowei Phil Yang

Presentation A33A-04 (14:40, 3002 West)
Remote Sensing of Atmospheric Pressure: The Microwave Barometric Radar and Sounder (MBARS) Airborne Demonstrator
- Matthew Walker McLind

Presentation A33G-08 (15:30, 3000 West)
A Combined Passive-Active, Multi-Sensor Approach to Earth's Planetary Boundary Layer (PBL) Sounding
- Antonia Gambacorta

Thursday, December 14

Poster A41I-2731 (08:30-12:50, Poster Hall A-C)
Novel Multi-Angle Polarized Submillimeter-Wave Observations of Ice Clouds and Precipitation from the Configurable Scanning Submillimeter-wave Instrument/Radiometer (CoSSIR)
- Ian Adams (Rachel Kroodsma)

Poster A41I-2751 (08:30-12:50, Poster Hall A-C)
Development of an Airborne Hyperspectral Microwave Sounder for Thermodynamic Sensing of the Planetary Boundary Layer
- Rachael Kroodsma

Presentation A42B-01 (10:20, 3001 West)
Observations at the NYC-Mets Ground Site in New York City during the Summer 2023 AGES+ Measurement Intensive
- Drew Gentner (Kevin Cossel)

Presentation INV41B-10 (11:05, 301/302 South)
The NASA FireSense Project – Meeting Stakeholder Needs Across the Fire Lifecycle
- Michael Falkowski (Boland, Kauffman, Lefer, Riris, Shuman, Yang)

Presentation INV41B-14 (13:25, 301-302 South)
Fast Approximation of Ecosystem Projection with Deep Learning
- Yiqun Xie

Poster IN43B-0626 (14:10-18:30, Poster Hall A-C)
Lagrangian Visualization using Immersive Extended Reality for Earth System Models
- Thomas Grubb

Poster GH43C-1167 (14:10-18:30, Poster Hall A-C)
Wildfire-Induced Smoke Aerosols Simulated by the Aerosol Chemistry Model Intercomparison Project (AerChemMIP) Models
- Jonathan Barnes (Hugo Lee)

Presentation GC43C-01 (14:11, 2016 West)
FireSense: Challenges and Opportunities to Advance Fire Science
- Jacquelyn Shuman (Poland, Falkowski, Kauffman, Lefer, Riris, Yang)

Presentation A43G-03 (14:35, 3016 West)
Spatiotemporal Data Fusion Model for High-Resolution Satellite AOD and PM2.5 Retrieval and Downscaling
- Anusha Snathan Malarvizhirirenga (Chaowei Phil Yang)

Presentation SY43A-06 (15:05, 2007 West)
Risk and Impact of a Data Gap in the Earth Radiation Budget Satellite Climate Data Record - Norman Loeb (Anum Ashraf)

Friday, December 15

Poster A51U-2254 (08:30-12:50, Poster Hall A-C)
Mapping spatial and temporal variation of CH4 and CO2 using open-path measurements over km- scale paths in a megacity
- Kevin Cossel

Poster GC51M-0781 (08:30-12:50, Poster Hall A-C)
Mapping Wildfire Burn Area using GNSS Reflectometry with Machine Learning - Archana Kannan (Sreeja Nag)

Poster IN51B-0417 (08:30-12:50, Poster Hall A-C)
Optimizing climate data analysis workflows: Strategies and lessons learned from two case studies
- Alex Goodman

Poster IN51B-0421 (08:30-12:50, Poster Hall A-C)
The Thematic Observation Search, Segmentation, Collation and Analysis (TOS2CA) System: Facilitating the Identification and Data Analysis of User-Defined Phenomena
- Brian Knosp (Ziad Haddad)

Poster SY51D-0607 (08:30-12:50, Poster Hall A-C)
Maintaining the Continuity of the Global Climate Data Record of Lightning from Space
- Timothy Lang (Patrick Gatlin)

Presentation A51A-02 (08:45, 3006 West)
Projections of Change in the Timing of Fall Rain and Wind Over the Western United States
- Graham Taylor (Hugo Lee)

SESSION IN51A (08:30-10:00, 2014 West)
Earth System Digital Twins: Prototypes and Federations I
Conveners: Benjamin Smith, Vincent Lonjou, Ryan Berkheimer, Marge Cole, Sreelekha Guggilam

08:45, IN51A-02 – ***A Prototype Coastal Zone Digital Twin for Flooding and Public Health in Hampton Roads, Virginia***
- YinHsuen Chen (Tom Allen)

08:55, IN51A-03 – A***n Open-Source Framework for Federation of Earth System Digital Twins*** - Thomas Huang

09:05, IN51A-04 – ***An AI-First Framework for Digital Twins: Construction and Demonstration with a Land Surface Model***
- Brandon Smith (Craig Pelissier)

Friday continued -->

SESSION IN52A (10:20-11:50, 2014 West)
Machine Learning and Digital Twin Technologies for Climate and Weather Simulation I
Conveners: Jacqueline LeMoigne, Gavin Schmidt, Rochelle Schneider, Elizabeth Barnes

10:35, IN52A-02 – ***AI Climate Tipping Point Discovery***
- Jennifer Sleeman (Christoph Keller)

11:00, IN52A-04 – ***A Multimodal AI Neural Operator Architecture Approach for Digital Twin Simulations: An Application to Climate Feedback Processes from Boreal Forest Wildfires***
- Pratik Shukla (Milt Halem)

TOWN HALL TH53D (13:00-14:00, 2002 West)
NASA's Earth Information System (EIS): Enabling Open, Accessible, and Integrated Earth System Science

Poster A13I-2272 (14:10-18:30, Poster Hall A-C)
Surface Soil Moisture Retrieval from GNSS-R Observations Using a Physics-Based Method over Topographical Terrains
- Amer Melebari (Sreeja Nag)

POSTER SESSION IN53B (14:10-18:30, Poster Hall A-C)
Earth System Digital Twins: Prototypes and Federations II
Conveners: Benjamin Smith, Vincent Lonjou, Ryan Berkheimer, Marge Cole, Sreelekha Guggilam

IN53B-0449 – ***EcoPro: A digital twin for ecological projection***
- Seungwon Lee

IN53B-0451 – ***An Analytic Collaborative Framework for the Earth System Observatory***
- Arlindo da SIlva

IN53B-0453 – ***River modeling as a service on the cloud in support of digital twins for Earth's rivers in the era of SWOT***
- Cedric H David (Thomas Huang)

IN53B-0460 – ***A Prototype Digital Twin for Air-Sea Interactions***
- Alison R Gray

IN53B-0462 – ***Towards a Regional AI-Driven Digital Twin Forecast Model***
- Sophia Hamer (Milt Halem)

POSTER SESSION IN53C (14:10-18:30, Poster Hall A-C)
Machine Learning and Digital Twin Technologies for Climate and Weather Simulation II
Conveners: Jacqueline LeMoigne, Gavin Schmidt, Rochelle Schneider, Elizabeth Barnes

IN53C-0463 – ***Toward a Framework for Earth System Digital Twins with Machine-Learned Microphysics Parameterizations***
- Kwo-Sen Kuo

IN53C-0466 – ***Development of digital twin technologies for climate projections with the GISS Earth System Model***
- Gavin A Schmidt

eLIGHTNING SESSION IN53D
(14:10-15:40, eLightning Theater VI, Hall D South)
Machine Learning and Digital Twin Technologies for Climate and Weather Simulation III
Conveners: Jacqueline LeMoigne, Gavin Schmidt, Rochelle Schneider, Elizabeth Barnes

14:13, IN53D-02 – ***Improving the Simulation of Atmospheric Composition using Deep Learning Model Ensembles***
- Jennifer Sleeman (Christoph Keller)

14:19, IN53D-04 – ***Reconstructing Sea Surface Temperature Under Cloud Cover using Masked Autoencoders***
- Alice Yepremyan (Brian Wilson)

14:31, IN53D-08 – ***DataSpaces and ViSUS to power the processing flow of large and complex Earth science datasets***
- Hugo Lee

14:34, IN53D-09 – ***Digital Twin Infrastructure Model for Agricultural Applications***
- Rajat Bindlish

Presentation GC54A-04 (16:30, 2005 West)
High spectral resolution thermal imaging from a 6U CubeSat: The HyTI mission
- Robert Wright

Presentation H54F-07 (17:00, 3020 West)
Utility of remote sensing observations of short timescale events in rivers and lakes
- Benjamin Jared Gorr (Daniel Selva)

Later Virtual Posters

Monday, January 22nd
Virtual Poster in Session IN01 (10:00-11:30 PST, online)
Visual Evaluation of WRF-SFire Simulation using Landsat Burn Probability Maps
- Samit Shivadikar (Milt Halem)

Tuesday, January 23rd
Virtual Poster in Session IN03 (10:00-11:30 PST, online)
Computing Infrastructure for Geophysical Studies
- Jacob Cain (Chaowei Phil Yang)

Wednesday, January 24th
Virtual Poster in Session IN04 (09:00-10:30 PST, online)
A Visual Prompting based GeoAI Framework for Continual Updates to Semantic Segmentation Networks
- Saurabh Prasad

Virtual Poster in Session IN05 (10:00-11:30 PST, online)
Empowering Citizen Scientists: Calibration of Purple Air Data to EPA Standards using Open-Source Methodology
- Seren Smith (Chaowei Phil Yang)

Get this list online: