2025 AGU Fall Meeting

NASA Earth Science Technology Office (ESTO)

ESTO-Affiliated Presentations, Posters, and Events *(all times CST)*

Monday, December 15

Poster GH11B-VR8972 (08:30 - 12:00, Hall EFG)
Cool Corridor Router: An Urban Heat Visualization Tool for Modeling and Minimizing Pedestrian Heat Exposure
- Matthew Bilik (Alex Ruane)

Poster H11L-1039 (08:30 - 12:00, Hall EFG)
Transfer Learning with Recurrent Neural Networks of Fuel Moisture Content: Extending from 10h fuels to 1h and 100h
- Jonathon Hirschi (Milton Halem)

Poster IN11D-0322 (08:30 - 12:00, Hall EFG)
Advancing Agile Earth Science Mission Design with the Novel Observing Strategies Testbed
- Emmanuel Gonzalez (Paul Grogan)

Presentation B11A-05 (9:20 - 10:00, Room 265-266)
Integrating Innovative Observations into Coupled Wildfire Models
- Kyle Hilburn

Presentation GH12A-06 (11:22 - 11:32, Room 298-299)
Support PM2.5 Air Quality and Public Health Management in Wildfires by Satellite Observations and Machine Learning Techniques
- Xi Chen (Jun Wang)

Poster B13L-1693 (14:15 - 17:45, Hall EFG)
Deploying Real-Time High-Resolution Fire Intelligence: Results from Urban Sky's Balloon Platform
- Jared Leidich

Poster G13D-0286 (14:15 - 17:45, Hall EFG)
Magnetic Shielding Validation for the GRATTIS Mission's Simplified Gravitational Reference Sensor
- Wiler Sanchez (John Conklin)

Poster G13D-0293 (14:15 - 17:45, Hall EFG)
Simulation and Modeling of GRATTIS Test Mass Dynamics for Earth-Orbiting Geodesy Applications
- Kaylee TenBarge (John Conklin)

Poster G13D-0294 (14:15 - 17:45, Hall EFG)
Structural Design and Performance Evaluation of the GRATTIS Payload Mounting to Support Sensor Performance
- Ethan Butz (John Conklin)

Poster IN13B-0335 (14:15 – 17:45, Hall EFG)
Innovative LLM-Driven AI Agents for Crisis Intelligence: Towards Aligning Human Sensor Networks and EO in Real Time
- Sirisha Fnu (Milton Halem)

Tuesday, December 16

Poster A21N-2193 (08:30 - 12:00, Hall EFG)
Characterizing Longwave Infrared Polarized Radiance of Ice Clouds Using Idealized Single-Column Simulations
- Edgardo Sepulveda Araya (Meredith Kupinski)

Poster B21I-1756 (08:30 - 12:00, Hall EFG)
Improving Wildfire AI with Radiometric Thermal UAV Data: An Introduction to the FLAME 3 Dataset
- Mayamin Hamid Raha (Fatemeh Afghah)

Poster B21J-1759 (08:30 - 12:00, Hall EFG)
Per-Pixel Wildfire Temperature Regression from Monocular RGB Imagery via Knowledge Distillation
- Mayamin Hamid Raha (Fatemeh Afghah)

Presentation B22D-07 (11:35 - 11:45, Room 255-257)
DeepED: AI-based Emulator for Uncovering Ecosystem Tipping Points under Intermediate Climate Scenarios
- Zhihao Wang (Yiqun Xie)

Poster A23G-2242 (14:15 - 17:45, Hall EFG)
Sky Polarization Neutral Point Tracking for Monitoring Atmospheric Aerosols
- Clarissa DeLeon (Meredith Kupinski)

Poster NS23B-1583 (14:15 - 17:45, Hall EFG)
Extending Multi-Functional Airborne Fluorescence Ocean Lidar to Inland Targets: Snow, Water Bodies, and Vegetation
- Madeline Cowell

Presentation A23B-05 (15:15 - 15:30, Room 278-279)
DUNE2: A Physics-Guided Deep Learning Framework for Long-Lead Annual Forecasting over the U.S.
- Pratik Shukla (Milton Halem)

Presentation B24B-04 (16:50 - 17:00, Room 255-257)
Knowledge-guided machine learning to enhance ecosystem carbon estimation with in-situ observations
- Shuo Xu (Yiqun Xie)

TOWN HALL TH25G (18:00-19:00, New Orleans Theater B)
NASA Earth Science Division Town Hall

Wednesday, December 17

Poster B31L-1879 (08:30 - 12:00 Hall EFG)
HLS-GPT: A Generative Pretrained Transformer (GPT) Model for Accurate Harmonized Landsat and Sentinel-2 (HLS) Annual Reflectance Time Series Reconstruction
- Junjie Li (Hankui Zhang)

Presentation IN32A-03 (10:52 - 11:02 Room 294)
TEMPO at Night
- Jim Carr

TOWN HALL TH23I (13:00 - 14:00, Room 283-285)
NASA GLOBE at 30

Poster A33I-2260 (14:15 - 17:45, Hall EFG)
Performance of the Airborne Hyperspectral Microwave Sounder CoSMIR-H during WH2yMSIE
- Priscilla Mohammed (Rachael Kroodsma)

Poster H33W-1597 (14:15 - 17:45, Hall EFG)
Assessing and Comparing SWOT River Discharge Performance Between Fast Sampling and Science Orbits
- Elisa Friedmann (Colin Gleason)

Poster H33W-1596 (14:15 - 17:45, Hall EFG)
Improving Machine Learning Framework for SWOT-Based Discharge Estimation Using Integrated Static and Dynamic Features
- Heejin An (Colin Gleason)

Poster NG33B-0438 (14:15 - 17:45, Hall EFG)
AQcGAN - A Deep Conditional Generative Adversarial Network for Emulating and Extending Global Atmospheric Composition Forecasts
- Jennifer Sleeman (Viral Shah)

HYPERWALL TALK (15:15, NASA Exhibit)
Agriculture Land Information System (AgLIS): Estimating Agricultural Productivity using Remote Sensing Observations
- JRajat Bindlish

HYPERWALL TALK (16:15, NASA Exhibit)
Novel Infrared Sensors for Innovative Platforms to Study Wildland Fires
- James Thompson

Thursday, December 18

Presentation A42G-01 (10:32 - 10:44, Room 270)
Coupled Interactive Forecasting of Wildfire Potential and Active Fire Impacts
- Kyle Hilburn

Presentation H42I-07 (11:36 - 11:47, Room 207)
Detection of Litter Windrows off the Southeast Florida Coast: Preparing for an Ocean Lidar Campaign
- Madeline Cowell

Presentation GC42A-08 (11:48, New Orleans Theater C)
Discovery and Forecasting Critical Climate Thresholds for Early Warning Systems
- Jennifer Sleeman

Poster Session IN41E (08:30 - 12:00, Hall EFG)
Exploring Earth System Complexity with Digital Twins and ≥3D Visualization and Sonification
Conveners: Benjamin Smith, Jaime Aguilar Guerrero, Alexandra Boghosian, Kristina Collins, Vincent Lonjou, Laura Rogers, and Chaowei Phil Yang

- **Poster NG33B-0438:** ***AQcGAN - A Deep Conditional Generative Adversarial Network for Emulating and Extending Global Atmospheric Composition Forecasts*** - Jennifer Sleeman (Viral Shah)
- **Poster IN41E-0391:** ***Exploring Earth System Complexity with Digital Twins and ≥3D Visualization and Sonification*** - Mohammad Pourhomayoun
- **Poster IN41E-VR8979:** ***Building a Computing Infrastructure Digital Twin (CIDT) for Real-Time Monitoring, Log Analytics, and AI-Driven Anomaly Detection*** - Yahya Masri (Phil Yang)
- **Poster IN41E-VR8978:** ***Chesapeake Bay Digital Twin*** - Samir Ahmed (Phil Yang)
- **Poster IN41E-VR8977:** ***Digital Twin Approach Using Machine Learning to Fill Satellite Data Gaps in Chlorophyll-a Monitoring in the Chesapeake Bay*** - Rakshita Chidananda (Phil Yang)
- **Poster IN41E-0392:** ***Engaging the community: a digital twin center of excellence practice*** - Phil Yang
- **Poster IN41E-0397:** ***TERRAHydro: Toward an Interactive, Real-Time Terrestrial Digital Twin*** - Craig Pelissier

Poster C43D-1134 (14:15 - 17:45, Hall EFG)
Dense-Media Snow Microwave Radiative Transfer (SMRT) model Extensions for Dual-Frequency Radar Backscatter at C- and Ku-Bands
- Hanie Sanaei (Paul Siqueira)

Poster GC43F-0867 (14:15 - 17:45, Hall EFG)
ModelEMU: an Earth System Emulator for Physical Climate and Carbon Cycle Projections
- Paul Lerner (Gavin Schmidt)

Poster IN43B-0411 (14:15 - 17:45, Hall EFG)
Physics-Informed Digital Twin Architecture: Real-World Fire Model Integration for High-Fidelity 3D Wildfire Simulation and Virtual Reality Visualization
- Mayamin Hamid Raha (Fatemeh Afghah)

TOWN HALL TH45G (18:00-19:00, New Orleans Theater A)
The Virtuous Cycle of Earth Science to Action: How NASA's Early Career Research Program is Empowering Emerging Talent

Friday, December 19

Poster A51I-0823 (08:30 - 12:00, Hall EFG)
Sensitivity of Polarization Neutral Point Locations to Atmospheric Aerosols: A GRASP Simulation
- Yukun Long (Meredith Kupinski)

Poster A51Q-0963 (08:30 - 12:00, Hall EFG)
Hourly Smoke Aerosol Optical Centroid Height (AOCH) Retrievals from Geostationary Satellites in Contiguous United States: Synergy of TEMPO and ABI/GOES-R
- Xi Chen (Jun Wang)

Poster A51Q-0966 (08:30 - 12:00, Hall EFG)
In-flight Performance of the Aerosol Radiometer for Global Observation of the Stratosphere (ARGOS) Instrument
- Matthew DeLand

Poster A51Y-1111 (08:30 - 12:00, Hall EFG)
Thermal Spectro-Polarimetry for Phase Discrimination of Ice and Water
- Jaclyn John (Meredith Kupinski)

Poster A51Y-1112 (08:30 - 12:00, Hall EFG)
Performance Tolerances for Channeled Polarimetry using Stokes Resolved Differential Temperatures
- Ellie Spitzer (Meredith Kupinski)

Presentation C51A-04 (09:02 - 09:12, Room 210)
SNOWWI -- The new kid on the block, a three frequency wide-swath interferometric SAR for characterizing the snowpack
- Paul Siqueira

SESSION IN51B (08:30-10:00, Room 294)
Exploring Earth System Complexity with Digital Twins and ≥3D Visualization and Sonification
Conveners: Benjamin Smith, Jaime Aguilar Guerrero, Alexandra Boghosian, Kristina Collins, Vincent Lonjou, Laura Rogers, and Chaowei Phil Yang

- **Presentation IN51B-02:** ***Designing for Preparedness: An Earth System Digital Twin Architecture for Coastal Zones*** - Sujay Kumar
- **Presentation IN51B-05:** ***GeoSync-ERA, A Geo-Synchronized Digital Twin Advancing Dynamic 3D Modeling, Interactive Analytics for Tactical Wildfire Response*** - Mayamin Hamid Raha (Fatemeh Afghah)