

AGU Awardee Presentations

Monday, December 9

8:30 - 8:45	A11C-01	Alex Turner	That's so FETCH4: new observational and modeling constraints on methane and OH (Invited)
14:10-15:40	IN13D	Alexandra Boghosian (convener)	Planet Building: Advances in Data Visualization Methods and VR/AR/MR Spatial Interface Systems to Support Earth and Space Science II Oral
14:42-14:52	GC13V-04	Pedram Hassanzadeh	Can AI weather models predict grey swan extreme events?
16:00-17:30	B14D	Renato Kerches Braghiere (Convener)	The Global Carbon Cycle and Its Feedbacks with Anthropogenic Change II Oral
16:05-16:15	IN14A-01	Laure Zanna	AI-augmented climate simulators and emulators (Invited)
16:42-16:52	C14A-05	Simon Driscoll	An observational emulator of melt ponds on Arctic sea ice using machine learning

Tuesday, December 10

9:00-9:10	SA21A-04	Christopher Kruse	Recreating Observed Convection-Generated Gravity Waves From Weather Radar Observations via a Neural Network and a Dynamical Atmospheric Model
9:30-9:40	SA21A-07	Yanmichel Morfa Avalos	High-resolution nested UA-ICON simulation compared to mesospheric observations of the VortEx campaign at ALOMAR
10:55-11:05	GC22A-04	Pierre Gentine	Can ML beat chaos?
14:10-15:40	B23L	Nick Smith (Primary Convener)	Vegetation Canopies: Physiology, Structure, Function II
14:10-15:40	B23M	Renato Braghiere (Convener)	Model-Data Integration and Novel Paradigms in Ecosystem Forecasting II Oral
14:50-15:00	B23L-04	Maoya Bassiouni	Acclimation of Photosynthetic Capacity to CO2 Explains Long-Term Declines in Leaf Nitrogen
14:25-14:28	IN23D-06	Tarun Verma	Learning and Understanding Systemic Ocean Data Assimilation Increments
16:42-16:52	B24D-05	Renato Kerches Braghiere	Trait-Based Vegetation Optical Properties in Earth System Models Impact Future Climate Projections

Wednesday, December 11

14:33-14:44	A33H-03	Laure Zanna	Connecting historical ocean heat uptake with global energy budget in observations and models
16:00 -16:15	A34E-01	Lee Murray	Coupling Between Lightning and Air Pollution: A Global Perspective (Invited)

Thursday, December 12

8:30-10:00	NG41A	Simon Driscoll (Primary Convener)	Data-Driven Science: Developments in Machine Learning Subgrid-Scale Parameterizations and in Reanalyses Across Earth System Modeling I Oral
9:36-9:42	NG41A-07	Karan Jakhar	An Analytical and Data-discovered Accurate and Stable Subgrid-scale Closure for Geophysical Turbulence

AGU Awardee Presentations, cont.

Thursday, December 12, cont.

10:42-11:00	A42F-03	Tapio Schneider	AI's Potential and Limitations in Transforming Climate Modeling and Prediction (Invited)
14:10-14:20	A43Q-01	Pierre Gentine	Do we need parameterizations in the era of generative AI? (Invited)
14:10-14:25	B43H-01	Youngryel Ryu	Remote Sensing of Coupled Fluxes Across Scales: New Opportunities (Invited)
15:20-15:30	A43P-08	Sara Shamekh	Developing an Interpretable Model for Convective Precipitation Using Machine Learning
16:10-16:20	SY44A-02	Maoya Bassiouni	Contemplating the Biosphere's Breath to Dissolve Climate Anxiety

Friday, December 13

8:30-10:00	B51A	Trevor Keenan & Maoya Bassiouni (Conveners)	Emerging Machine Learning Approaches for Process Understanding in Ecosystem Sciences I
9:50-10:00	A51E-09	Sylvia Michel	Stable isotopes of carbon in atmospheric methane suggest strong increases in microbial methane emissions between 2020-2022
10:25-10:35	A52C-01	Eric Mei	Discerning Connections between Lifetimes, Modes, Memory, and Timescales in Coupled Chemistry-Climate Models
10:42-10:52	A52B-03	Melanie Lauer	Assessing the interaction between precipitation and sea ice in Antarctica
14:52-15:02	B53H-05	Renato Kerches Braghieri	Carbon-Nutrient Interactions and Implications for Future Climate Projections (Invited)
17:00-17:10	IN54A-07	Julius Busecke	Pangeo-ESGF CMIP6 Zarr Data 2.0 - Streaming access to CMIP6 data in the cloud that rocks!

AGU Awardee Posters

Monday, December 9

8:30 - 12:20	A11R-1901	Nikhil Dadheech	High-resolution near-real-time greenhouse gas flux inversion from space using FootNet
8:30 - 12:20	IN11C	Alexandra Boghosian (convener)	Planet Building: Advances in Data Visualization Methods and VR/AR/MR Spatial Interface Systems to Support Earth and Space Science I Poster
8:30 - 12:20	GC11H-0046	Gosha Geogdzhayev	A Statistical Emulator Design for Monthly Averaged Climate Fields
8:30 - 12:20	GC11H-0047	Mengze Wang	Stochastic emulation of spatially-resolved climate extremes: from global mean temperature to full probability distributions
8:30 - 12:20	B11M	Renato Kerches Braghiere (Chair)	The Global Carbon Cycle and Its Feedbacks with Anthropogenic Change I Poster
13:40-17:30	C13C-0554	Christopher Horvat	Global gridded products of sea ice concentration, wave climate, and sea ice floe size distribution with ICESat-2: examining marginal ice zone variability and passive microwave uncertainties
13:40-17:30	C13B-0538	Aikaterini Tavri	Investigation of Wave-Induced Ocean Surface Mixing in the Arctic Using Coupled Wave - Sea Ice Model Simulations
13:40-17:30	C13C-0562	Serena Vu	Retrieving Ocean Eddy Signatures in the Marginal Ice Zone from Sea Ice Drift Fields Derived from Sequential Synthetic Aperture Radar Observations
13:40-17:30	NG13A-2022	Robert King	Comparing the efficiency of calibration methods on a hierarchy of problems

Tuesday, December 10

8:30-12:20	B21Q	Nick Smith (Primary Convener)	Vegetation Canopies: Physiology, Structure, Function I
8:30-12:20	B21N-1478	Nick Smith	Improving our ability to predict the impact of photosynthetic acclimation on terrestrial ecosystem processes under global change
8:30-12:20	A21H-1850	Sebastian Miller (Presented by Liz Thomson)	First 14CO Measurements from the Global FETCH4 Network
8:30-12:20	A21H-1834	Dan Anderson	Recommendations for a robust observing strategy to indirectly constrain the distribution and spatio-temporal variability of the tropospheric hydroxyl radical
8:30-12:20	B21M	Renato Braghiere (Convener)	(Poster) Model-Data Integration and Novel Paradigms in Ecosystem Forecasting I Poster
13:40-17:30	IN23B-2205	Hamid Pahlavan	On the importance of learning non-local dynamics for stable data-driven climate modeling

AGU Awardee Posters, cont.

Wednesday, December 11

8:30-12:20	A31A-1655	Qiang Sun	Can AI weather models predict the 2024 Dubai rainfall, a regional grey swan?
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Thursday, December 12

13:40-17:30	NG43A-2297	Simon Driscoll	Data-driven emulation of melt ponds on Arctic sea ice
13:40-17:30	NG43A-2300	Renaud Falga	A Unified Machine Learning Parameterization for Atmospheric and Oceanic Boundary Layer Turbulence
13:40-17:30	A43E-2007	Fabrizio Falasca	Diagnosing the pattern effect through linear response theory
13:40-17:30	NG43A-2296	Alex Connolly	Physics-Informed Methods Improve Machine Learning Turbulence Closures for Large-Eddy Simulation of the Atmospheric Boundary Layer
13:40-17:30	A43H-2089	Julius Busecke	The Overlooked Sub-Grid Air-Sea Flux in Climate Models

Friday, December 13

8:30-12:20	A51R-1937	Bingjie Zhao	An Adaptive Threshold Selection Method for Supporting Robust Intercomparisons of Extreme Climate Events
8:30-12:20	B51G-1605	Isabella Beltran	Dynamic responses of acquisitive species to precipitation drive plant community dynamics in a semi-arid grassland under eutrophication
8:30-12:20	A51Y-2050	Alex Turner	Re-investigating historical trends in atmospheric methane using multispectral satellite observations from Landsat
8:30-12:20	A51V-1990	James Yoon	Impacts of Interannual Isoprene Variations on Methane Lifetimes and Trends
13:40-17:30	B53B	Trevor Keenan & Maoya Bassiouni (Conveners)	Emerging Machine Learning Approaches for Process Understanding in Ecosystem Sciences II
13:40-17:30	B53B-1738	Ngoc Nguyen	FLUXPULSE: Detecting rain-induced carbon emissions across biomes
13:40-17:30	A53I-2206	Eliot Kim	Machine Learning-Based Adjoint Emulation for Chemical Data Assimilation in the NASA GEOS Modeling System
13:40-17:30	A53I-2211	Max Taniguchi-King	The cLIMate of Methane: Identifying Drivers of Methane and OH in Coupled Chemistry-Climate Models Using Linear Inverse Models

Online Posters

All day	NG01-06	Yongquan Qu	Deep Generative Data Assimilation in Multimodal Setting
All day	NG01-10	Yongquan Qu	Joint Parameter and Parameterization Inference with Uncertainty Quantification through Differentiable Programming
All day	H04-10	Amin Hassan	Understanding the Variability in Potential Evapotranspiration (PET) Products for U.S. Watersheds