Cross Working Groups

Harnessing Machine Learning for CESM: Innovation and Integration

30th Annual CESM Workshop June 11th, 2025

Wednesday, June 11th, 08:30 am - 12:00 pm

* All times are MDT; Speakers: 12 minute talks; Please leave 3 min at the end of your slot for questions.

Time	Торіс	Speakers
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8:30	Introduction and Logistics	Organizers
8:35	Nonlocal Deep Learning Parameterization for Process Representation in Climate Models	Aman Gupta
8:50	Data-driven Models for Predicting Precipitation	Ramalingham Saravanan
9:05	Distilling machine learning-based climate emulators for physical understanding	Senne Van Loon
9:20	Machine learning enhanced CESM3	Dave Lawrence
9:35	Discussion	
10:00	Break	
10:30	Implementing a Neural Network scheme for deep convection in CAM6 and testing it in a hierarchy of idealized configurations	Xavier Levine (online)
10:45	CAM-NET: An AI Foundation Model for Whole Atmosphere with Thermosphere and Ionosphere Extension	Jiahui Hu
11:00	Generating large ensembles of precipitation extremes from CESM simulations via denoising diffusion models	Mengze Wang & Iris de Vries
11:15	Community Research Earth Digital Intelligence Twin (CREDIT): Overview and Integration with CESM	David John Gagne
11:30	CAMulator - Emulation of the Community Atmosphere Model	Will Chapman
11:45	Discussion	
Poste	rs	-

Optimizing Objective Model Calibration approaches using Single Column Models	Pappu Pau
UMI: A Statistical Model for Predicting ENSO Trained Only on CESM Data	Aodhan Sweeney