Earth & Environmental Systems Modeling

2024 EESM PI Meeting

August 6-9, 2024
Bethesda North Marriott Hotel & Conference Center
Rockville, Maryland, USA

Date and Time: Wednesday, August 7, 2024, 1:00-4:00 p.m.

Session Name: J. Strengthening EESM Integrated Modeling Framework – Towards a Digital Earth

Breakout Chairs: Ruby Leung, PNNL (ruby.leung@pnnl.gov) and Casey Burleyson, PNNL (casey.burleyson@pnnl.gov)

Topic Leads: Ethan Coon, Andrew Gettelman, Klaus Keller, Brian Medeiro, Jennie Rice, Chris Vernon, Hui Wan, Xubin Zeng, Qing Zhu

Room / Location: Linden Oak Room

Session Organization: This breakout session is designed to facilitate discussion around three themes related to the Digital Earth. Each theme will be highlighted by two 6-minute presentations drawn from submitted abstracts and then shorter 1-slide presentations from others. The talks should draw from current research but be designed to address the theme and facilitate discussion. Our discussions will culminate in a report out on opportunities for the EESM program.

- Theme 1: *Digital Earth - Where We're At*
- Theme 2: *Digital Earth - Where We Might Go*
- Theme 3: *Cross-Program Modeling Frameworks*

Breakout Session Agenda

Moderator: Ruby Leung
Rapporteur(s): Casey Burleyson and TBD
Zoom Monitor: TBD

1:00 p.m.: Introduce session organization, themes for discussion, and goals – Ruby Leung, PNNL

Digital Earth - Where We're At
1:10 p.m.: The regionally refined model of E3SM: Overview and extremes applications – Qi Tang, LLNL
1:16 p.m.: Tightening the belt: investigating the impact of high resolution at reduced computational cost – Brian Medeiros, NSF/NCAR

1:22 p.m.: One slide presentations from poster presenters, topic leads, and others
1:35-1:50 p.m.: Theme 1 discussion period

Digital Earth - Where We Might Go

1:50 p.m.: Evaluating aerosol-cloud interactions in E3SMv3 using a perturbed parameter ensemble – Jacqueline Nugent, UW
1:56 p.m.: Kilometer-scale E3SM land model development, integration, and applications – Dali Wang, ORNL
2:02 p.m.: One slide presentations from poster presenters, topic leads, and others
2:15-2:30 p.m.: Theme 2 discussion period
2:30-2:45 p.m.: Break

Cross-Program Modeling Frameworks

2:45 p.m.: Climate change impacts on emissions and land use scenarios – Claudia Tebaldi, PNNL
2:51 p.m.: GEWEX and GPEX Perspectives on EESM Activities – Xubin Zeng, UA
2:57 p.m.: One slide presentations from poster presenters, topic leads, and others
3:10-3:25 p.m.: Theme 3 discussion period
3:25-4:00 p.m.: Session synthesis, identify grand challenges, and prepare plenary report out

Wednesday Poster Session

- #105 Boosting the Numerical and Computational Performance of the E3SM Coupler – Vijay Mahadevan, ANL
- #106 Overview of the lower-resolution configuration of E3SMv3 – Jean-Christophe Golaz, LLNL
- #107 Two Approaches to Interactively Simulate the Plume-rise Process in E3SM: Process-based Model vs. Machine Learning Model – Zheng Lu, TAMU
- #108 Overview of the SEAHORSE SciDAC5 project – Rob Hetland, PNNL
- #109 Using Python to Explore the E3SM Atmosphere Model in C++ – Luca Bertagna, SNL
- #110 Modernization of the four-mode Modal Aerosol Module for its integration into the exascale E3SM Atmosphere Model – Oscar Diaz-Ibarra, SNL