Earth & Environmental Systems Modeling

2024 EESM PI Meeting

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

Date and Time: Tuesday, August 6, 2024, 1:00-4:00 p.m.

Session Name: C. Coastal

Room / Location: White Flint Room

Breakout Chairs: Ian Kraucunas, PNNL (ian.kraucunas@pnnl.gov), Luke Van Roekel, LANL (lvanroekel@lanl.gov), and Emanuele Di Lorenzo, Brown University (manu@brown.edu)

Topic Leads: Ning Sun, PNNL; Robert Hetland, PNNL; Nicole Jeffery, LANL; Steven Brus, ANL; Yun Qian, PNNL, Weiqing Han, University of Colorado; Gautum Bisht, PNNL
Zoom Monitors (2) – Emanuele Di Lorenzo, Robert Hetland
Rapporteurs (2) – TBA, TBA

Breakout Session Agenda

1:00–1:10 p.m.: *Introductions and Goals*
Steering Committee Opening Remarks: Ian Kraucunas, Emanuele Di Lorenzo, Luke Van Roekel*
Quick round-the-room introductions: Name, Institution, coastal project(s) you work on

1:10–1:50 p.m. *RGMA Coastal Science*
Moderator: Emanuele Di Lorenzo
1:10-1:17 p.m.: Weiqing Han, University of Colorado - Coastal Sea Level Extremes and Flooding
1:20-1:27 p.m.: Shuyi Chen, University of Washington - Novel Approaches with AI/ML in Flood Modeling
1:30-1:50 p.m.: Discussion
Leads: Rob Hetland, Yun Qian, Weiqing Han
Rapporteur: TBD

1:50–2:30 p.m.: *ESMD Coastal Science*
Moderator: Steve Brus, ANL

1:50-1:57 p.m.: LeAnn Conlon, LANL; Gautum Bisht, PNNL; Steven Brus, ANL; Rich Fiorella, LANL; Nicole Jeffery, LANL; Luke Van Roekel, LANL - Overview of coastal modeling with E3SM
2:00-2:07 p.m.: Steven Brus, ANL – Multi-resolution coupling for simulating extreme coastal water levels and flooding in E3SM
2:10-2:30 p.m.: Discussion
Leads: Nicole Jeffrey, Steven Brus, Gautam Bisht
Rapporteur: TBD

2:30–2:45 p.m.: *Break*

2:45–3:25 p.m: *MSD Coastal Science*
Moderator: Ian Kraucunas
2:45-2:52 p.m.: Brent Daniel, PNNL - Sensitivity of Coastal Urban Areas to Extreme Sea-Level Events Under Climate Change
2:55-3:02 p.m.: Parin Bhaduri, Cornell, and Adam Pollack, Dartmouth - Modeling Socioeconomic Responses to Environmental Hazards
3:05-2:25 p.m.: Discussion
Leads: Ning Sun, Brent Daniel, David Moulton
Rapporteur: TBD

3:25–4:00 p.m.: *Integration and Path Forward*
Moderators: Ian Kraucunas, Emanuele Di Lorenzo, Luke Van Roekel
3:25-3:32 p.m.: Kevin Reed, Stonybrook - Exploring climate change impacts on US hurricanes through storylines
3:32-3:39 p.m.: Ning Sun, PNNL - Advancing Modeling and Understanding of Hydroclimate Extremes in the Puget Sound Coastal Region
3:40-4:00 p.m.: Discussion
Led by moderators
Rapporteur: TBD

Wednesday Poster Session

- #022 Calibration of the Arctic Coastal Erosion Model - Diana Bull, SNL
- #024 The past and future change of river sediment in the U.S. mid-Atlantic - Zeli Tan, PNNL
- #025 Impacts of Large-Scale Urbanization and Irrigation on Summer Convective Precipitation and Heat Stress – Yun Qian, PNNL
- #026 Implementation of subgrid approaches accounting for unresolved topography in MPAS-Ocean - Johannes Westerink, Notre Dame
- #021 Integrating tide-driven wetland soil redox and biogeochemical interactions into the E3SM Land Model - Benjamin Sulman, ORNL
- #023 Future Heat Exposure and Precipitation Projections over the Great Lakes Region - Jiali Wang, ANL
- #027 Modeling Socioeconomic Responses to Environmental Hazards - Parin Bhaduri, Cornell University

Thursday Poster Session

- #025 The Effects of Explicit Wind-Wave-Current Coupling on Hurricane Structure and Coastal Impacts - Alton Daley, University of Washington
- #022 Suspended sediment transport and storage in Arctic deltas – Anastasia Piliouras, Penn State
- #023 Drivers of Low-frequency Variability of Ocean Heat Content on the U.S. Northeast Shelf - Yingli Zhu, University of Colorado
- #021 The Ocean Model for E3SM Global Applications (OMEGA) - Luke Van Roekel, LANL
- #026 Modeling of Natural and Engineered Systems in the Coastal Zone, from Ghost Forests to Urban Storm Drains - David Moulton, LANL
- #024 Evaluation of Km-Scale River Routing on the Unstructured Voronoi Meshes in E3SM - Chang Liao, PNNL