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: G. Extremes

Breakout Chairs: Travis O'Brien, Indiana University, Bloomington (obrienta@iu.edu) and Peter Caldwell, LLNL (caldwell19@llnl.gov)

Topic Leads: Karthik Balaguru, PNNL; Colin Zarzycki, Penn State University; Paul Ullrich, LLNL; Chia-Ying Lee, Columbia; Christine Shields, NCAR; Xianan Jiang, UCLA; Jian Lu, PNNL; Qing Zhu, LBNL

- Facilitator (before break): Peter Caldwell
- Facilitator (after break): Travis O'Brien
- Zoom Monitor (before break) – Jian Lu
- Zoom Monitor (after break) – Chia-Ying Lee
- Rapporteur (before break) – Karthik Balaguru
- Rapporteur (after break) – Christine Shields

Room / Location: Plenary Room

Breakout Session Agenda

Topic #1: Tropics:
1:00-1:10 p.m.: Forced trends in the tropical Pacific and global tropical tropical cyclones – Chia-Ying Lee, Columbia University
1:10-1:20 p.m.: Increasing hurricane outer size in the western North Atlantic – Karthik Balaguru, PNNL
1:20-2:00 p.m.: Discussion of tropical extremes

Topic #2: Tools/Methodology
2:00-2:10 p.m.: Tropical Cyclone Landfalls: HighResMIP vs. Statistical-Dynamical Downscaling - Ana Bolivar, Penn State
2:10-2:30 p.m.: Discussion of tools/methodology
2:30-2:45 p.m.: Break

2:45-2:55 p.m.: EAMv3 New Developments in Interactive Chemistry, Stratospheric Aerosols, and a Novel Application - Ziming Ke, LLNL
2:55-3:05 p.m.: Discussion of tools/methodology

Topic #3: Extratropics
3:05-3:15 p.m.: The Influence of Land-Surface Conditions on the 2020-2021 Western US Drought (Yelin Jiang, Columbia U)
3:15-3:25 p.m.: Uncovering the Interannual Predictability of the 2003 European Summer Heatwave and its Connection to the Tibetan Plateau (Ruby Leung, PNNL)
3:25-3:45 p.m.: Discussion of extratropical extremes
3:45-4:00 p.m.: Recap and Preparation of Breakout Report Out
4:00 p.m.: Adjourn

Wednesday Poster Session

- #061 Analyzing storylines of extreme precipitation associated with Hurricane Ida – Kevin Reed, Stonybrook University
- #062 Converging on the Climate Driven Wildfire Risks of the Wildland Urban Interface – Lee Kessenich, NCAR
- #063 Decision-Relevant Understanding of Dry and Wet Precipitation Extremes and Their Impacts – Olivia McCauley, Iowa State
- #064 Dynamics of Atmospheric River Clusters and Local Runoff Responses – Yang Zhou, LBNL
- #065 Examining the Effects of Greenhouse Gases and Aerosols on Annual Extreme Rainfall Changes – Celine Bonfils, LLNL)
- #066 Future Changes in Active and Inactive Atlantic Hurricane Seasons in the Energy Exascale Earth System Model – Ana Claudia Thome Sena, Iowa State
- #067 Global land hotspots of clustered MCSs and their precipitation significance – Huancui Hu, PNNL
- #068 Observational assessments of low-likelihood, high-impact heatwaves in the historical record – Mark Risser, LBNL
- #069 Prediction of Extreme Precipitation Occurrence with Machine Learning: Insights from Multiple Reanalysis Data – Xiang Gao, MIT
- #070 Projected changes in inter-regional simultaneity of megafires in the Western US based on NA-CORDEX regional climate simulations – Seth McGinnis, NCAR
- #071 Relationship between mid-latitude temperature distributions and meridional wind variability – Keiko Kircher, University of Illinois
- #072 Tropical and North Pacific decadal variability and its influence on Northeast Pacific marine heatwaves – Antonietta Capotondi, NOAA CIRES
- #073 Wildfire Risk and Home Prices: The Case of California Building Codes – Edouard Mensah, Penn State
- #074 Windstorms in the U.S. Northeast – Sara C. Pryor, Cornell
- #075 Future Changes in Tropical Cyclone Tornadoes – Chris Patricola, Iowa State
- #076 Exploring the 1997 California Flood using a Reservoir Resolving, High Resolution Hydrodynamic Model – Davis Yates, NCAR

Thursday Poster Session

- #061 Atmospheric Rivers in the Eastern and Midwestern United States Associated With Baroclinic Waves – Travis O'Brien, Indiana University
- #062 Combined Impacts of Projected Sea Level Rise and Tropical Cyclone Intensity Increases on Future Storm Surges – Derrick Danso, Iowa State
- #063 Connecting Global Extreme Rainfall and Flooding Using Observations and Machine Learning to Assess the Validity and Application of Climate Models at Varying Resolutions – Brandon Kerns, University of Washington
- #064 Diagnosing mid-Atlantic icing events in Earth system models – Michelle Gore, Penn State
- #065 Discriminating the Roles of Anthropogenic GHGs and Aerosols on Tropical Cyclone Frequency from Downscaling CMIP6 Models – Boniface Fosu, Mississippi State
- #067 Global co-occurring features and their contributions to total and extreme precipitation – Wei-Ming Tsai, UCLA
- #068 How will Future Climate Reshape Devastating Lake-Effect Snow Storms? – Pengfei Xue, Michigan Tech
- #069 Impacts of Climate and Environmental Changes on Severe Convective Storms Generating Large Hail and Extreme Precipitation – Jiwen Fan, ANL
- #070 Initial results from the SCREAM 3 km AMIP simulation – Ben Hillman, Sandia
- #071 Precipitation hazards viewed through "grey swan" tropical cyclones in 3km RRM-SCREAM – Colin Zarzycki, Penn State
- #072 Scaling of Extreme Precipitation with Temperature Based on the CONUS404 Data – Hongchen Qin, U Connecticut
- #073 The Atlantic is Unusually Warm: Its Rarity and Origin – Sumant Nigam, U Maryland
- #074 Uncertainty quantification for the impact of internal variability on low-likelihood high-impact events – Joshua North, LBNL
- #075 Wind Driving Longer Uncontrolled Large Fire Duration in the Western United States – Sally Wang, PNNL