



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, 1:00-4:00 p.m.

Session Name: **B. Urban**

Room / Location: Glen Echo Room

Breakout Chairs: Jennie Rice, PNNL (jennie.rice@pnnl.gov) and Stephanie Waldhoff, PNNL (stephanie.waldhoff@pnnl.gov)

Topic Leads: TC Chakraborty, PNNL; Melissa Allen Dumas, ORNL; Andrew Jones, LBNL; Kevin Reed, Stony Brook University; Youtong Zheng, University of Houston
Zoom Monitors (2) - Kevin Reed and TC Chakraborty
Rapporteurs (2) - Melissa Allen-Dumas and Andrew Jones

Breakout Session Agenda

1:00-1:05 p.m.: Session Goals and Topic Overview - Jennie Rice and Stephanie Waldhoff

Theme #1: Urban Microclimates:

1:05-1:11 p.m.: Structural uncertainty in the sensitivity of urban canopy air temperature to anthropogenic heat flux - Dan Li, Boston University

1:12-1:18 p.m.: Understanding the role of urban morphology, anthropogenic heating, vegetation, and irrigation in urban microclimate dynamics to inform adaptation to climate change in urban areas - Pouya Vahmani, LBNL

1:19-1:25 p.m.: Continental and Regional-Scale Urban Warming Signals are Detectable and Increasing with Urban Evolution: Implications and Uncertainties - T.C. Chakraborty, PNNL

1:25-2:05 p.m.: Theme #1 Q&A and Discussion

Theme #2: Urban Morphology

2:05-2:11 p.m.: Evaluation of future urban land expansion given multisectoral pressures using a global integrated human-Earth system model - Kanishka Narayan, PNNL

2:12-2:15 p.m.: Current and Future Neighborhood Urban Parameters for Evaluating Extreme Weather Impacts in Cities - Melissa Allen-Dumas, ORNL

2:16-2:19 p.m.: How Predictable is Urban Form Using Landscape Patterns? Associating Building Morphology with Land Use and Demographic Variables - Jill Sturtevant, Baylor
2:20-2:23 p.m.: Urban morphology evolution under uncertain land constraints and climate extremes - Ryan McManamay, Baylor University
2:24-2:27 p.m.: Evaluating the influences of population growth, urban morphology evolution, and expansion of reuse on water supply reliability in Los Angeles County - Stephen Ferencz, PNNL

2:30-2:45 p.m.: Coffee Break

2:45-3:10 p.m.: Theme #2 Q&A and Discussion

Theme #3: Extreme Events

3:10-3:16 p.m.: Co-production as an approach to improve the impact of EESM research - Kripa Jagannathan, LBNL

3:17-3:20 p.m.: Impacts of Anthropogenic Climate Change and Urbanization on Derechos – Contrasting Results between Two Case Studies - Yuwei Zhang, PNNL

3:21-3:24 p.m.: Extreme Precipitation and Flood Risk for New York City post-Ida - Naresh Devineni, The City College of New York

3:25-3:28 p.m.: Urban Impacts on Deep Convection - Xin Zhou, Cornell University

3:29-4:00 p.m.: Theme #3 Q&A and Discussion

4:00 p.m.: Adjourn

Wednesday Poster Session

- #013 Continental and Regional-Scale Urban Warming Signals are Detectable and Increasing with Urban Evolution: Implications and Uncertainties - TC Chakraborty, PNNL
- #014 Evaluation of future urban land expansion given multisectoral pressures using a global integrated human-Earth system model - Kanishka Narayan, PNNL
- #015 Co-production as an approach to improve the impact of EESM research - Kripa Jagannathan, LBNL
- #016 Understanding the role of urban morphology, anthropogenic heating, vegetation, and irrigation in urban microclimate dynamics to inform adaptation to climate change in urban areas - Pouya Vahmani, LBNL

Thursday Poster Session

- #013 Current and Future Neighborhood Urban Parameters for Evaluating Extreme Weather Impacts in Cities - Melissa Allen-Dumas, ORNL (Thursday, 8/8,)
- #014 Extreme Precipitation and Flood Risk for New York City post-Ida - Naresh Devineni, CUNY
- #015 How Predictable is Urban Form Using Landscape Patterns? Associating Building Morphology with Land Use and Demographic Variables - Jill Sturtevant, Baylor

- #016 Impacts of Anthropogenic Climate Change and Urbanization on Derechos – Contrasting Results between Two Case Studies - Yuwei Zhang, PNNL
- #017 Urban morphology evolution under uncertain land constraints and climate extremes - Ryan McManamay, Baylor
- #018 Evaluating the influences of population growth, urban morphology evolution, and expansion of reuse on water supply reliability in Los Angeles County - Stephen Ferencz, PNNL
- #019 Urban Impacts on Deep Convection - Xin Zhou, Cornell