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RAL SEMINAR SERIES

Towards More Accessible, AI-Enabled Urban Land Surface Modeling

ZHONGUA ZHENG

Assistant Professor, Data Science & Environmental Analytics
The University of Manchester, United Kingdom

Thursday, January 22, 2026

3-4 PM (MT)

FL2-1001 or Virtual | Watch Live

Urban land surface modeling is essential for understanding past urban climate and assessing future environmental risks across diverse socio-economic and development scenarios. Its outputs are increasingly needed not only by urban climate scientists, but also by a broader range of research communities and urban stakeholders. Yet despite its importance, the adoption of urban land surface models remains limited due to substantial technical barriers, including model complexity, high computational costs, and challenges in data and workflow management.

In this talk, I will present our recent work toward a more accessible urban land surface modeling framework that spans global, regional, and single-point scales. I will describe how we have expanded its capabilities through the incorporation of Local Climate Zones (LCZs), transient urban surface albedo, and traffic-related anthropogenic heat emissions. I will then discuss our ongoing efforts to apply physics-informed AI foundation models and cloud computing to further improve scalability, efficiency, and accessibility. These developments aim to expand the usability of urban climate modeling across disciplines and real-world decision-making contexts. Event Website