Adaptation and Mitigation to Extreme Heat across Urban Landscapes: A Multi-scale Assessment

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Speaker: **Professor Matei Georgescu**
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Chair: **Professor Matthias Roth**
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Abstract

Extreme heat has become an urgent public health and environmental challenge, particularly in cities, where exposure is intensified by climate change and built infrastructure. Addressing impacts of extreme heat requires coordinated strategies informed by insights across spatial scales. This talk presents a multi-scale assessment of adaptation and mitigation strategies to reduce extreme heat impacts across urban landscapes. At the continental scale, regional climate modeling combined with projections of urban development, emissions, and population change reveals how adaptation and mitigation—individually and in tandem—can lessen population heat exposure across U.S. cities by the end of the century. At the local to regional scale, a coupled climate and human heat balance modeling framework is applied in Arizona, located in the semi-arid southwestern U.S., to evaluate irrigation's role in supporting outdoor labor capacity during extreme heat conditions. Together, these studies underscore the need to integrate climate, environmental, and physiological dynamics when developing effective responses to extreme heat at both broad and local levels.

About the Speaker

Matei Georgescu is Professor in the School of Geographical Sciences and Urban Planning at Arizona State University (ASU). Georgescu's research aims to improve understanding and characterization of distinct phenomena related to urbanization-induced landscape change. Georgescu's lab at ASU uses a wide range of tools centered on the use of process/physically-based numerical models to address human-environment interactions. His research and teaching interests are focused on climate and its relation to other systems: urban environments, energy, and agricultural applications. Georgescu's research has been funded by a diverse portfolio ranging from federal (e.g., the National Science Foundation, US Department of Agriculture, Department of Energy) to local (e.g., Salt River Project) entities.

Georgescu has received recognition as a Fulbright Scholar and Fulbright Specialist. He serves as Associate Editor of AGU's Journal of Geophysical Research-Atmospheres, resides on the Editorial Board of Environmental Research Letters, and has served as Guest Editor of the Proceedings of the National Academy of Sciences on several occasions. In August 2023, he delivered the Opening Keynote for the International Conference on Urban Climate, held in Sydney (Australia), entitled "*Multiscale modeling techniques to document and respond to urban climate change*".

Prior to joining ASU, Georgescu was a Post-Doctoral Scholar in the Center on Food Security and the Environment (Department of Environmental Earth System Science) at Stanford University from 2008-2010. He received his PhD in Atmospheric Sciences from Rutgers University in 2008.
Source: https://search.asu.edu/profile/1596868

Convenors

Professor Brenda Yeoh | Professor Dariusz Wojcik | Assoc Prof Lin Weiqiang | Dr Remi Luo