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Table of Contents

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Author Index

Keynote

Models, Simulations and Stakeholders: Embracing Visualization for Climate Analysis

Ross Maciejewski

Abstract

The coupled effects of global climate change and population dynamics on water systems are widely considered to be among the greatest urban sustainability challenges facing humanity in the Anthropocene - an era that recognizes the indelible signature and long-term impact of human influence on the Earth system. Semiarid and arid regions will be at particular risk. Meanwhile, the world's urban population is projected to double in the next generation, with much of this urban growth occurring in arid or semiarid environments. Indeed, the nonclimatic stressors on water resources may outweigh the climate impacts for some regions. Taken together, these interrelated pressures pose unprecedented challenges for urban sustainability and environmental governance. To develop solutions, environmental governance is increasingly focused on improving linkages between scientific knowledge and decision making through collaborative problem solving. In this process, stakeholders communicate options, make plans, monitor events, and often politically strategize. Given that such planning must engage multiple stakeholders in the problem formulation, there is a need for ways in which stakeholders can engage with data analysts, modelers, and simulations to define problem threats and solutions through multiple perspectives. One means of doing this is through computer-supported collaborative visualization environments in which decision-makers can run models and simulations to explore the impact of various policy choices. In this talk I will discuss the knowledge co-production process for soliciting critical feedback from stakeholders during the design, testing, and implementation of complex system models and visual analytics for conceptualizing and incrementally implementing an information system for user interaction for the creation and sharing of immersive digital stories.