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Monday, September 21, 2015 11:00 a.m.

Natural Hazards Modeling: From Storm Impacts to the Evolution of Regional Vulnerability Over Time

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ABSTRACT:

Hurricanes regularly impact communities and infrastructure systems along the U.S. coast, leading to substantial damage. Electric power systems are particularly heavily impacted in many storms, and a critical component of adequately preparing for and responding to these storms is having estimates of the magnitude and spatial distribution of the impacts prior to the event so that electric utilities, other power-dependent utilities, and government agencies can plan appropriately for their emergency response efforts for a given storm. In the longer term, climate change has the potential to substantially alter the hurricane environment and thus the risk to coastal communities and power systems. This talk presents work done over the past 8 years to develop power outage prediction models for hurricanes. The talk also summarizes recently results that estimate the potential changes in hurricane risk to power systems under different future climate scenarios as well as which areas are most sensitive to changes in the hurricane environment. The talk closes with an overview of an ongoing interdisciplinary effort led by Dr. Guikema to examine how the resilience and sustainability of a region evolves over time as an area experiences repeated exposure to hurricanes.



BIO:

Dr. Seth Guikema is an Associate Professor in the Industrial and Operations Engineering Department at the University of Michigan as well as an Adjunct Professor II in the Department of Industrial Economics, Risk Management, and Planning at the University of Stavanger. He recently moved to Michigan from Johns Hopkins University, where he was an Associate Professor in Geography and Environmental Engineering. He is also a Senior Analyst with Innovative Decisions, Inc. His research focuses on developing, testing, and implementing predictive risk methods for disaster risk analysis, sustainability and resilience for infrastructure and urban areas, terrorism risk analysis, and climate change impacts. While much of this work focuses on the development of data-driven predictive models, he also works on game theoretic approaches for terrorism risk analysis, multicriteria decision analysis, and large-scale simulation modeling. His work has been funded by NSF, DOE, DHS, USDA, and private utilities. He received the Chauncey Starr award as the outstanding young risk analyst from the International Society for Risk Analysis in 2010 and two best paper awards for the journal Risk Analysis for 2012 as well as earlier publication awards. He is the Area Editor for Mathematical Modeling for the journal Risk Analysis and an Associate Editor for the ASCE Journal of Infrastructure Systems.

This presentation will also be available remotely via Webex:

<https://usgs.webex.com/usgs/j.php?MTID=md91bf4d741e4ee9dabc729adacbe3614>

For directions to the USGS MD-DE-DC WSC: <http://md.water.usgs.gov/directions/baltimore.html>.