



Center for Risk-Based Community Resilience Planning

A NIST-funded Center of Excellence

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Rachel Davidson
University of Delaware

Tuesday February 21, 2023- 3:00PM MT

2:00PM Pacific Time (San Francisco) and 5:00PM Eastern Time (New York)

VIRTUAL SEMINAR

Join Zoom Meeting

<https://zoom.us/j/91653990084?pwd=RXNDaHArUDZlUUpLMkFoWkpybGVmdz09>

Meeting ID: 916 5399 0084

Passcode: 389205

TITLE: Regional hurricane risk management: A multi-stakeholder, multi-strategy policy analysis tool

ABSTRACT: This talk will describe a computational framework that can be used to identify hurricane risk management policy solutions based on behavior of the system as a whole, including interactions among multiple types of stakeholders (homeowners, insurers, government, reinsurers) and strategies (retrofit, insurance, property acquisition). It provides specific recommendations for government policymaking and describes the outcomes different stakeholders would experience under various policies, allowing identification of policies that are likely to have broad support. The framework includes multiple interacting mathematical models—stochastic programming optimization models to represent government and insurer decisions, a Cournot-Nash model of insurer competition, empirical discrete choice models of individual homeowner decisions, computable general equilibrium model of the regional economy, and a regional loss estimation. A full-scale application for hurricane risk in eastern North Carolina suggests it is possible to identify system-wide win-win solutions that are better both for each stakeholder type individually and for society as a whole. The talk will conclude with directions for on-going research taking place through the new CHEER Hub.



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BIO: Rachel Davidson is a Professor in the Department of Civil and Environmental Engineering, Associate Dean for Academic Affairs, and a core faculty member in the Disaster Research Center at the University of Delaware. She leads the recently funded Coastal Hazards, Equity, Economic prosperity, and Resilience (CHEER) Hub. Davidson completed her B.S.E. from Princeton University and M.S. and Ph.D. from Stanford University. She conducts research on natural disaster risk modeling and civil infrastructure systems. Her work involves developing new engineering models to better characterize the impact of future natural disasters and use that understanding to support decisions to help reduce future losses. It focuses particularly on lifelines and risk from a regional perspective; on earthquakes and hurricanes. She is a Fellow and Past-President of the Society for Risk Analysis and recipient of the 2019 ASCE Charles Martin Duke Lifeline Earthquake Engineering award.