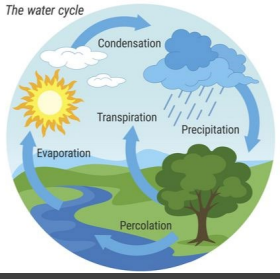
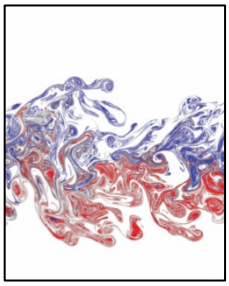
Boase Seminar Series in Hydrology and Water Resources Engineering

Department of Civil, Environmental and Architectural Engineering





Revisiting our design criteria: what hazards should we design for in a changing environment?

Dr. James Doss-Gollin

Department of Civil and Environmental Engineering

Rice University, Houston, TX

Wednesday, April 13, 2022 | 11:15 AM | ECCE 1B41 &

Zoom: https://cuboulder.zoom.us/j/95668504496

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Abstract:

Cascading failures of water, energy, and housing infrastructure during major storms highlights the vulnerability of interdependent and interconnected infrastructure systems, and the humans who depend on them, to severe weather. The engineers and policy-makers who design these systems rely heavily on design heuristics (i.e., elevate buildings above the 100-year flood return level) and cost-benefit analysis. Both depend on probabilistic representations of climate hazard. In a stationary climate, this probability can (in theory) be estimated using empirical frequencies. However, global climate change and other factors create nonstationarity of hazard, challenging. And while novel approaches to decision making under deep uncertainty have shown success in identifying solutions that are robust to unanticipated futures, decisions necessarily remain sensitive to the representation of future hazards in models. Using motivating examples from stormwater management, house elevation, and sea-wall design, this talk will explore recent advances and open challenges in the characterization of nonstationary hazards for climate risk management.

Speaker Bio: James Doss-Gollin is an assistant professor in the department of Civil and Environmental Engineering at Rice University. Dr. Doss-Gollin's research is motivated by challenging questions at the intersection of climate dynamics, water management, data science, and decision science. By developing methods for understanding and predicting spatiotemporally clustered hydroclimate risk, and for incorporating uncertain projections into sequential decision problems, he strives to enable the delivery of flexible and resilient infrastructure services. Dr. Doss-Gollin completed his M.S. and Ph.D. in Earth and Environmental Engineering at Columbia and holds a B.S. in Mechanical Engineering from Yale University. Prior to joining Rice University, he was a postdoctoral researcher in the Earth and Environmental Systems Institute at the Pennsylvania State University.