universität freiburg

Kolloquium - Boden, Wasser, Luft

11. November 2026, 16 ct - 18 Uhr
Hörsaal Fahnenbergplatz, Friedrichstr. 39

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ETH Zürich

Compound hazards in coastal urban systems: + Interactions, impacts, and adaptation

Coastal urban communities face a growing convergence of acute and chronic stressors. Severe and frequent flood events interact with persistent challenges such as extreme heat, air pollution, and socioeconomic vulnerability, creating complex risk landscapes. Flooding in these regions often results from multiple sources – riverine, pluvial, and coastal – whose combined impacts can amplify damage and hinder recovery. Understanding these interactions is essential for developing adaptation strategies that address multi-hazard risks under resource constraints.

In this lecture, I will explore the nature of compound hazards in coastal urban environments and the scientific and practical challenges of translating climate projections into hydrological predictions and actionable adaptation strategies. Drawing on research from the Southeast Texas Urban Integrated Field Laboratory (SETx-UIFL) – a large interdisciplinary initiative funded by the U.S. Department of Energy – I will highlight efforts to advance the science of compound hazards and co-develop solutions with municipalities, industries, and community organizations. The presentation will feature work from my group on rainfall pattern analysis, high-resolution compound flood mapping, and detection of flood-heat interactions, alongside broader center activities spanning climate modeling, hydrology, urban planning, and social vulnerability assessment. I will conclude by discussing key challenges and opportunities for building resilience in coastal urban systems under a changing climate.

Veranstaltet von den Professuren für
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