

Department of Environmental Science and Policy

Seminar Series

Climate risks adaptations: integrating knowledge, making it actionable

Katharine Mach
University of Miami

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Abstract: Under increasing climate change, knowledge about climate risks and adaptations is essential in real-time to individuals and societies making complex decisions. There is acute need among scientists and decision-makers, diversely defined, for improved methods that evaluate overall understanding of the risks and possible responses—and that also create usable knowledge fitted to decision contexts, supporting choices and learning through time. Innovations in integrative, actionable assessment that I am developing add such value. Priorities include integrating diverse evidence and expert judgment, incorporating meaningful partnerships among researchers and practitioners, and exploring possible adaptive pathways linked to ongoing choices. Adaptation science involves multiple challenges: the complex, intersectional systems shaping the lived experiences of climate change, multi-level and cross-jurisdictional governance, deep and difficult-to-quantify uncertainties, and the contested priorities and differing worldviews relevant to managing climate risks. This presentation will unfold, through these priorities for innovation, three examples of ongoing work in the Climate Risks and Preparedness research group: (1) climate–security risks and options, (2) equitable adaptation to extreme heat, and (3) inclusive, flexible response pathways under intensifying coastal flooding risks. Innovations in actionable knowledge for effective, equitable adaptation must tackle multiple socio-environmental frontiers simultaneously; such advances therefore yield benefits for individual and societal resilience to shocks and stressors related to climate and also far beyond.

Bio: Katharine Mach is an Associate Professor at the University of Miami Rosenstiel School of Marine and Atmospheric Science and a faculty scholar at the UM Abess Center for Ecosystem Science and Policy. Mach is a lead author for the IPCC Sixth Assessment Report and the US Fourth National Climate Assessment. Across all of her research projects, Mach engages in relevant policy processes, and she frequently discusses climate change risk and adaptation with the media, the private sector, nongovernmental organizations, and communities. Mach previously was a Senior Research Scientist at Stanford University and Director of the Stanford Environment Assessment Facility. Prior to that, from 2010 until 2015, she co-directed the scientific activities of Working Group II of the Intergovernmental Panel on Climate Change. This work on impacts, adaptation, and vulnerability culminated in the IPCC’s Fifth Assessment Report and its Special Report on Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation. The associated global scientific collaborations have supported diverse climate policies and actions, including the Paris Agreement. Mach received her PhD from Stanford University and AB summa cum laude from Harvard College.

