

# School of Earth and Environmental Sciences

## Colloquium Series

### Dr. Kimberly Huppert

Assistant Professor of Earth and Atmospheric Sciences  
The City College of New York, CUNY

Wednesday, March 29<sup>th</sup>, 2023  
12:15 – 1:30 PM

**Location: Science Building, C-207**

### Storms, surf, and swells: Bedrock breakdown and the geodynamic demise of volcanic ocean islands

With homogeneous bedrock, dramatic climate gradients, and remnant surfaces that constrain their age, initial topography, and vertical motions relative to sea level, volcanic ocean islands provide exceptional natural experiments in landscape evolution. Analyses traversing gradients in island climate and bedrock age have the potential to advance our understanding of climatic and tectonic influences on landscape evolution in a diverse range of continental settings. Yet, as net subsiding and boundary-dominated landmasses, islands are in some ways dissimilar from most continental landscapes, and the mechanisms of island vertical motion remain largely enigmatic. Island uplift and subsidence can provide important observational constraints on the rheology and dynamics of the Earth's interior, in addition to setting the boundary conditions for the topographic, climatic, and biogeographic evolution of island landscapes. In this talk, I exploit steep climate gradients in the Hawaiian Islands to quantify controls on fluvial and coastal erosion. I also assess the contribution of lithosphere and mantle processes to surface deformation at ocean hotspots. These analyses provide empirical support for hypothesized feedbacks between climate, tectonics, and topography, linking the evolution of the solid earth, hydrosphere, and biosphere.



**Brief bio:** Kim is a geomorphologist and assistant professor in the Department of Earth and Atmospheric Science at The City College of New York and CUNY Graduate Center. She examines how the Earth's surface changes over time and how it is shaped by erosion, tectonics, and climate. She uses numerical modeling, field observations, geochemistry, and remote sensing data to understand the dynamics of these processes and how they interact to shape mountain ranges and coasts over different spatial and temporal scales. Much of her research focuses on quantifying the influence of climate on erosion rates and landscape evolution, with the goal of learning about past climatic conditions and future change from the topographic and sedimentary record. Kim received a bachelor's degree in Civil Engineering and a PhD in Earth, Atmospheric, and Planetary Science from Massachusetts Institute of Technology.

**\*\*THIS IS A HYBRID MEETING\*\***

Zoom link for remote attendance:

<https://us02web.zoom.us/j/82229858276?pwd=UkNzM2FNY2p6cG42YjBmeHg0dGxNdz09>

Meeting ID: 822 2985 8276

Passcode: 515589