Designing Human-Centered Disaster Impact Information

BIOGRAPHY

Sabine Loos is the PI of AIDD labs and an Assistant Professor in the Civil and Environmental Engineering Department at the University of Michigan. Broadly, her research surrounds the development of disaster information that centers users and the human experience. She applies statistical learning, risk analysis, and design thinking techniques to develop tools that inform effective and equitable disaster risk reduction, response, and recovery. She has worked across Nepal, Singapore, and the U.S. to gain firsthand experience of the impacts from disasters. The transdisciplinary nature of her work has led her to collaborate with Kathmandu Living Labs, the World Bank, NASA-JPL, the U.S. Geological Survey, and others. She also co-organized the Understanding Risk Climate Data Field Lab and co-founded the Risk & Resilience DAT/Artathon. Prior to UM, Sabine was a Mendenhall Fellow at the U.S. Geological Survey in collaboration with the Natural Hazards Center at CU Boulder, working on developing socially equitable earthquake risk products. Sabine completed her PhD in Civil Engineering between Stanford University and Earth Observatory of Singapore at Nanyang Technological University, her MS in Sustainable Design & Construction from Stanford University, and BS in Civil Engineering from the Ohio State University.

ABSTRACT

Climate and disaster risk information, which provides estimates of impacts from hazards like flooding or earthquakes, are increasingly influencing public and household decision-making. However, this information was originally designed with specific user groups, such as finance and insurance, based on their prioritized metrics of impact, like economic losses. In this talk, I will present on the design of disaster impact information that is more accessible and usable for a wider audience through human-centered design and modeling approaches, drawing from three main areas. The first is on developing human-centered geospatial models of building damage and recovery potential using real data from past earthquakes, mainly the 2015 earthquake in Nepal. The second is on human-centered design methods for more accessible and equity-focused global earthquake impact alerts at the United States Geological Survey. The third is on using a historicist approach to understanding disaster information to inform current disaster risk modeling approaches. Overall, I will highlight how our lab and the Hazards, Risk, and Resilience program at the University of Michigan are building the next generation of disaster modelers who can more holistically quantify and communicate the risk and impacts of future disasters. Broadly, evaluating the what, why, and who of disaster data can support the thoughtful design of future information systems that are more useful for disaster planning, reflect the multiple disciplines that study disaster, and, ideally, inform decisions that lead to more equitable outcomes.