Julie Arbit
Research Associate, Center for Social Solutions, University of Michigan

COMPETITIVE DIVISION - ACADEMIC

Equity in Flood Risk: Densifying Gauge Networks for High Resolution Risk and Vulnerability Modeling

Equity in Flood Risk seeks to advance equitable policy, programming, and funding for flood preparation, mitigation, relief, and recovery in underserved communities in the United States. A two-pronged approach of aggregating high resolution physical risk models with a highly granular vulnerability index will identify and address the high levels of heterogeneity in risk and vulnerability in socioeconomically diverse metropolitan regions. Ultimately, this approach enables community- and household-level intervention, which is not only more equitable, but in many cases more efficient and effective.

Primary challenges to creating high resolution depth grid models include sparse technological networks and low temporal resolution. To achieve precise hazard mapping and damage forecasting, a dense network of sensors is required to interpolate an accurate water depth grid. To meet this end, we are utilizing low-cost, cellular-enabled sensor nodes that provide instantaneous snapshots of hydrologic conditions. With this more granular model, we will aggregate physical risk with household vulnerability to prioritize communities for engagement, beginning with a pilot Area of Interest of Southeast Michigan. As priority areas of high risk and vulnerability emerge, community-based collaborations will foster stakeholder outreach for more equitable disaster relief.

Presentation Theme: Technology, Climate/Weather, Resilience

Collaborators, Advisor(s) and Department(s) that assisted with this research: Center for Social Solutions, University of Michigan

Real Time Water Systems Lab, Civil and Environmental Engineering, University of Michigan

Funding: None