**Recent Innovations for Data-Driven Flood Risk Analysis: A Case Study from Biloxi, Mississippi, USA.**

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**Abstract**

Flood Information Systems (<https://floodinformationsystems.com/>) conducts data-driven risk analysis for disaster-prone communities, utilizing cutting-edge statistical methodologies and data development to improve frequency analysis of low-frequency/ high-magnitude natural disasters. Data development continues in partnership with the U-Surge Project, which provides the first comprehensive flood datasets for coastal communities along the U.S. Gulf and Atlantic Coasts.

This talk provides a case study from a recently-completed coastal flood risk analysis in Biloxi, Mississippi, titled, *Improving Flood Resiliency in Biloxi’s Economic Development Corridor*. This project identified high water marks for 35 hurricanes and tropical storms since 1880, the highest of which was a 7.22-m high water mark from Hurricane Katrina (2005). A log-linear regression analysis calculated the 100-year flood in this location at 5.65 m.

In partnership with the City of Biloxi, this project created first flood elevation data for 1250 homes in Biloxi, using elevation certificates, GPS field work and street level imagery analysis. Superimposing flood levels on the building elevations reveals that 82.3% of the buildings are elevated lower than the data-driven 100-year flood level, which will increase to 88.5% by the year 2060, given the intermediate sea level rise projection, provided by the Northern Gulf of Mexico Sentinel Site Cooperative.

This talk will include action items for applying this research to new cities, and next steps for Biloxi, as the city moves to Phase II, which includes mitigation actions. We will also discuss opportunities for statistical and mathematical collaborations, as we open a dialogue about the use of Extreme Value Analysis and various regression approaches.