Contribution ID: **16** Type: **Poster Presentation**

Geospatial Determinants of Boil Water Notices: A Block-Level Analysis

Thursday, October 23, 2025 2:00 PM (20 minutes)

Boil Water Notices (BWNs) are critical public health advisories that disproportionately impact vulnerable populations and underscore persistent challenges of water insecurity in urban environments. These recurring events are often linked to aging infrastructure, climatic variability, and underlying socioeconomic inequities, making them a complex phenomenon that requires integrated spatial analysis. This study develops a geospatial framework to systematically examine the spatial distribution of BWNs in Jackson, Mississippi, by incorporating determinants across physical, climatic, environmental, and social domains. Explanatory variables include building characteristics (age and value), precipitation, temperature, vegetation indices, land surface temperature, and demographic indicators such as race, age, and poverty. Independent datasets were compiled from secondary sources including the American Community Survey and Google Earth Engine, while BWN records were obtained from the Mississippi State Department of Health (MSDH). To enhance spatial resolution, block group level socioeconomic data were disaggregated to the block level using building counts, census records, and GIS datasets. The resulting fine-scale dataset enabled robust spatial statistical and regression analyses to identify drivers of BWNs, assess clustering patterns, and detect localized disparities. The findings reveal the complex interplay between built environment vulnerability, environmental stressors, and social inequities in shaping water insecurity in Jackson. Furthermore, the analysis generates predictive insights that can inform proactive monitoring and targeted interventions. This research contributes to the advancement of geospatial methodologies for urban water security studies and supports the development of an open geospatial platform for real-time monitoring, forecasting, and mitigation of BWNs across diverse urban contexts.

Is there a SINGLE day you are unavailable to present?

October 25, 2025

Is there a time of day you are unavailable to present?

Organized Session Details

Authors: Dr QINGMIN MENG; MALAKER, Tanmoy (Graduate Student)

Presenter: MALAKER, Tanmoy (Graduate Student)

Session Classification: Poster Session

Track Classification: Social Impacts