

Flood Risk and Socioeconomic Inequality in Pittsburgh and Allegheny County

Thursday, October 23, 2025 1:00 PM (20 minutes)

Pittsburgh's topography, composed of steep hills and valleys with urbanized floodplains, leaves residents uniquely vulnerable to extreme weather events and geological hazards such as flash floods and landslides. This research examines the geography of flood risk and socioeconomic inequality in Pittsburgh and Allegheny County, investigating whether disadvantaged communities are more susceptible to severe flooding due to intensifying climate stressors. Historical flood data is integrated with the FEMA National Flood Hazard Layer (NFHL) to determine areas of high flood risk; this data is subsequently compared to flood pattern visualizations generated with ArcGIS and remote sensing methods. The relationship between social inequality and flood risk is extrapolated using a multivariate index containing a number of relevant indicators, including demographics and income, infrastructure resilience, floodplain proximity, and impervious surface coverage. As global climate change further influences the severity and predictability of flooding events, this framework provides an opportunity to reassess the annual exceedance probability (AEP) and recurrence intervals that guide contemporary risk assessment methodologies. Findings suggest that although climate change elevates flood risk across large portions of the city, the spatial distribution of social inequality places the greatest burden on Pittsburgh's most disadvantaged neighborhoods.

Is there a SINGLE day you are unavailable to present?

October 25, 2025

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

Afternoon

Organized Session Details

Author: PAMPENA, Fiorente (University of Pittsburgh)

Presenter: PAMPENA, Fiorente (University of Pittsburgh)

Session Classification: Student Poster Competition

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