GEOG 593: Abstract of Final Project

The Relationship between Pluvial Flooding and the Spatial Distribution of Urban Blue-Green Infrastructure (BGI) in Alaskan Cities

Arun Pallathadka

Flooding is a serious form of natural hazard in Alaska, USA. Two of Alaska's biggest cities - Anchorage and Fairbanks - have experienced flooding of varying magnitude since the cities were first settled in the early 20th century. Government, at all levels in Alaska, has introduced specific flood mitigation measures, including the introduction of blue-green infrastructure (BGI) across Alaska, but the relation between the distribution of BGI and urban pluvial flooding (UPF) remains understudied. This study delineates the UPF zone of Anchorage and Fairbanks using the bluespot modeling and correlates it with the distribution of BGI at Census Block Group (CBG) scale. In Anchorage, blue spots range from 0 - 60%, whereas in Fairbanks, blue spots range from 1 - 84%. The average BGI Density is 64/Sq.Km in Anchorage, compared to 160/Sq.Km for Fairbanks. Anchorage shows a positive correlation between % UPF area and density of BGF, whereas Fairbanks shows a negative correlation. The results indicate that while BGI is proportionally distributed within the Anchorage UPF zone, the same is not true in Fairbanks, where distribution is not proportionate to pluvial flood-risk. The results are useful for urban planners because the study suggests BGI can act as an effective flood mitigation strategy in urban areas, especially when implemented proportionally.