HAZUS-MH: LOOKING AT THE PROBABILISTIC EFFECTS OF HURRICANES OVER THE GEORGIA COAST IN THE CHANGING CLIMATE AND REMEDIAL SUGGESTIONS

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Abstract. Due to Global Warming & Climate Change, in recent times, Coastal United States is experiencing increased landfall of hurricanes. HAZUS-MH is a regional multi-hazard loss estimation model that was developed by FEMA and the National Institute of Building Sciences. The objective of the study was to use HAZUS-MH to create a probabilistic hurricane impact model for coastal Georgia, analyze the results with different scenarios, and suggest remedial measures for stakeholders. HAZUS-MH is an add-on for ArcGIS 10. Most of the geospatial data used in this hurricane model building came with the HAZUS-MH program. It provides locations of facilities, roads, trees, surface roughness, and many more including the census data. Other data used in the model building was retrieved from the FEMA, HAZUS, and NOAA websites. HAZUS modeling was conducted in four basic phases, 1) organize resources, 2) assess risks, 3) develop a mitigation plan, and 4) implement the plan and monitor progress. The model calculated several results but we selected only a few for analysis. Some of these results, we observed and analyzed include damage estimations, loss of use charts, and debris calculations. Major analysis was conducted to observe how the trees affect the wind speeds of the hurricanes with multiple multi-year assessments. As the wind passes through the tree barriers there were significant drops in wind speed all the way through the study area. Our analysis proved that the hurricane impact was severe in the area where there was lack of forest and the impact was minimized where there were tall trees or forest cover. Supporting the primary purpose of HAZUS-MH, we estimated the multi-hazard losses at our study area scale and suggested remedial measures through our advance analysis for local, state and regional officials to stimulate efforts to reduce risks from such hurricane.