Modeling Projections of Potential Sea Level Rise Impacts on Some Caribbean Communities: Is it Worth the Effort?

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Key words: Coastal Zone Management; Hydrography;

SUMMARY

The Caribbean historically experiences a variety of natural disasters including hurricanes, earthquakes and volcanic eruptions, droughts among other things. Climate change is reported to potentially exacerbate many of these extreme events in the region, and add persistent sea level rise as another threat to Caribbean coastal communities. GIS-based sea level rise predictive inundation models have been, and are being, used to assess potential physical and socioeconomic impacts on coastal communities in the Caribbean and other geographic areas. The results of these models are expected to form part of the information base used to develop appropriate adaptation and mitigation strategies. The veracity of the models' results, and the usefulness of the models, are questioned because more often than not the models are constructed with less than ideal data, especially in developing regions such as the Caribbean where there is often a paucity of long term dependable spatial data, including tidal data to determine mean sea level and, as well, coastal deformation data among other things. Within the context of all the foregoing, this paper presents three case studies where GIS-based sea level rise inundation models are produced relevant to selected Caribbean communities. It was found that the models have utility in raising awareness, and support for the development of appropriate adaptation and mitigation strategies.