

VULNERABILITY ASSESSMENT OF ARCHAEOLOGICAL SITES TO COASTAL PROCESSES IN LOIZA PUERTO RICO

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Due to rapid climate change, scientists continue to study different characteristics of our environment, granting the opportunity to evaluate how changes may impact various aspects of our society. In this scenario, Puerto Rico is vulnerable to several hazards, including hurricanes, landslides, and seismic activity. This long-term analysis in the Loíza's coast, from 1930 to 2018, focuses on evaluating the coastal change in Loíza's municipality and its impacts to archaeological sites. Preliminary results showed different patterns of erosion and accretion. Digital Shoreline Analysis Systems (DSAS) was used to calculate the distance in meters between each shoreline. In addition, forecasting tools were used to project the shoreline location and how may impact the archaeological sites near the coast. Coastal Modeling Systems (CMS), which includes CMS-Flow and CMS-Wave were used to evaluate the sediment transportation patterns on the coast. This allowed us to enhance the understanding of accretion and erosion patterns. A comparison between DSAS results and CMS -Flow will be conducted in order to validate DSAS results. Unmanned Aircraft Systems (UAS) were used to monitor the status of the sites and the coast.