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Hurricane Modeling Preparation and Response in the Cayman Islands

ABSTRACT

Being able to access the likely impact of a hurricane is vital in hurricane preparation and response. The Cayman Islands Government via the Lands & Survey Department has integrated the TAOS storm modeling system with a real time assessment tool to make hurricane damage predictions useful before, during, and after a storm.

The TAOS system generates real time predictions of wind intensities, storm surge, and wave heights for a given storm. Lands & Survey collected extremely accurate bathymetric and topographic data for the Cayman Islands to ensure that these results are as accurate as possible. A comprehensive building inventory was also completed. It includes details such as construction type, roof type, and replacement cost. TAOS outputs can be applied against this building inventory to give both predicted structure damage and predicted financial cost information.

To make this information useful in an emergency situation, an easy to use real time assessment tool was developed. This tool supports the display of relevant GIS data such as parcels, roads, buildings, reefs, and aerial photography. On top of this GIS data, TAOS outputs can be projected. Analysis can then be conducted to determine expected wind, water, and wave levels at any location. Real time incidents such as structure failures and evacuations can be placed. These incidents are visually shown on the map and are shared with other users of the assessment tool. Maps and damage reports can also be printed.

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