

## **Coastal Flooding and Erosion Forecast System**



Coastal residents, managers, and emergency personnel know that storms can reek havoc on the coastline. A new forecast tool actually predicts the timing and severity of storm-related inundation events, thus enabling more effective planning and response.

By understanding the relationships between tides, waves, and storm surge, a series of lines can be drawn on a nomogram connecting the predicted tide height with forecasted wave heights. The result is a dynamic display of water level at various times, indicating the difference between a normal tide event, splashover, and severe beach erosion.



During the Patriot's Day Storm in April '07, there were four high-tide cycles combined with waves that were greater than 20' in height. This combination caused tremendous amounts of coastal damage during the storm. The Coastal Flooding and Erosion Forecast System actually predicted days in advance of the Patriot's Day Storm that there was a high likelihood of this damage occurring.

This project was developed through NERACOOS by partners from GOMOOS and the National Weather Service. This prototype will be improved and rolled out in additional pilot areas in the coming year.



Severe Beach Erosion Severe Coastal Flooding Major Coastal Flooding Minor Coastal Flooding Moderate Beach Erosion Minor Beach Erosion No Erosion/Flooding

\* The red line (horizontal) represents the point at which the water level is at flood stage (FS)

stage (FS). \* A yellow line (slight diagonal left to right) represents when splash over begins \* Progressively darkening horizontal bands (light orange to red), represents when minor, moderate and severe coastal flooding will occur

## The Splash Over Tool

When the forecast is in motion, a real-time indicator moves through the 48 hour forecast as a series of red circles. The leading circle of the indicator represents the most recent reading, and the trailing circles are previous readings (in 1 hour increments). On a normal day, the indicator will simply move up and down the water level axis with the tide, and make minimal movement along the y-axis for wave height.

http://www.gomoos.org/coastalflooding

