Stevens has an eye on the science of Hurricane Irene

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While residents along the New Jersey and New York coasts rush to the store for batteries and bottled water, scientists at Stevens Institute of Technology are heading to the laboratory to help predict the impact of Hurricane Irene.

At the Stevens Center for Maritime Systems (CMS), ocean researchers manage a large network of submerged sensors throughout the New York Harbor region, from the South Jersey shore to the eastern end of Long Island and north up the Hudson River. This Urban Ocean Observatory combines real-time and historic data with advanced understanding of ocean physics to make predictions about how tides and other cyclical ocean behaviors influence the potential impact of storms.

When it comes to calculating the effects of a coming hurricane, wind speed, size, and location of the storm are only part of the equation.

"We're also looking at lunar activity and erosion as important elements when factoring what we can expect from a storm like Irene," says Dr. Alan Blumberg, Director of CMS.

Lunar activity is expected to play a large role in influencing the storm's impact on the coast. Irene will arrive at both perigee, when the Moon's elliptical orbit brings it closest to the Earth, and the new moon, when the Moon and sun are aligned on the same side of our planet. Both the Moon's position and phase will intensify gravitational effects on the tides, causing greater tidal ranges.

Currently, Irene is modeled to travel up the New Jersey coast during during the incoming tide on Sunday. The time of passage is expected to generate significant storm surge impacts along the northern New Jersey Coast before the hurricane makes landfall in western Long Island that evening. Waves with heights over 20 feet are expected on the shelf, generating large breaks on shore and significant beach erosion. For regional beaches, this is a vastly different outlook compared to last year's Hurricane Earl, which stayed further out in the Atlantic and produced long, low waves that probably reversed erosion by pushing sand onto the shore.

On Wednesday, August 24, CMS began releasing short statements on Hurricane Irene that describes these latent conditions that can alter the effect of the storm on the region's busy and heavily populated coast.

Residents in New York and New Jersey can monitor their waterways during the storm and year-round by visiting the CMS New York Harbor Observing and Prediction System online, but Dr. Blumberg also recommends that anyone in the path of Hurricane Irene consult the National Hurricane Center for the latest information: http://www.nhc.noaa.gov/

Provided by Stevens Institute of Technology