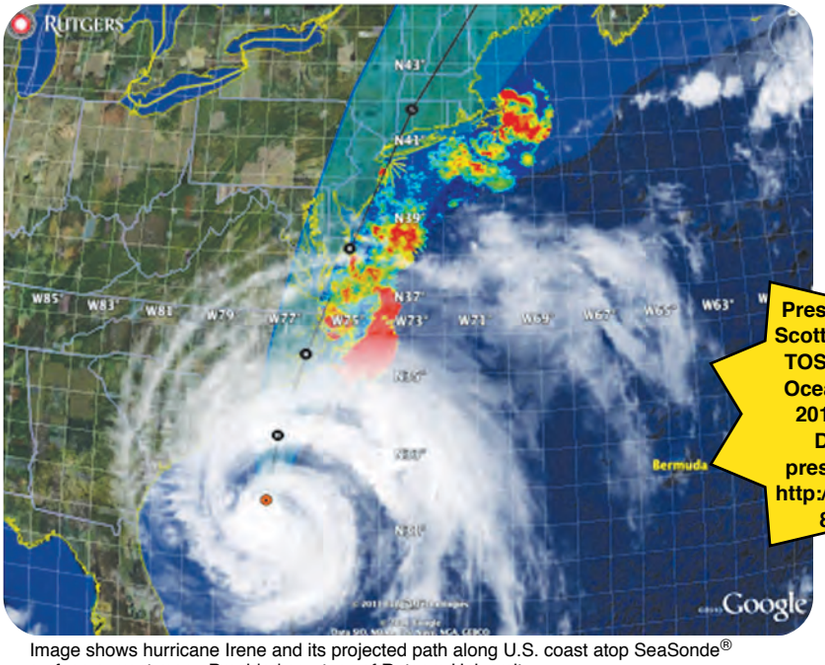
Improving Hurricane Intensity Forecasting Using Irene Case Study



Presented by Dr. Scott Glenn at the TOS/ASLO/AGU Ocean Sciences 2012 Meeting. Download presentation at: http://tinyurl.com/88m3vsu

Image shows hurricane Irene and its projected path along U.S. coast atop SeaSonde® surface current map. Provided courtesy of Rutgers University.

Hurricane Irene's visit to the U.S. east coast last August affected millions of people, breaking flood records in 26 rivers, was responsible for more than 37 deaths and causing nearly $8 billion in damages. During Irene's progression up the eastern seaboard grim forecasts were made of how the storm would evolve and impact the nation's most populous region, the mid-Atlantic bight. This was the first tropical storm to threaten New York City since 1985 and while scientists accurately predicted its track, its intensity was consistently over predicted, setting off a media panic, with speculation that Irene might retain hurricane status as it approached New York's low-lying Manhattan.

SeaSonde, Glider & Satellite Data Improve Understanding of the Forecast Deficiency

A team of scientists led by Dr. Scott Glenn of Rutgers University performed a hindcasting exercise to better understand why the forecasts were overestimating intensity. Their exercise used data collected by the Mid Atlantic Regional Association Coastal Ocean Observing System (MARACOOS) during the event, including surface current maps from a suite of SeaSondes, satellite-derived surface temperatures, and critical sub-surface temperature data gathered by two gliders. With this field data applied, hindcasting results showed forecasts had not adequately factored in the effect of the highly stratified vertical thermocline. Vertical mixing caused by the hurricane winds resulted in a rapid and significant drop in surface temperatures that quickly weakened the hurricane into a storm.