Measuring Hurricane Storm Tides in South Carolina

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Snapshot to Movie
Time-Series Water-Level Hydrographs

Storm Surge Data from Hurricane Rita - Site: La9b

Highwater mark

http://pubs.usgs.gov/fs/2006/3136/
Storm Deployments

Explanation:
- ● ● — Temporary storm surge sensor,
- ▲ — USGS real-time streamgage

Deployment Issues

- Timing
  - Storm Tracking vs. Deployment Time
  - Ideal – 3 low tide before landfall

- Data Dissemination
  - Post-event levels

- Funding
Pre-Deployed Infrastructure Network

- Threaded bracket installed and leveled
- Sensor housing attached prior to storm
Benefits: Pre-Storm

• Network design not hurriedly made during pre-storm preparations
• Installation and level worked into regular work schedule
• Website and database setup in advance
Benefits: Post-Storm

- Post-Storm
  - Ease of recovery effort
  - Quick data delivery to known datum

- Overall
  - Workload for deployment and recovery greatly reduced
  - Supplemental funding for storm typically don’t cover labor costs.
Storm tracker on beach mistaken for pipe bomb

MYRTLE BEACH — A device meant to measure Tropical Storm Ernesto’s impact caused an evacuation at Myrtle Beach’s Pier 14 restaurant and drew a crowd of onlookers Friday after it was thought to be a pipe bomb.

Myrtle Beach police were called about 10:30 a.m. by someone walking on the beach who noticed a metal box strapped to a pylon under the pier at 14th Avenue North. Myrtle Beach police Capt. David Knies said he said police checked to see whether the device was registered by some agency, but it was not.

Myrtle Beach police called the Horry County Police Department’s Explosive Ordnance Disposal team. The team decided to blow the top off the box to reveal its contents, which turned out to be a device from the U.S. Geological Survey that measures wave height and frequency and storm surge, police detective and team member Van Sissel said.

“Because of the type of equipment it was when we surveyed it, it appeared to be a pipe bomb,” Sissel said. “We did disrupt the device ... everything went very well.”

Five devices to measure the impact of Ernesto, which hit Myrtle Beach on Thursday, were placed along the Grand Strand by the U.S. Geological Survey. One of the devices was mistaken for a pipe bomb on Friday.

packages we treat it as suspicious,” Muncey said. “Since Sept. 11, 2001, we have to be a little more secure with these things. It’s always better to be safe than sorry.”

Myrtle Beach police learned use of the temporary devices, called pressure transducers, to collect tidal changes during Tropical Storm Ernesto.

About 40 of the devices, including five along the Grand Strand, were put in place Tuesday along the S.C. coast to record Ernesto’s impact, Conrad said. Officials were collecting the devices, which are housed in a pipe in a metal box and could resemble a suspicious device, on Friday. They cost about $1,000 each.

“Anytime water causes a haz-
Stimulus Proposal

- Establish a network of 100 sites along SC coast
- Contract installation and levels
- Only 5% of cost for USGS oversight
Plan B

• Incrementally build network
  • Install 8-10 brackets a year
  • In five year – network of 40-50 sites

• USACE - $27K in 2009
Site Selection: Storm Surge Map
Site Location: SCDOT Tidal-Surge Bridges
Installation

This bracket is part of the Hurricane Storm Surge Network of the U.S. Geological Survey (USGS). In the event of an approaching hurricane in this area, a water-level sensor in a pipe housing will be attached to the bracket to record the water level at this location.

For additional information, please contact the USGS South Carolina Water Science Center in Columbia, SC. 803 750-6100
Installation
Waties Island
2009 – 12 Sites
2010 – 10 Sites
2011 – 9 Sites
Network and SLOSH Output
Other Observations

- Real-time Network
- Augment Fixed Networks
  - Rapid Deployment Gages
  - Temporary Deployed Sensors
Real-time Coastal Network

40 tidally affected sites
Fixed Networks

31 Fixed sensor sites
40 Continuous real-time sites
Rapid Deployment Gage
Summary

• Positive response to the storm tide network
• Easily work in installations over the summer
• Gives good options for pre-storm planning
• 10-14 more sites in FY12
Questions?

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