



Monitoring Inland Storm Tide and Flooding from Hurricane Irene along the Atlantic Coast of the United States, August 2011

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Into the unknown...

- Nat'l Plan for DIAP: Weather and Water
- Irene
 - Timeline
 - Statistics
 - Collaboration
 - Results
 - Map Viewer
- What's next?

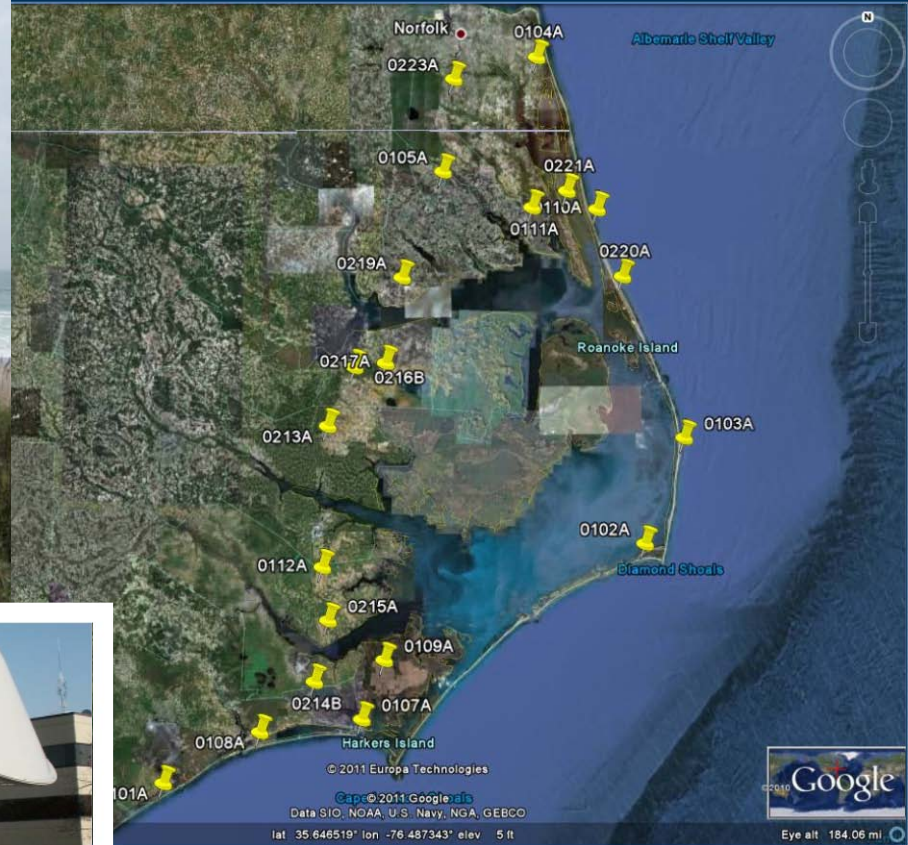


National Plan for Disaster Impact Assessments: Weather and Water Data



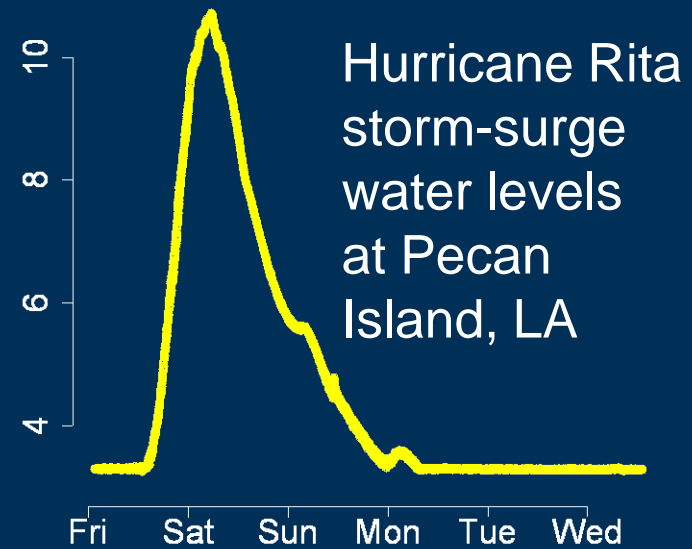
<http://www.ofcm.gov/p33-npdia/fcm-p33.htm>

Near-field Hurricane Wind Data

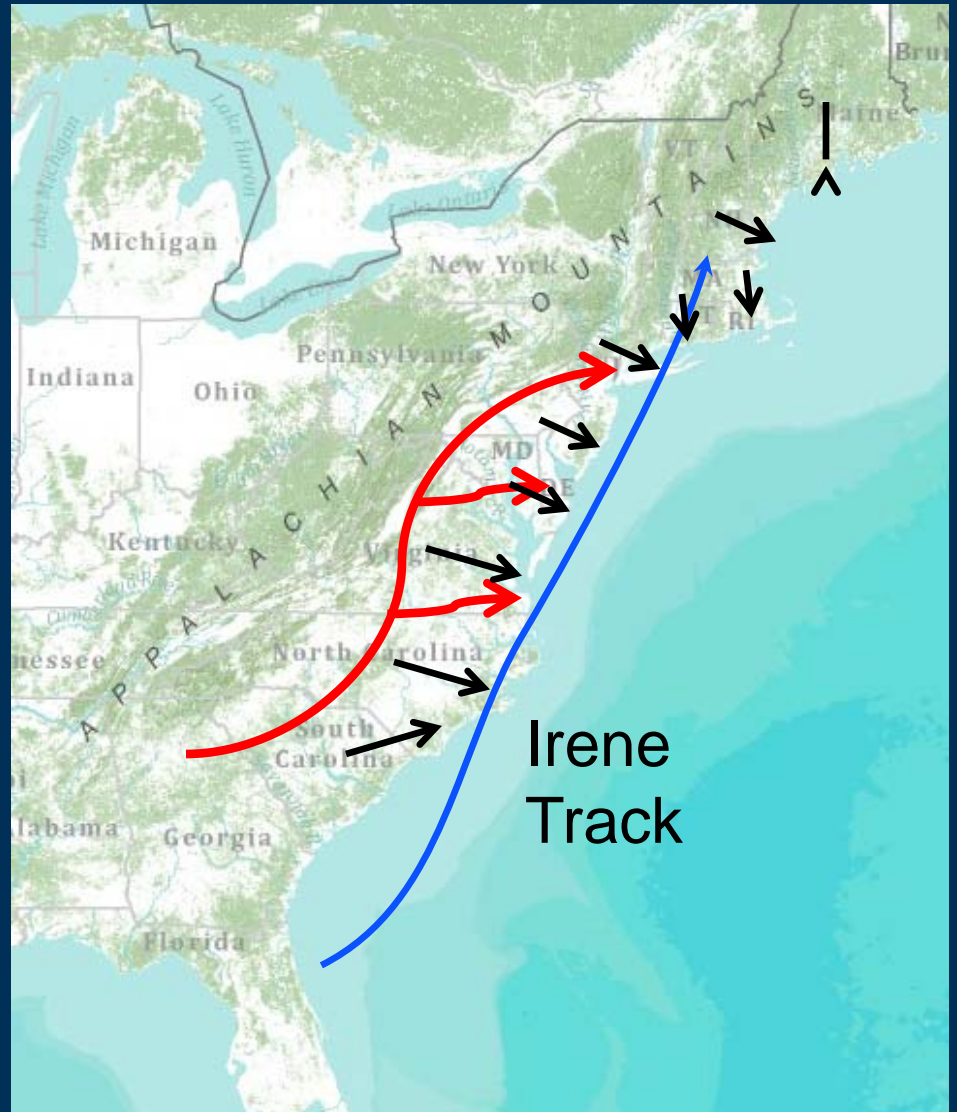


USGS Storm-Tide Deployment

- 3 equipment caches plus that of others
- USGS SOP
- USGS, FEMA, USACE



Irene—Timeline



Irene—Timeline

Saturday, August 27th

Beaufort, NC

11:00 am ET

85 mph winds

Cat 1

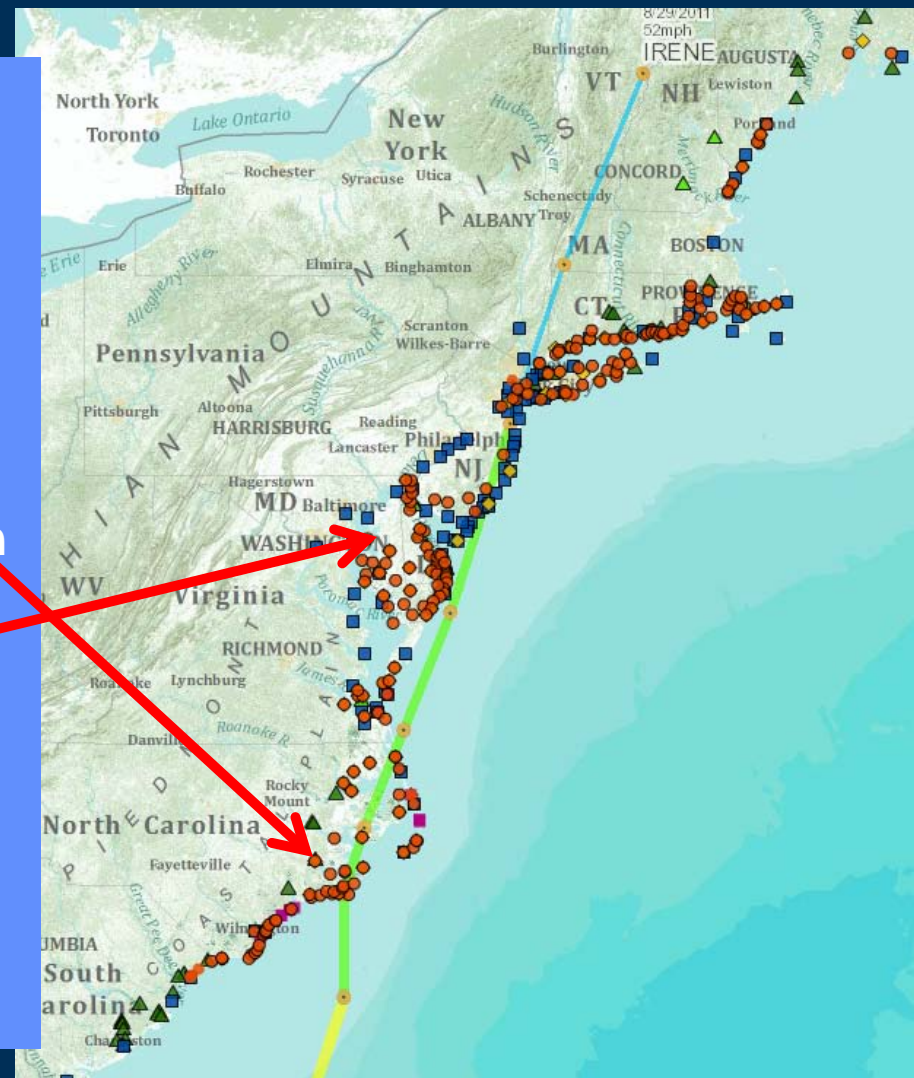
Second landfall, Aug. 28th

Atlantic City, NJ

5:00 am ET

75 mph winds

Cat 1



Irene—Timeline

Thursday, September 1st

- Surveying crews deploy to North Carolina
- Tested new RTN-GPS equipment
- 1 cm accuracy in 6 mins

Tuesday, October 4th

- Start of WSC QA/QC

Friday, October 14th

- WSC QA/QC completed

Tuesday, October 25th

- Administrative report delivered

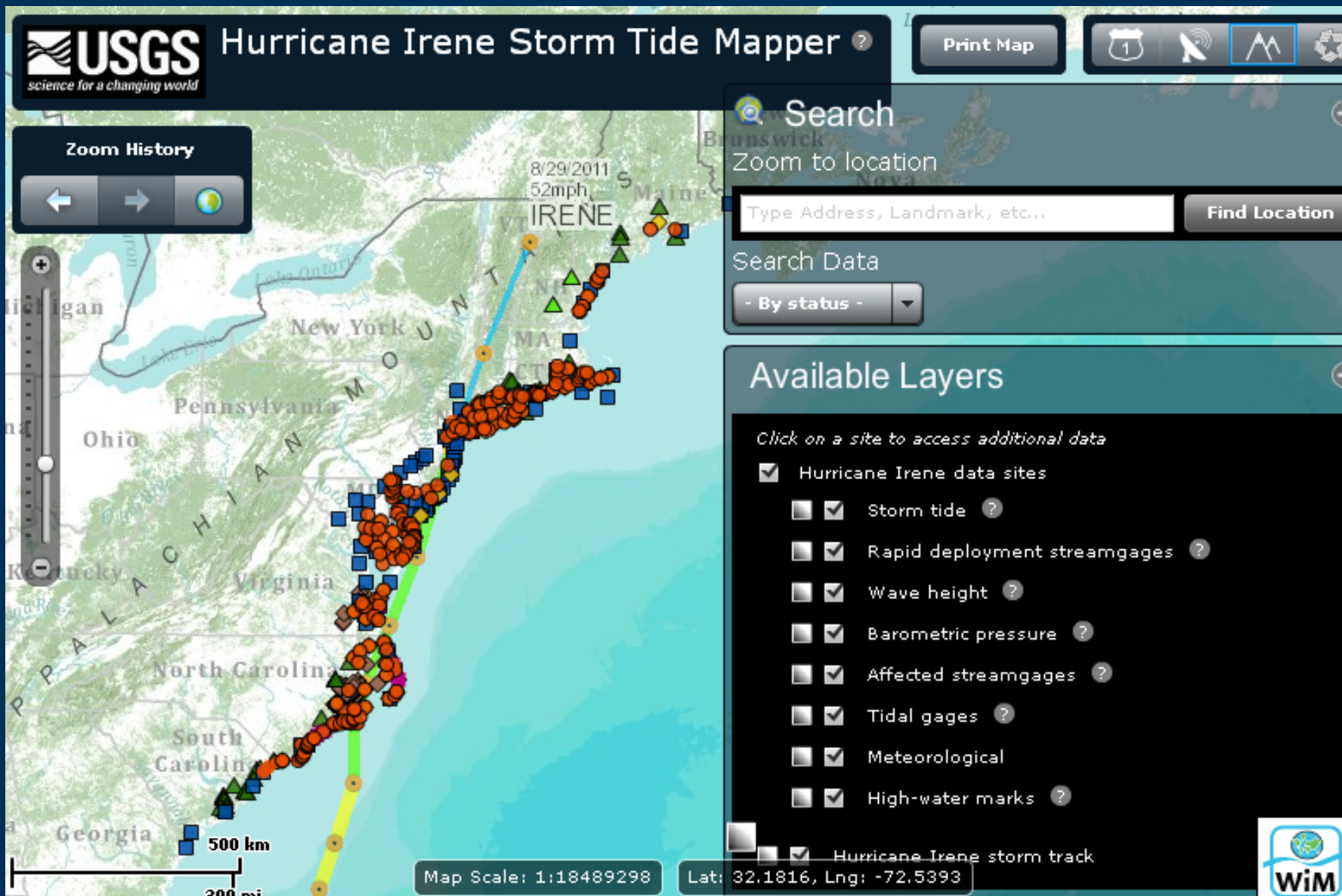


Irene—Statistics

- Largest scale deployment ever
- 10 local USGS offices directly involved
- Involves 2 SSS “centers”
- 287 sensors deployed
- 134 separate HWMs surveyed
- A coordination challenge!

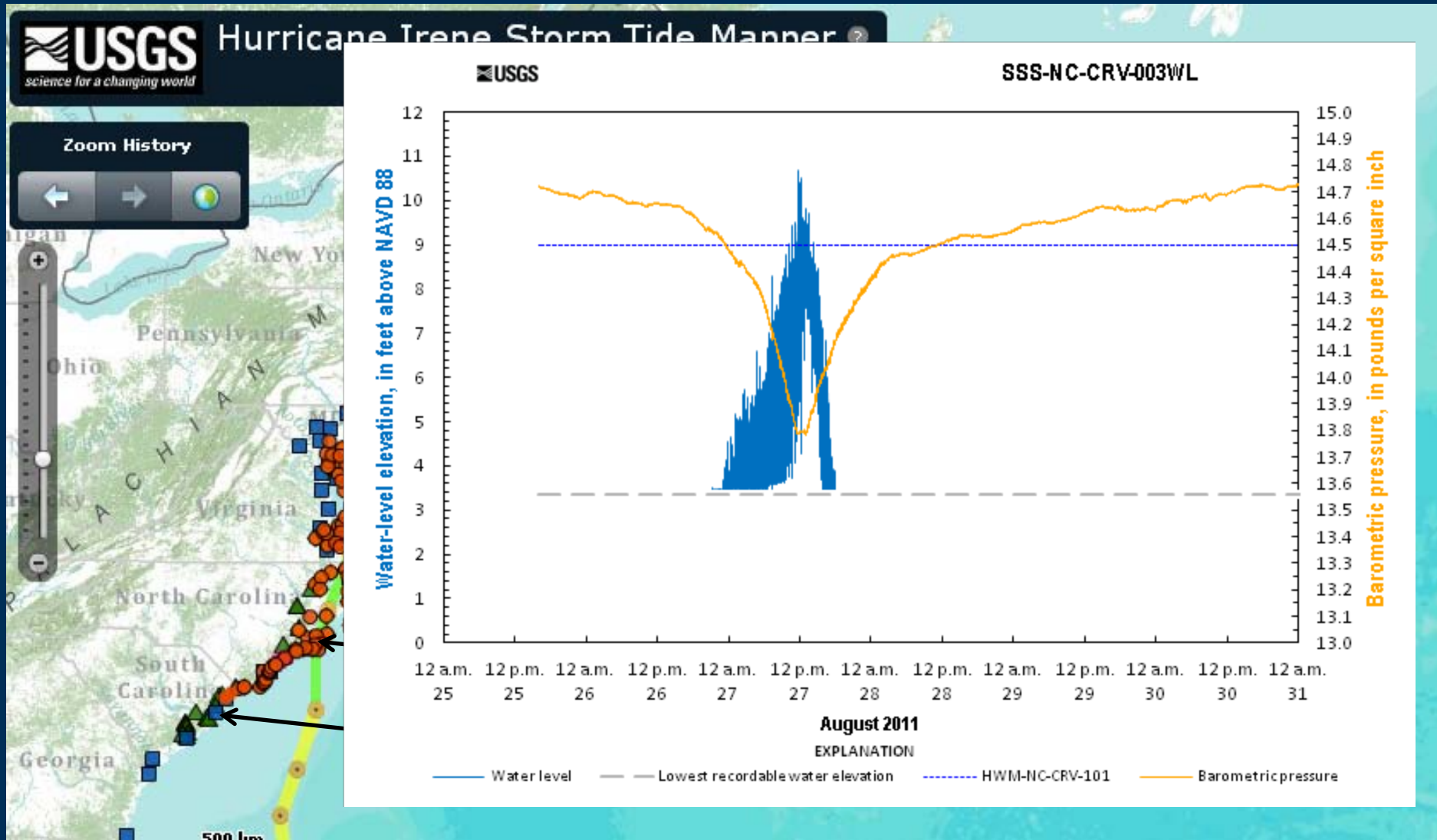
State	Type and number of sensors deployed			
	Storm tide	Wave height	Real-time rapid deployment gages	Barometric pressure
South Carolina	4	0	0	0
North Carolina	42	0	1	19
Virginia	11	2	1	9
Maryland	25	0	0	9
Delaware	27	0	2	6
New Jersey	7	0	0	3
New York	25	0	1	10
Connecticut	21	0	0	6
Rhode Island	16	0	0	4
Massachusetts	14	0	0	5
New Hampshire	4	0	2	1
Maine	7	0	0	3
Total	203	2	7	75

Irene—Viewer



<http://wim.usgs.gov/stormtidemapper/stormtidemapper.html#>

Irene—Results



What's next...?

- Continue and expand use of web viewer
- Provide data as processed
 - “Relative” water levels
 - “Adjusted” water levels
 - “Final” water levels (to datum)
- Enhance and extend real-time capability
- Better integrate water level and wind data
- Seek opportunities for observations of near-field water and winds effects on structures
- Solidify funding

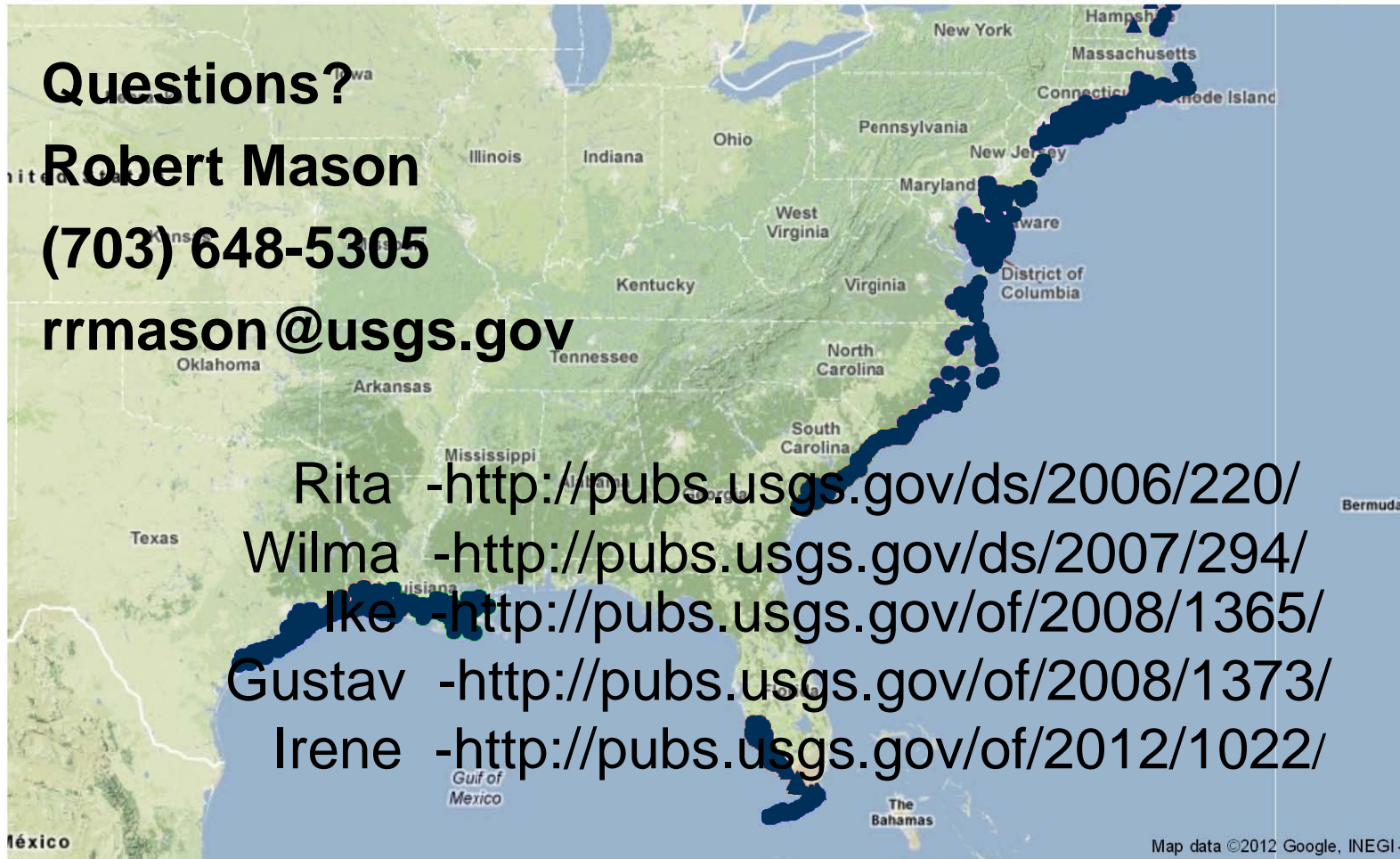
Hurricane Storm-Tide Network Coverages

Questions?

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Explanation							
●▲	●▲	●▲	●▲	●▲	●▲	●▲	●▲
Rita(2005)	Wilma(2005)	Ernesto(2006)	Gustav(2008)	Hanna(2008)	Ike(2008)	Earl(2010)	Irene(2011)
● -- Temporary storm tide sensor, ▲ -- USGS real-time streamgage							22