

Hurricane Sandy

Theme 5 - Ecosystems

{ Documenting and modeling biological response to hurricanes



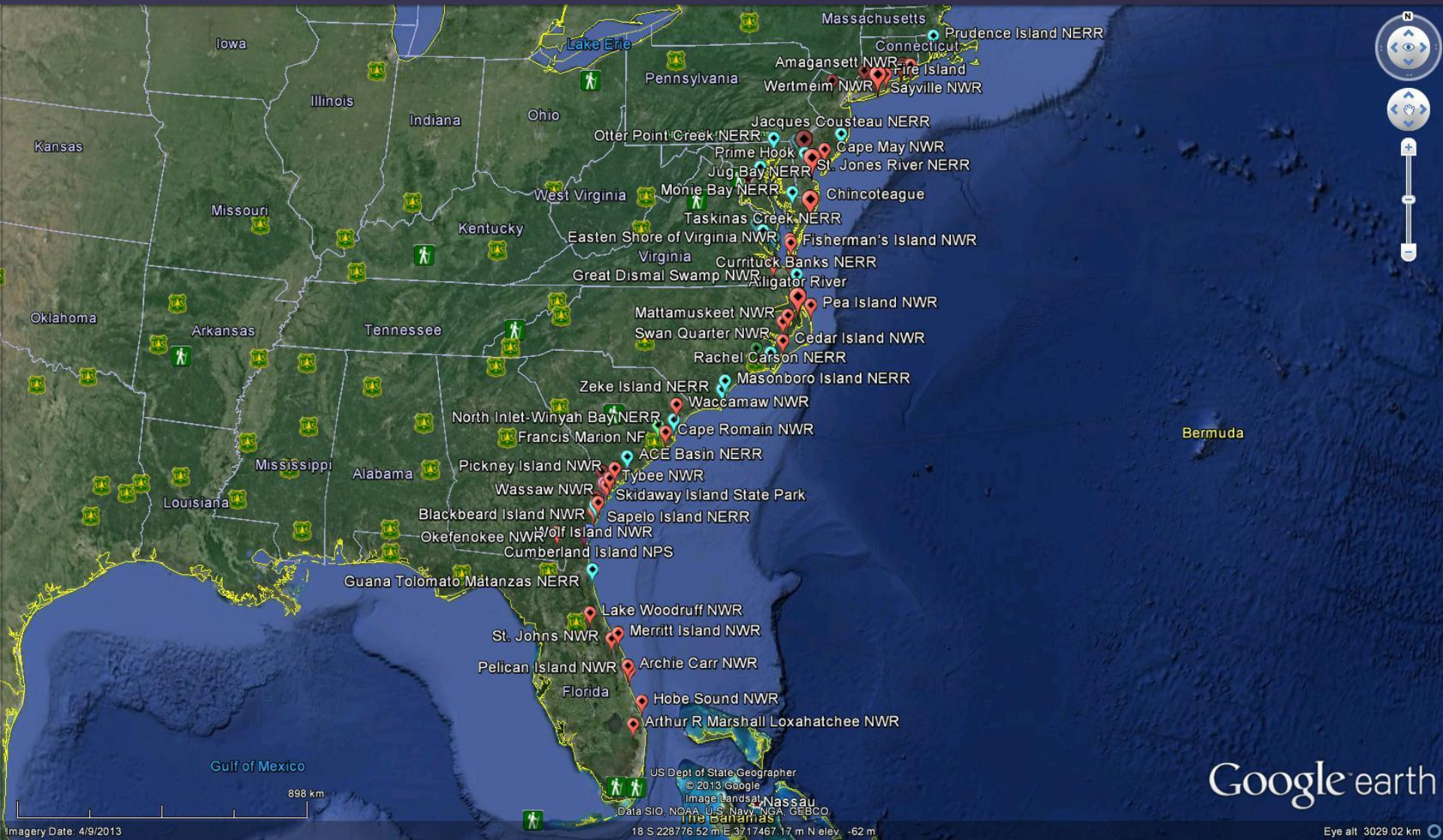
Matthew Andersen
mandersen@usgs.gov

Biological Resources Focus

- Coastal marshes
 - In situ studies
 - Remote sensing
- Coastal forests
- Modeling habitat response
- Diverse bird species
- Model and data delivery

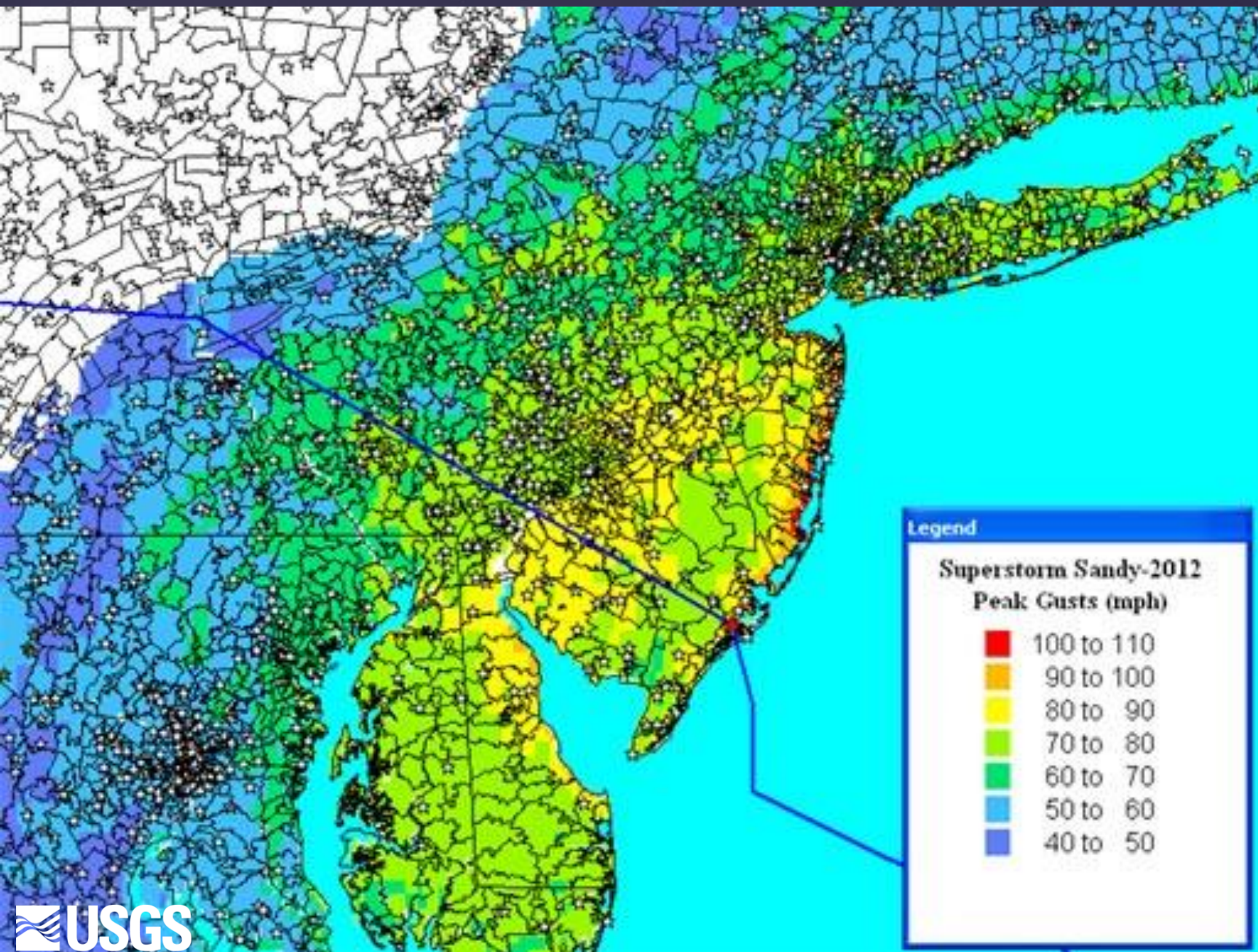


GS1-5C - Coastal Forests of Atlantic Coast DOI Parks & Refuges



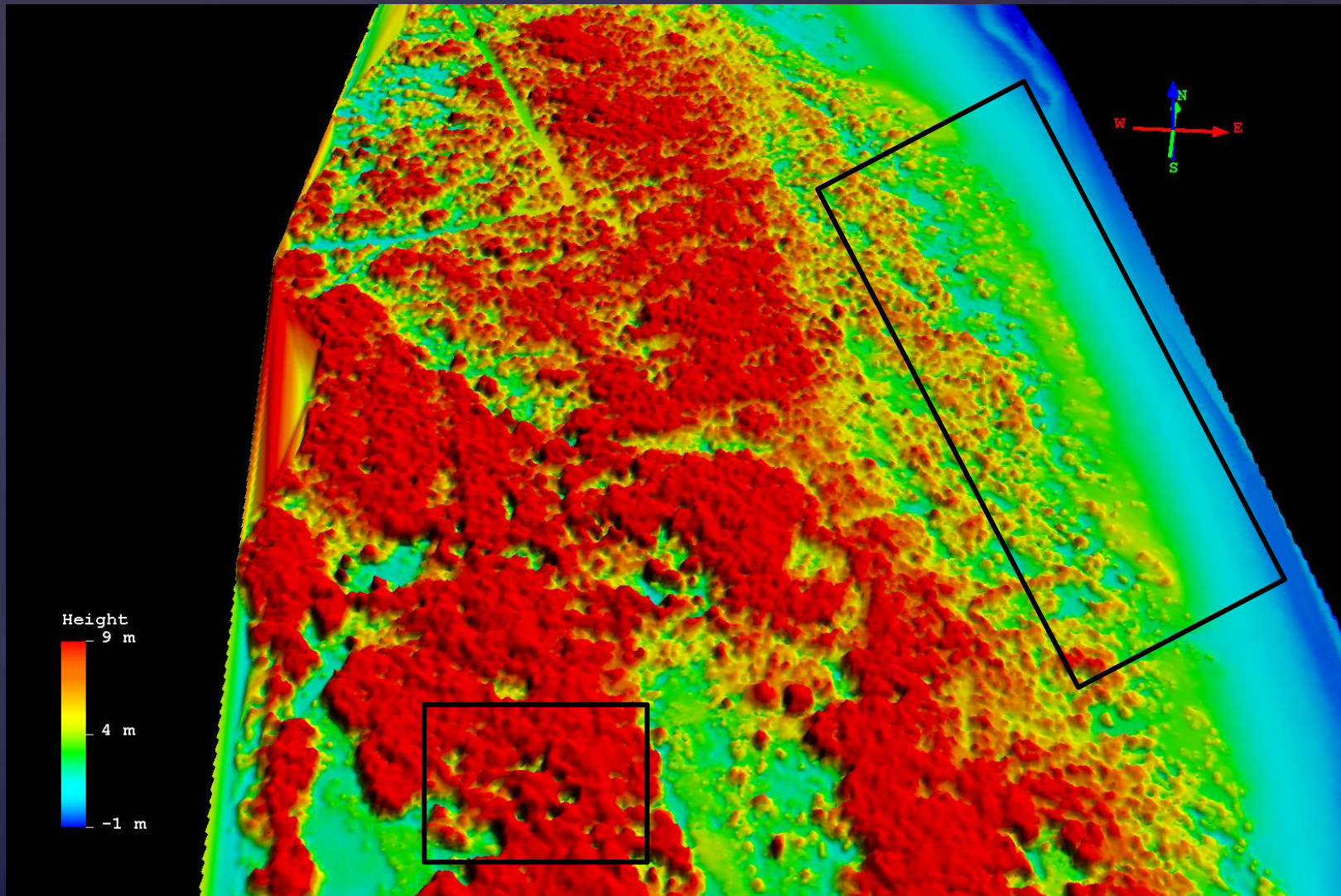
Thomas W. Doyle

GS1-5C - Coastal Forest



LiDAR-based Canopy Change Analysis

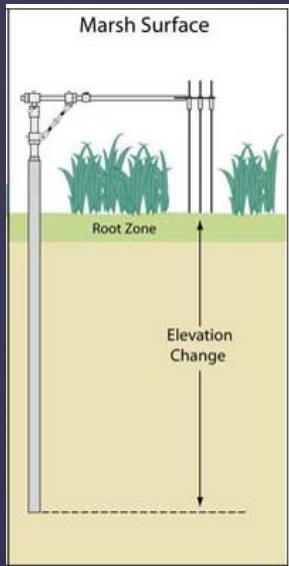
Sandy Hook, NJ (Gateway NRA)



John Young, Cindy Thatcher, Jeff Danielson, et al..

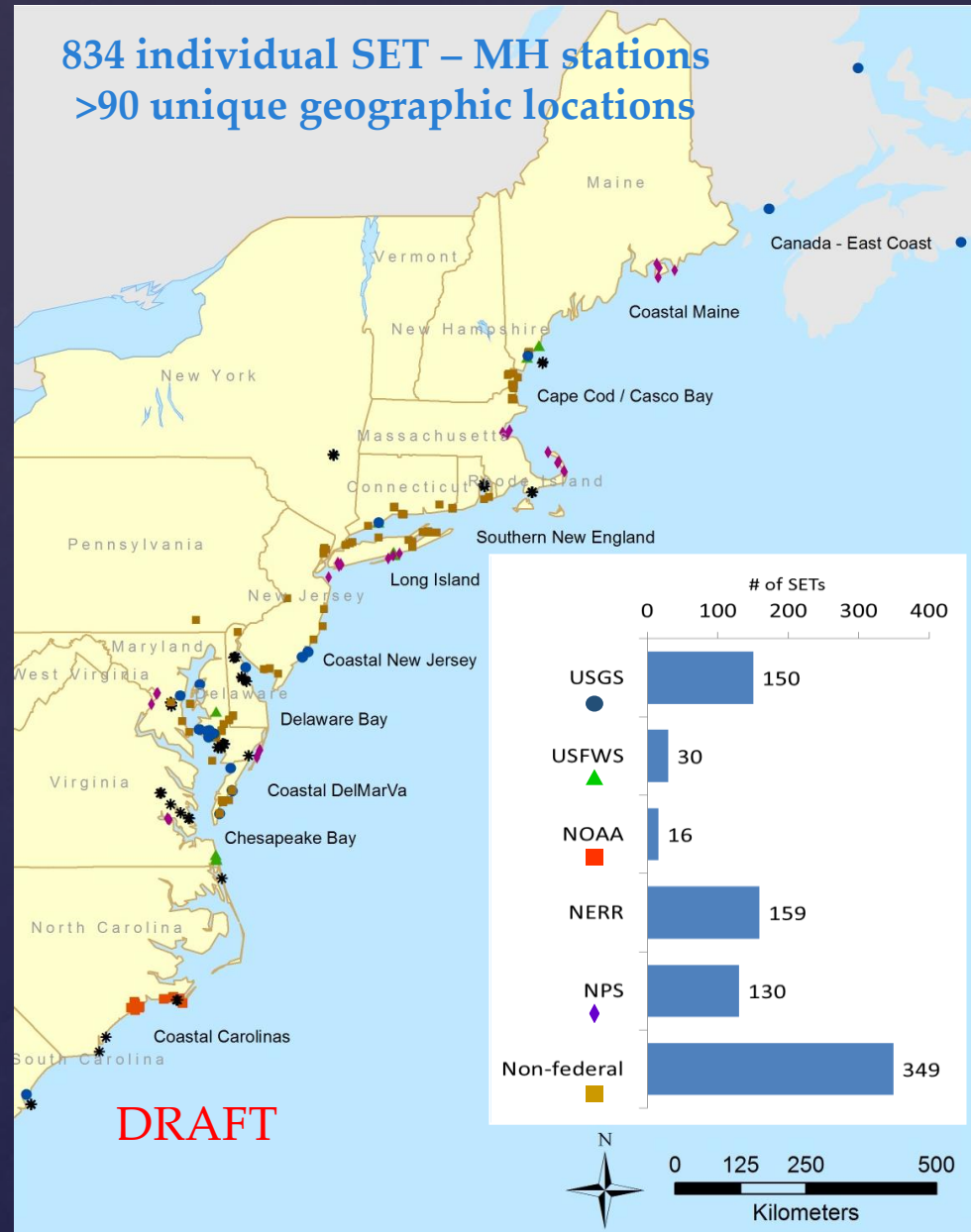
In situ studies: Marsh degradation and accretion

Surface Elevation Table



*Don Cahoon, Glenn Gunterspergen,
James Grace, Camille Stagg*

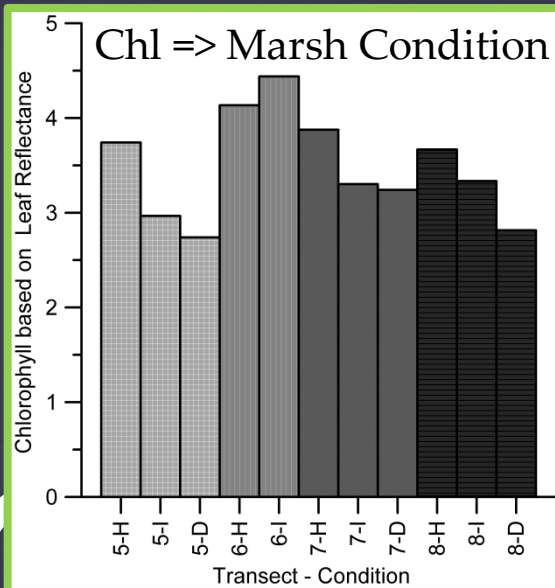
Natural Resources
Research Institute
UNIVERSITY OF MINNESOTA DULUTH
Driven to Discover



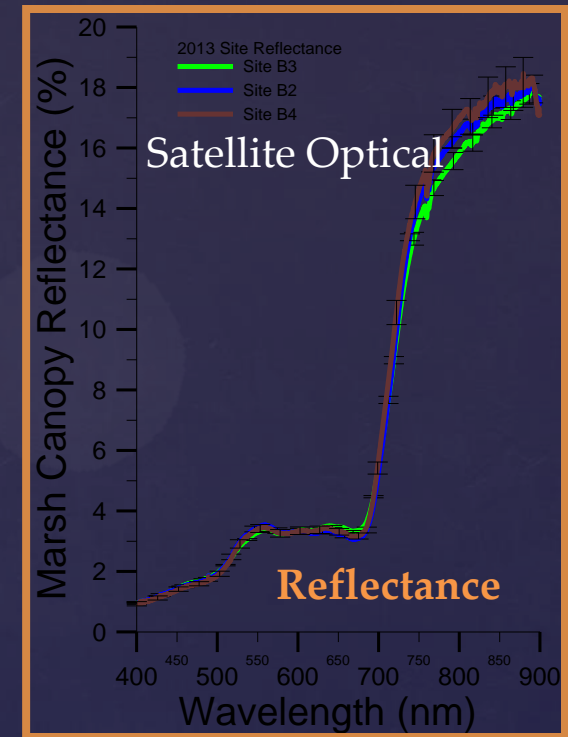
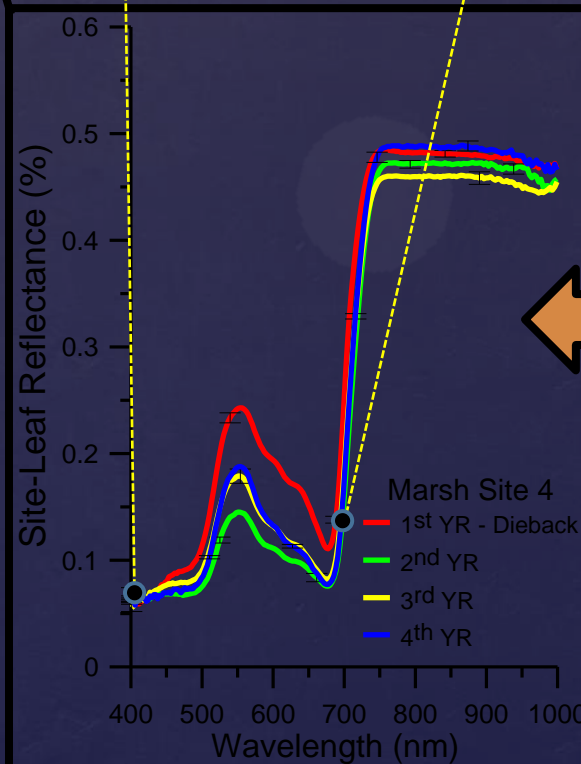
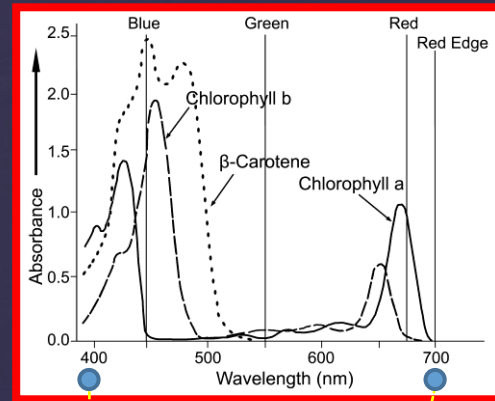
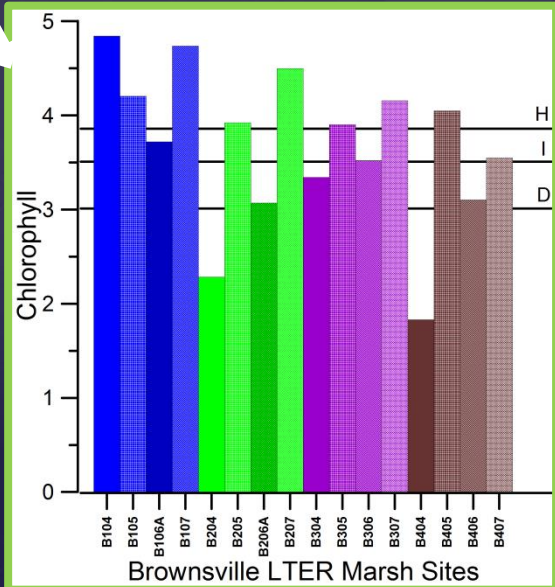
Advancement of Remote Sensing Indicators of the Vegetation Condition

Elijah Ramsey, Amina Rangoonwala, et al.

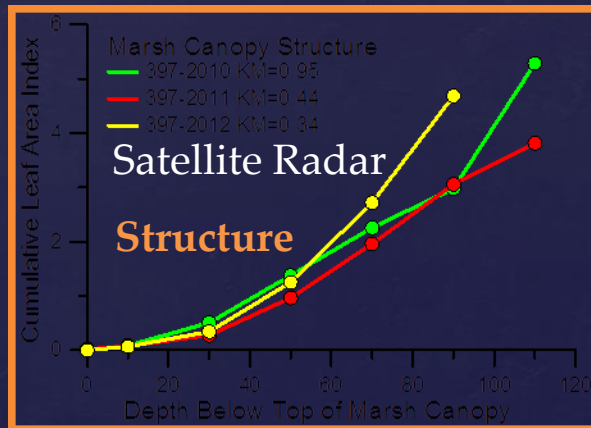
Calibration Sites



Spectral Sites



Reflectance & 3d Structure



Radar Remote Sensing Change Detection

Long Island - Jamaica Bay Area

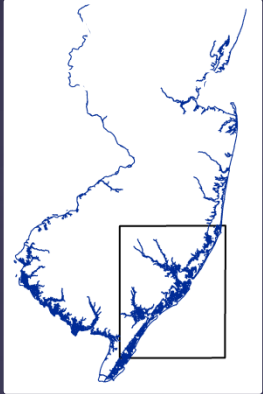
COSMO-SkyMed **preSandy** 08/30/11 06:04

COSMO-SkyMed **postSandy** 10/30/12 06:39

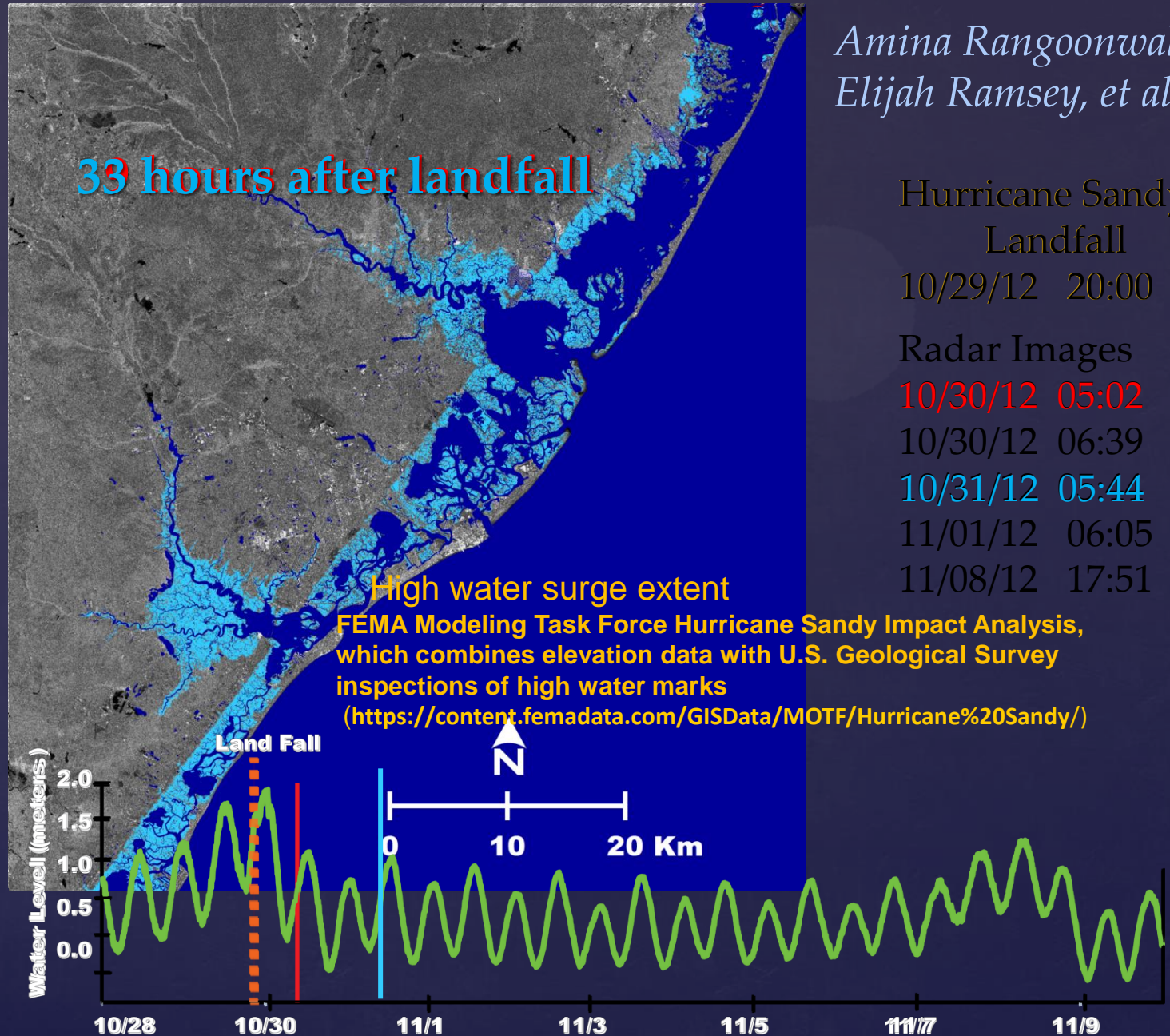


Elijah Ramsey, Amina Rangoonwala, et al.

Hurricane Sandy Surge Extent Mapping



*Amina Rangoonwala,
Elijah Ramsey, et al.*



Optical satellite data – marsh condition mapping

Amina Rangoonwala, Elijah Ramsey, et al.

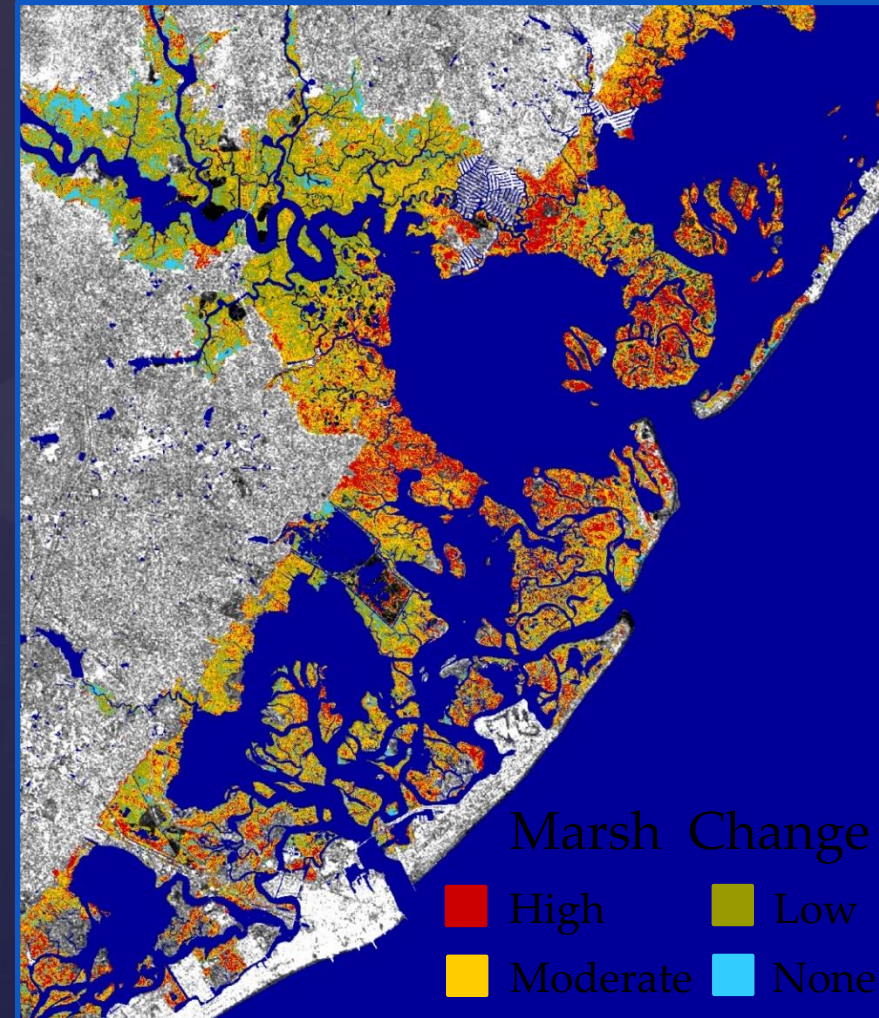
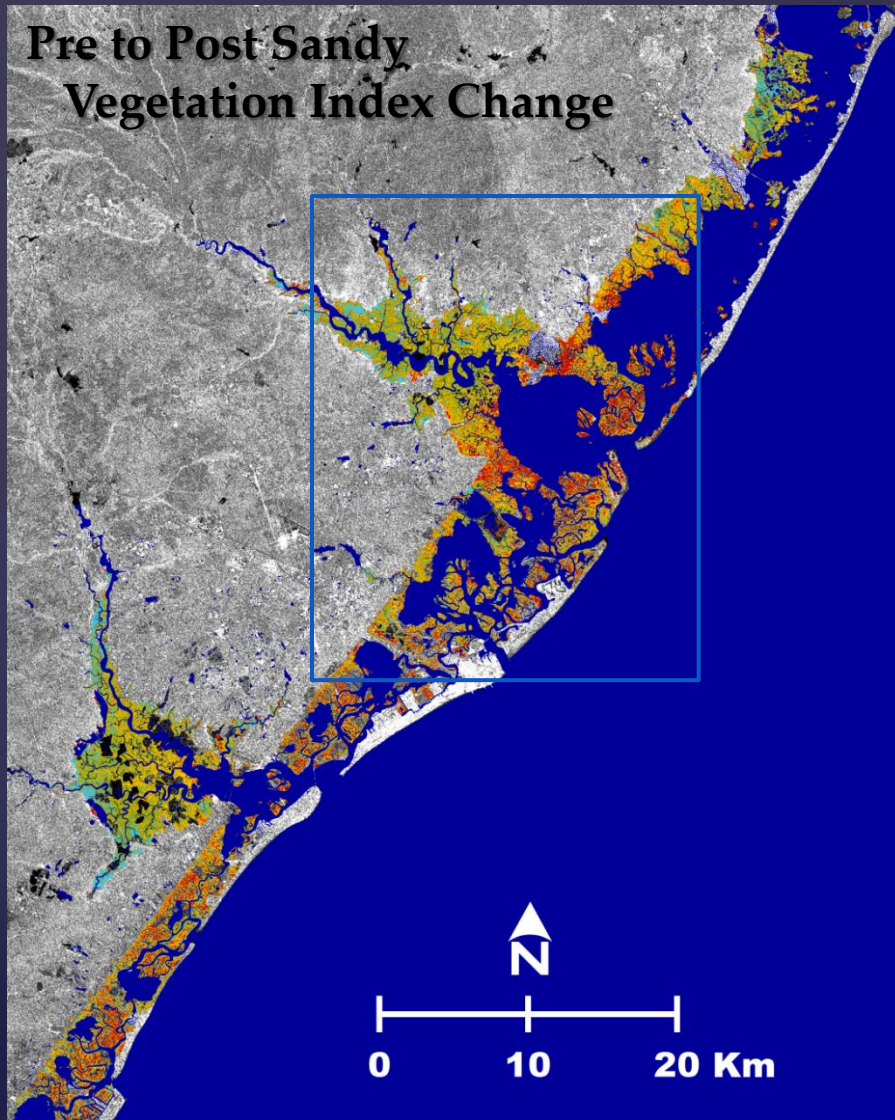
SPOT Images

Pre 10/13/2012

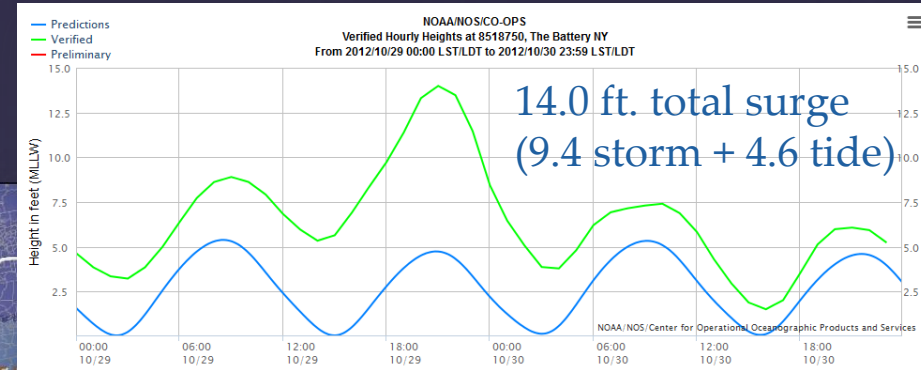
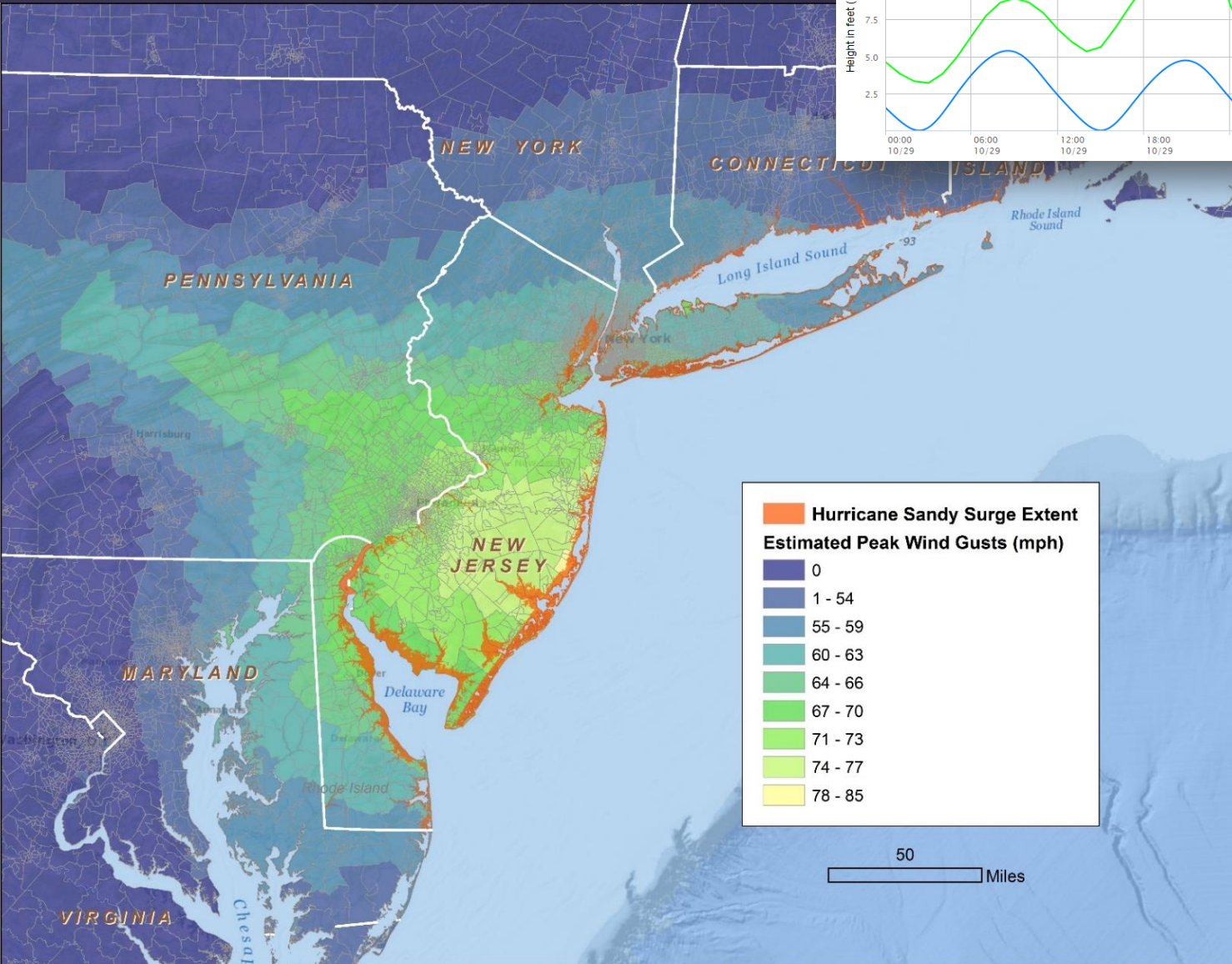
Post Sandy

12/30/2012

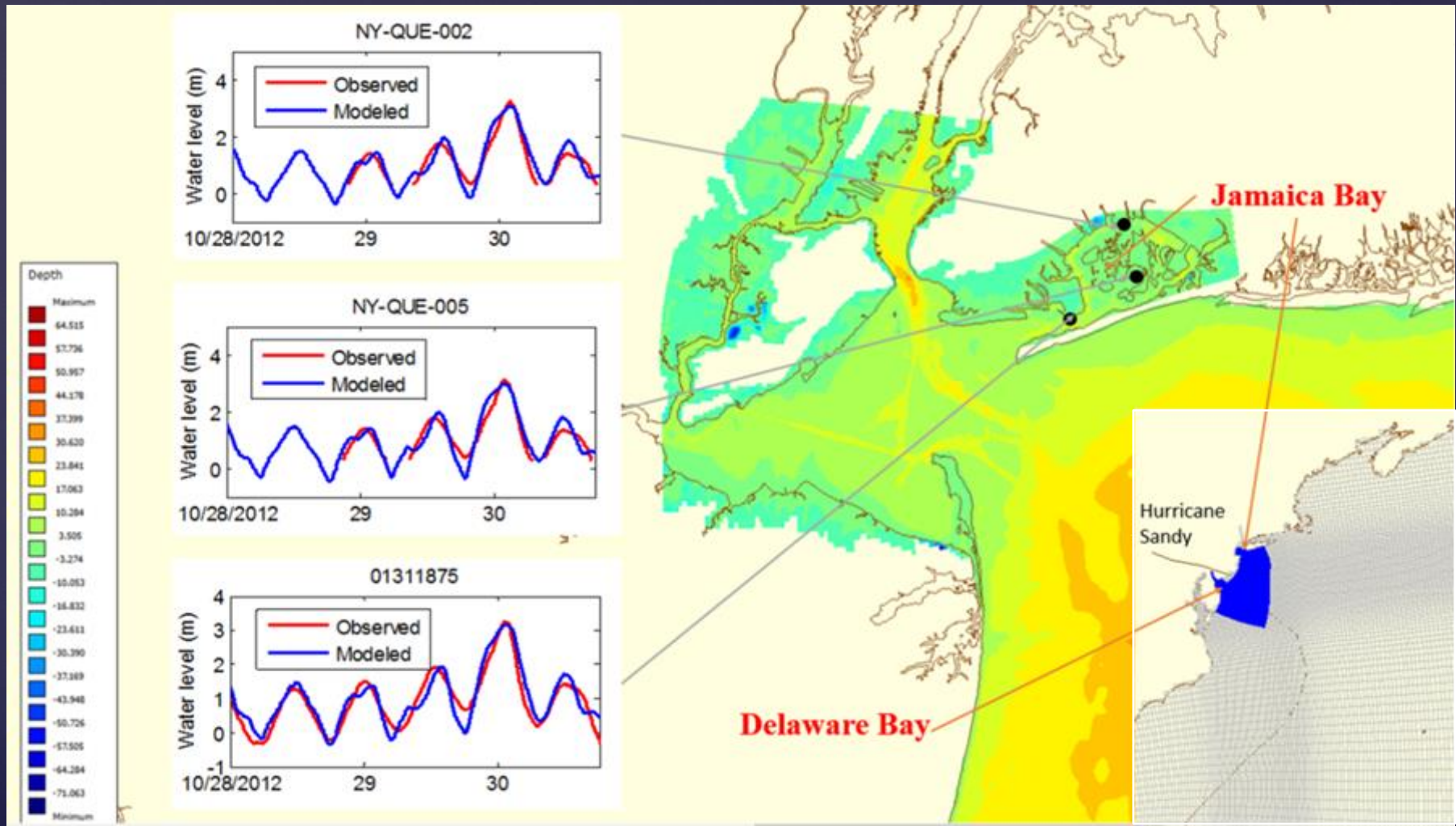
Pre to Post Sandy
Vegetation Index Change



Wind and Storm Surge

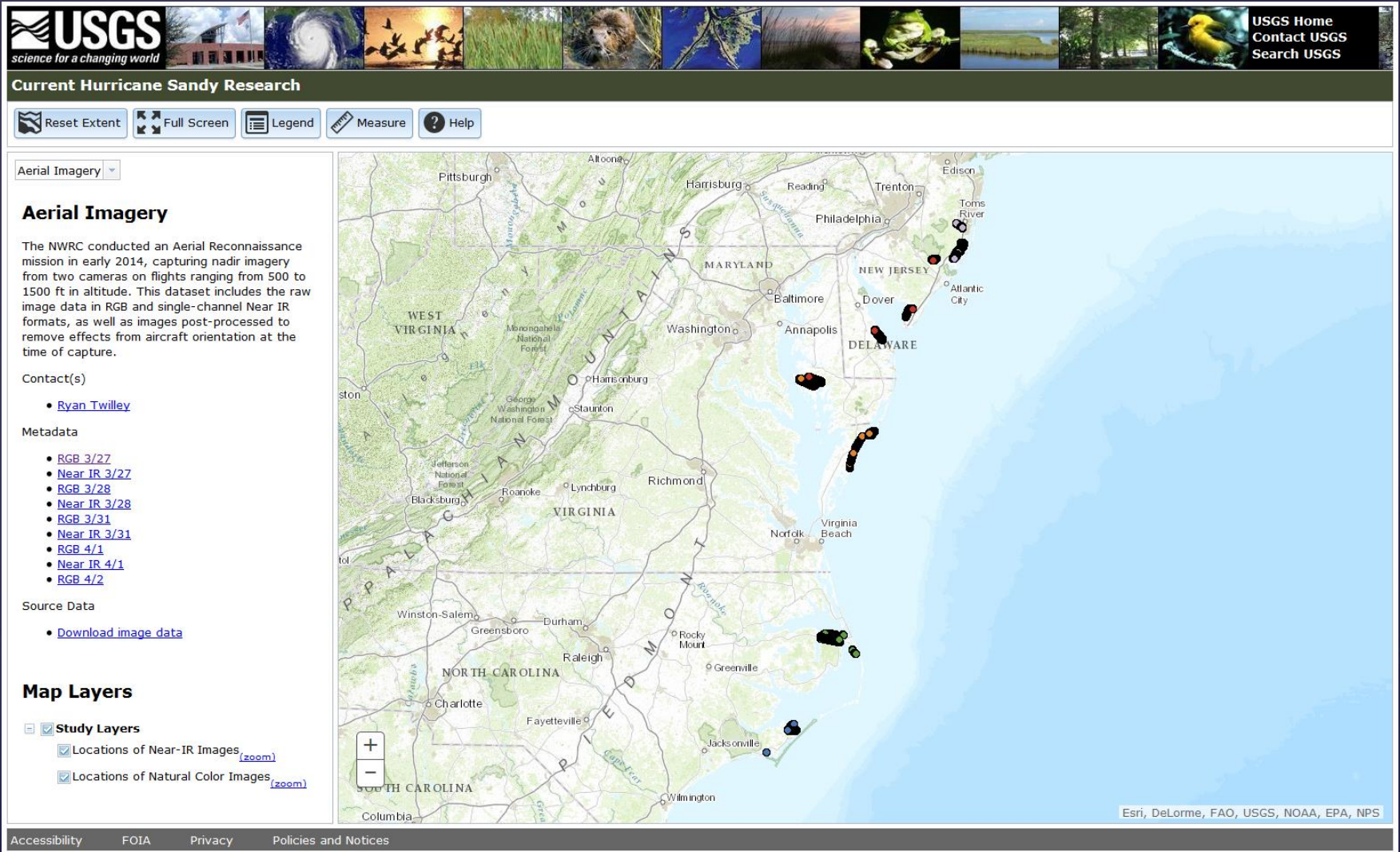


Modeling of Wind, Waves and Storm Surge Induced by Hurricane Sandy (Delft3D)



Hongqing Wang, et al.

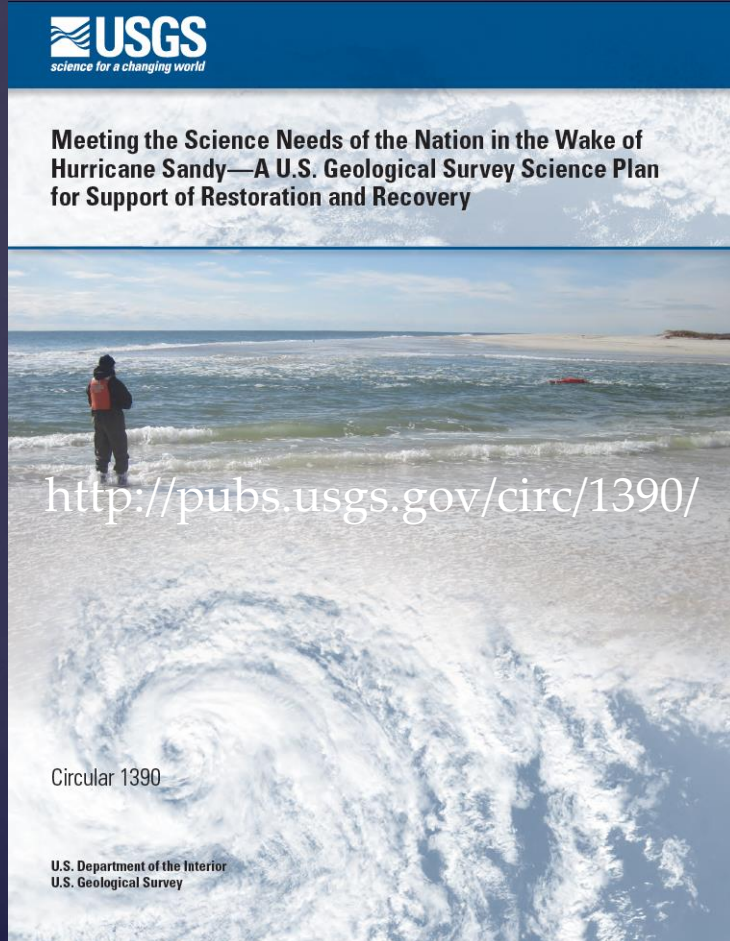
Data Visualization



Stephanie Romanach, Craig Conzelmann, et al.

Coordinated USGS Response:

<http://www.usgs.gov/hurricane/sandy/>



- Theme 1: Coastal topography and bathymetry.
- Theme 2: Impacts to coastal beaches and barriers.
- Theme 3: Impacts of storm surge and estuarine and bay hydrology.
- Theme 4: Impacts on environmental quality and persisting contaminant exposures.
- Theme 5: Impacts to coastal ecosystems, habitats, and fish and wildlife.

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