

Improvements to the SLOSH Model

Amy T. Fritz*, Arthur Taylor,
Bobby Louangsaysongkham,
Huiqing Liu, Ryan Schuster, and
Dongming Yang

MDL/NWS/NOAA

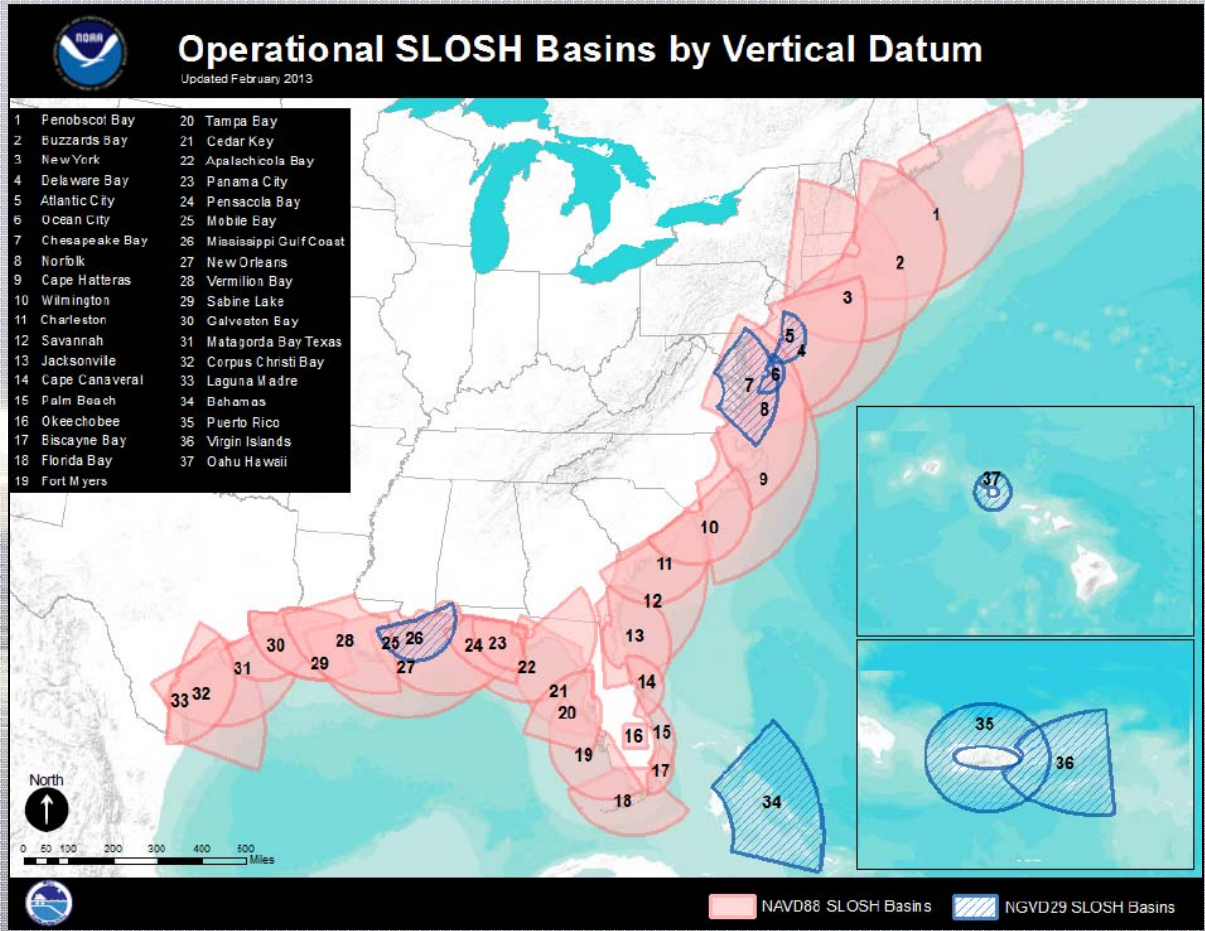




SLOSH Improvements: Introduction

Sea Lake and Overland Surges from Hurricanes (SLOSH) Model

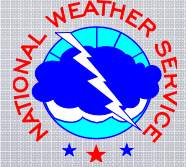
- The basis for NWS tropical and extra-tropical storm surge guidance
- Finite differencing model developed by MDL
- Numerous grid domains (basins) with sub-grid cell features to model barriers (such as levees or roadways) and waterways
- Large extra-tropical basins
- Simple parametric wind model driven by storm track, radius of max winds, and pressure difference
- Did not include waves, river flow, or tides...



Further info: <http://slosh.nws.noaa.gov/sloshPub>



SLOSH Improvements: Model Upgrades

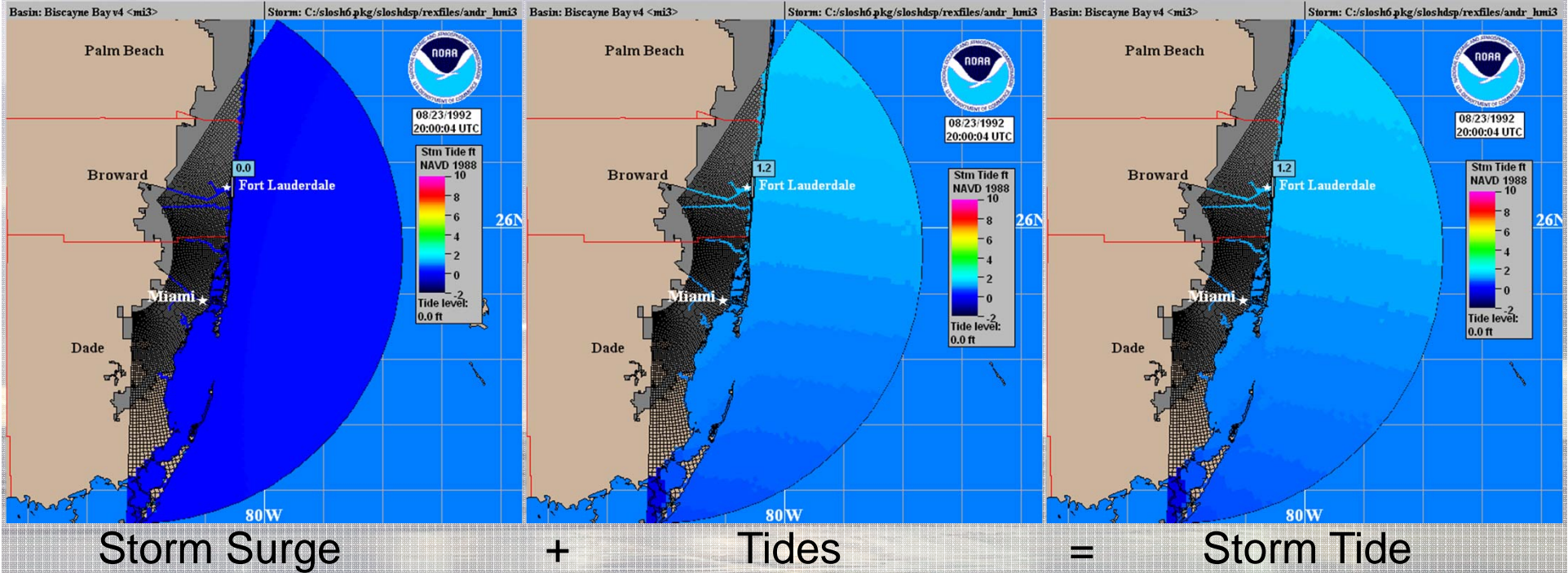
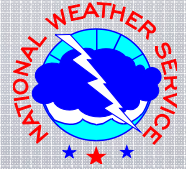


Improving the SLOSH Model

- Tides
- Basins
- Gridded wind forcing
- Nesting Grids



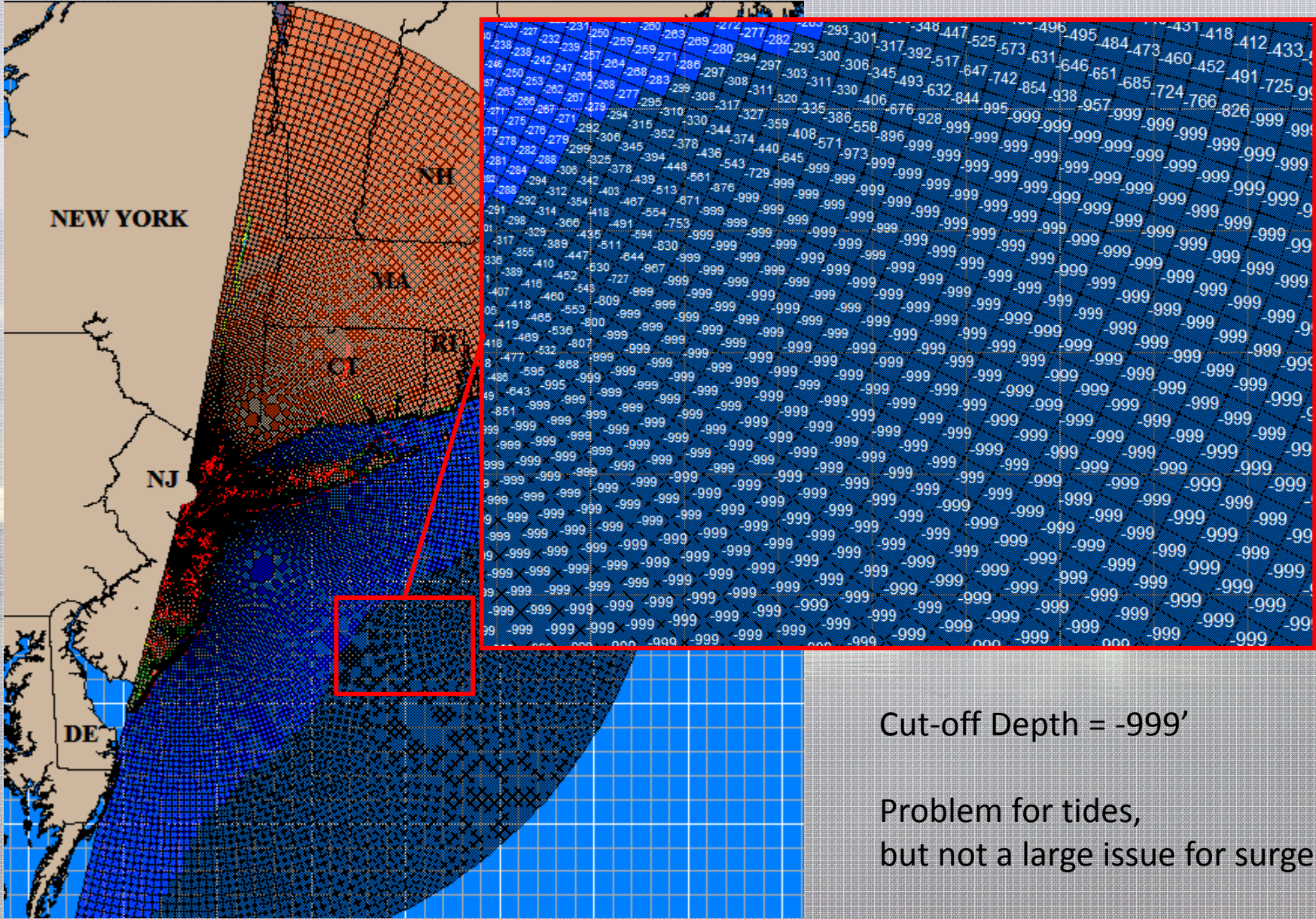
SLOSH Improvements: Tides



Animation Time step = 10 min



SLOSH Improvements: Basins

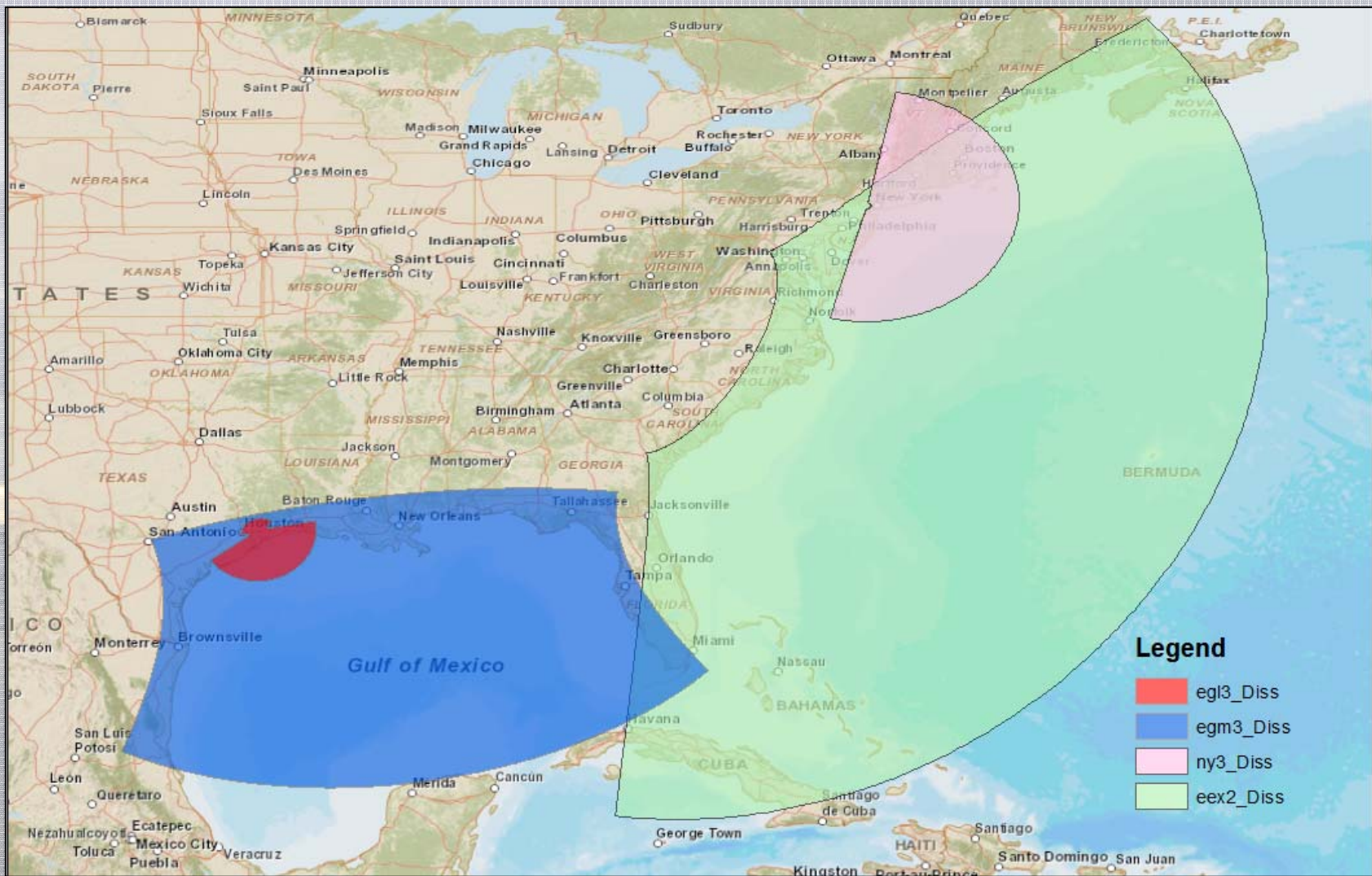


Cut-off Depth = -999'

Problem for tides,
but not a large issue for surge

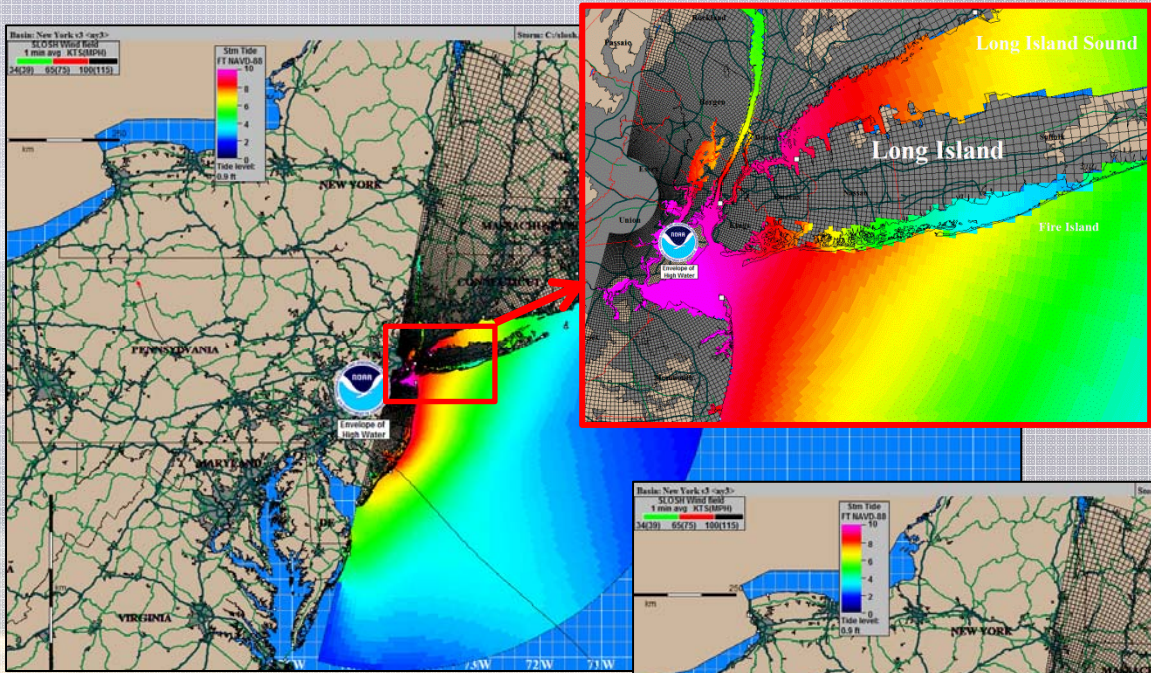


SLOSH Improvements: Nesting Grids



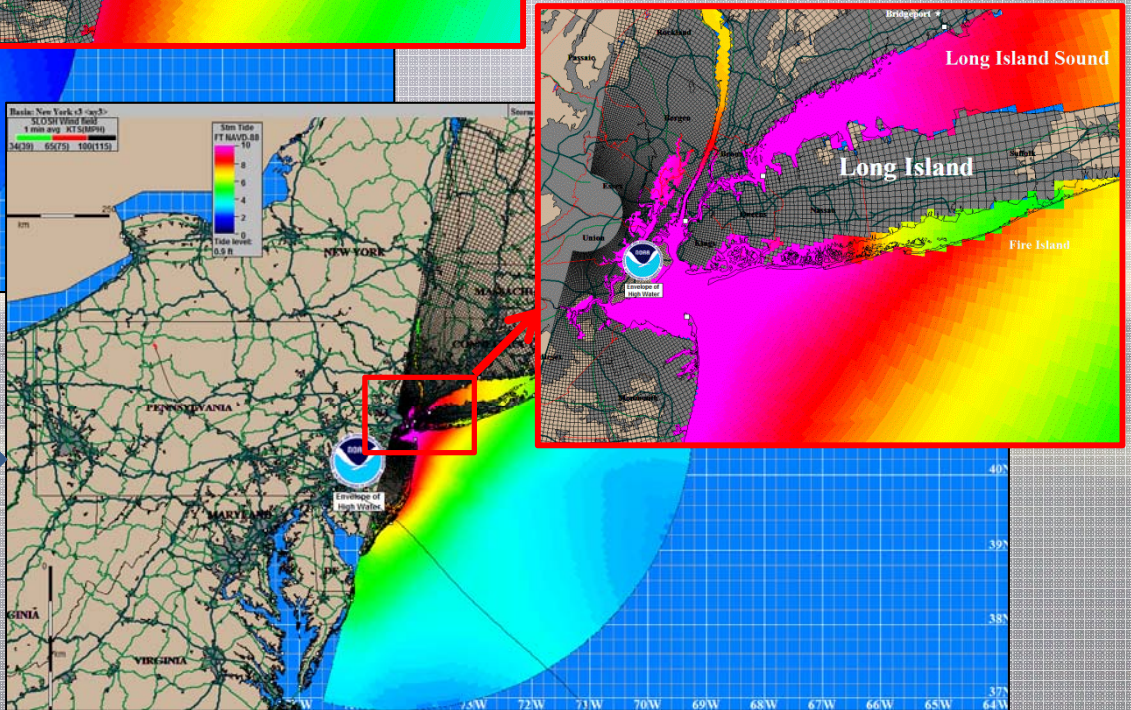
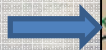


SLOSH Improvements: Nesting Grids



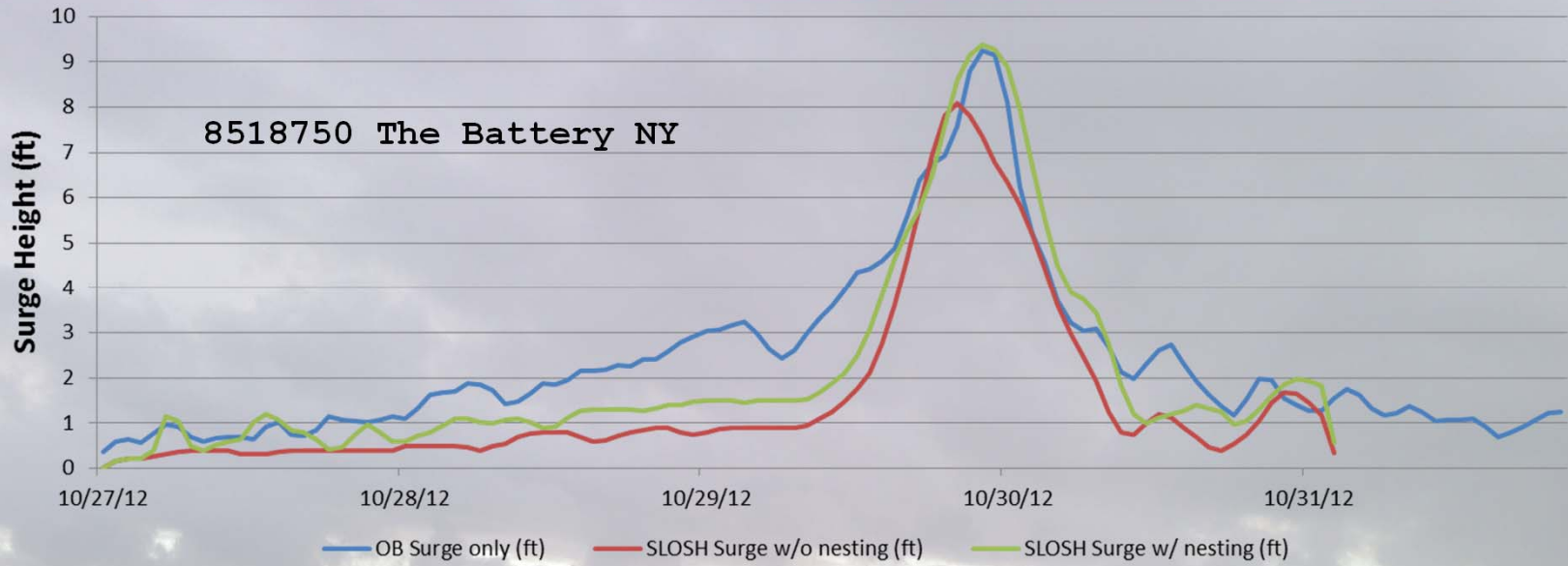
Sandy caused Maximum Storm Surge without nesting

Sandy caused Maximum Storm Surge with nesting



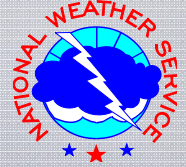


SLOSH Improvements: Nesting Grids





SLOSH Improvements: P-Surge Guidance



Enhancing P-Surge Guidance

(for 2014)

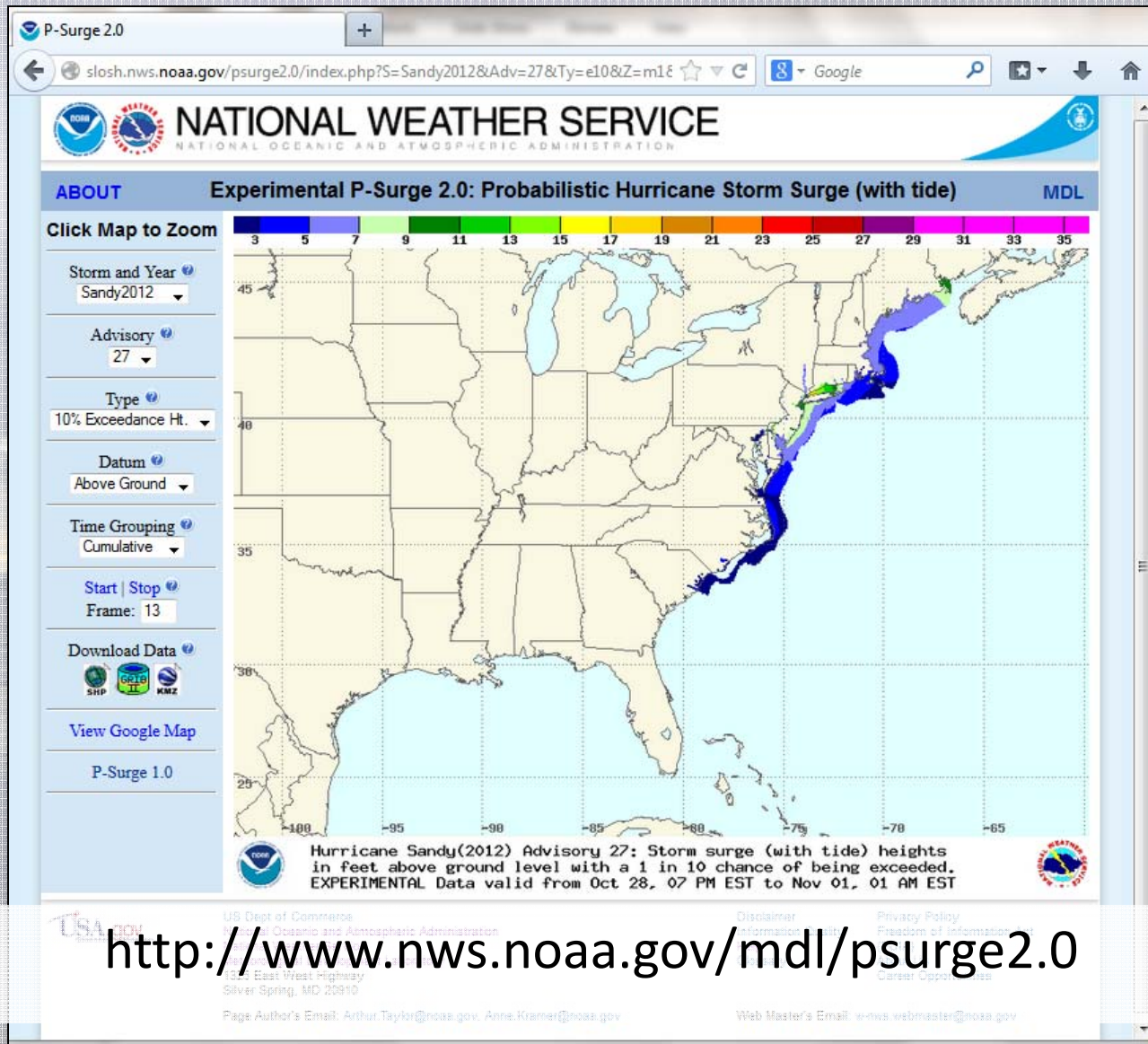
- Adding tides, newer basins, AGL and other datums
- Increase temporal resolution

(for 2015 and beyond)

- Increase lead time
- Add guidance for tropical storms (not just hurricanes)
- Ability to handle two storms



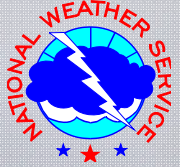
SLOSH Improvements: P-Surge Guidance



<http://www.nws.noaa.gov/mdl/psurge2.0>



SLOSH Improvements: ETSS Improvements



Overhauling Extra-tropical Storm Surge (ETSS) Guidance

- Wind forcing with finer resolution
- Better data dissemination (finer gridded output (2.5km), more stations, better display capability)
- Improving guidance for Alaska
- Overland inundation with tides
- Making progress toward probabilistic ETSS guidance




SLOSH Improvements: ETSS Improvements



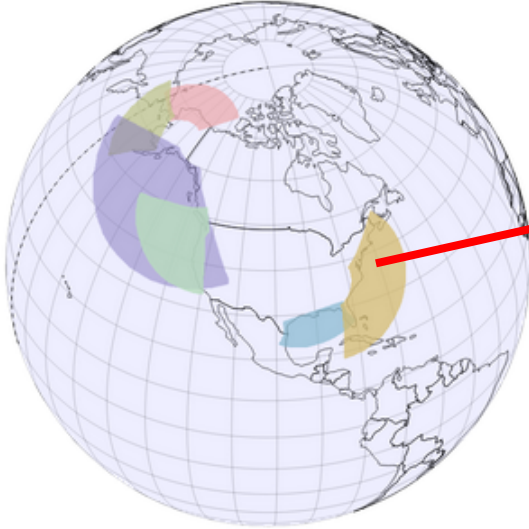
EXTRA-TROPICAL STORM SURGE
NOAA NATIONAL WEATHER SERVICE

HOME ORGANIZATIONS ABOUT USEFUL LINKS



Storm surge from hurricanes causes major loss of life every year. However, surge from tropical cyclones can be equally damaging. Here are the current extra-tropical storm surge forecasts for your area.

Select your region:



USEFUL LINKS

- AHP'S
- OPC
- NOW COAST
- GLERL
- P-SURGE
- COOP'S

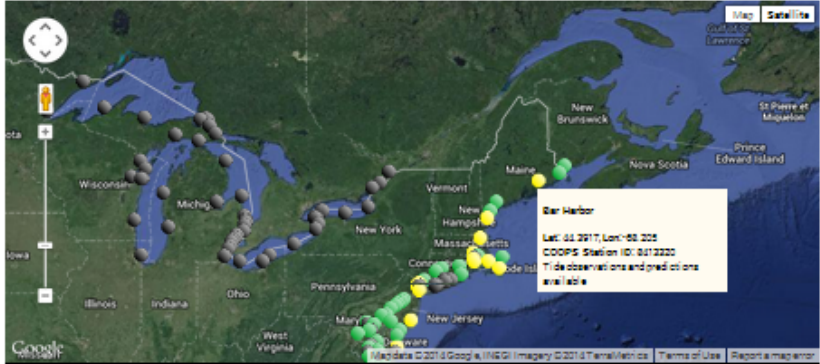
US Dept. of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
Meteorological Development Laboratory

Author: ryan.schuler@noaa.gov
1323 East West Highway
Silver Spring, MD 20910

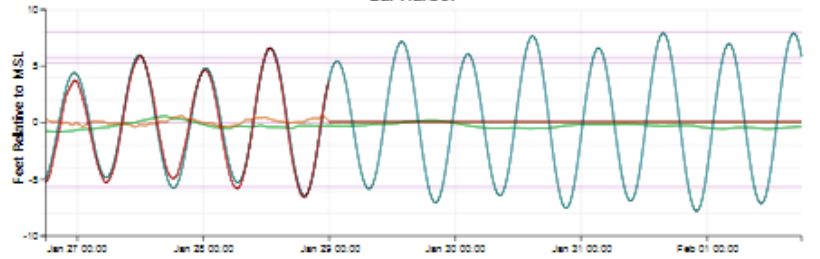
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EXTRA-TROPICAL STORM SURGE
NOAA NATIONAL WEATHER SERVICE

HOME ORGANIZATIONS ABOUT USEFUL LINKS



Bar Harbor
Lat: 44.3917, Lon: -68.2055
COOP'S Station ID: 8413320
Tide observations and predictions available



Storm Surge Predictions Anomaly Observations

Select start, forecast, and end times:
Start: 2 days ago Forecast: 02/23/20 End: 1 day from Go

Select a datum: MSL

Bookmark view: http://slosh.nws.noaa.gov/forRyan2/fixd/html/etss_fixd.php?lat=44.3917&lon=-68.2055&zl=5&stid=8413320&stname=Bar Harbor

US Dept. of Commerce
National Oceanic and Atmospheric Administration
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Author: ryan.schuler@noaa.gov
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