



Leveraging the NSRS to Map and Measure Everything Relative

Mr. Bill Funderburk

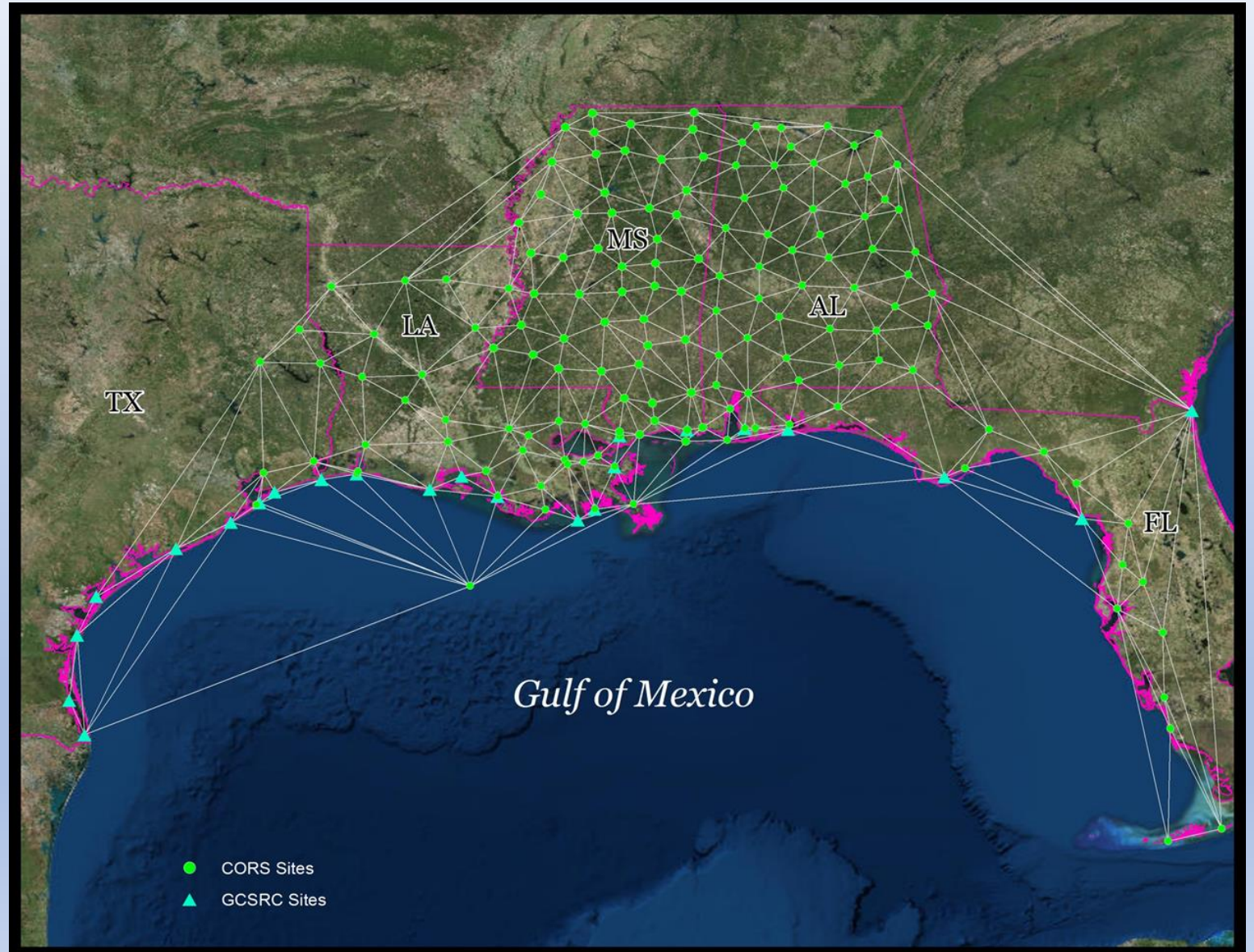
Geospatial Modeling Program

USM Gulf Coast Geospatial Center

Geospatial Modeling Program



- Multi-state and Agency program from Texas - Florida
 - Local and regional Subsidence
 - CORS + CGNSS networks
 - Gravity, DOV, and Leveling
 - UAS, SFM, Spectral
 - TLS, MLS, ALS, UAV SAR, InSAR, WLOn
 - Survey Science and Tech Development
 - [GCGC CORS Network \(arcgis.com\)](http://arcgis.com)
- Betas
 - <https://mantisresearch.org/gulf-3d>
 - <https://gismaps.usm.edu/>



Tools for Spatial Analysis



Mapping Sensors

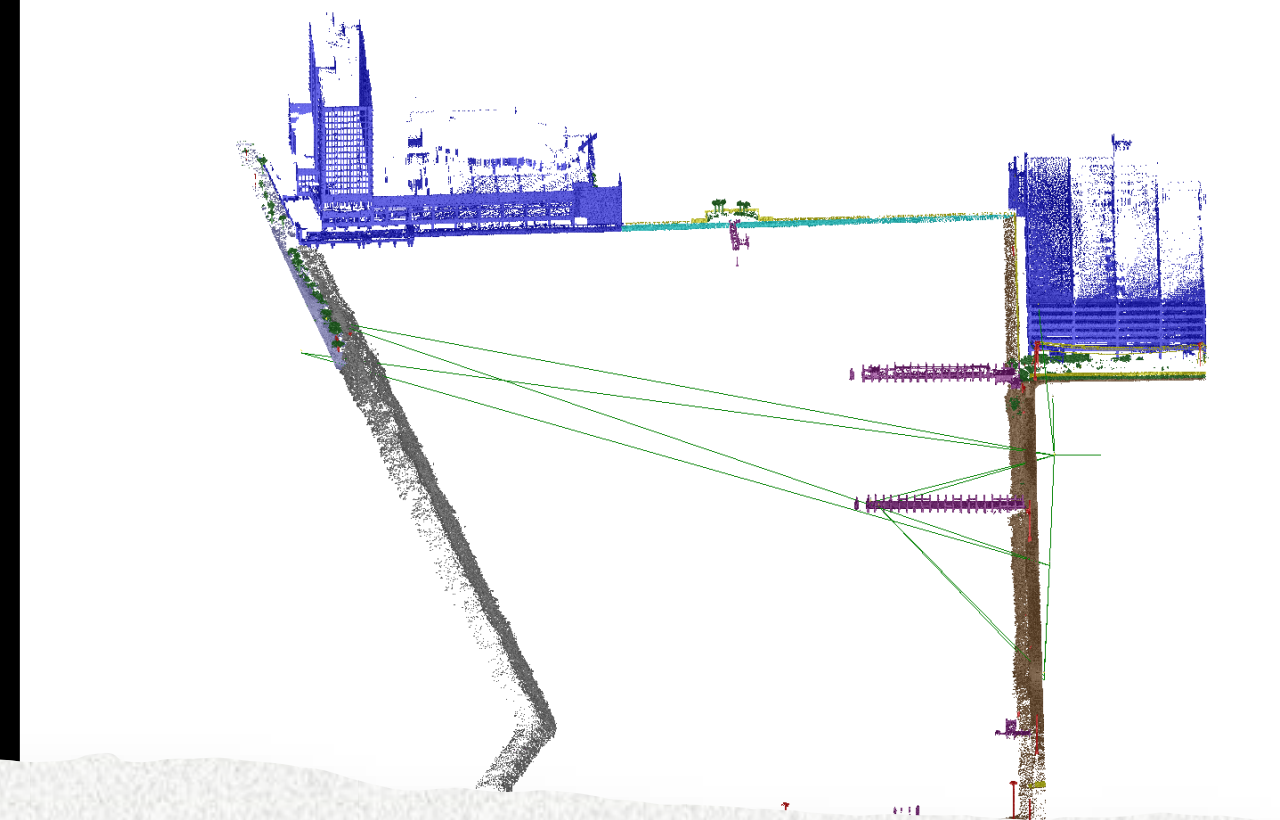
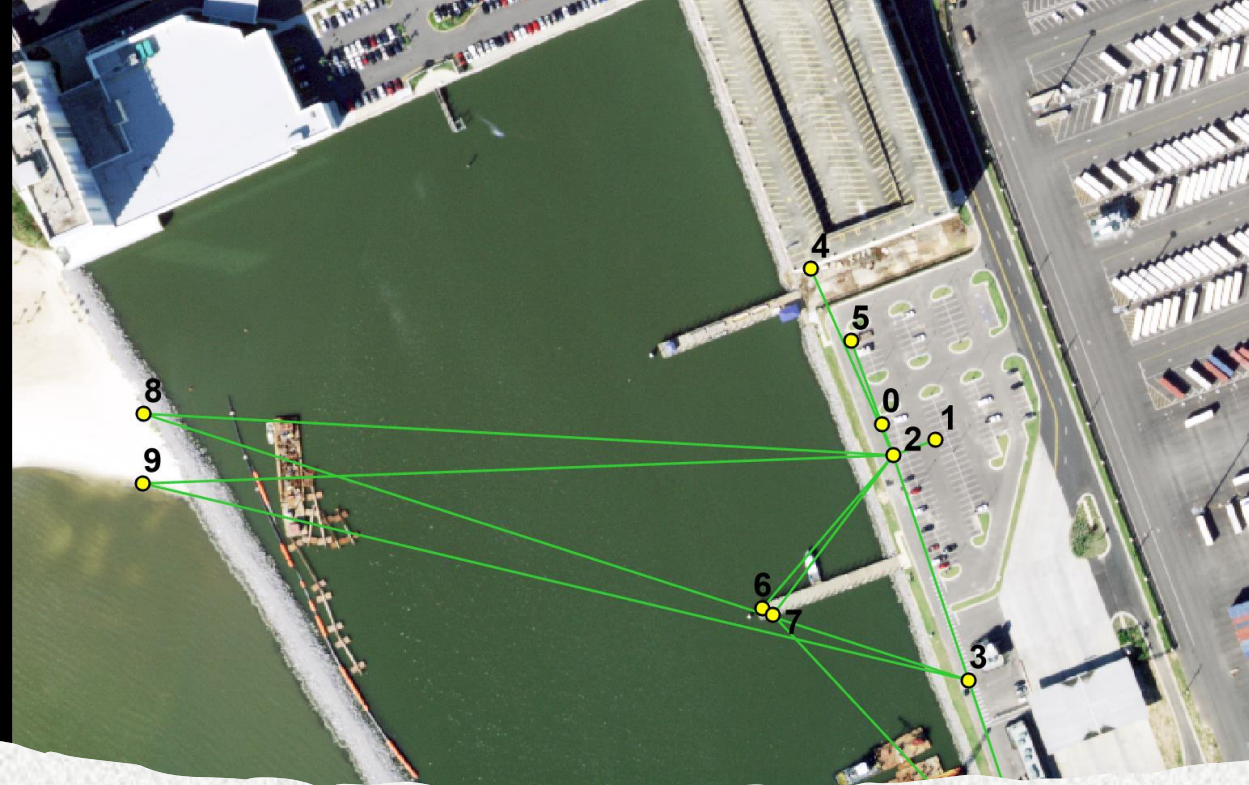
Type of sensors	Image
Optical & Infrared	
Thermal	
Multi Spectral	



Background & Expertise

- We apply our expertise in Geodesy and spatial analyses to the NGOM Coast and Mainland:
 - Expand NSRS network and Enhance production
 - High resolution remote sensing test ranges
 - Calibration Validation sites
 - Establish geodetic control via NSRS constrained positioning networks
 - Vertical accuracies of elevation data calibration
 - Test Quality of geoid, georeferencing, and spectral data
 - Conduct Research
 - Subsidence
 - Sea-level rise
 - Storm Impacts

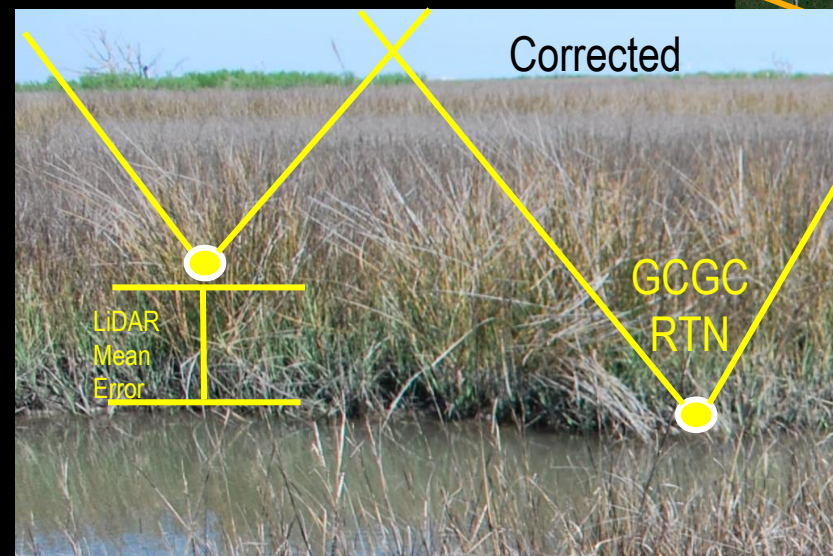
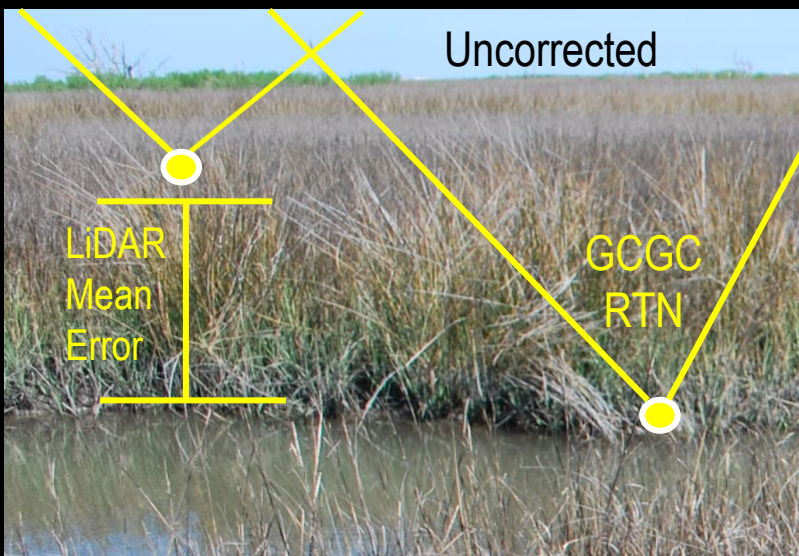
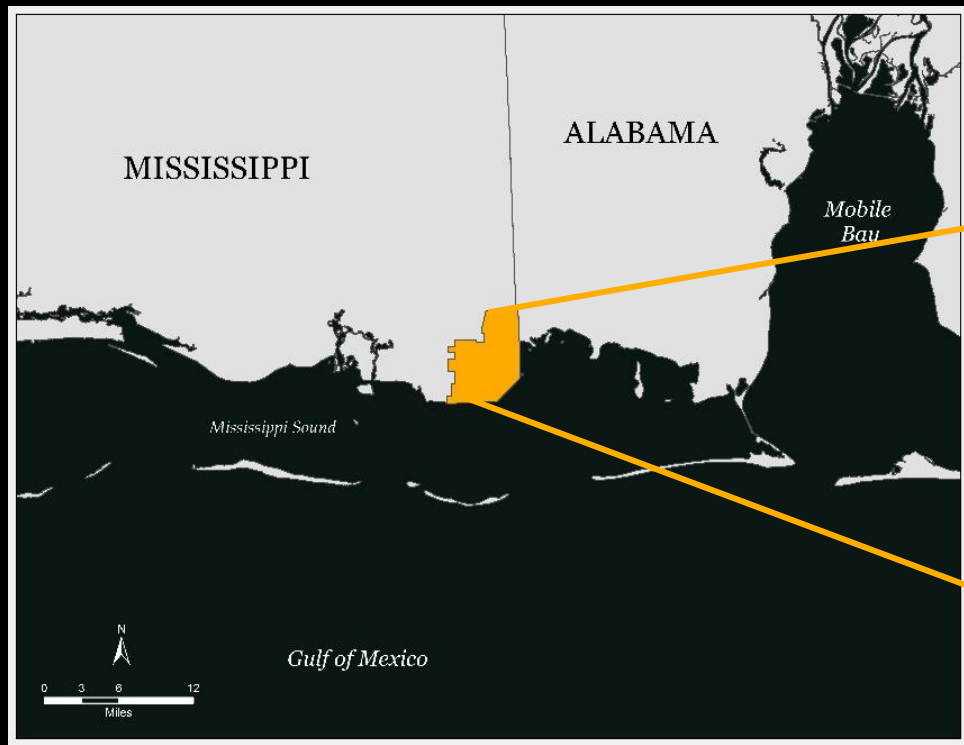




Expand and Enhance NSRS Production

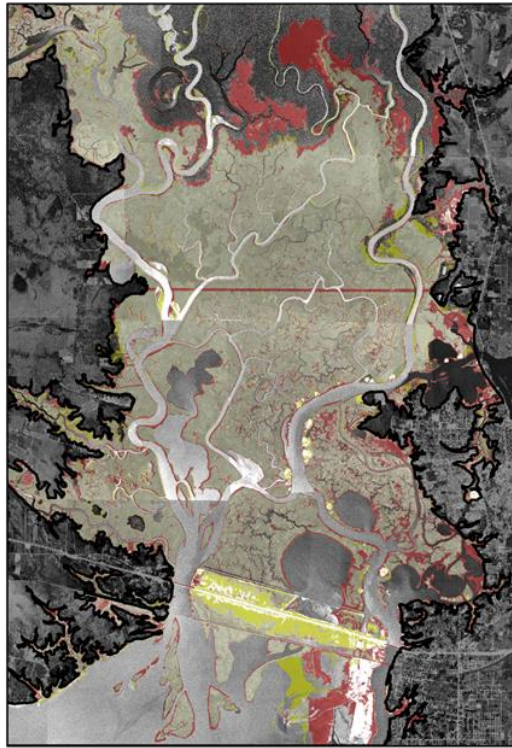
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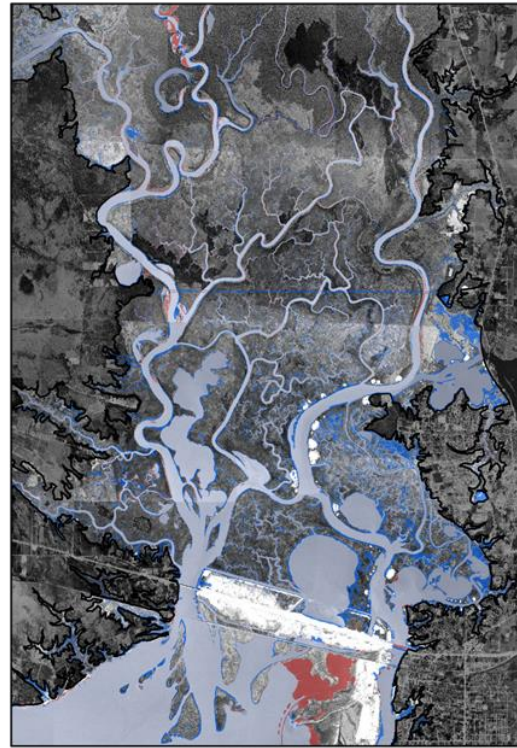
Research: Sea-level Rise

Change in marsh extent, 1955-2014



■ Marsh lost ■ Marsh common to both years
■ Marsh gained Study area boundary

Change in water extent, 1955-2014



■ Water lost ■ Water common to both years
■ Water gained Study area boundary

N
 2km

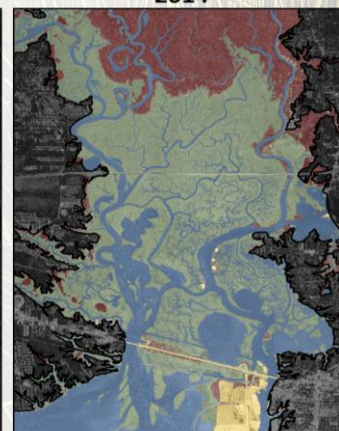
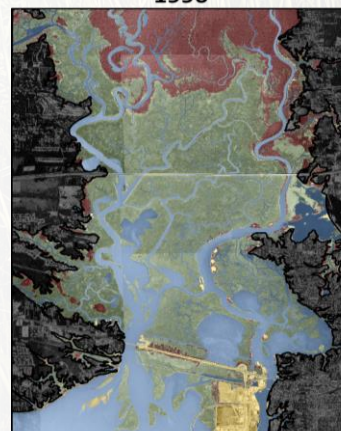
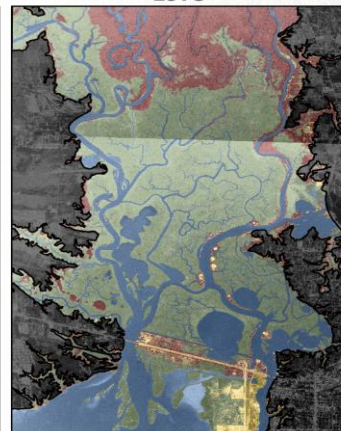
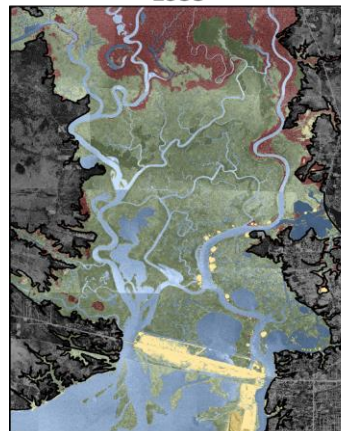


1955

1975

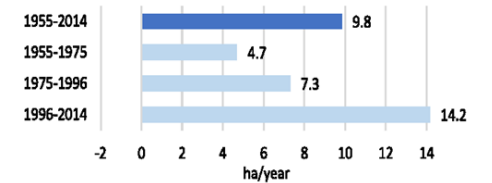
1996

2014

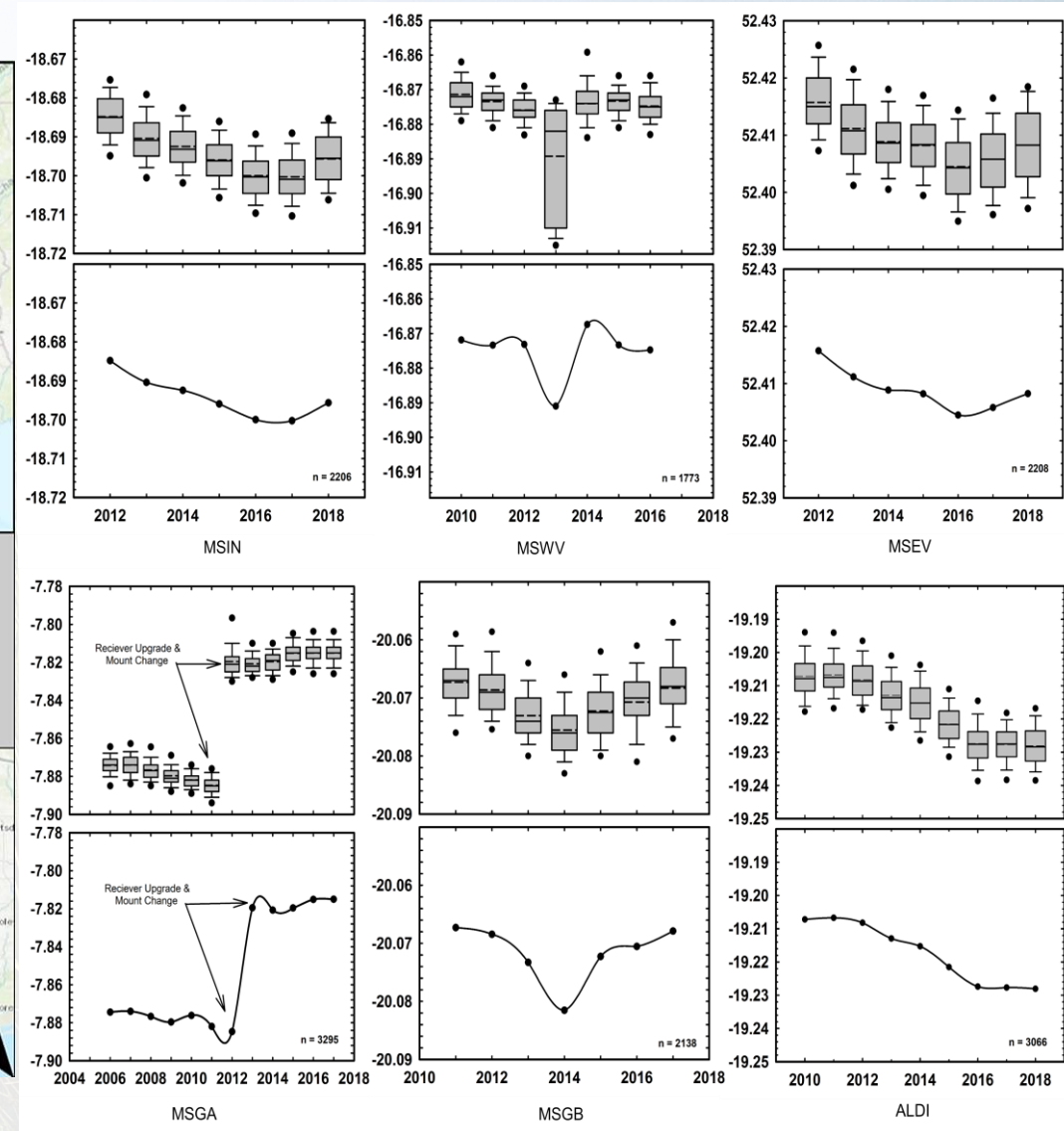
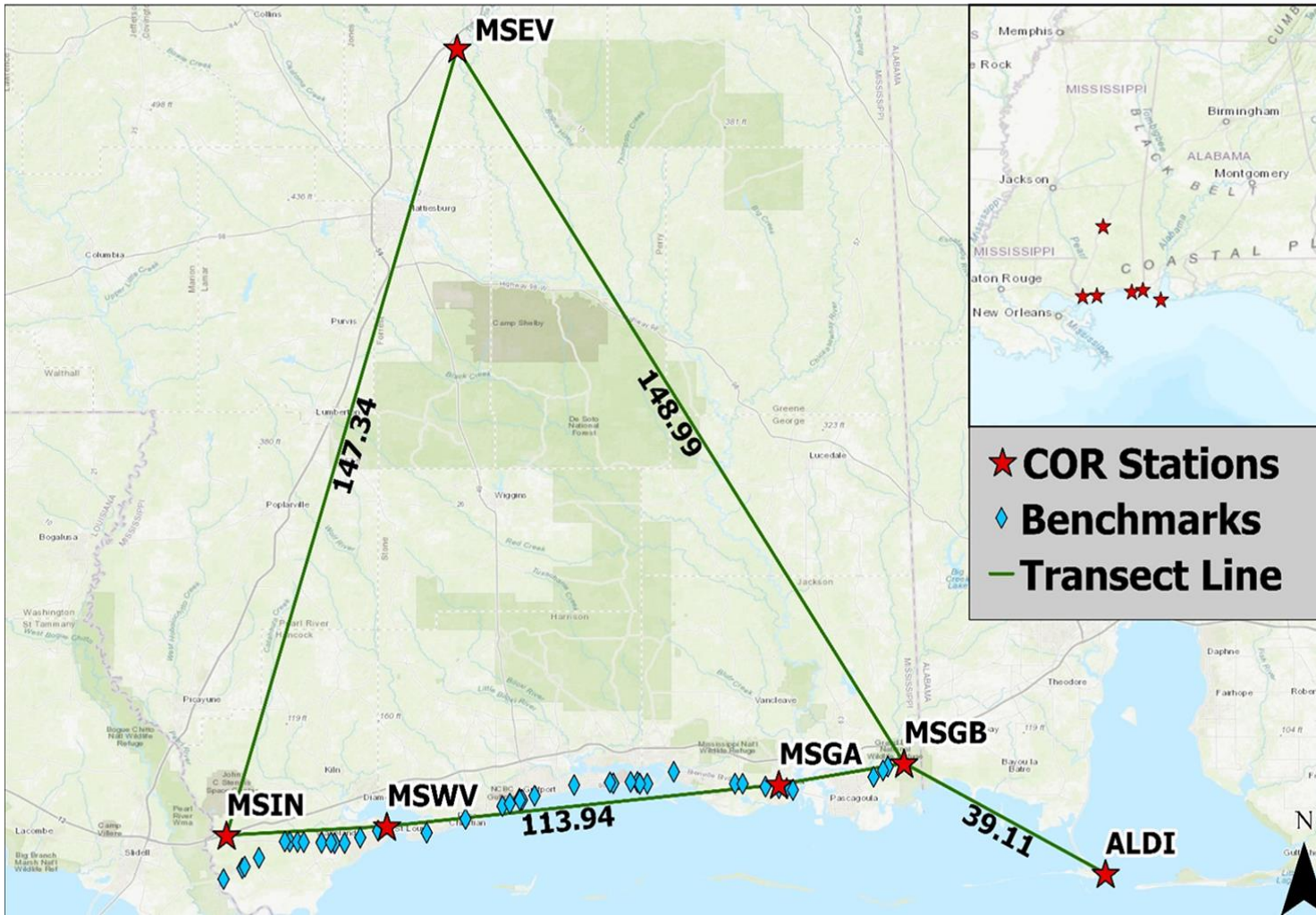


■ Marsh
■ Water
■ Woodland
■ Unvegetated
 Study area boundary

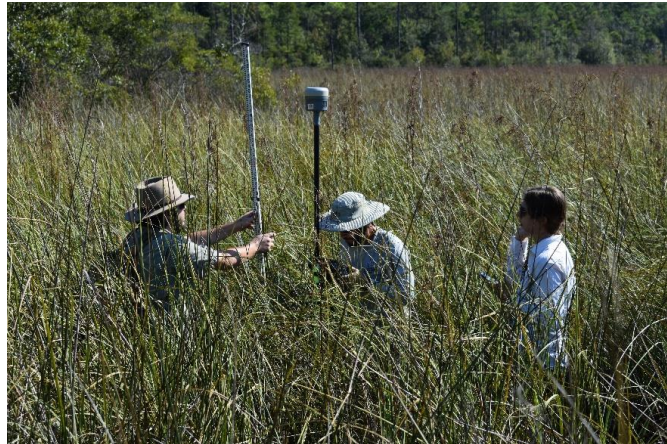
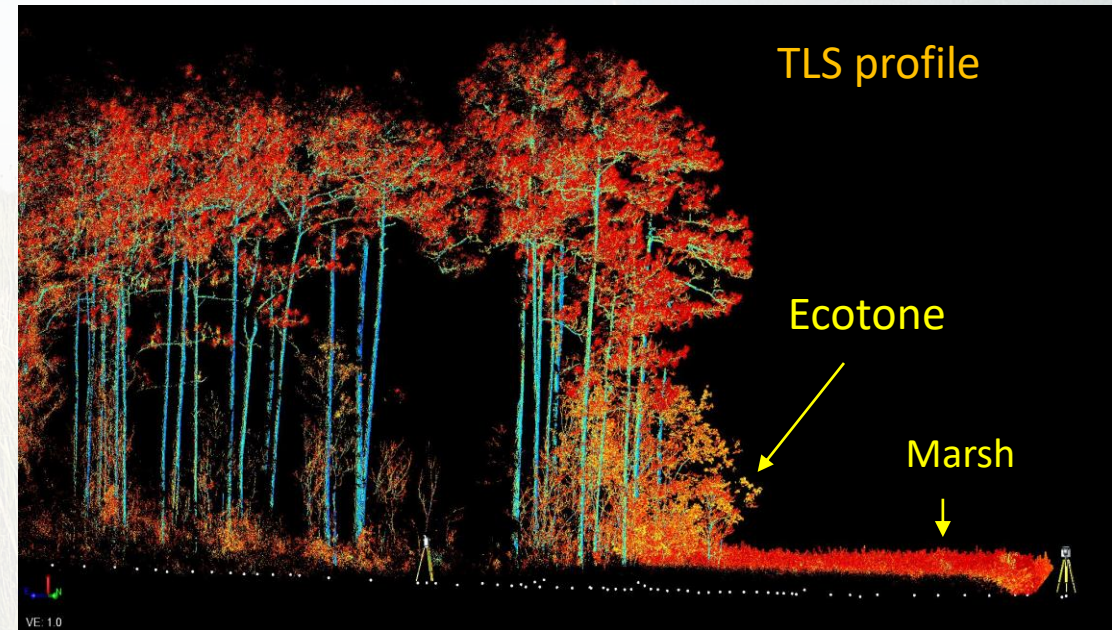
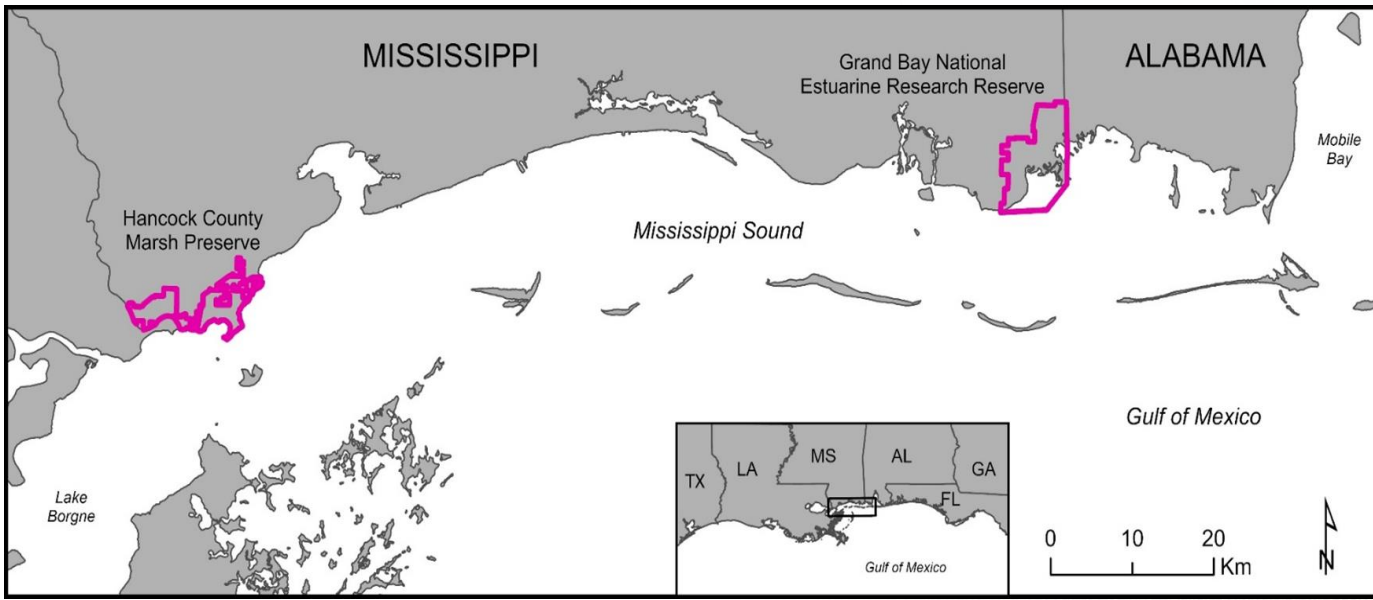
Rate of conversion from marsh to open water over each interval

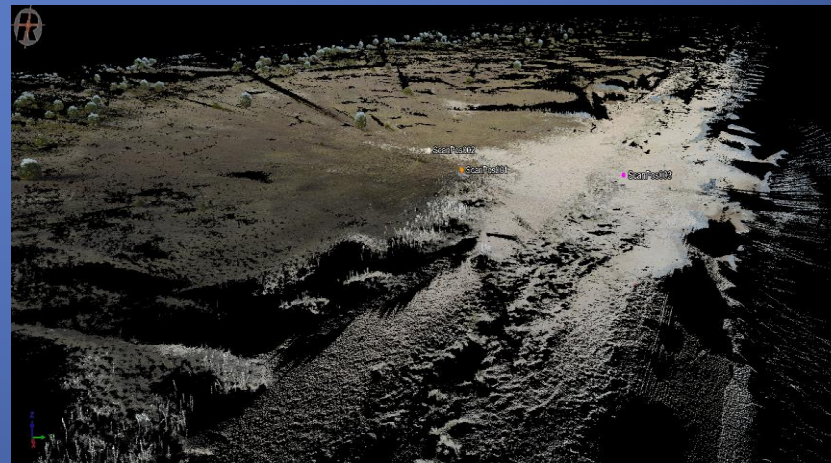
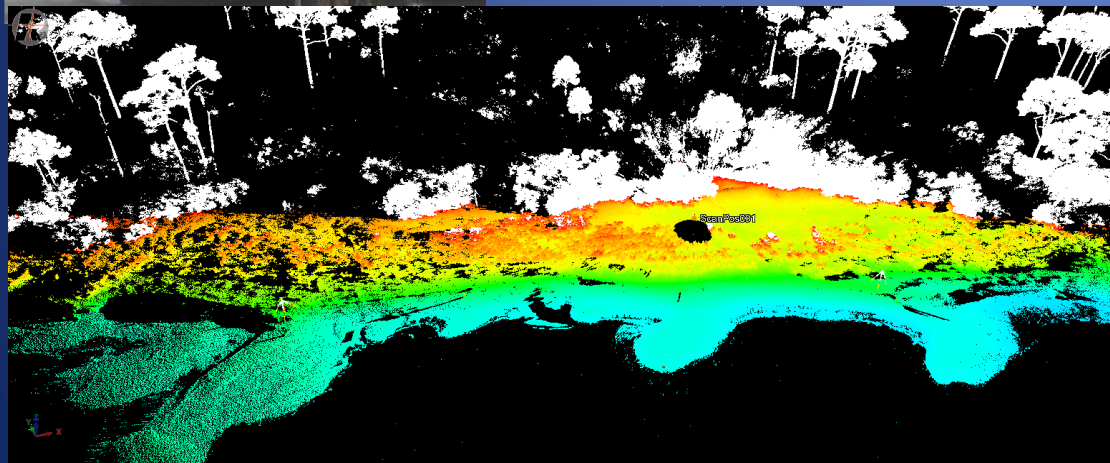


Subsidence and Marked Motion

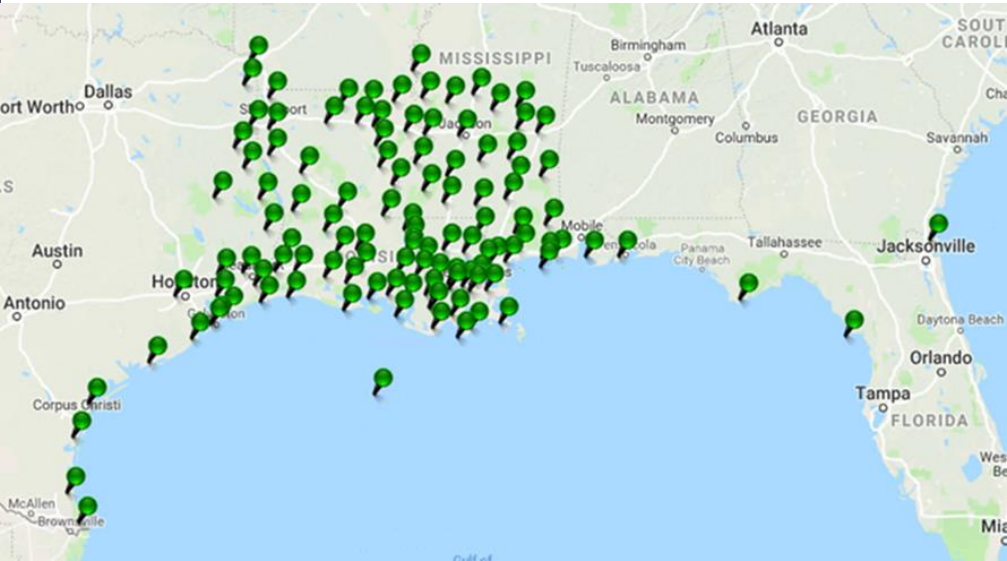


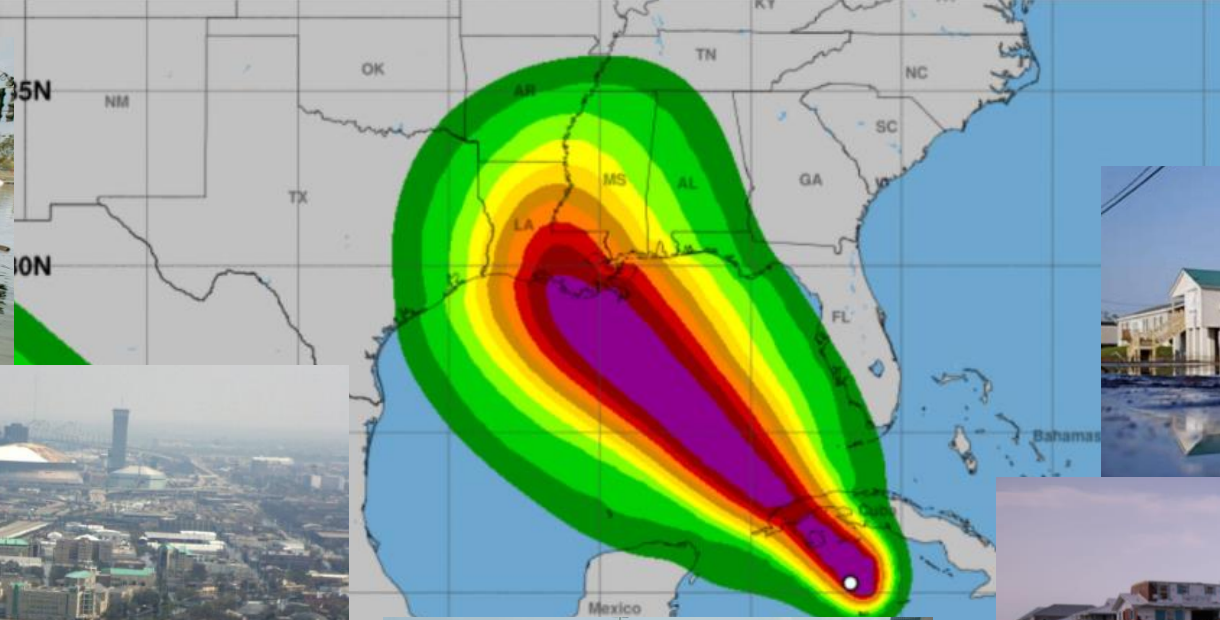
Elevation, Wetland Loss, and RSLR pathways





LOUISIANA

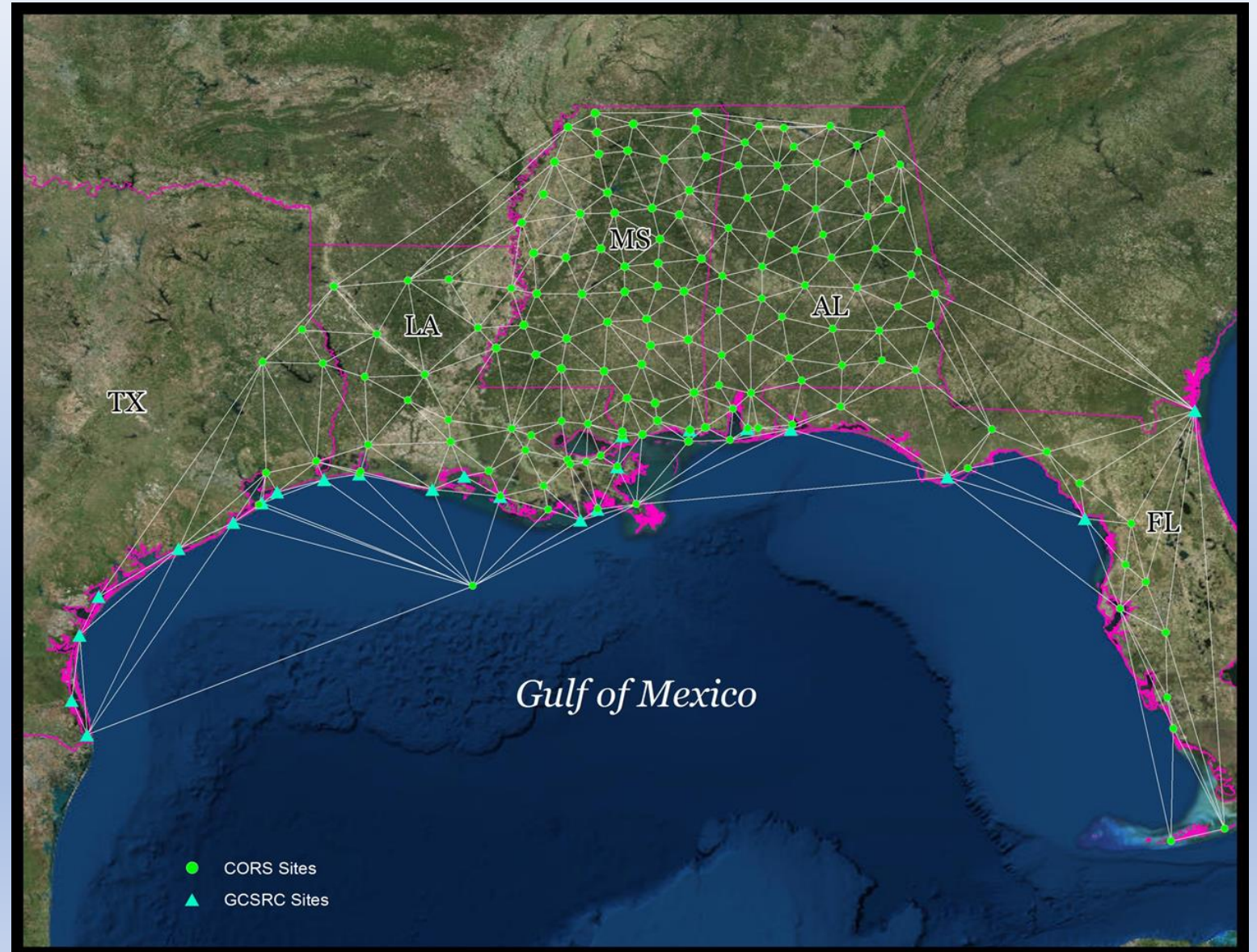




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Questions?

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Please send us your contact information and how we can be of service!

Check out our survey support app for office or in-field support. We can do the same for you!

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