



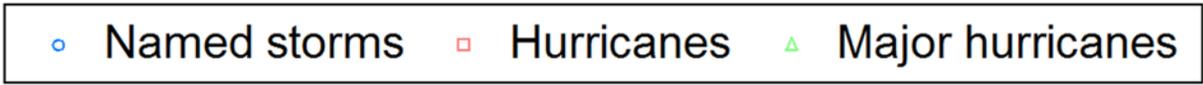
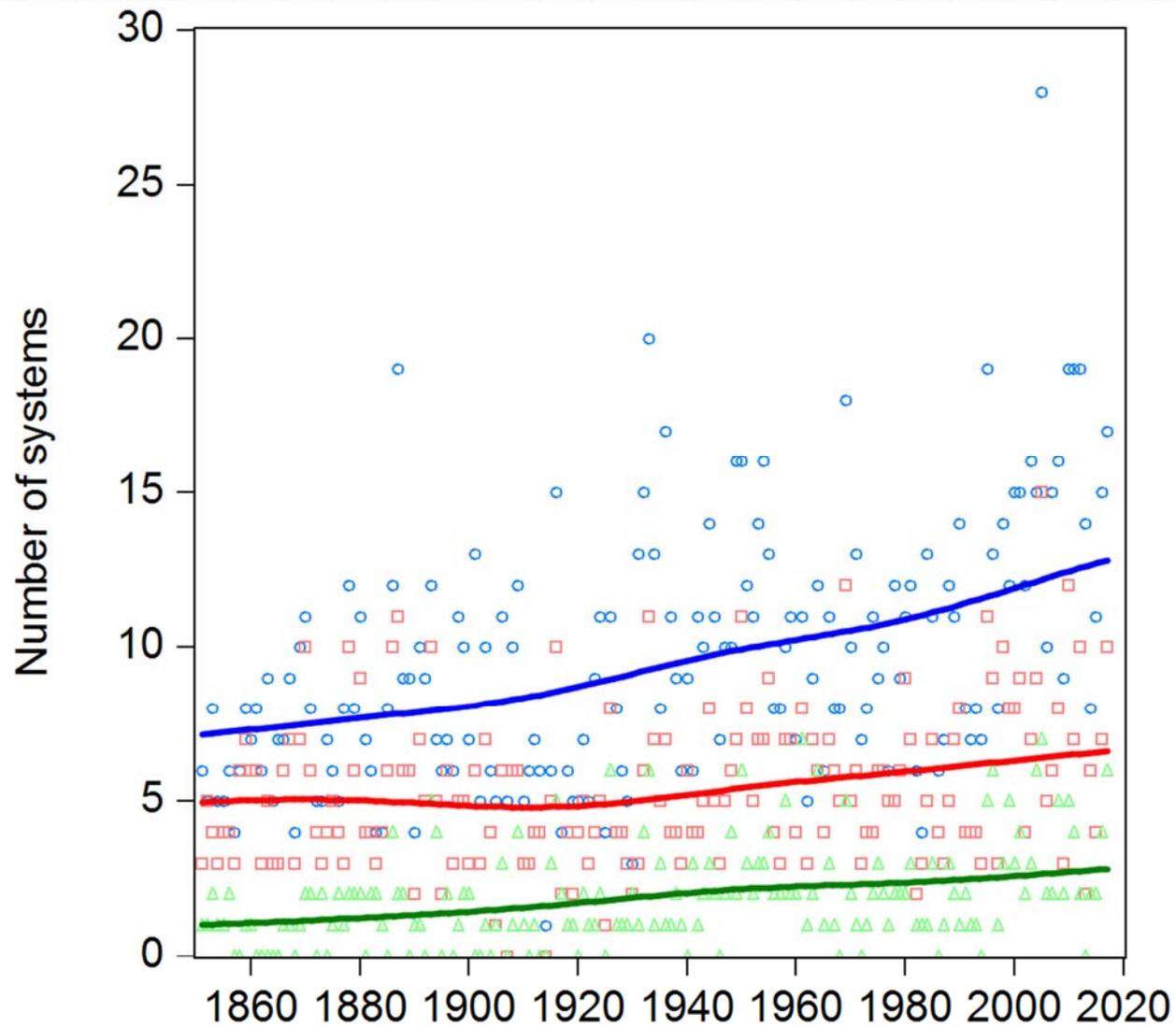
LEARNING THE HARD WAY: HURRICANES AND COMMERCIAL REAL ESTATE VALUES

Discussion by
Shane M. Sherlund*

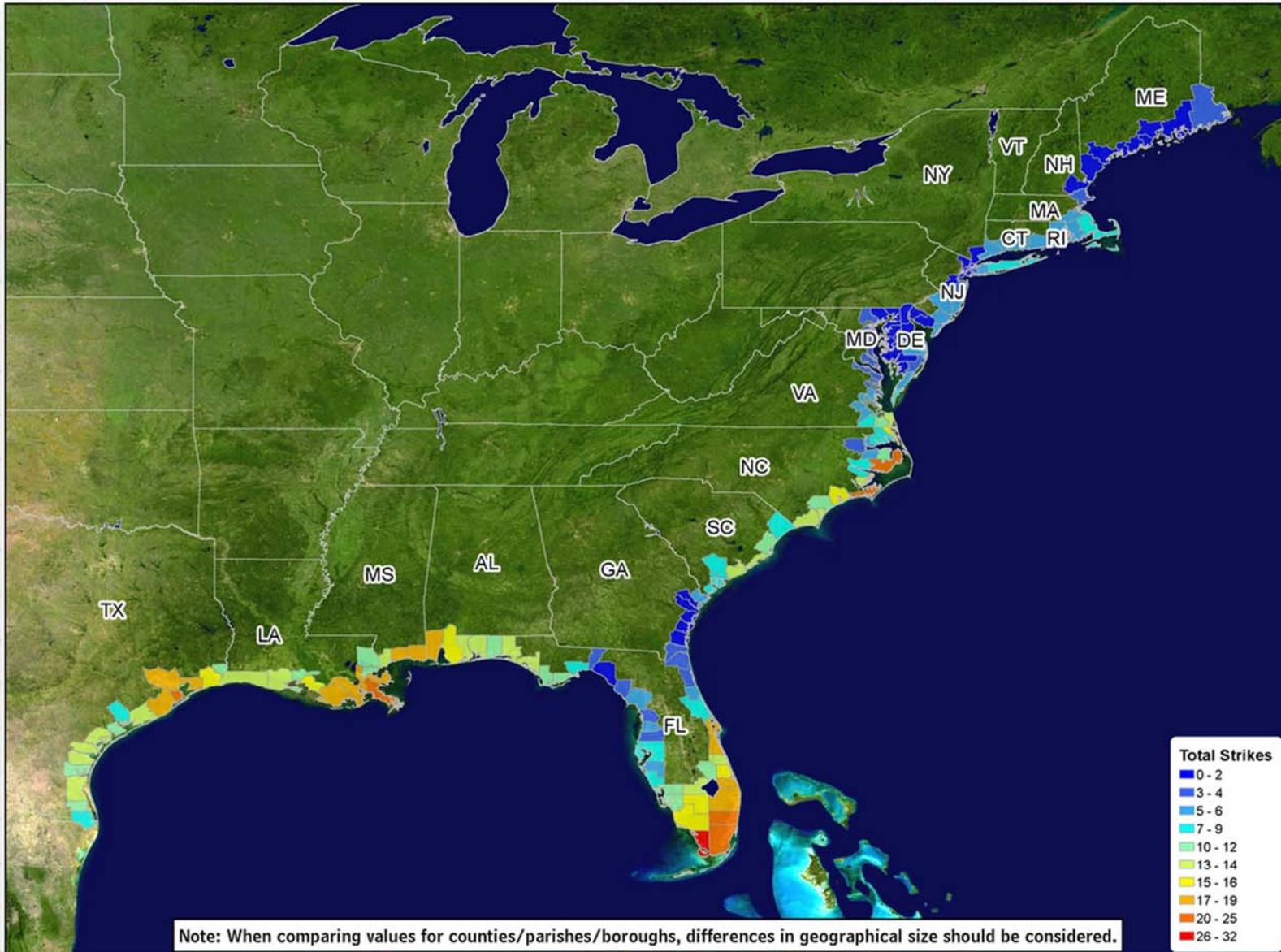
Federal Reserve Board

* The views and opinions expressed herein are mine alone and do not necessarily reflect those of the Board of Governors of the Federal Reserve System, its members, or its staff.

Tropical Systems (Atlantic)



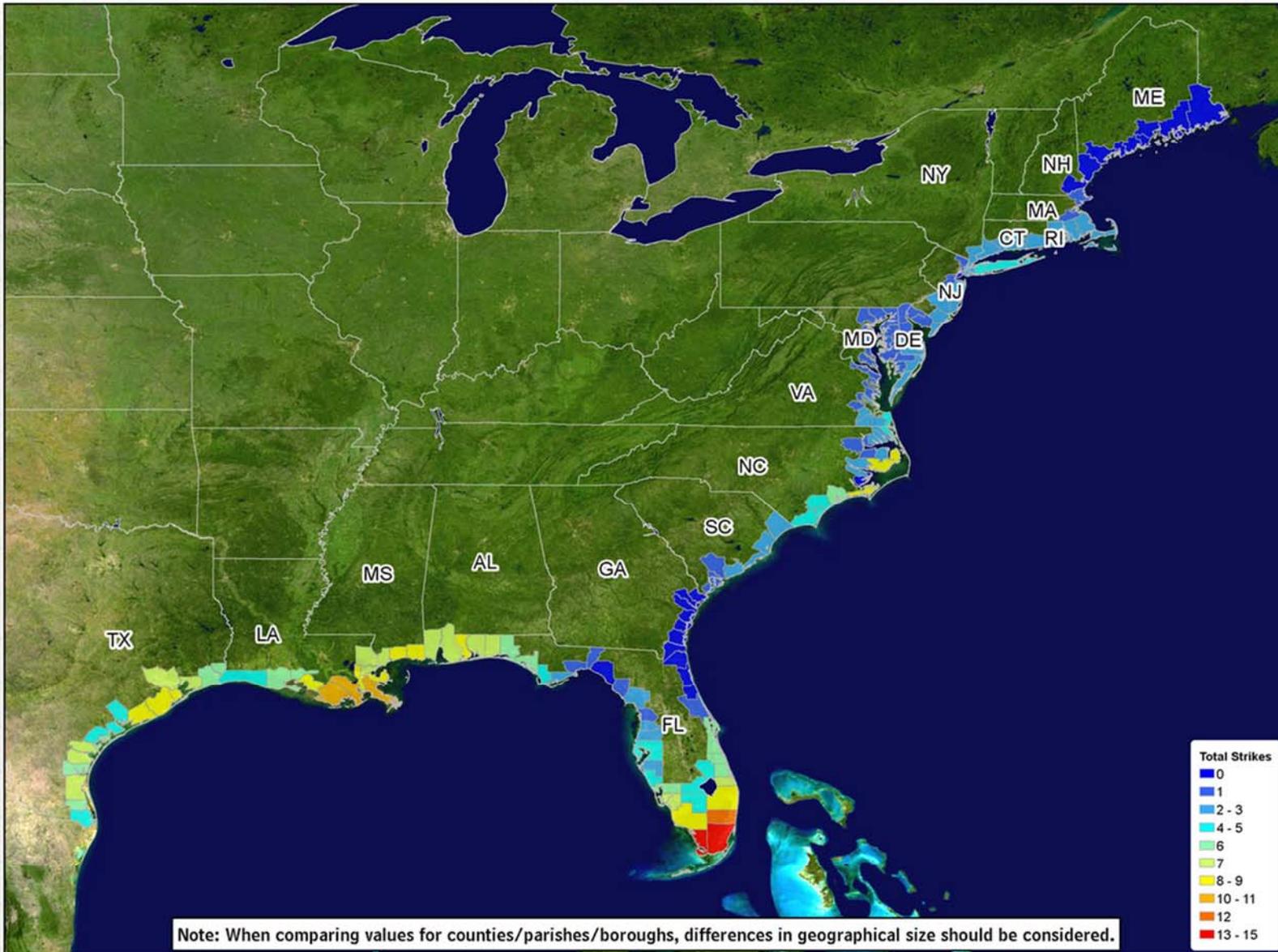
Hurricane Landfalls



Total number of hurricane strikes by counties/parishes/boroughs, 1900-2010

Data from NWS NHC 46: Hurricane Experience Levels of Coastal County Populations from Texas to Maine. Jerry D. Jarrell, Paul J. Hebert, and Max Mayfield. August, 1992, with updates.

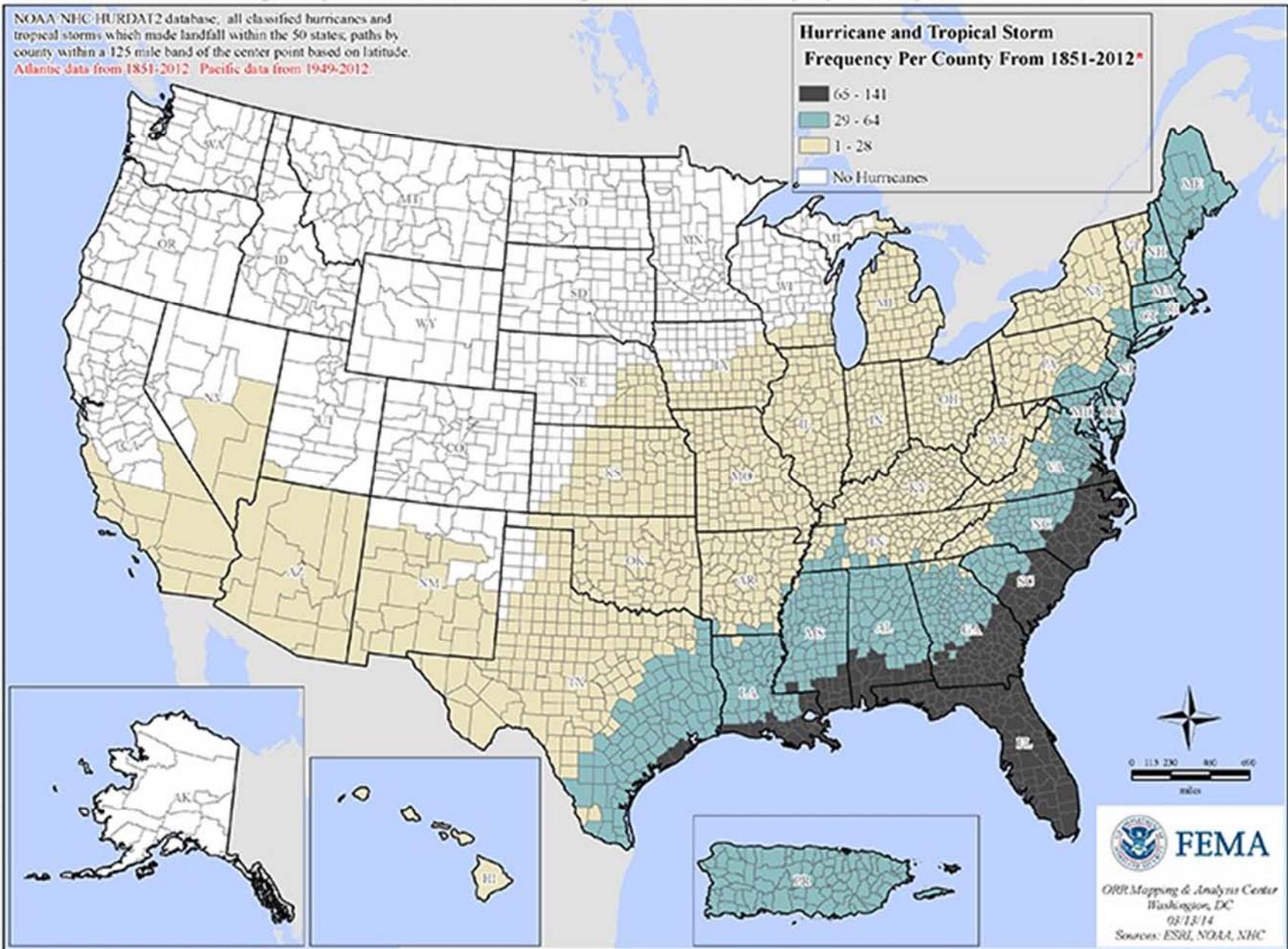
Major Hurricane Landfalls



Total number of major hurricane strikes by counties/parishes/boroughs, 1900-2010

Data from NWS NHC 46: Hurricane Experience Levels of Coastal County Populations from Texas to Maine. Jerry D. Jarrell, Paul J. Hebert, and Max Mayfield. August, 1992, with updates.

Hurricane Risk



Key Research Questions

- Do CRE prices reflect hurricane risk prior to hurricane landfall?
- Do CRE prices respond to hurricane landfall?
 - CRE prices within hurricane landfall area?
 - CRE prices outside hurricane landfall area?
- Do pricing effects fade over time?
- Hurricane Sandy: Boston vs NYC

Key Findings

- Hurricane risk not priced in Boston or NYC before Sandy
- Hurricane risk was priced in NYC after Sandy (learning)
- Hurricane risk not priced in Boston after Sandy (proximity)
- Price impact of hurricane risk dissipates over time (forgetting)

Comment on diff-in-diff

- Spillover effects
 - Maybe Boston did learn something, but being compared to NYC who learned a lot, so diff-in-diff suggests Boston learned “nothing”
- Compare Boston to Detroit or Chicago?
- Include controls from Table 4 in Table 5?
 - Trace out annual effects for Boston and NYC

Comment on hurricane risk proxy

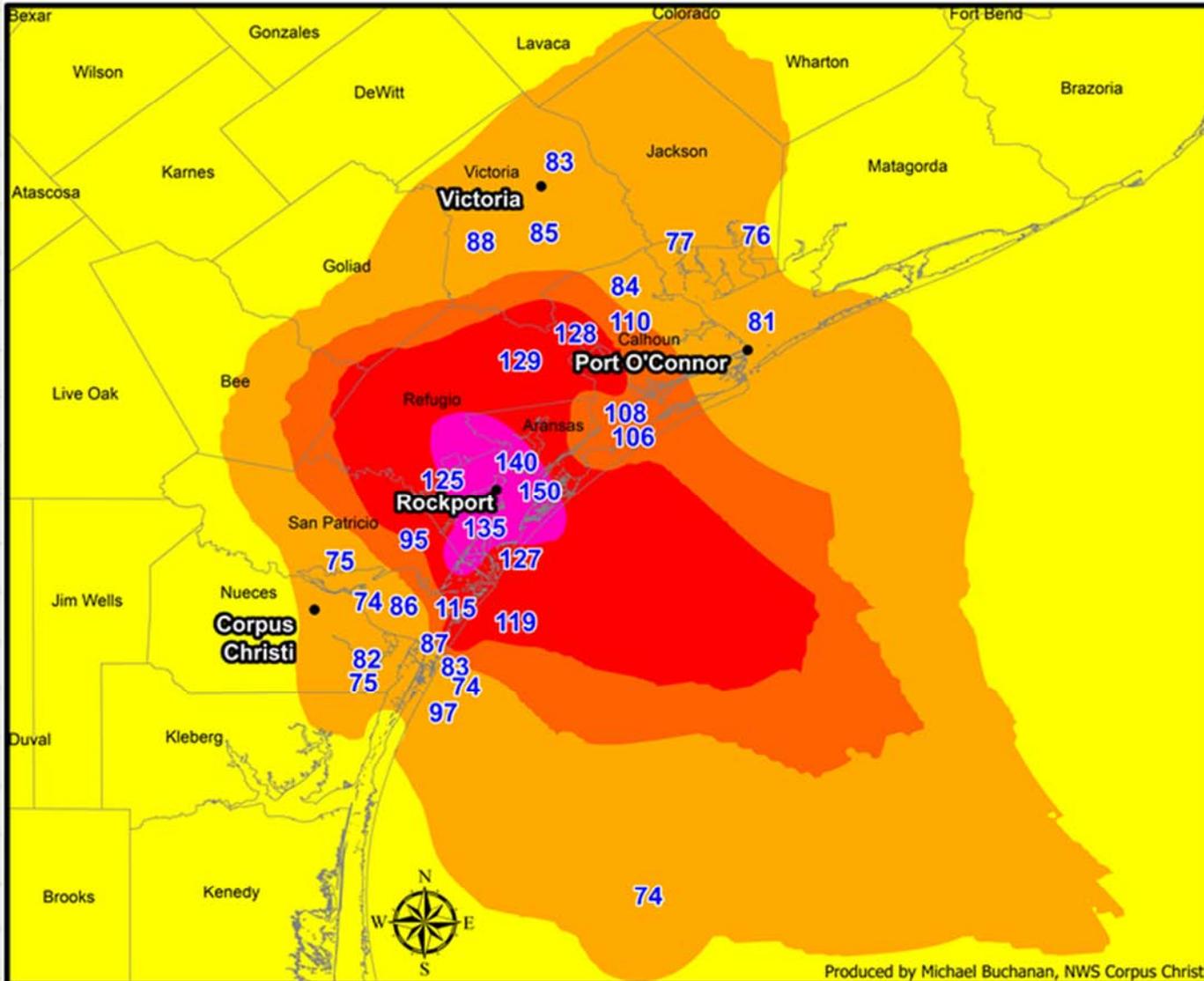
- Hurricane risk \sim distance to coastline
- Pros:
 - Seems to work fairly well
 - Many effects concentrated near coast
- Cons:
 - Every hurricane is different
- Use predicted property damage?

Hurricane Hazards

- High winds
- Heavy rainfall and inland flooding
- Tornados
- Storm surge

Harvey: High Winds

Hurricane Harvey Peak 10-meter Wind Gusts - Aug 25-29, 2017



- Wind Gusts (mph)
- 39-73 (TS)
 - 74-95 (Cat 1)
 - 96-110 (Cat 2)
 - 111-129 (Cat 3)
 - 130-156 (Cat 4)

Hurricane wind gusts are highlighted in blue.



0 5 10 20 30 40 Miles

Source: National Weather Service Post Tropical Cyclone Reports
 (Incomplete and unrepresentative data have been removed from this analysis.
 Non 10-m winds have been modified to a 10-m value.)

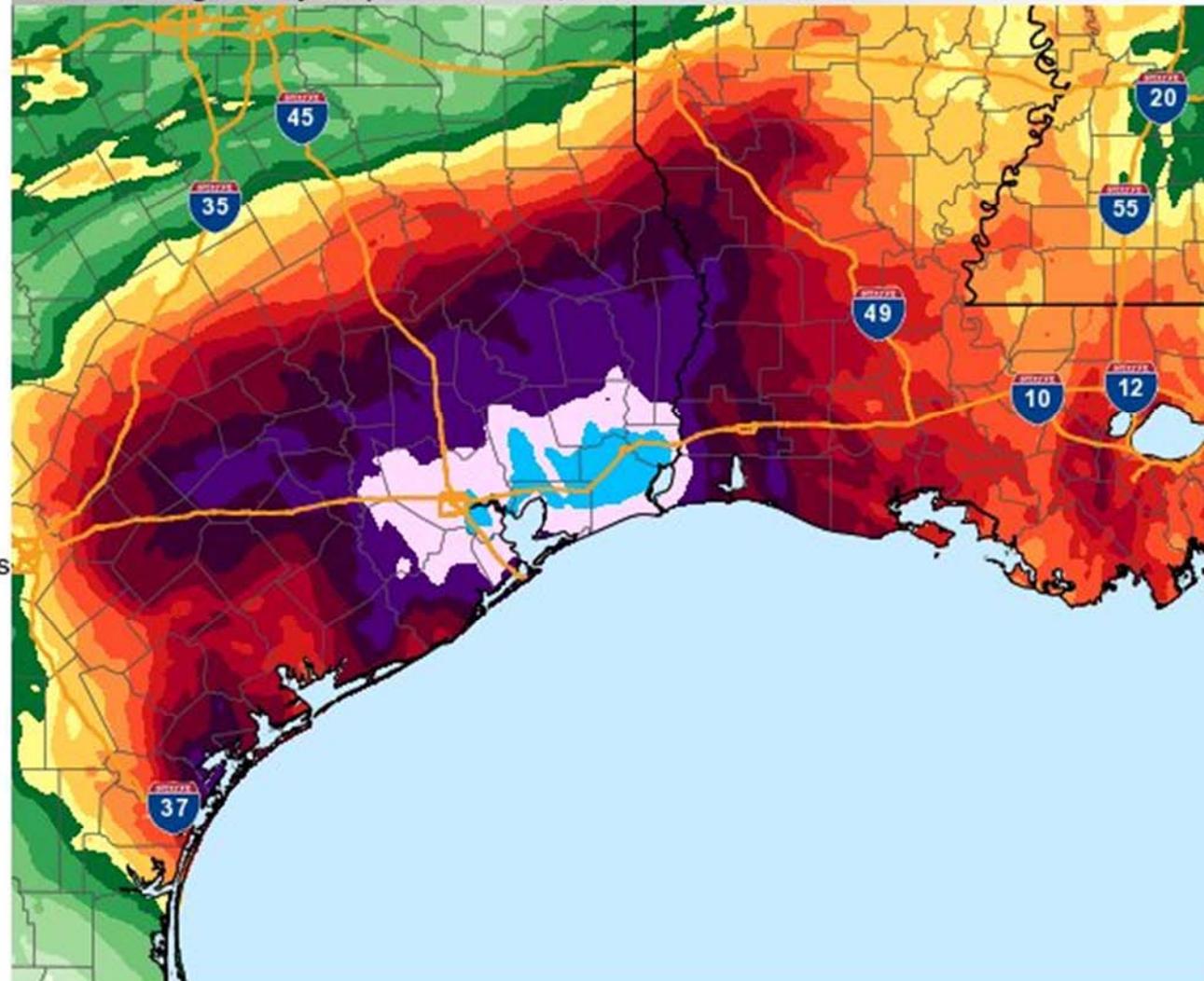
Produced by Michael Buchanan, NWS Corpus Christi

Harvey: Heavy Rainfall

Observed Precipitation

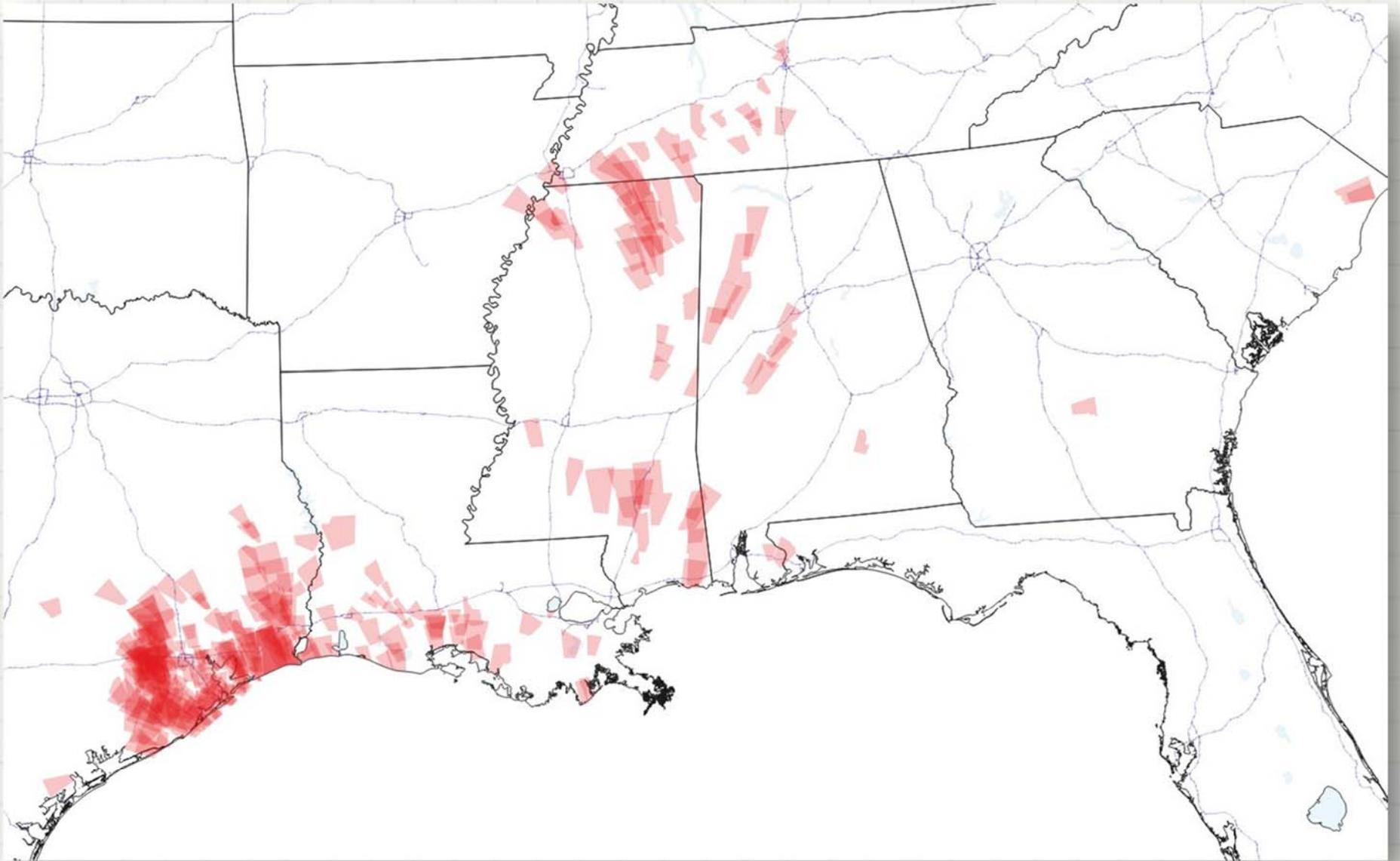
National Weather Service

Valid Ending Friday September 1st, 2017 at 3 PM CDT

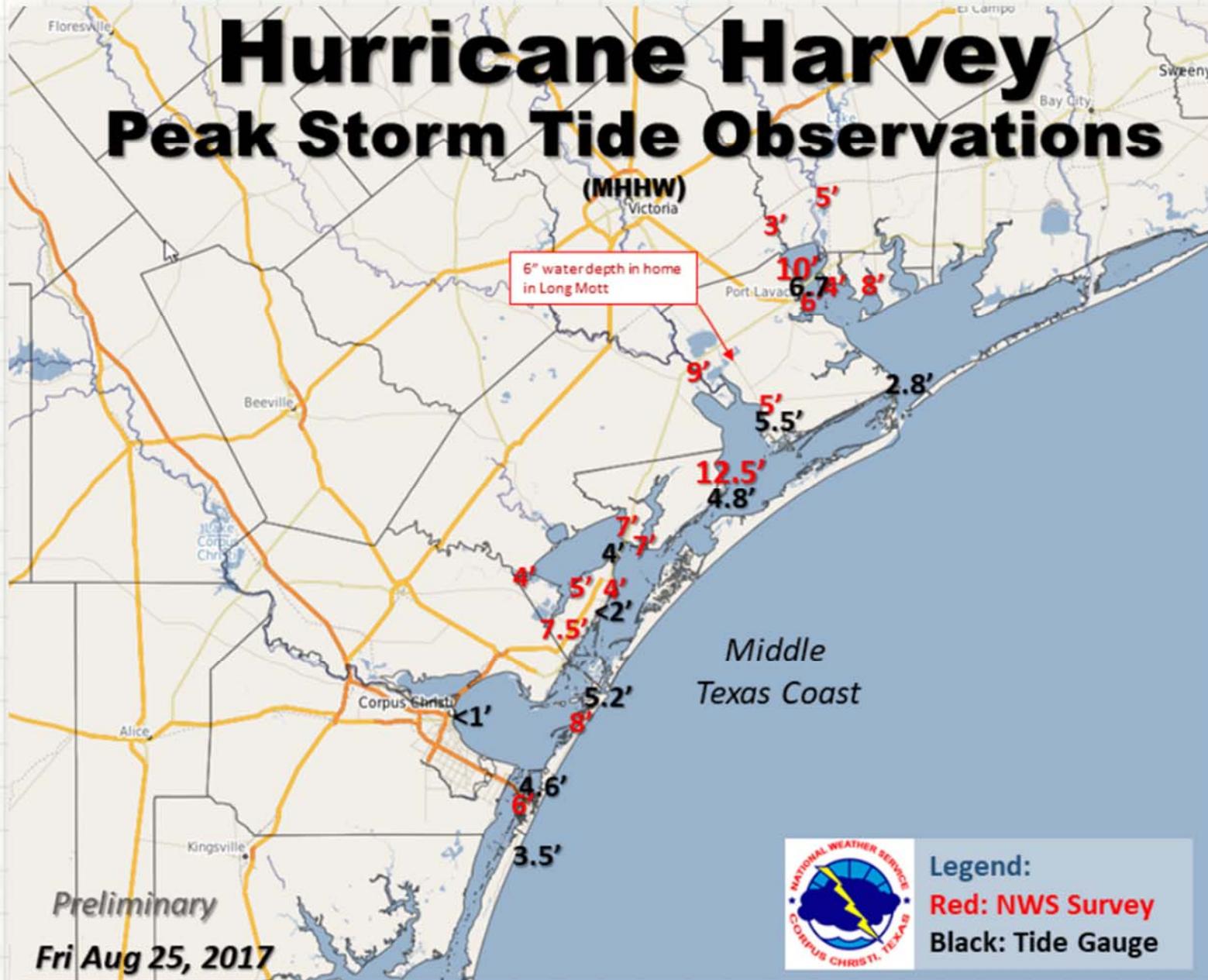


Graphic Created
September 1st, 2017
3:59 PM CDT

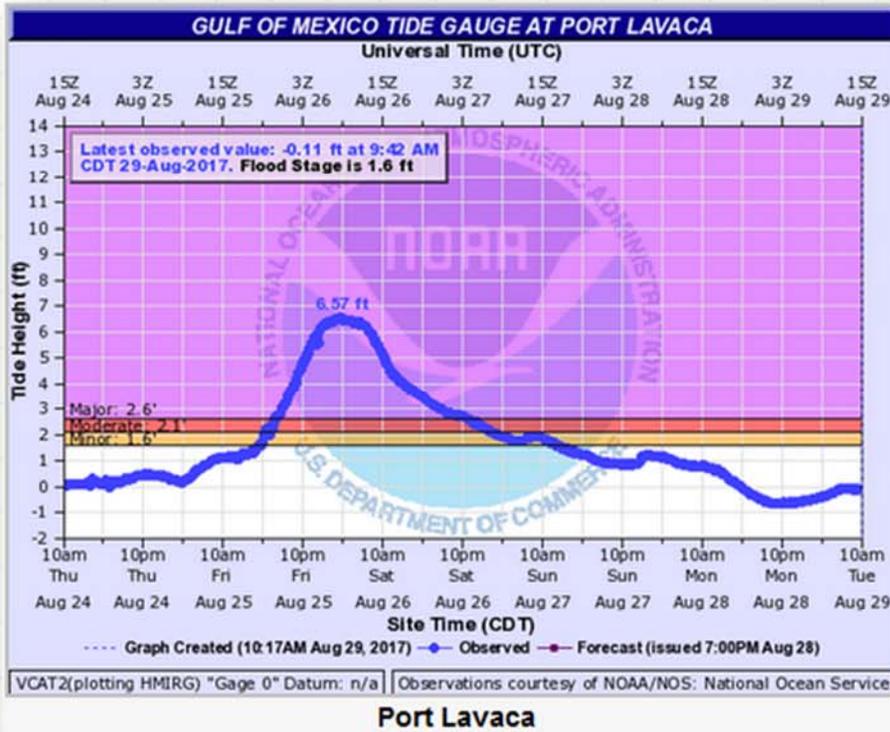
Harvey: Tornadoes



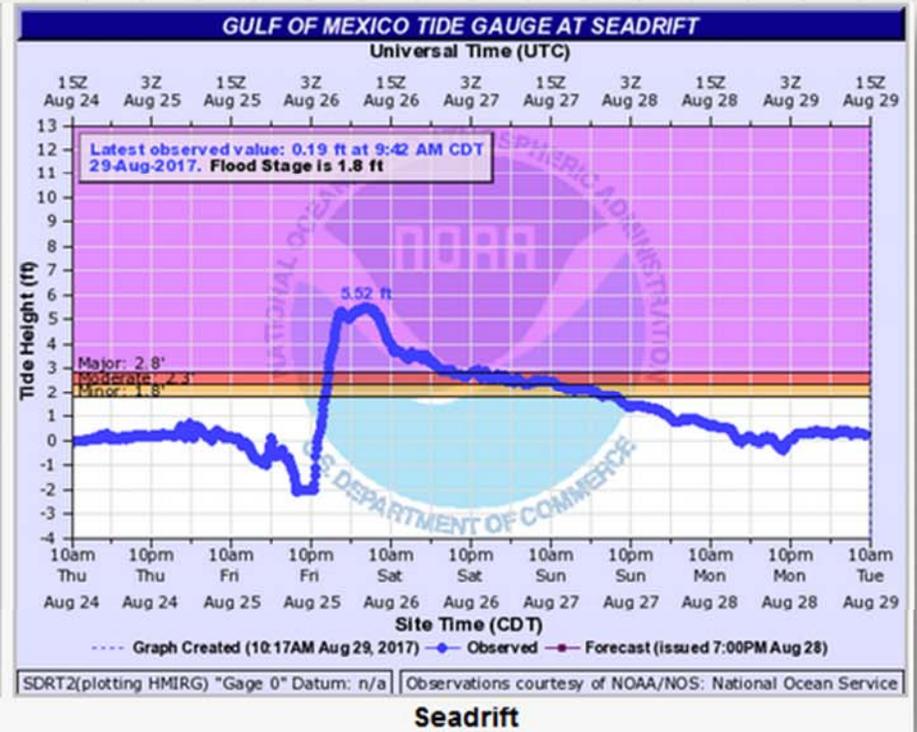
Harvey: Storm Surge



Harvey: Storm Surge

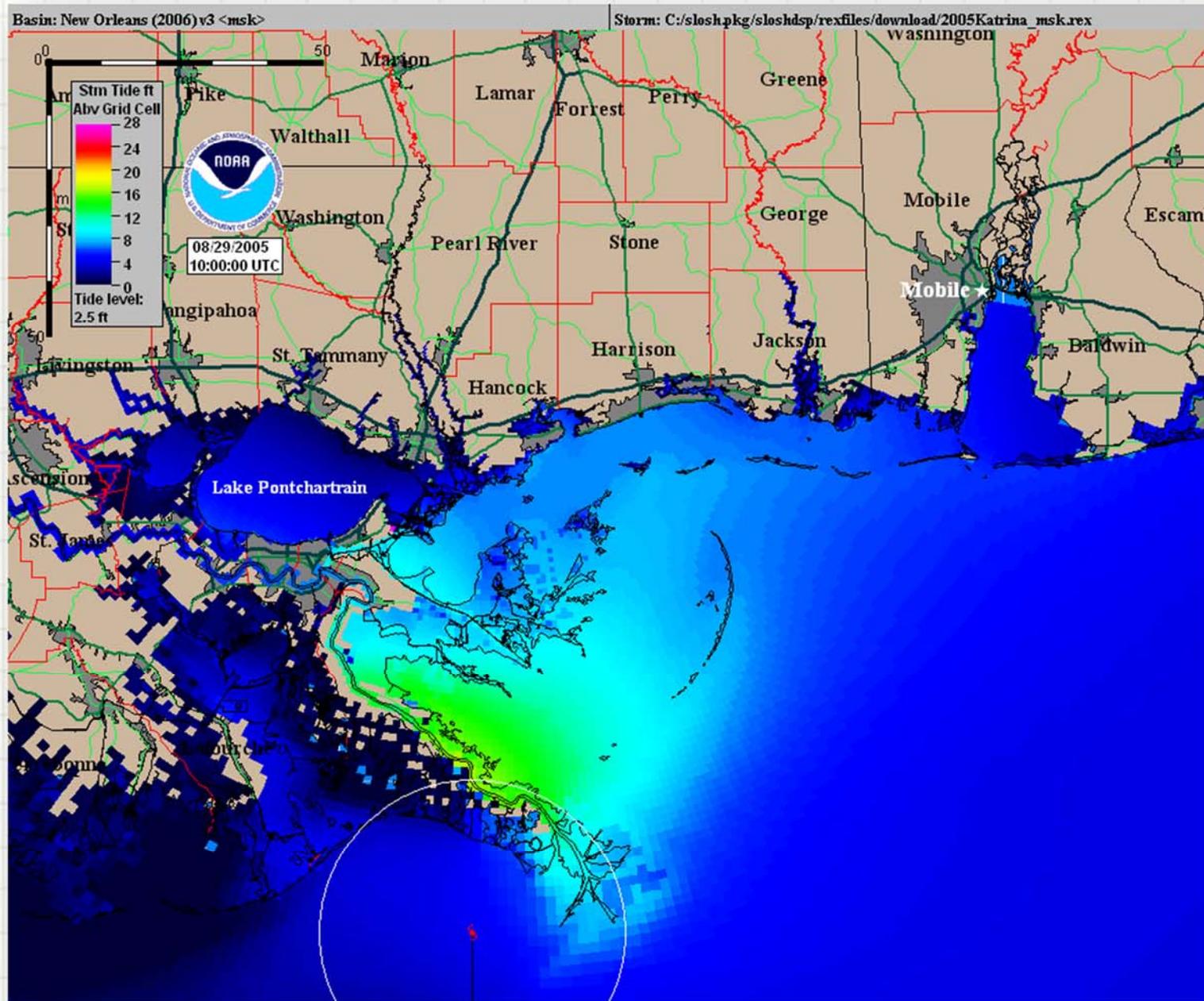


Port Lavaca

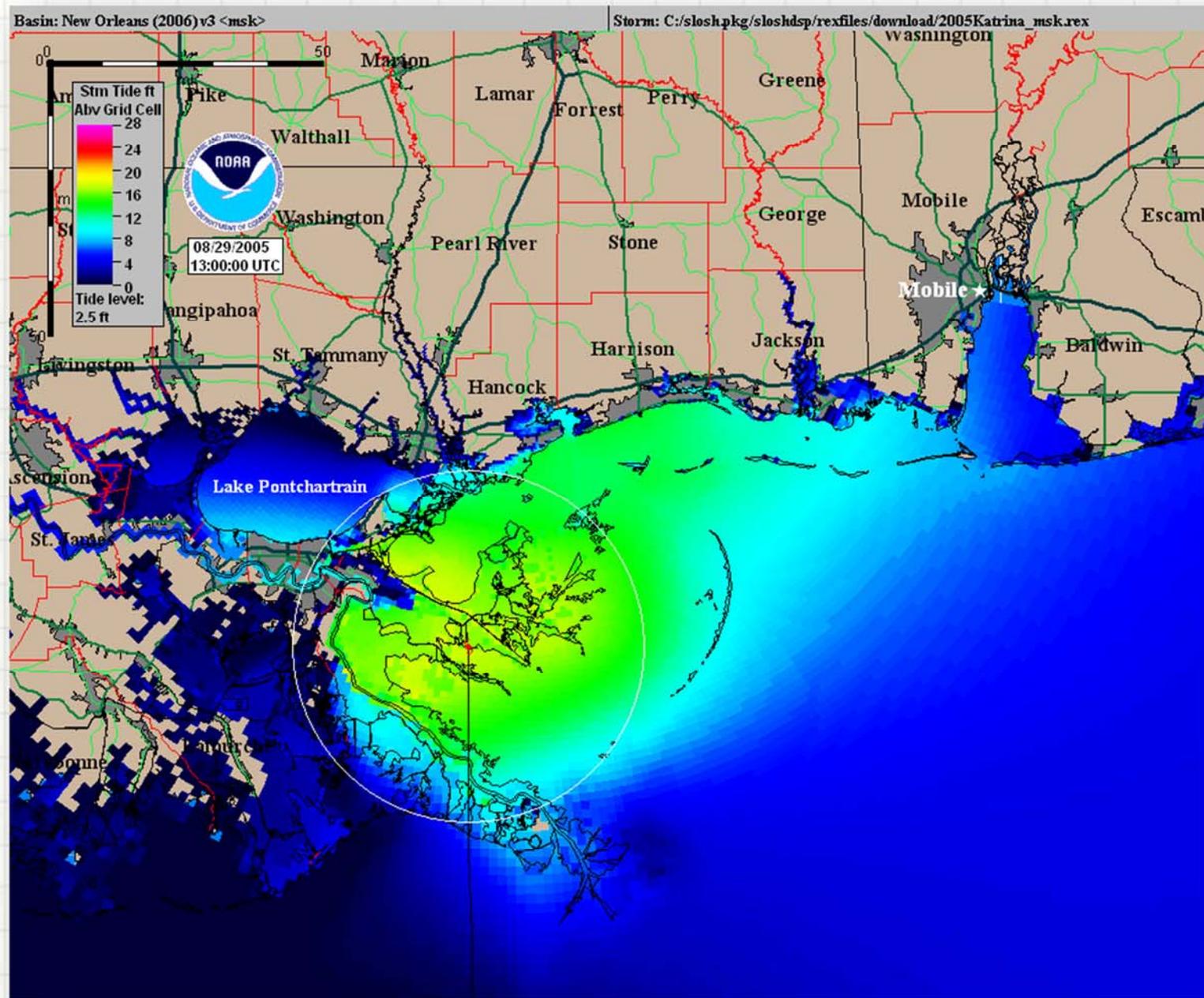


Seadrift

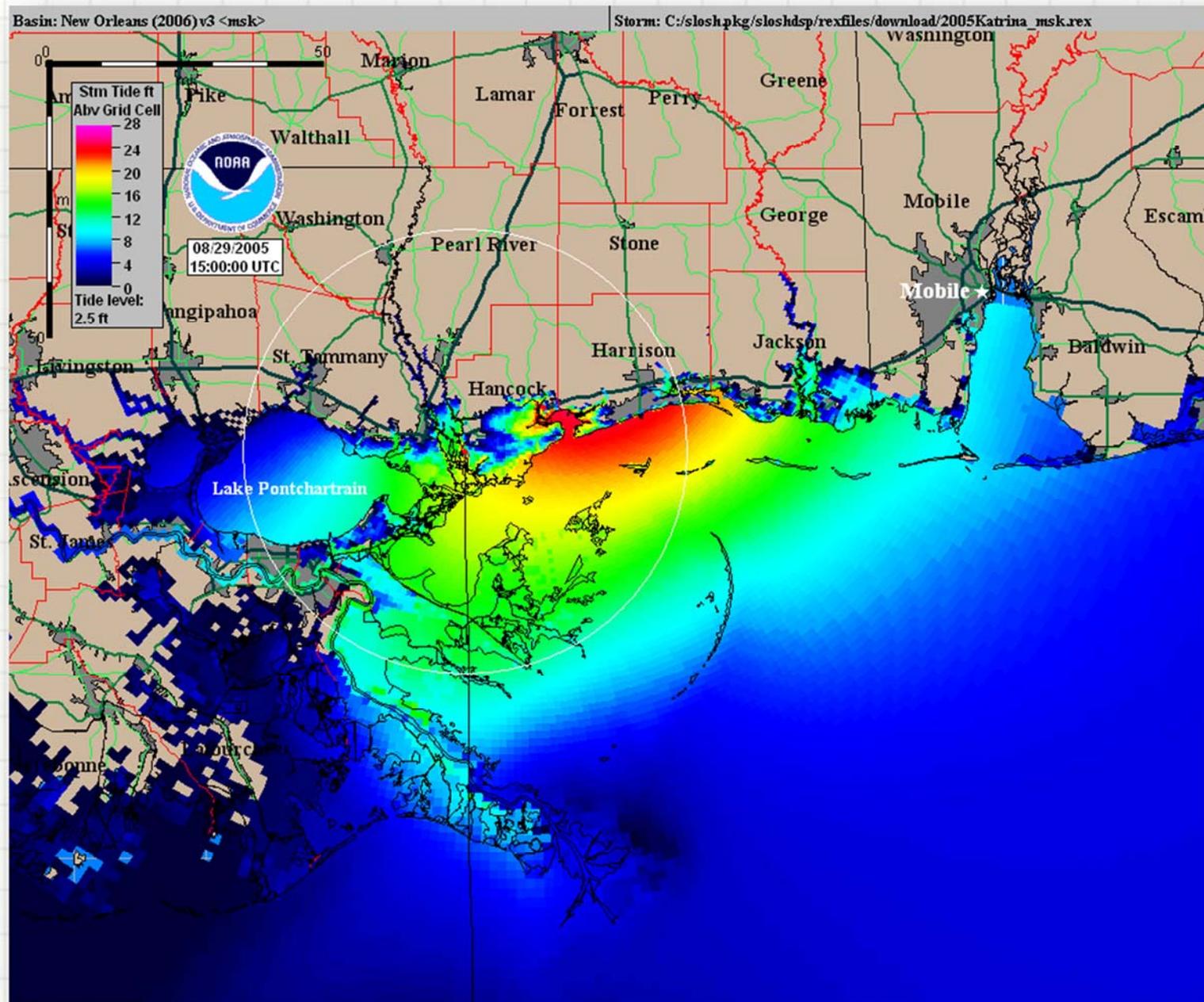
Katrina: Storm Surge



Katrina: Storm Surge



Katrina: Storm Surge



Summary of Comments

- Diff-in-diff spillover effects?
 - Use Detroit or Chicago as baseline
 - Use Table 4 controls in Table 5
- Hurricane risk proxy: distance to coastline
 - Use predicted property damage

Conclusion

- Very nice paper!!!
- Interesting research question
- Topical and important
- Enjoyed reading!!!