

Baird.

Innovation Engineered.

Review & Evaluation of FEMA's Coastal Flood Risk Study

Palm Beach County

Water Resources Task Force Meeting

July 23, 2020

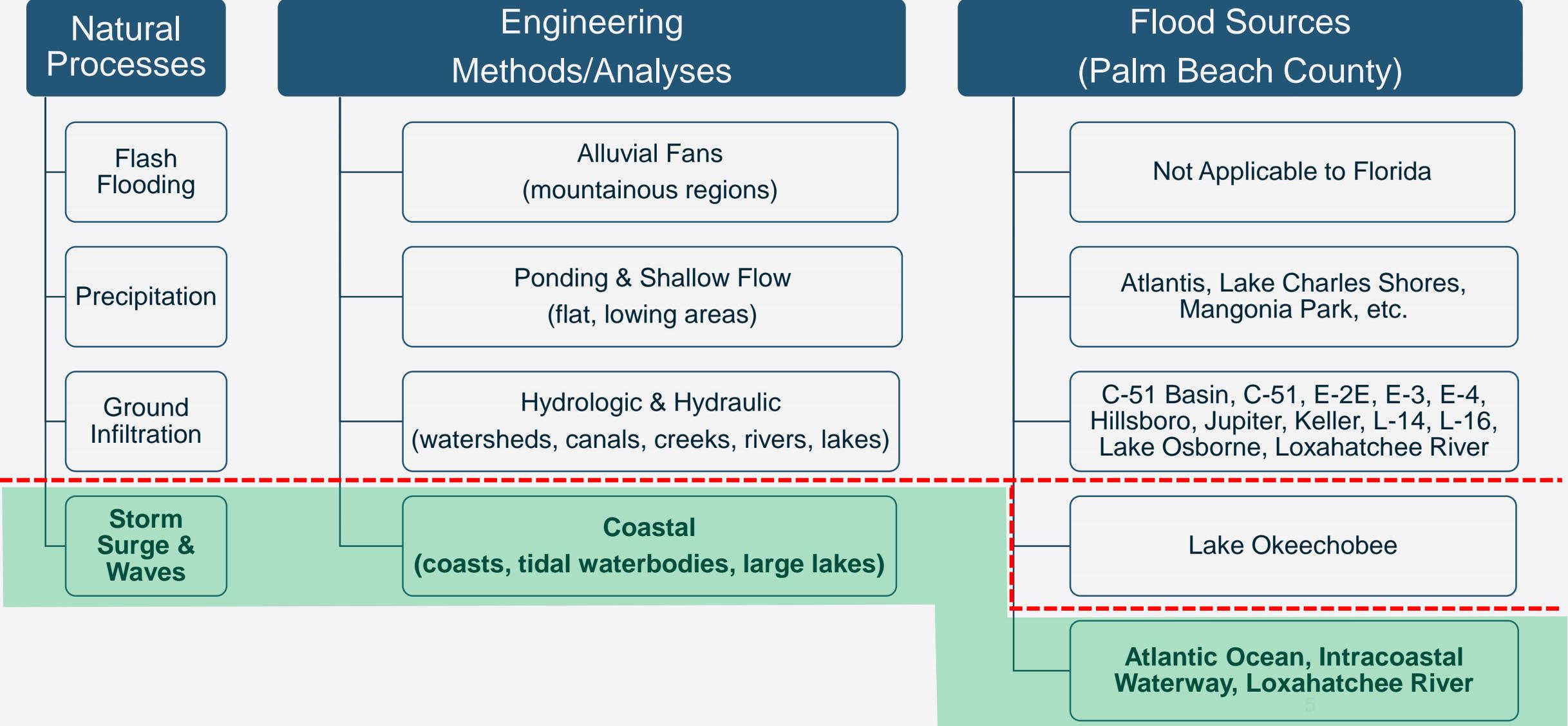
Agenda

- FEMA's Studies
 - Purpose
 - Framework
- FEMA's Coastal Analysis
- Baird's Technical Review
 - Scope
 - Preliminary Findings
 - Next Steps

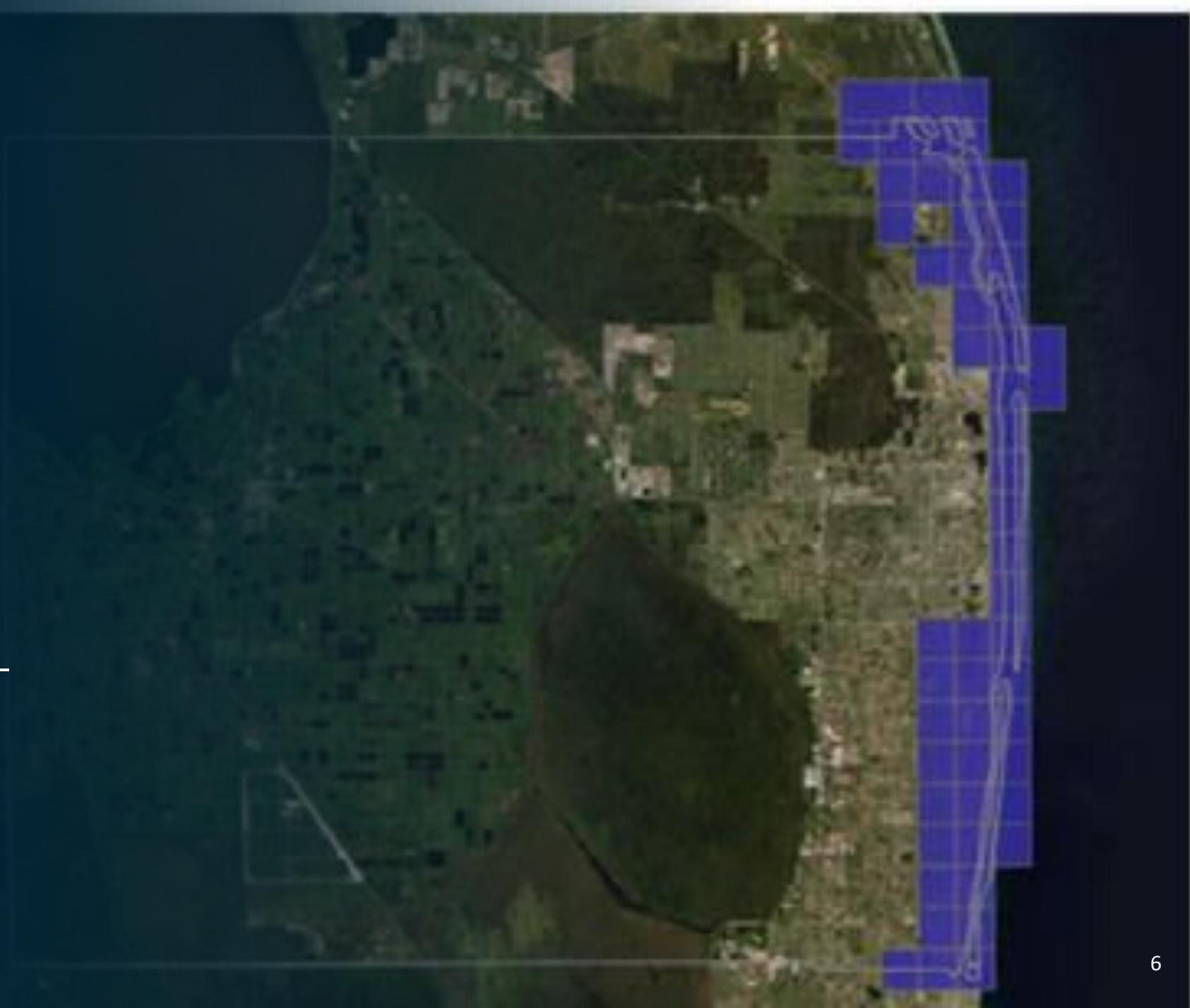
FEMA's Studies (Purpose)

- “The flood insurance study (FIS) report revises and updates information on the existence and severity of flood hazards for the study area.”
- FIS report defines special flood hazard areas (SFHA) for the 1% annual chance (100-year) event
 - Basis for rating flood insurance premiums
- FEMA is updating the SFHA for Palm Beach County

FEMA's Studies (Framework)



FEMA's Coastal Analysis (FIRM Panels)



B. | 1981

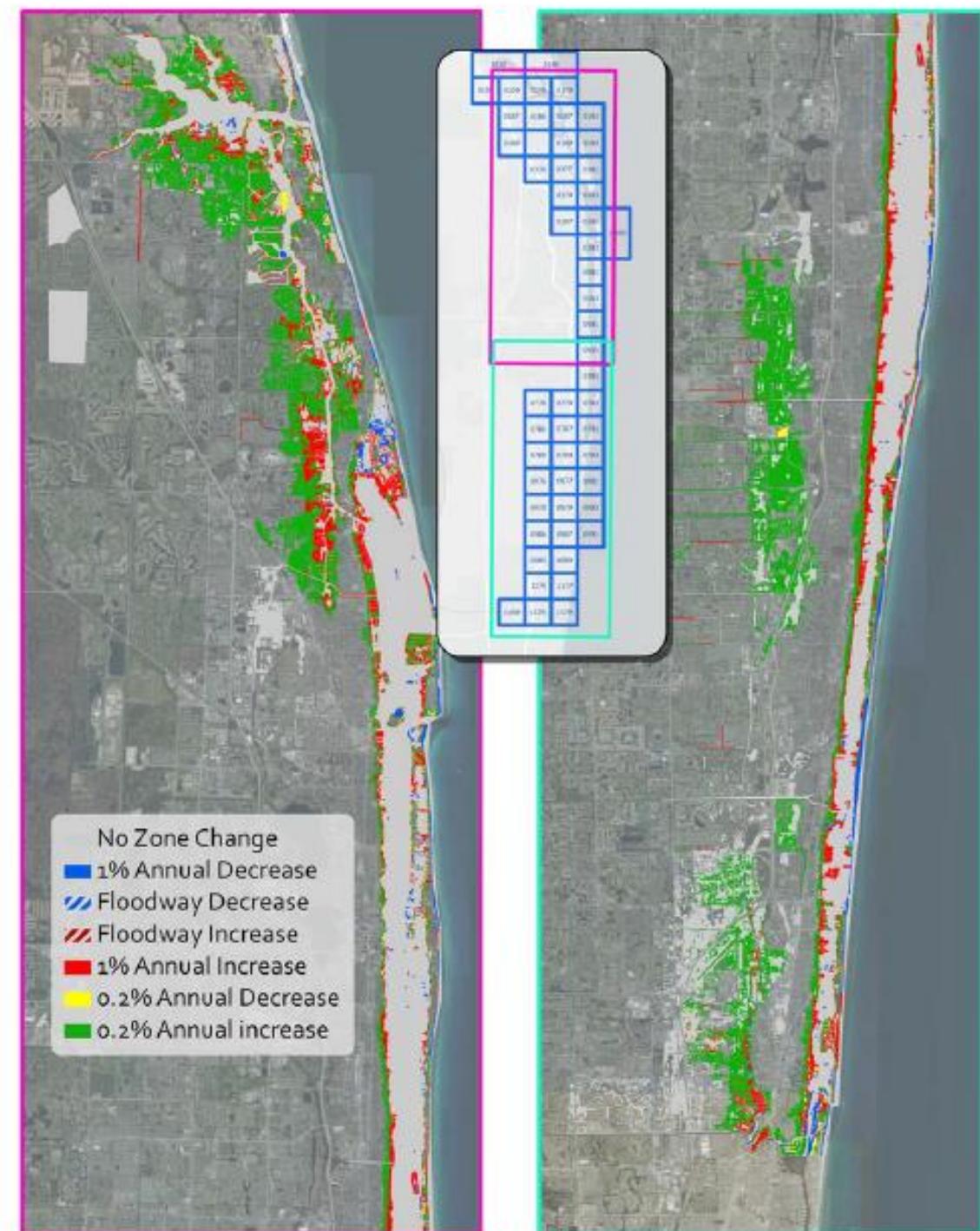


FEMA's Coastal Analysis

- FIRM changes...2017 → 2020...
 - SFHA increased by ~1,900 acres (net)
 - Higher rating on insurance premiums

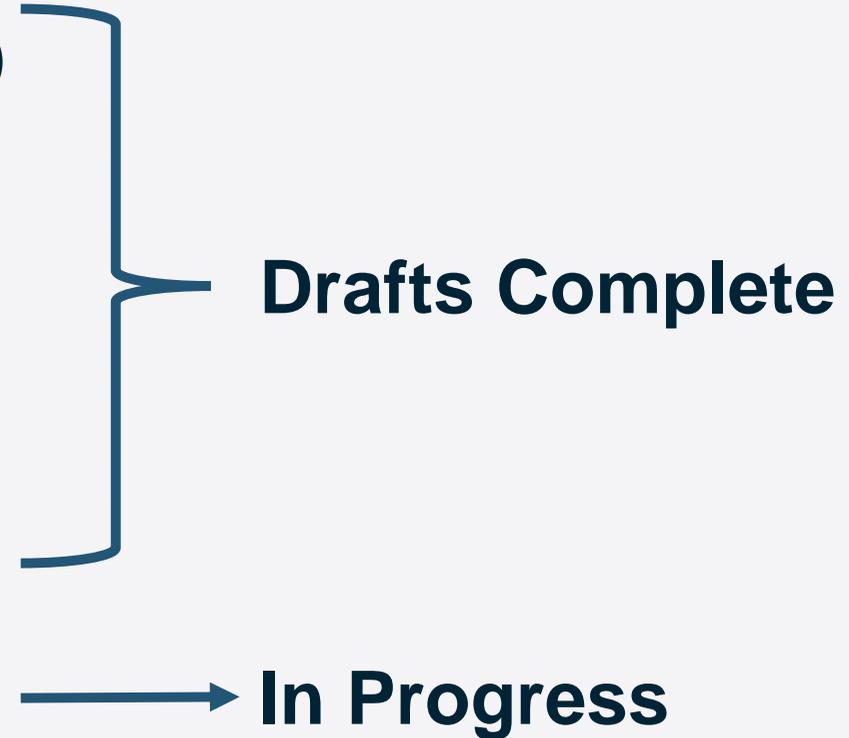
• Municipalities Affected

Boca Raton	Jupiter	Palm Beach
Boynton Beach	Jupiter Inlet Colony	Palm Beach County
Briny Breezes	Lake Park	Palm Beach Gardens
Delray Beach	Lake Worth Beach	Palm Beach Shores
Gulfstream	Lantana	Riviera Beach
Highland Beach	Manalapan	South Palm Beach
Hypoluxo	North Palm Beach	Tequesta
Juno Beach	Ocean Ridge	West Palm Beach



Baird's Technical Review (scope)

- Topographic Elevation Data Evaluation (Task 2)
- Study Document Review (Task 4)
- Model and Map Evaluation (Task 5)
- FEMA and Stakeholder Coordination (Task 3)
- Final Summary (Task 6)



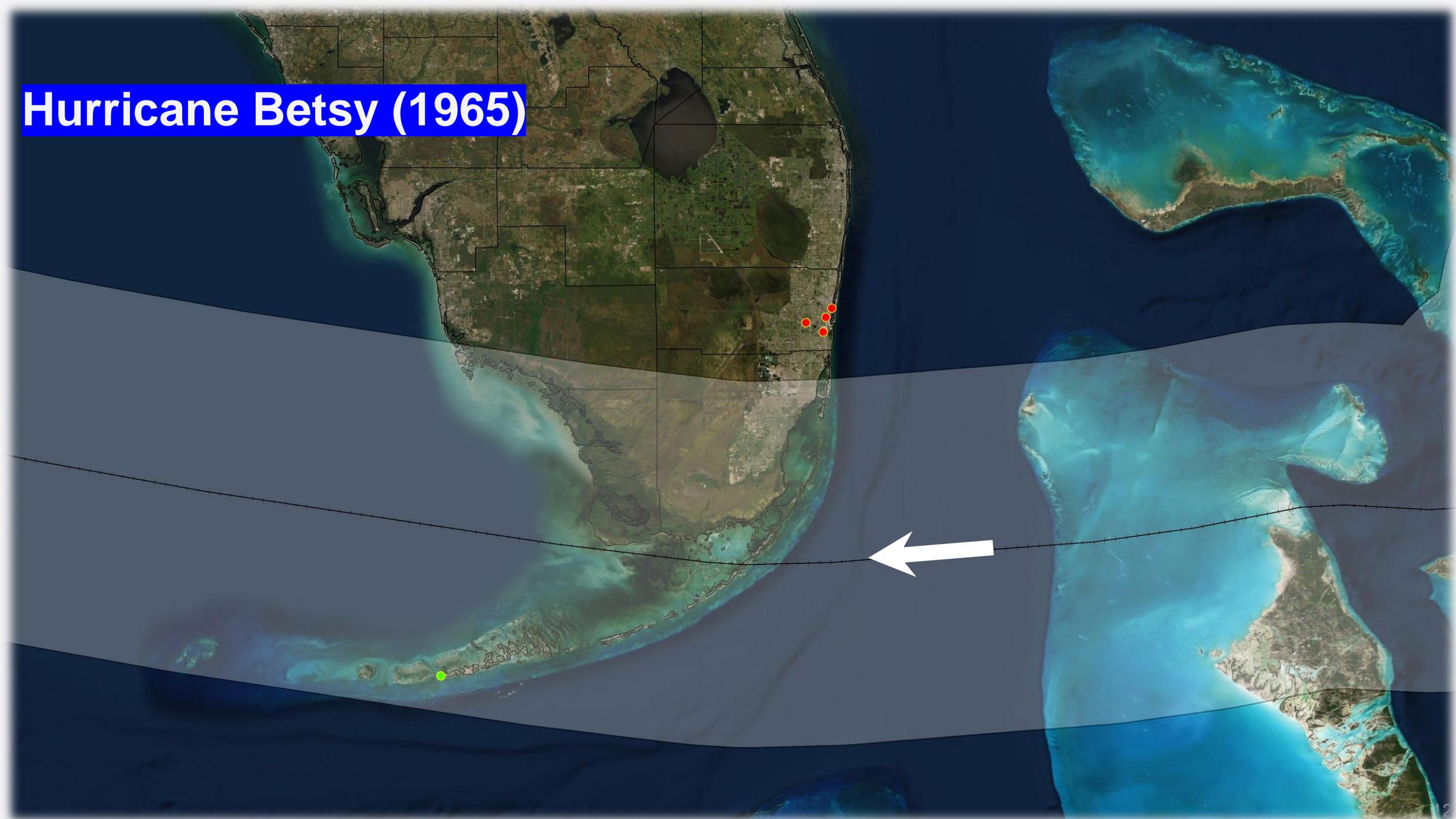
Baird's Technical Review (preliminary findings)

- County's 2017 LiDAR survey was compared to FEMA's elevation model used for mapping. Differences within the areas of FIRM changes...
 - 14% of area...County LiDAR above FEMA (≥ 0.5 feet)
 - 79% of area...within survey tolerance (+/-0.5 feet)
 - 7% of area...County LiDAR below FEMA (≥ 0.5 feet)

Baird's Technical Review (preliminary findings)

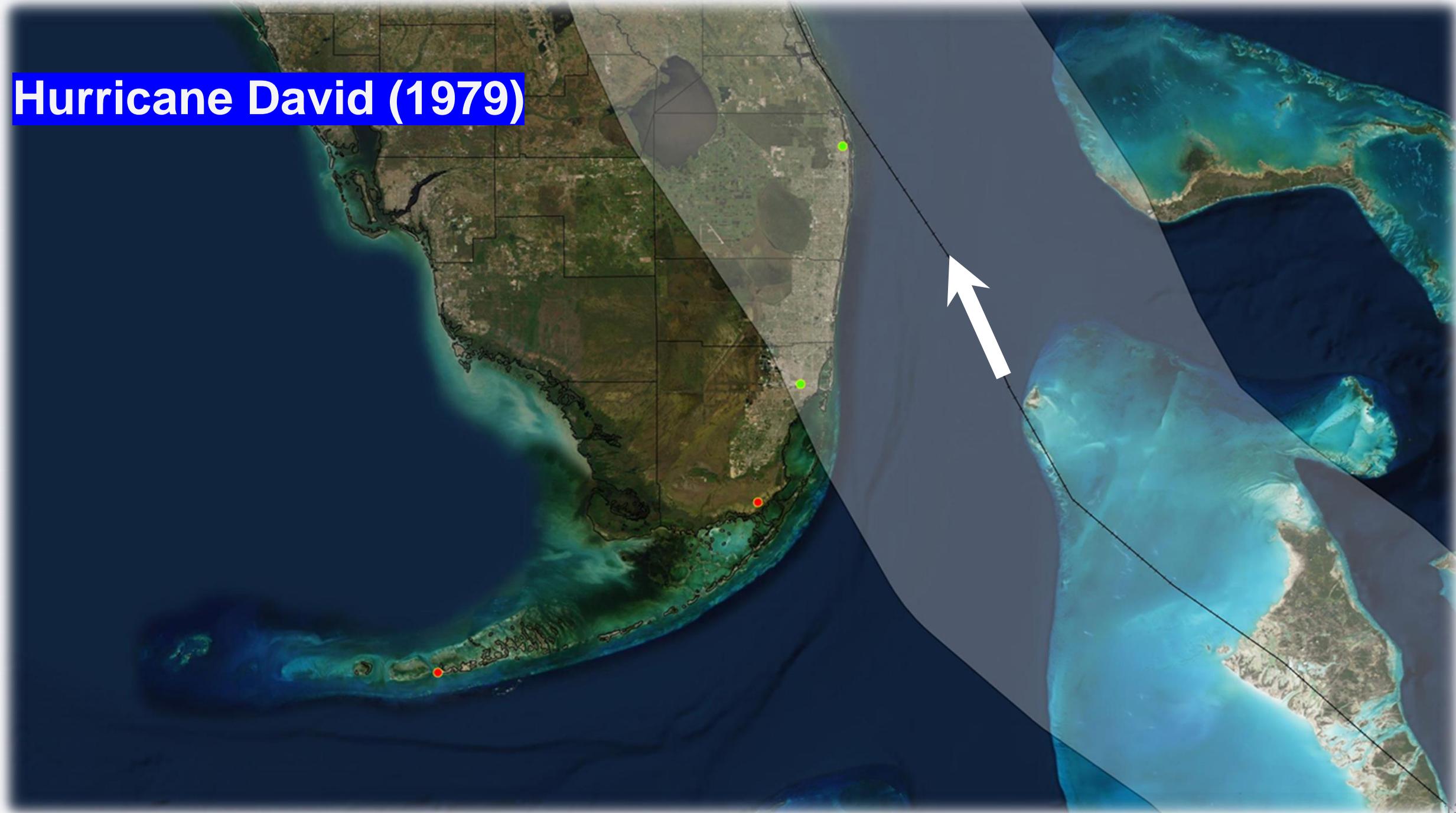
- FEMA's validation storms not representative for Palm Beach County
 - Hurricane Betsy (1965)
 - Hurricane David (1979)
 - Hurricane Andrew (1992)
 - Hurricane Georges (1998)
 - Hurricane Wilma (2005)
- FEMA's model setup had limited accuracy in simulating storm surge

Hurricane Betsy (1965)

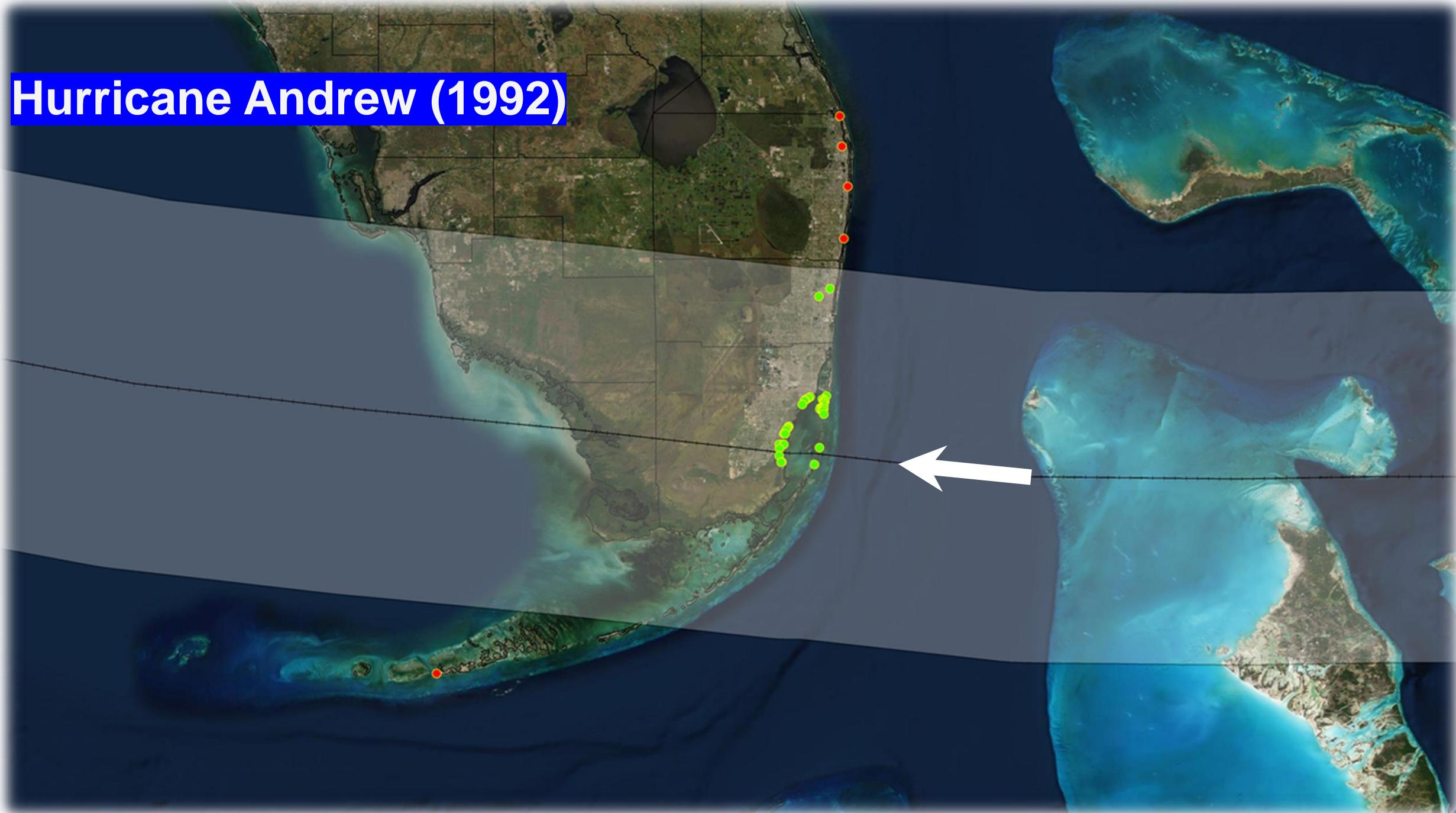


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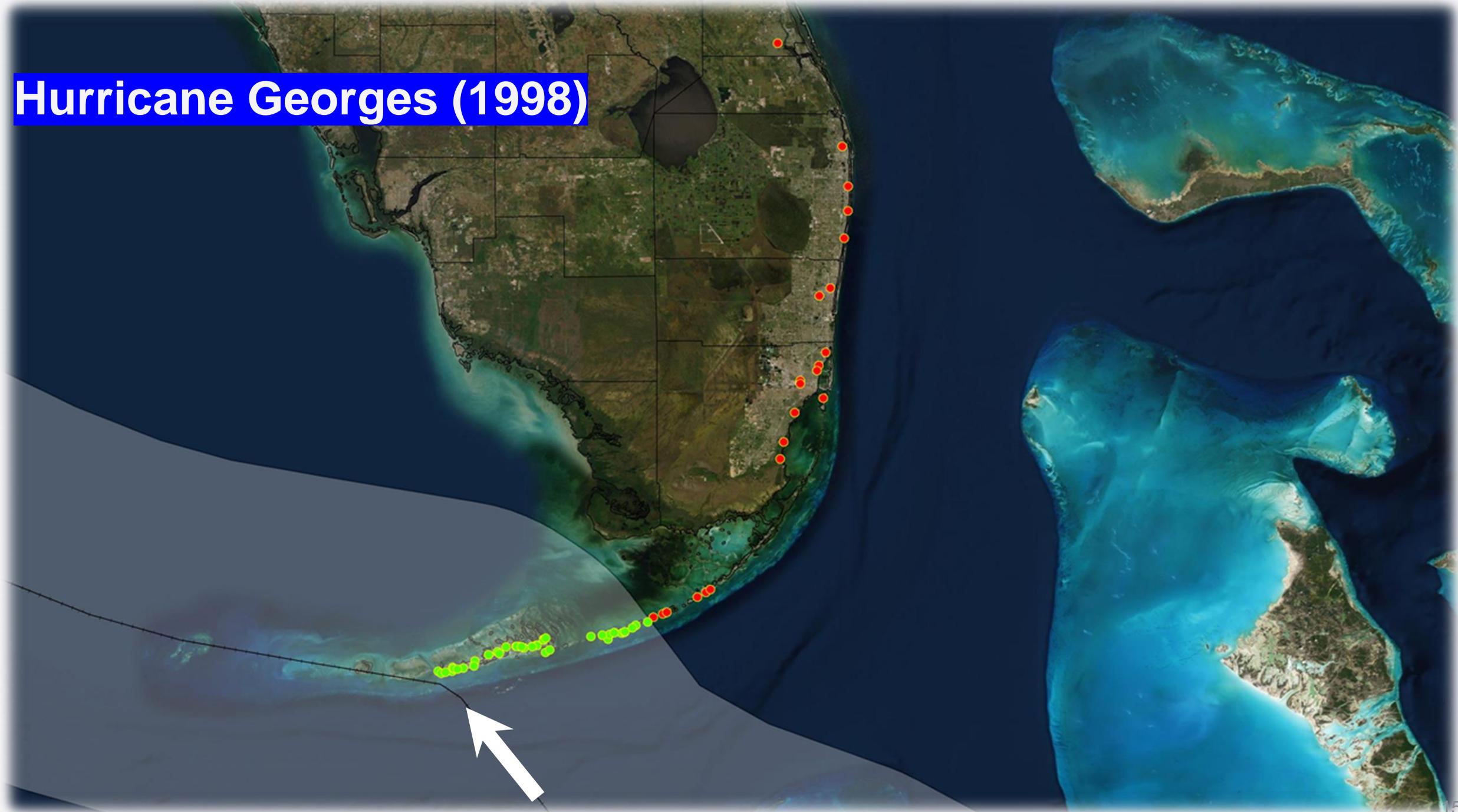
Hurricane David (1979)



Hurricane Andrew (1992)

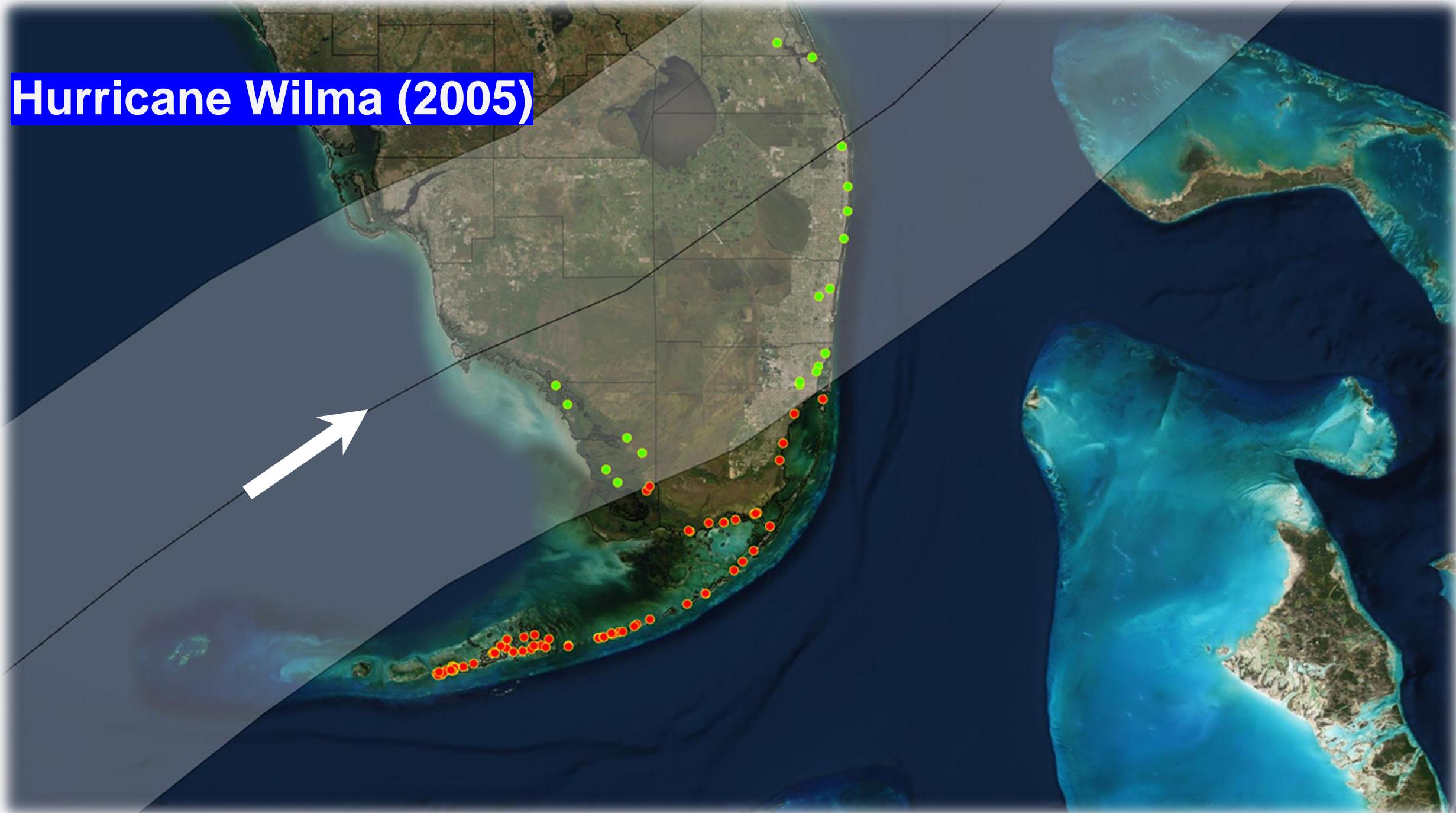


Hurricane Georges (1998)



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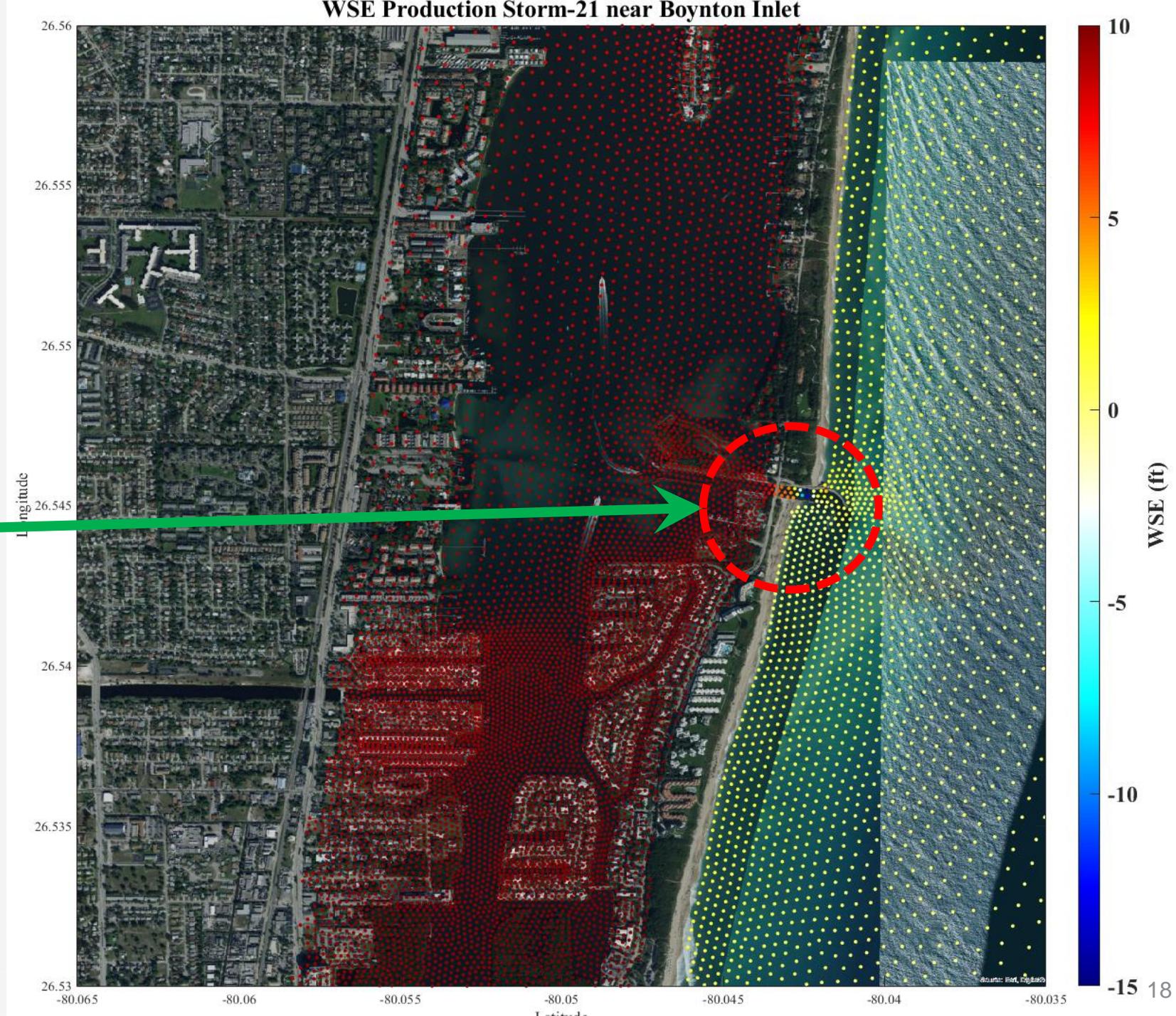
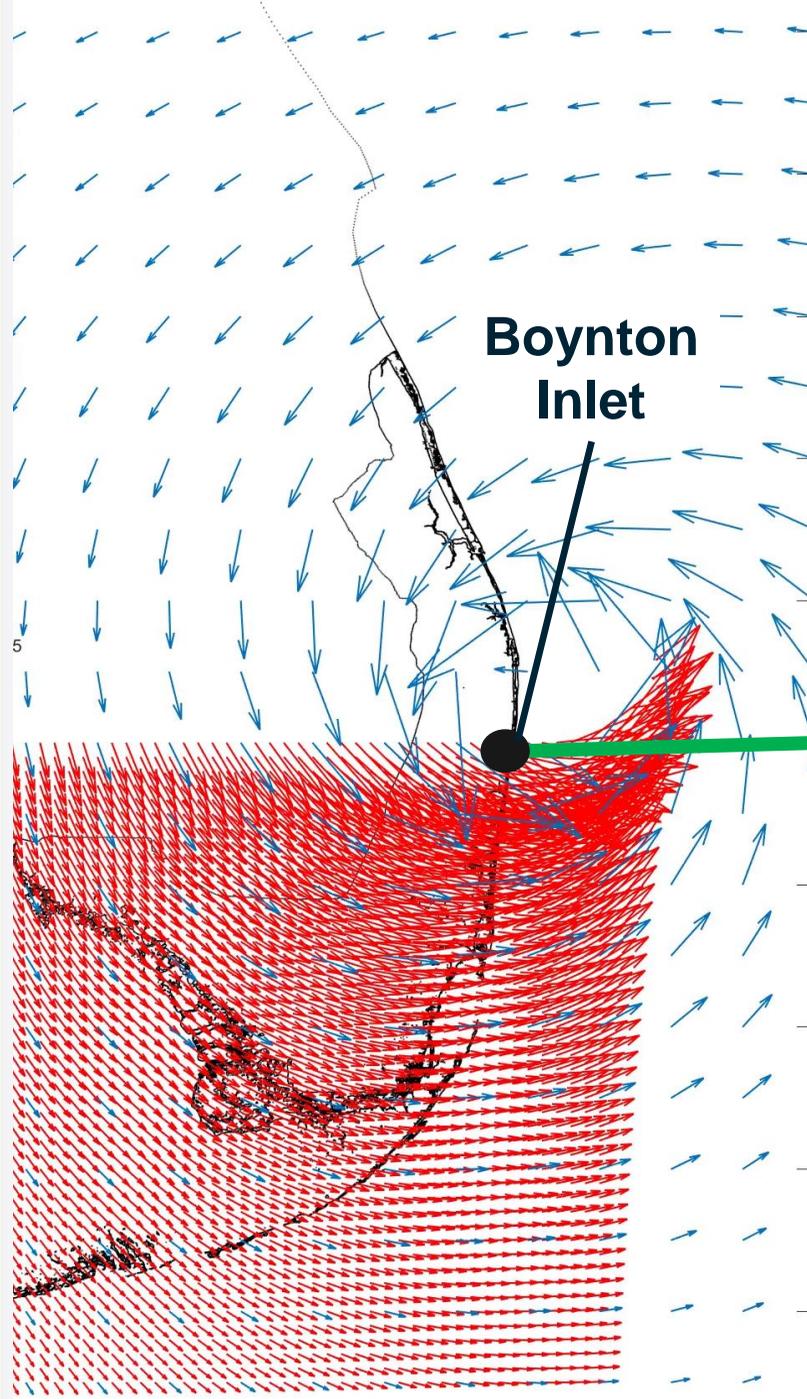
Hurricane Wilma (2005)

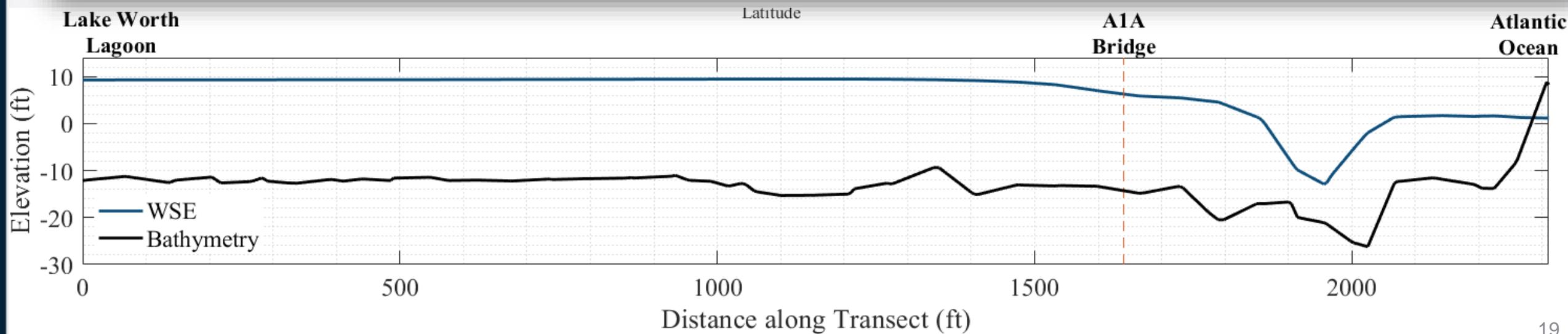
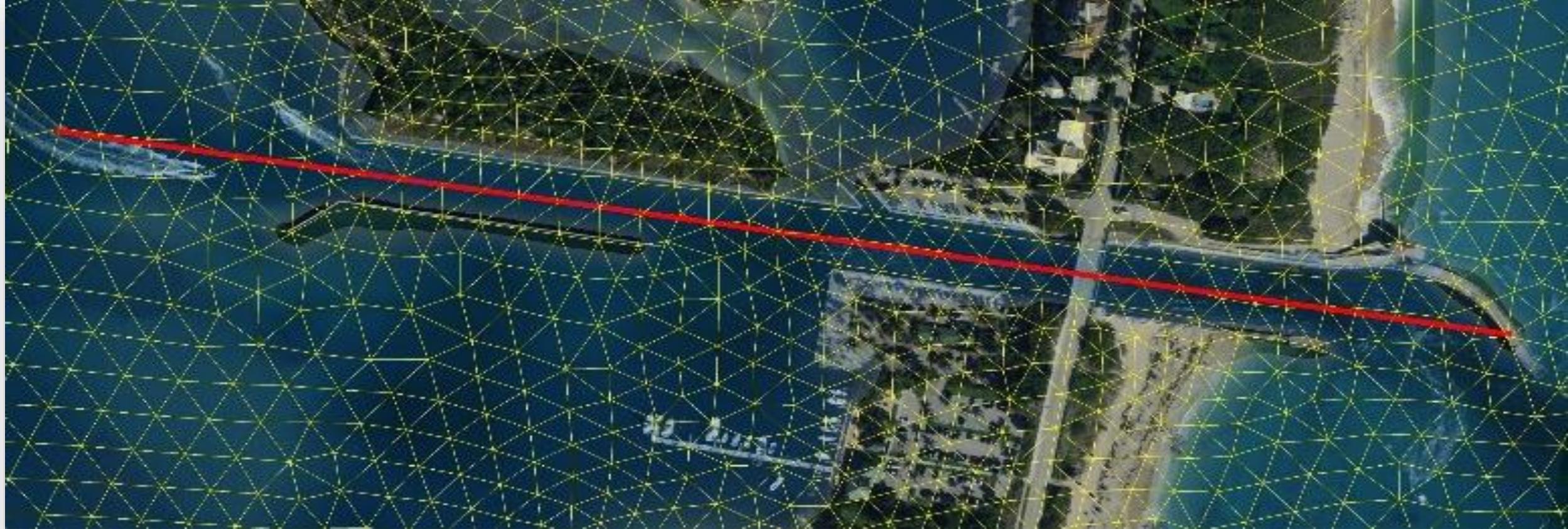


Baird's Technical Review (preliminary findings)

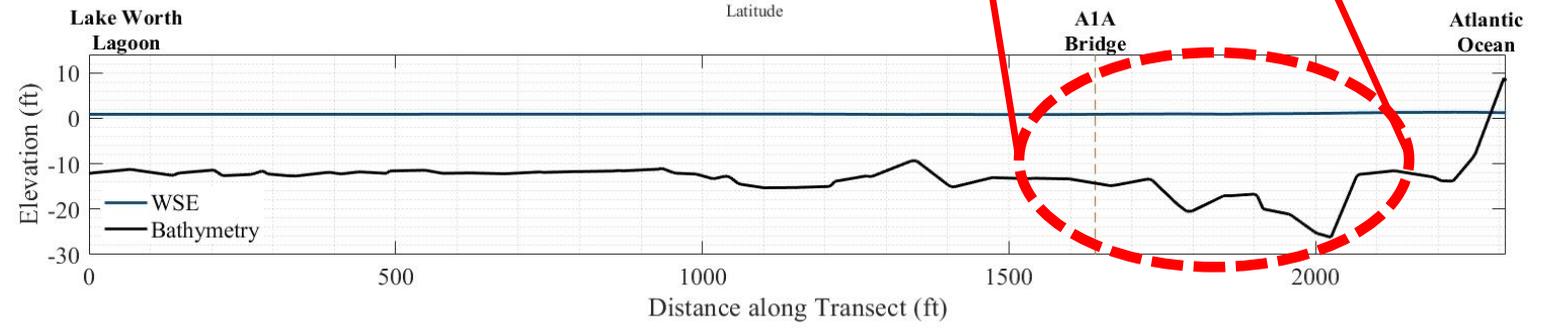
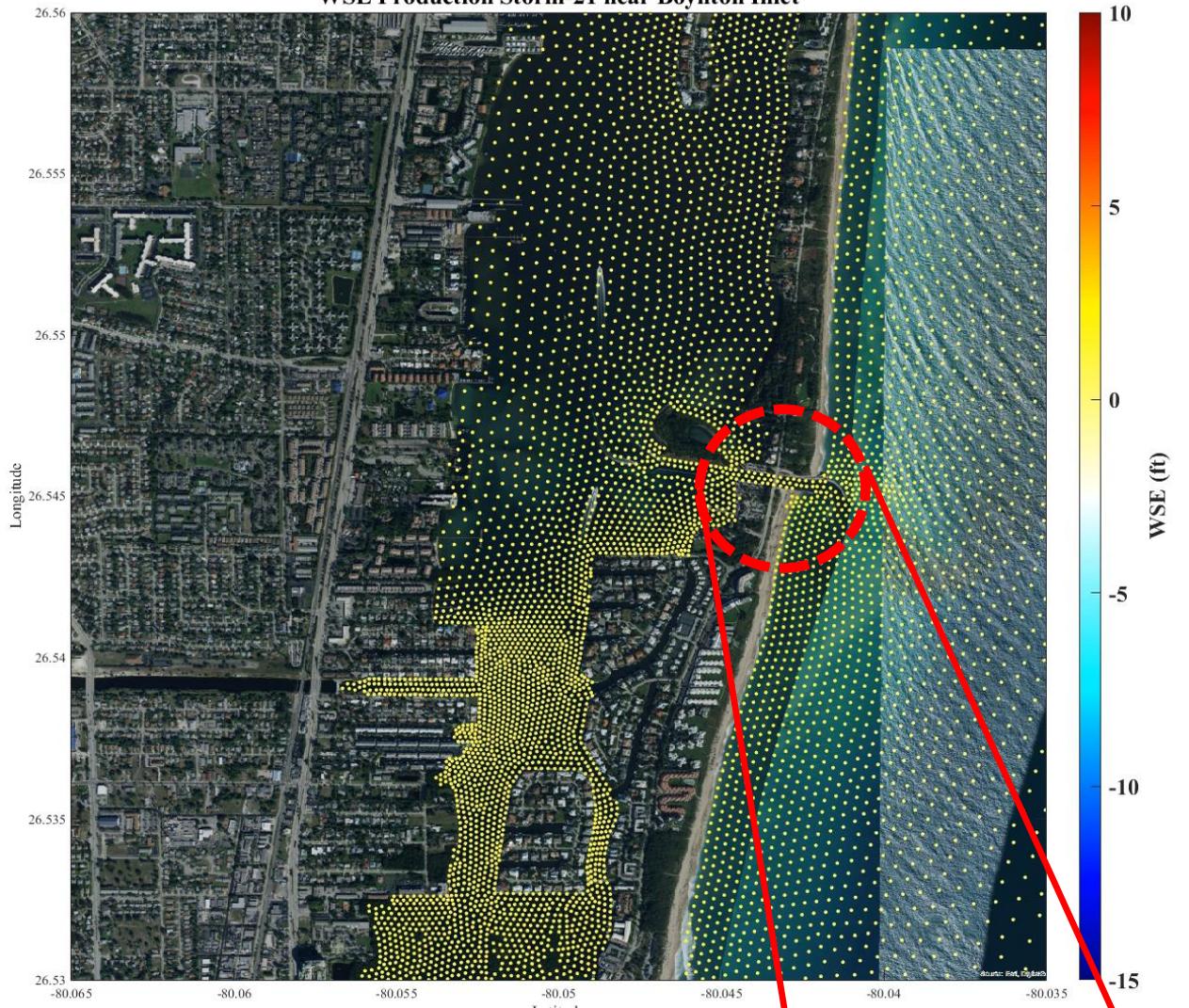
- FEMA's 1% annual chance stillwater elevations (SWEL) offshore of Palm Beach County appear high
- FEMA's results appears to have been impacted by the selected model grids

WSE Production Storm-21 near Boynton Inlet





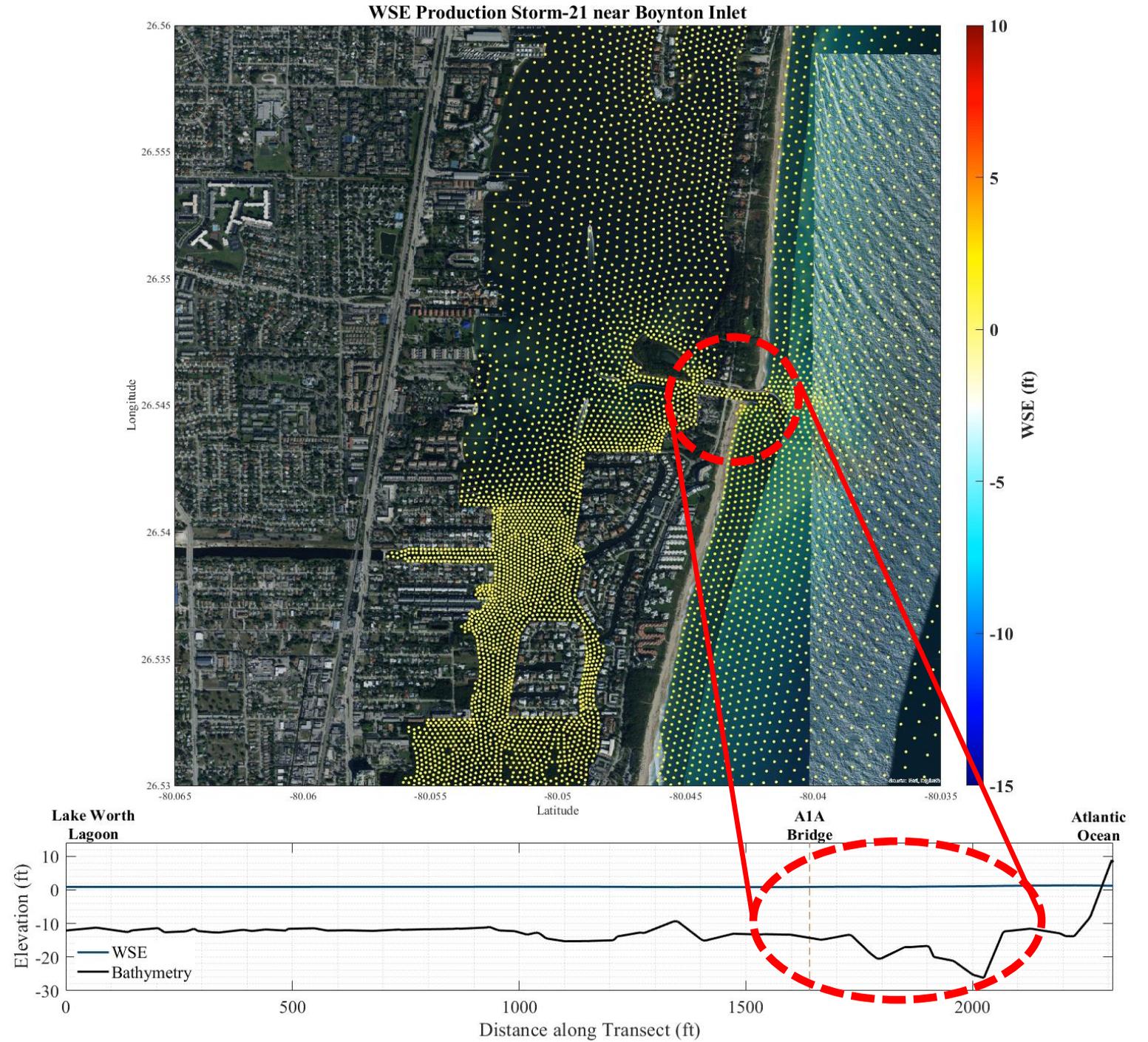
WSE Production Storm-21 near Boynton Inlet



Baird's Technical Review (next steps)

- Finalize technical review
- Continued coordination with stakeholders (WRTF, local governments, FEMA)
- Determine path forward

Questions?



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