



# Hurricane Matthew: 10 Years Later

*Florida's Wake Up Call*

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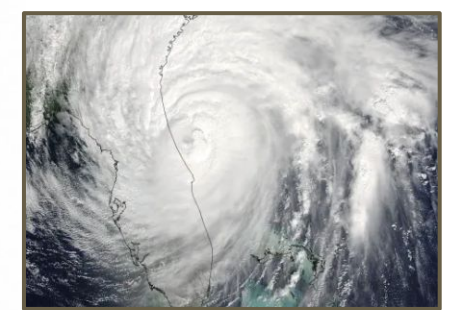
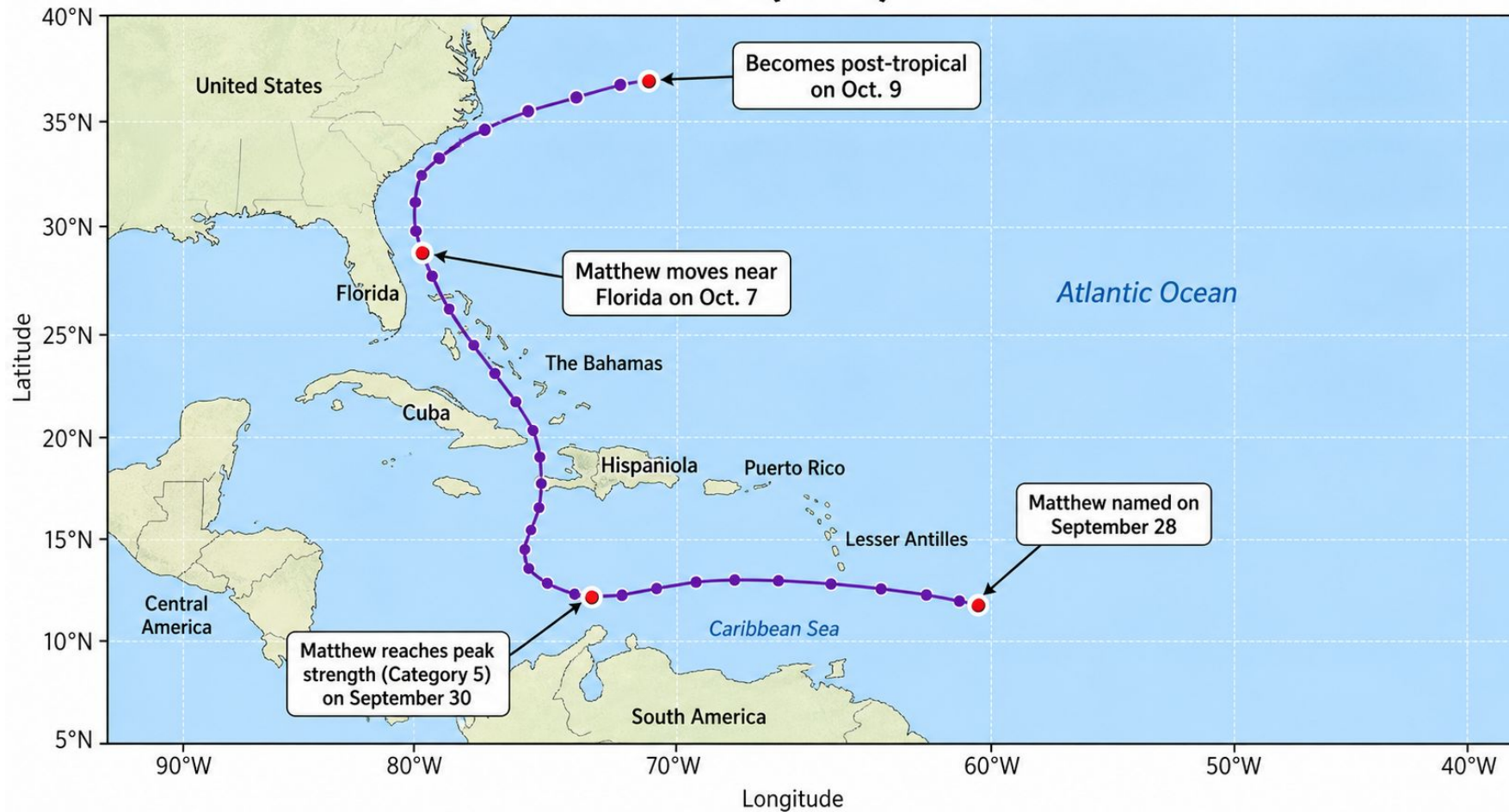
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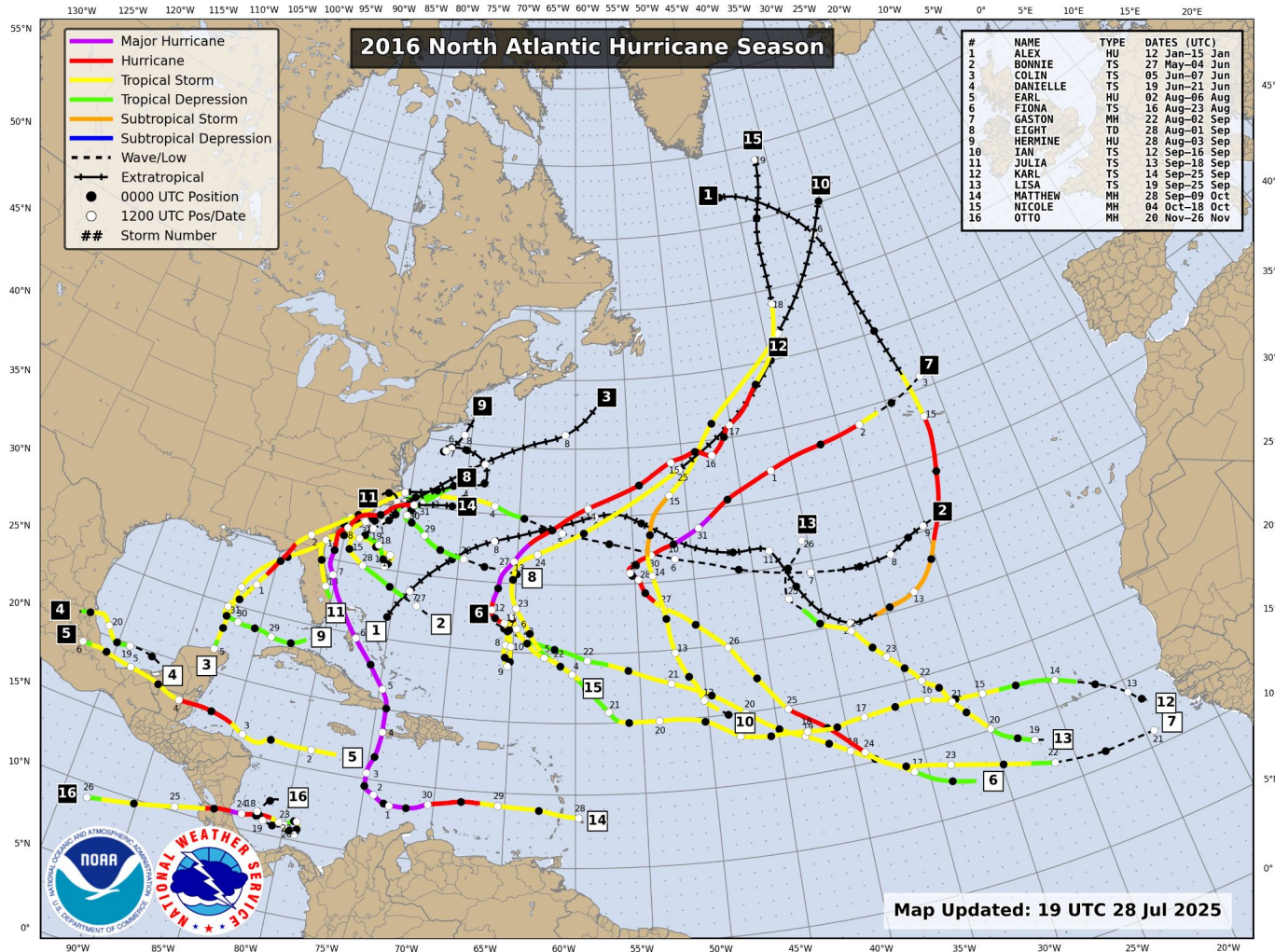


# Matthew's Life Cycle

## Hurricane Matthew (2016) – Official Best Track



# 2016 Hurricane Season



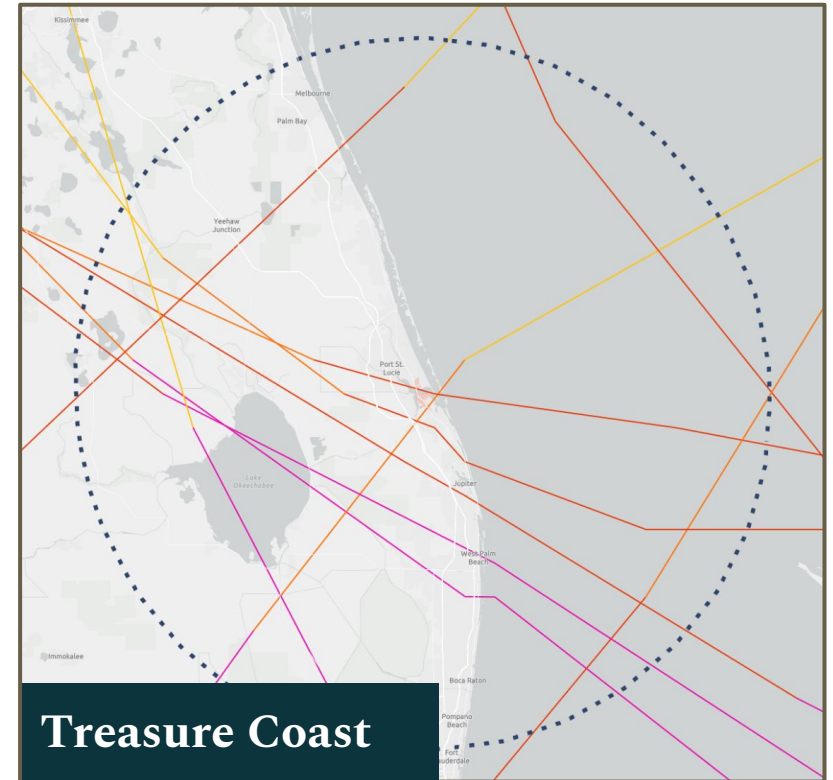
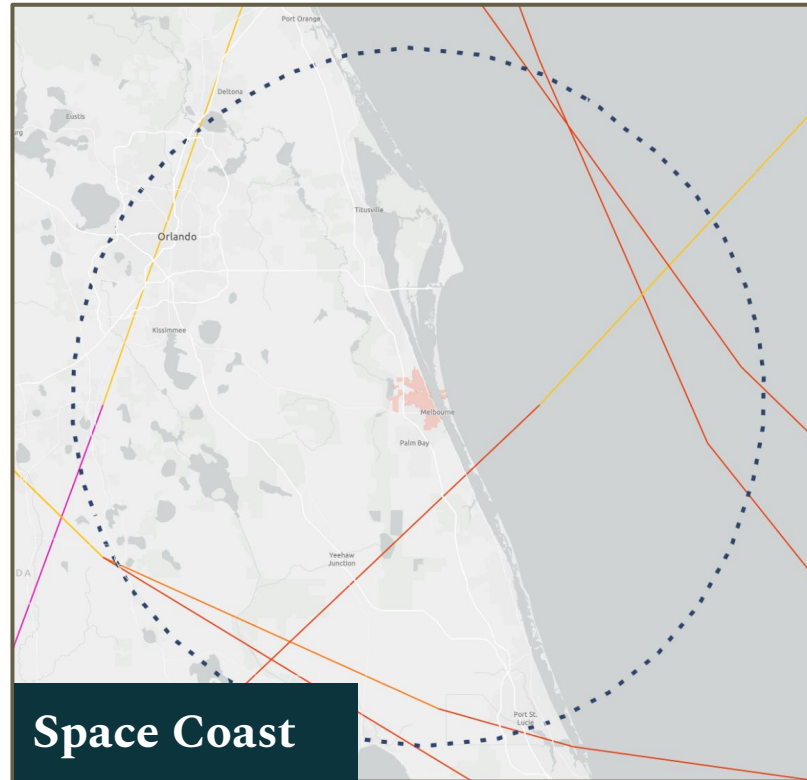
**By The Numbers**  
 Tropical Storms - 15  
 Hurricanes - 7  
 Major Hurricanes - 4

- Matthew rapidly intensified and was the first Category 5 storm since Felix (2007)
- Matthew was responsible for 585 direct fatalities, over 500 in Haiti
- Hurricane Hermine ended Florida's long hurricane landfall drought (first since Wilma in 2005) earlier in the season



# Risk Perception

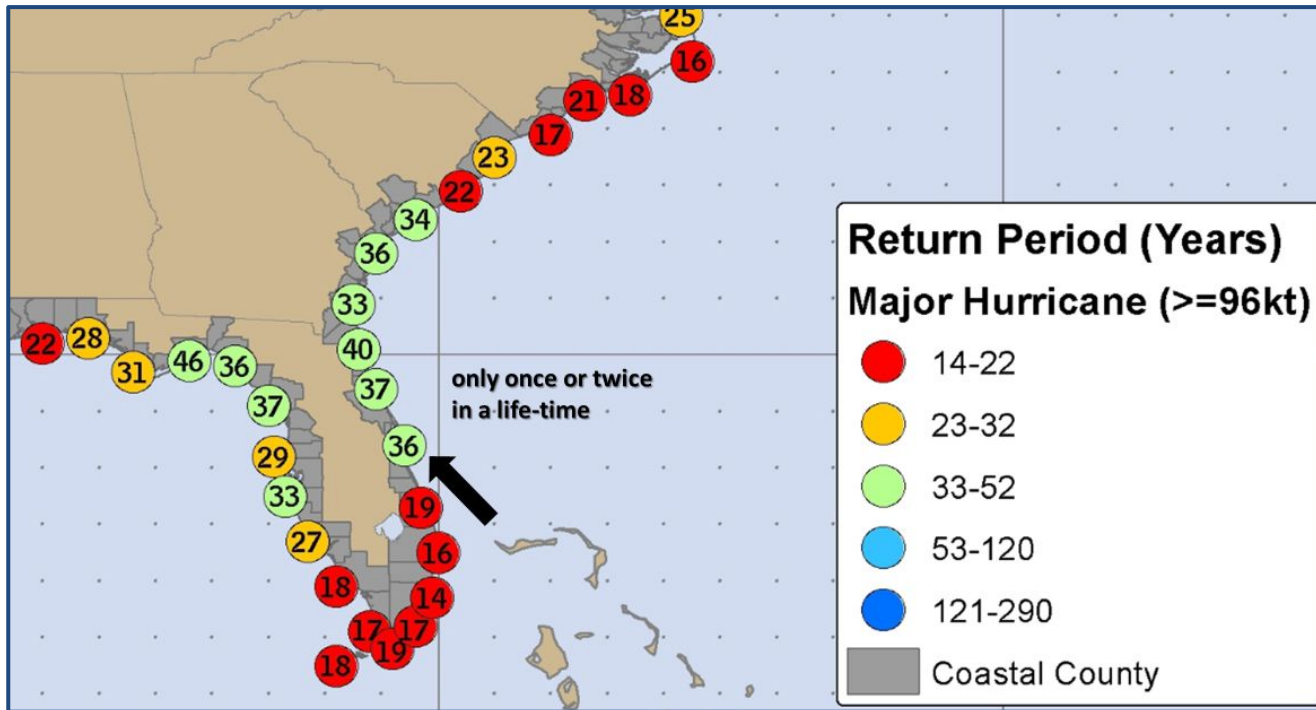
Maps depicting Major Hurricane tracks from 1850 - 2015



*Messaging to the Space Coast vs. the Treasure Coast will be different!*



# Risk Perception



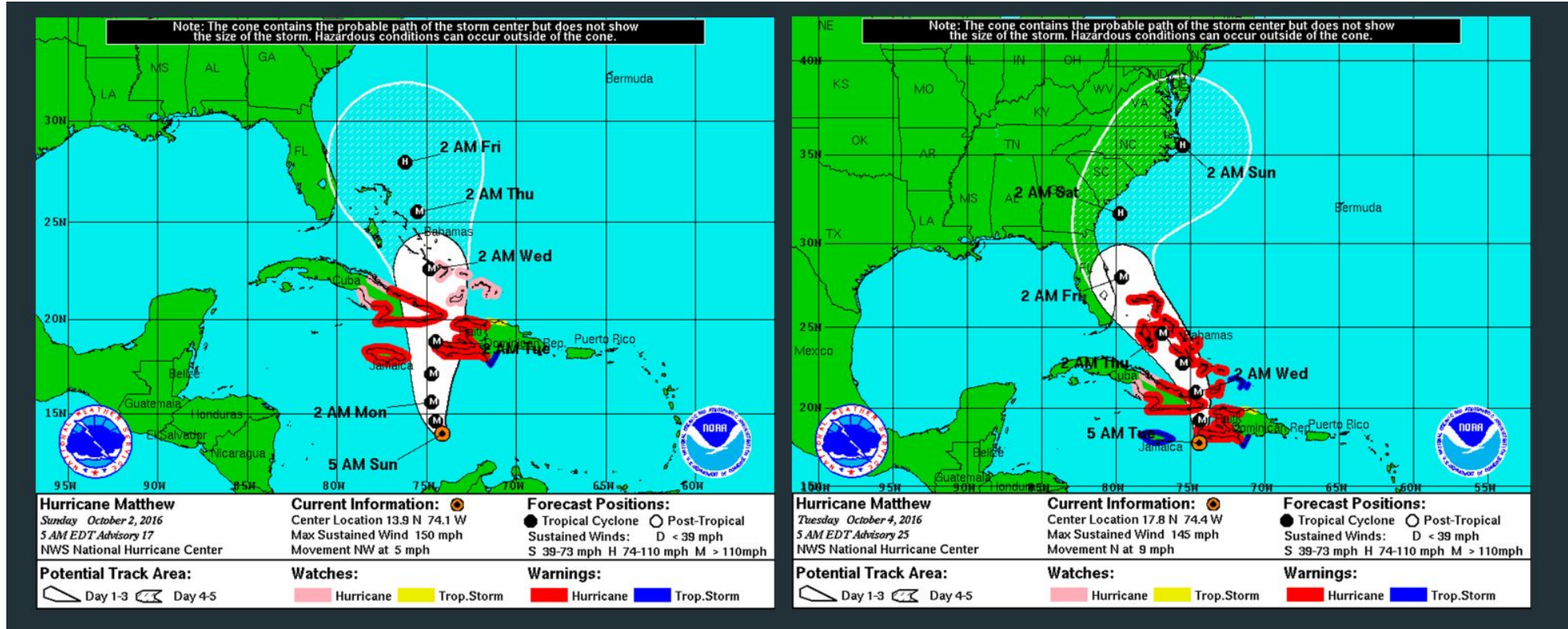
## Know Local Risk & Vulnerability

- Local Demographics
- Local Infrastructure
- Local Sensitivities
- Changes since Last Event
- Changes Planned or in Progress

**Lesson Learned:** there is no one-size-fits-all approach to hazard and safety messaging. Each storm brings a different combination of threats, vulnerabilities, and community needs. Effective messages should be localized, targeted, actionable, and timely.



# Where Was He Headed?



**Lesson Learned:** Northward-moving, coast-paralleling hurricanes are especially challenge to message for both the west and east coast of Florida. Small track shifts greatly change the outcome. Messaging reasonable alternative scenarios is key!

# Messaging Uncertainty

Hurricane Matthew



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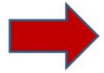
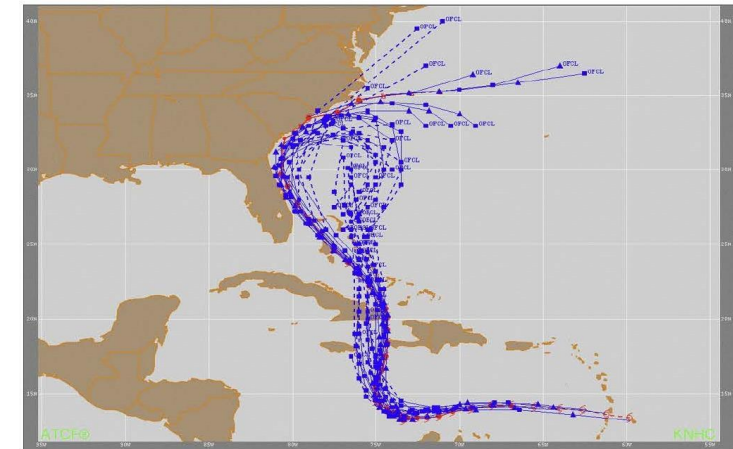
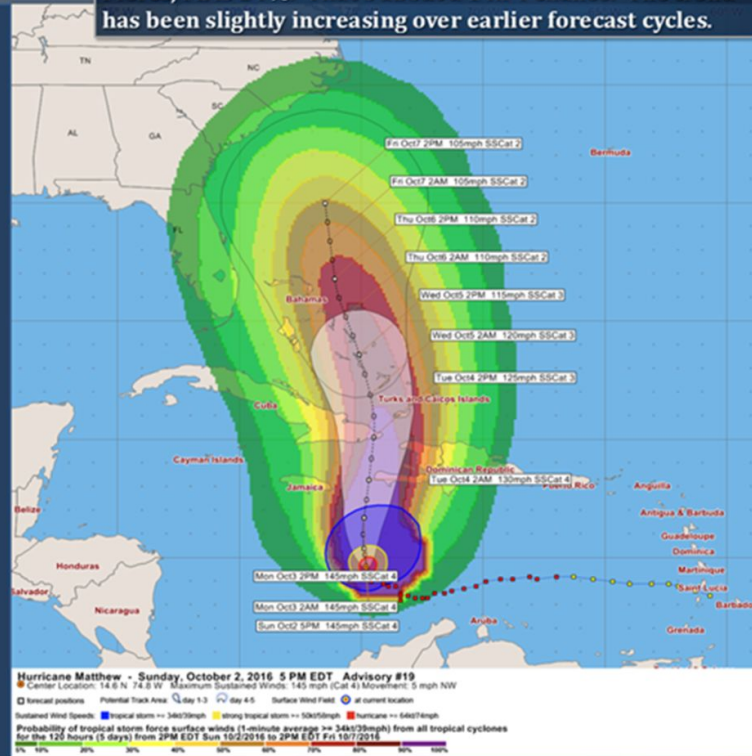
## Situation Overview

East Central Florida & Adjacent Coastal Waters

The **probability for tropical storm force winds** at Fort Pierce, FL is 24%. That's about a 1 in 4 chance. The trend has been slightly increasing over earlier forecast cycles.

### According to the latest forecast...

- A most likely scenario still keeps Matthew to the east of the Florida Peninsula.
  - Offering significant marine and coastal/beach concerns to ECFL
- An alternate scenario could bring Matthew closer to ECFL.
  - Increasing the concern for potential wind impacts for land locations
- It is still too early to describe exact impacts. For now, the overall threat to ECFL remains about the same.
- It is possible for a major hurricane to be in vicinity of ECFL mid-late week.
- Stay informed !!!



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www.weather.gov/melbourne

# Scenario-based Outcomes

Hurricane Matthew



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## Scenario Types for Decision Support



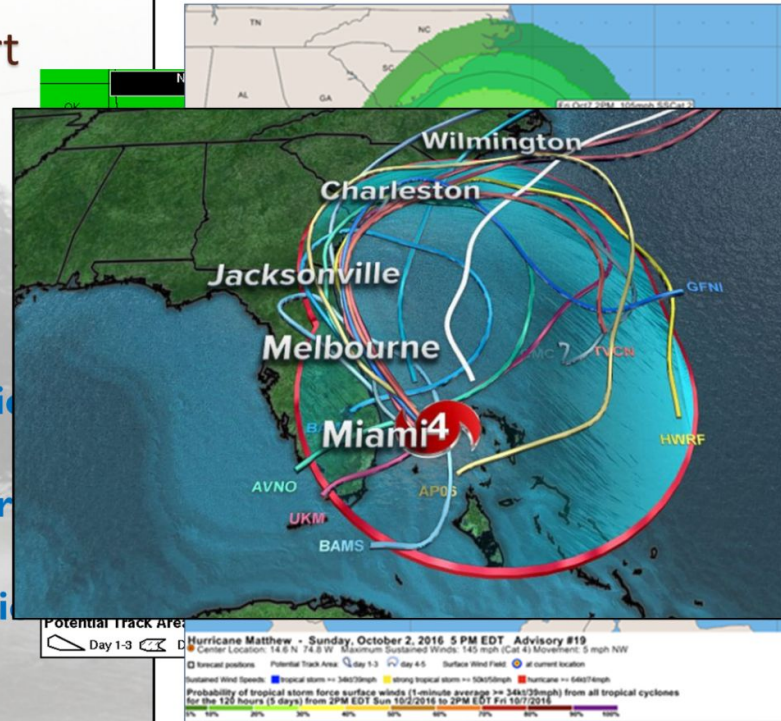
Latest Forecast

Most Likely Scenario

Most Likely Alternate Scenario

Reasonable Worst Case Scenario

Reasonable Best Case Scenario



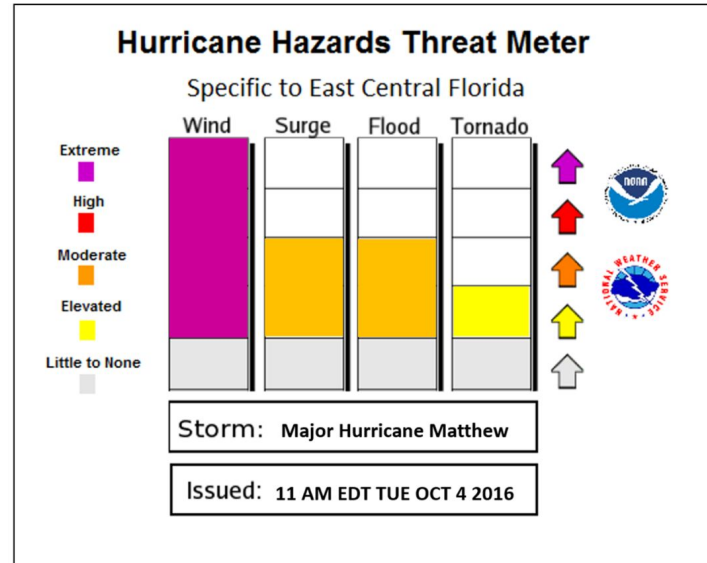
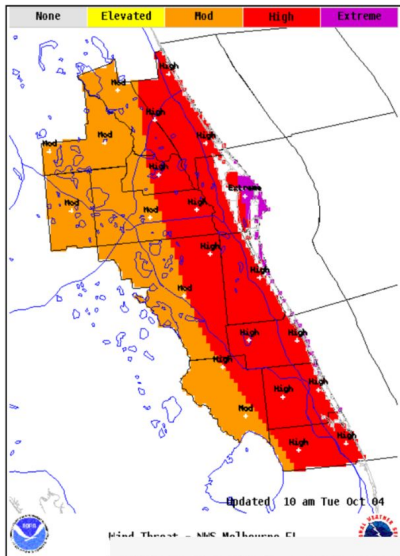
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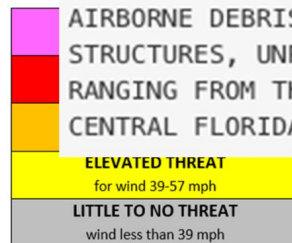


# Uncertainty in Real Time

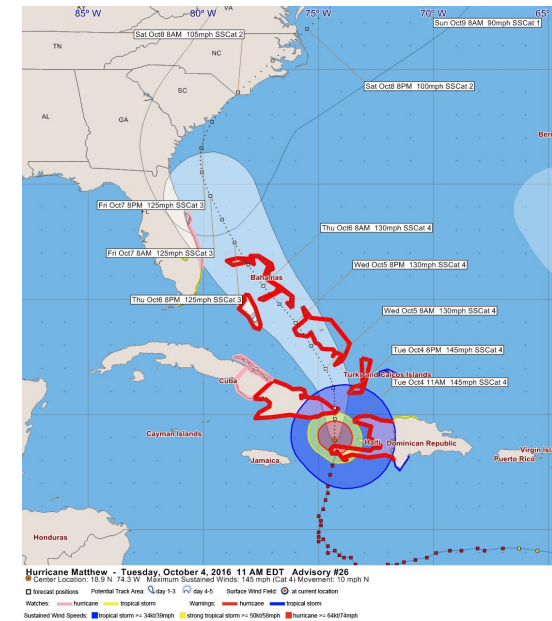
**To be Safe,  
Prepare for This**



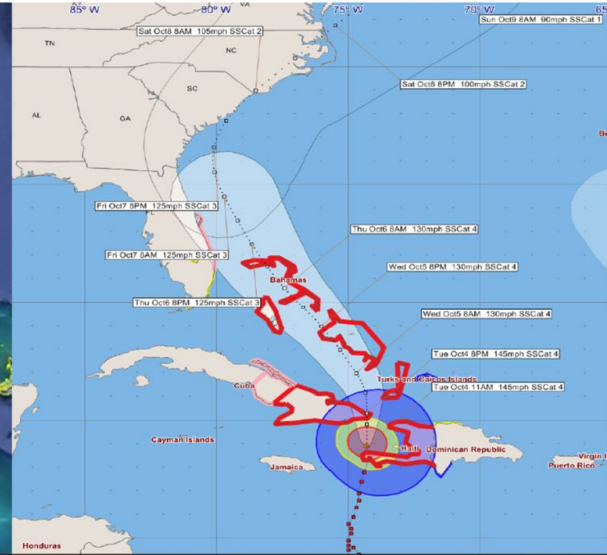
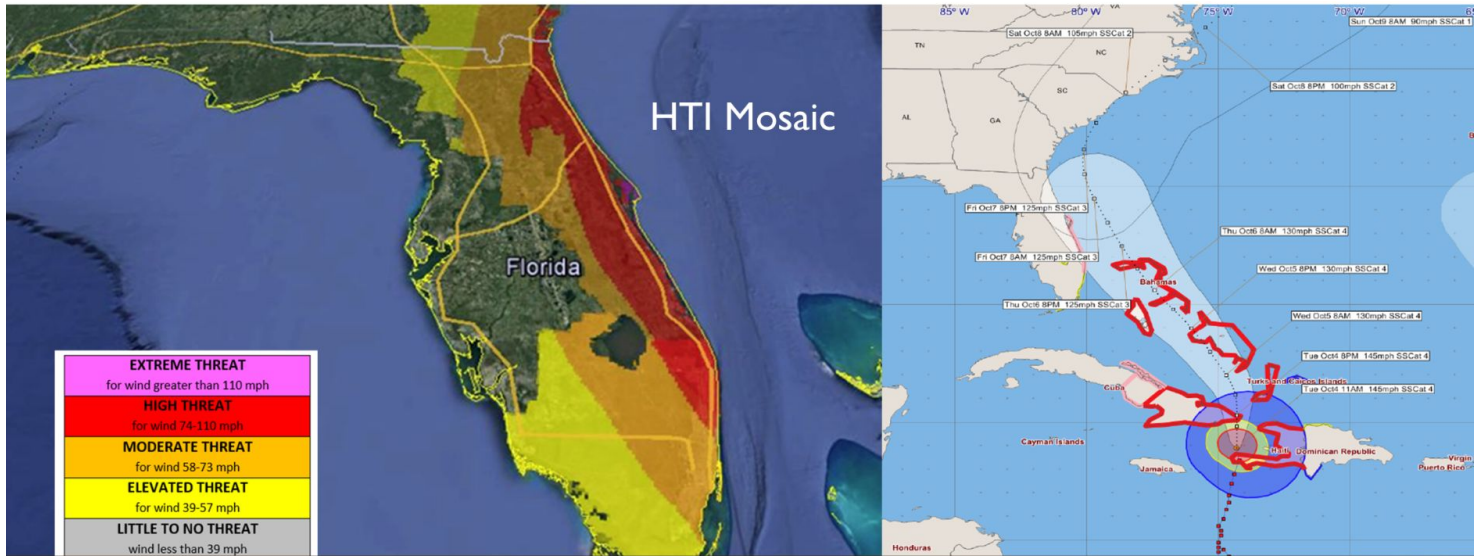
WIDESPREAD EXTENSIVE TO DEVASTATING WIND IMPACTS WILL BE FELT. AIRBORNE DEBRIS LOFTED BY EXTREME WINDS WILL BE CAPABLE OF BREACHING STRUCTURES, UNPROTECTED WINDOWS AND VEHICLES. EFFECTS SUCH AS THESE RANGING FROM THE COAST TO WELL INLAND HAVE NOT BEEN EXPERIENCED IN CENTRAL FLORIDA IN DECADES.



- Extreme
- Catastrophic
- Disastrous
- Epic

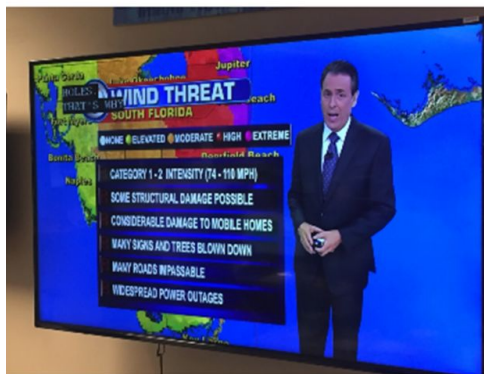


# Hurricane Threats and Impacts (HTI)



Not a forecast! What to prepare for knowing that the forecast isn't perfect.

**Lesson Learned:** Hurricane Threats and Impacts (HTI) graphics help translate forecast uncertainty into local hazard risk. They should be used alongside other NWS tools—not in isolation—to support timely, location-specific decisions.



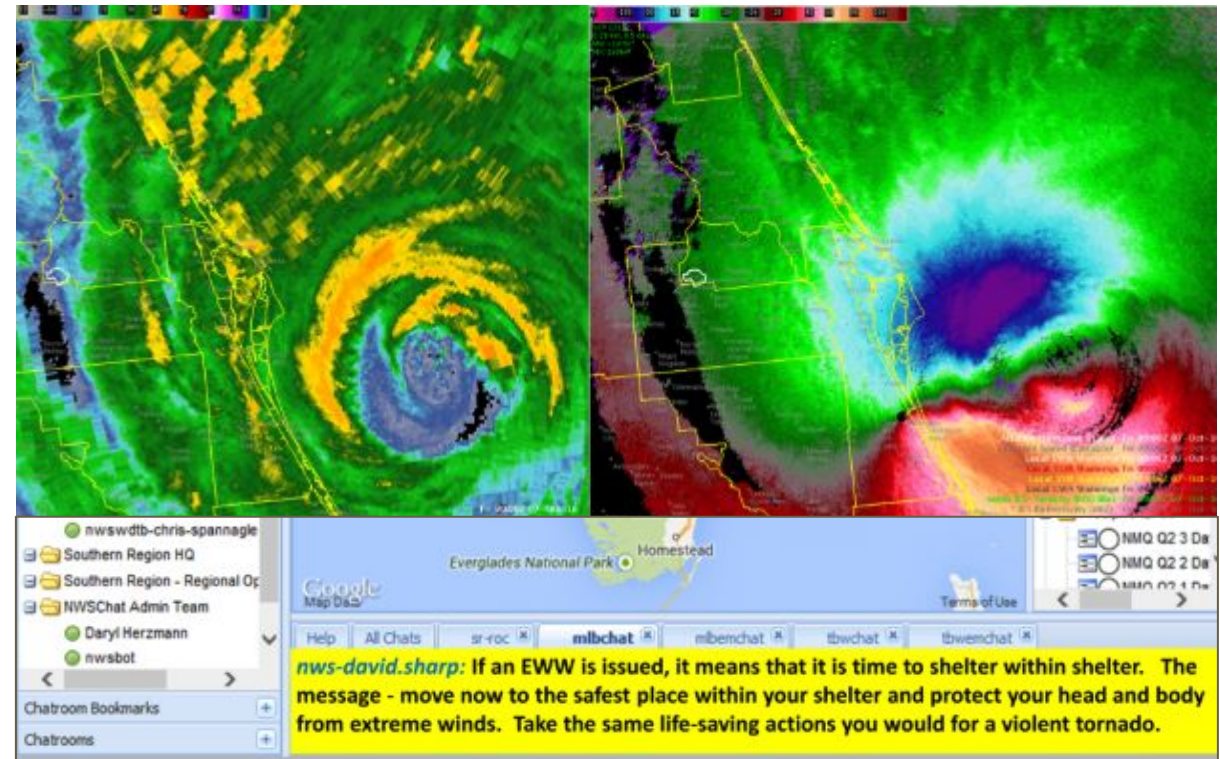


# Extreme Wind Warning - Product

*“...a short-term, “short-fused” alert issued to signal an imminent threat to life and property, requiring immediate shelter.”*

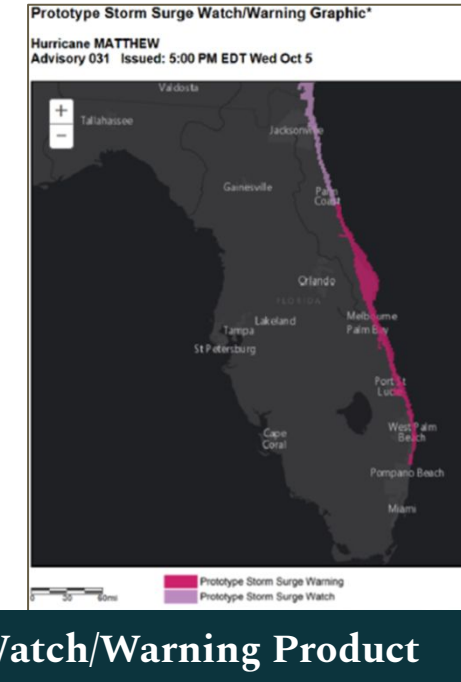
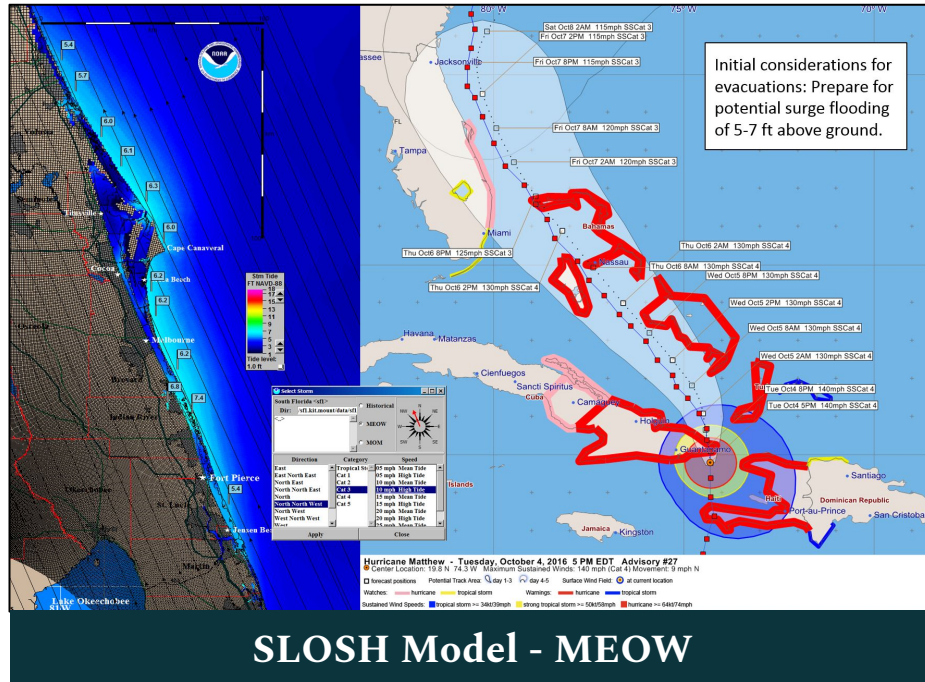
## Issuance Criteria (*both must be met*)

- The hurricane is category 3 or greater
- Sustained winds of 100 kt (115 mph) or greater are expected within 1 hour





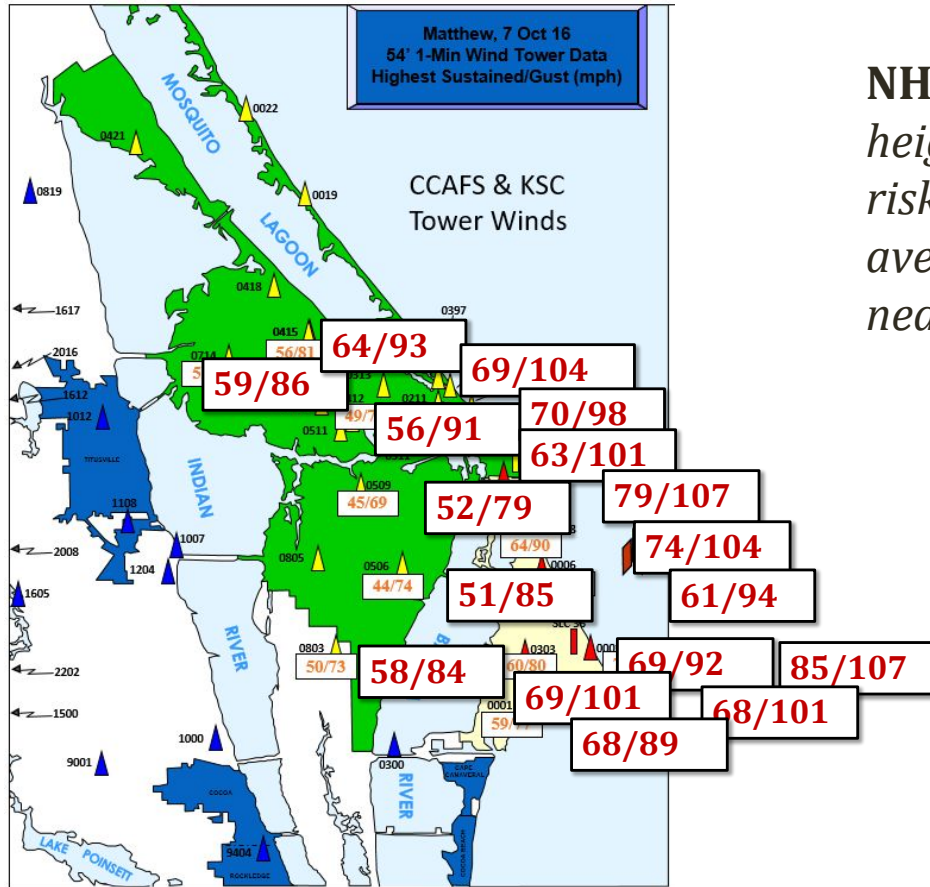
# Storm Surge



**Lesson Learned:** Storm surge risk is not the same on both sides of Florida. MEOWs can provide early planning context before real-time surge guidance and watches/warnings are available, but messages still need to be refined as the forecast evolves.



# Matthew in the Vertical



**NHC Key Message:** *Hurricane winds increase very rapidly with height, and residents of high-rise buildings are at particular risk of strong winds. Winds at the top of a 30-story building will average one Saffir-Simpson category higher than the winds near the surface.*

KSC/CCAFS Highest Measured Winds (MPH)		
Height (AGL)	Sustained	Gust
12 ft level:	45 (TS)	76
54 ft level:	78 (Cat 1)	107
204 ft level:	94 (Cat 2)	117
257 ft level:	107 (Cat 2)	125
458 ft level:	121 (Cat 3)	139

# Importance of Messaging

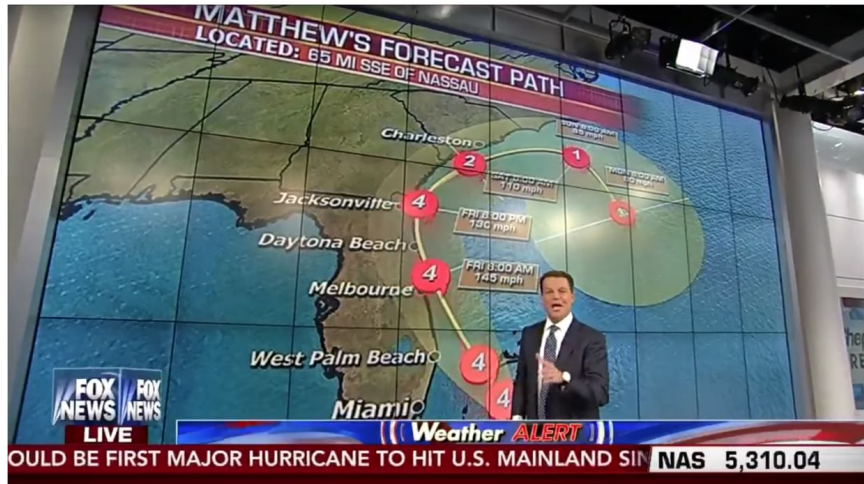


*“Getting the right people, to do the right things, at the right time.”*





# Importance of Messaging



*“See, this is Melbourne, Daytona Beach, all the way up to Jacksonville. This moves 20 miles to the west and you and everyone you know are dead, all of you, because you can’t survive it. It’s not possible, unless you’re very very lucky...and your kids die too.”*

**Lesson Learned:** Use big words when the risk is big — but choose them carefully. High-impact language should clarify the threat, reinforce protective action, and build trust, not overwhelm or sensationalize. The goal is to motivate people to act, not to create panic.



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Training Session 20

