



**NATIONAL
WEATHER
SERVICE**

Multi-State Coordination and Embedded Support for State and Federal Partners

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NWS Weather Forecast Offices (WFOs)

There are 123 WFOs
across the United States
and its territories



NWS Weather Forecast Offices (WFOs)

...which can **overload** the capacity to process information in a disaster



HURRICANE DORIAN - Tuesday, September 3, 2019 10AM CDT Advisory #41

Center Location: 27.1 N 78.6 W Maximum Sustained Winds: 110 mph (Cat 2) Movement: 2 mph NW

Potential Track Area: 1-3 day 4-5 day

Sustained Wind Speed: ■ tropical storm \geq 34kt/39mph ■ strong tropical storm \geq 50kt/58mph ■ hurricane \geq 64kt/74mph

Wind Watches: ■ hurricane ■ tropical storm Wind Warnings: ■ hurricane ■ tropical storm

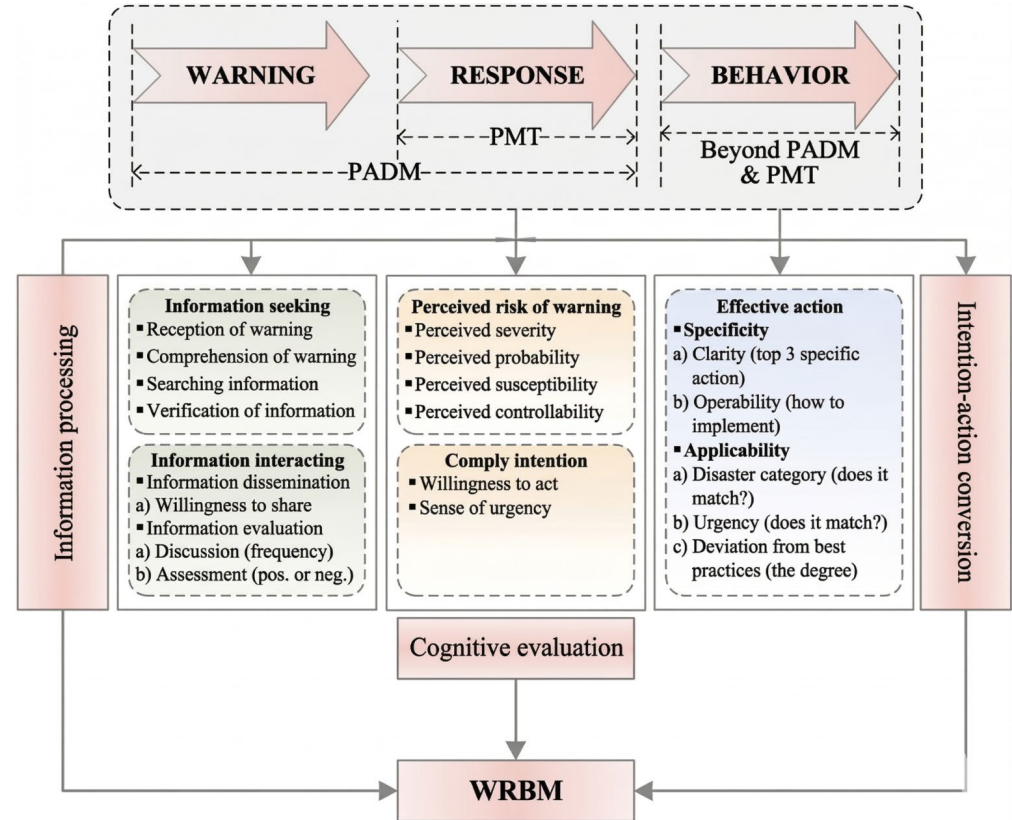


500 mi



Discrepancies are Dangerous

- Conflicting data forces people to reconcile discrepancies instead of acting
- Warnings are verified across multiple sources
- Internal coordination ensures the NWS speaks as one entity to state and federal partners



Multi-State Coordination

NWS works to streamline messaging to partners with large geographic domains



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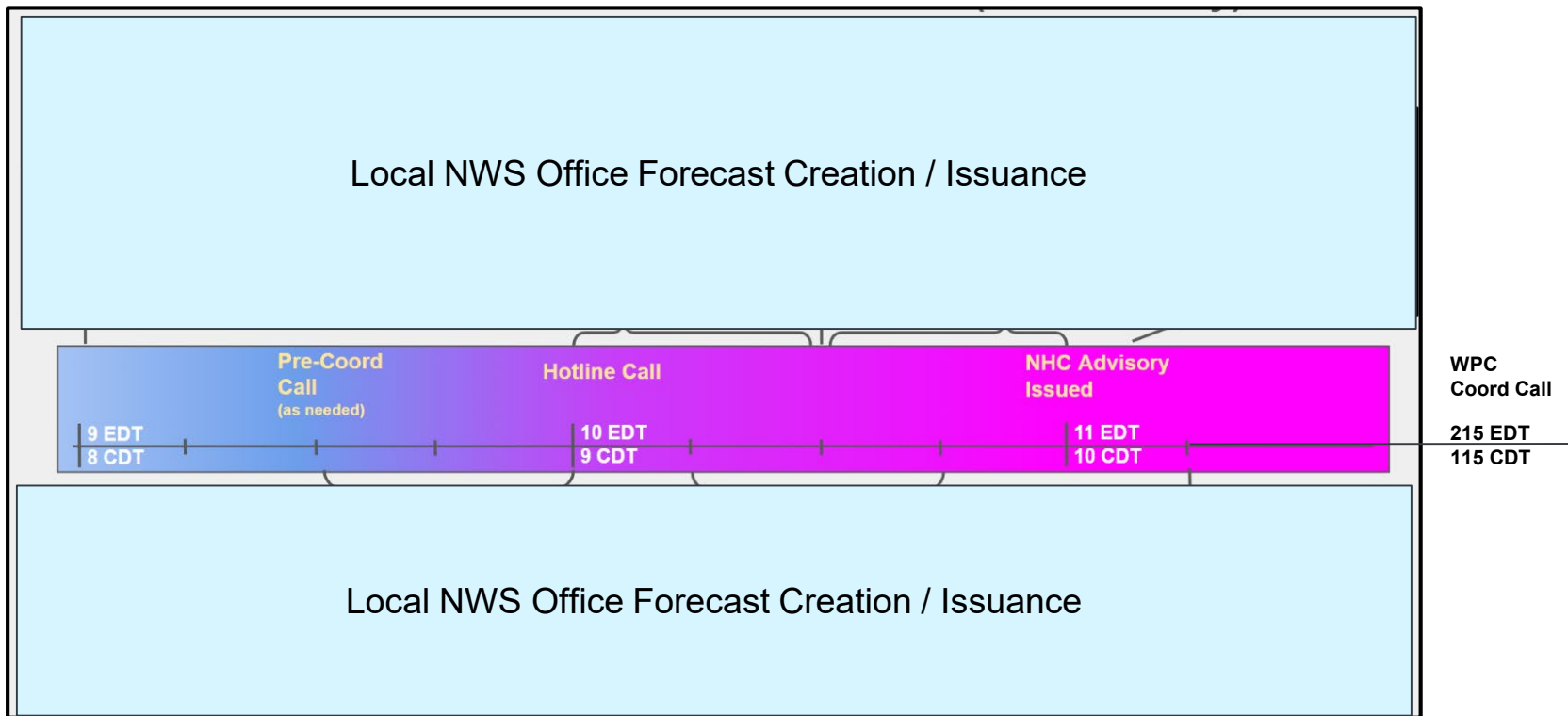
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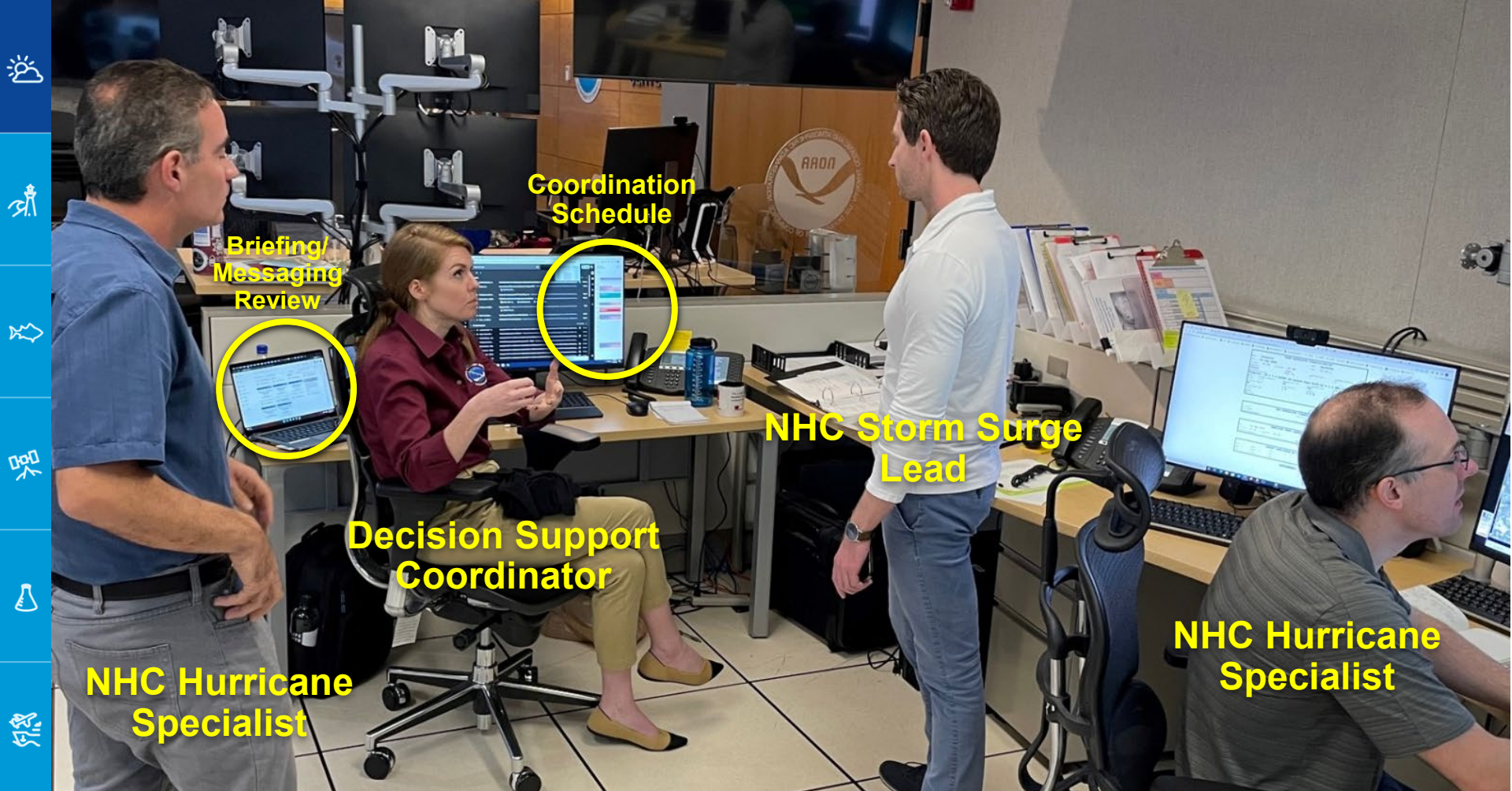
500 mi

Basemaps

NWS Coordination Cycle Example

11 PM ET Advisory





**Briefing/
Messaging
Review**

**Coordination
Schedule**

**NHC Storm Surge
Lead**

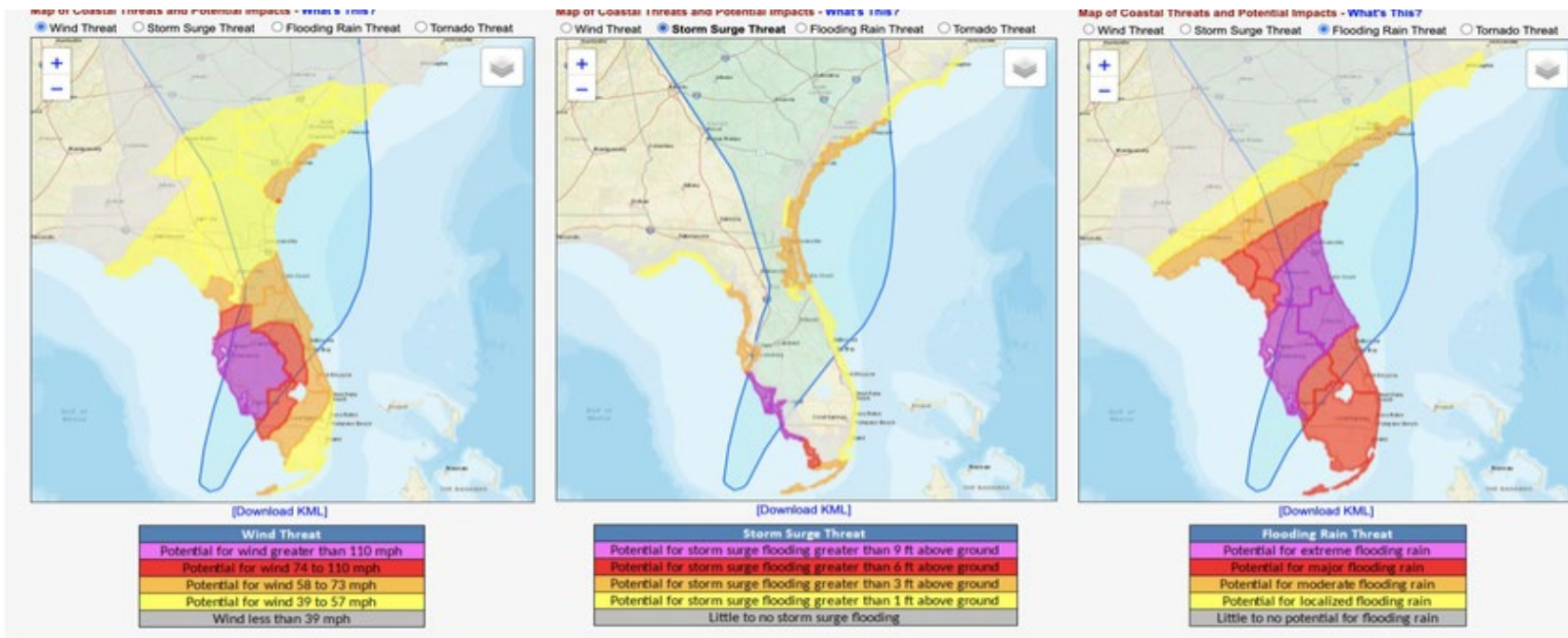
**Decision Support
Coordinator**

**NHC Hurricane
Specialist**

**NHC Hurricane
Specialist**



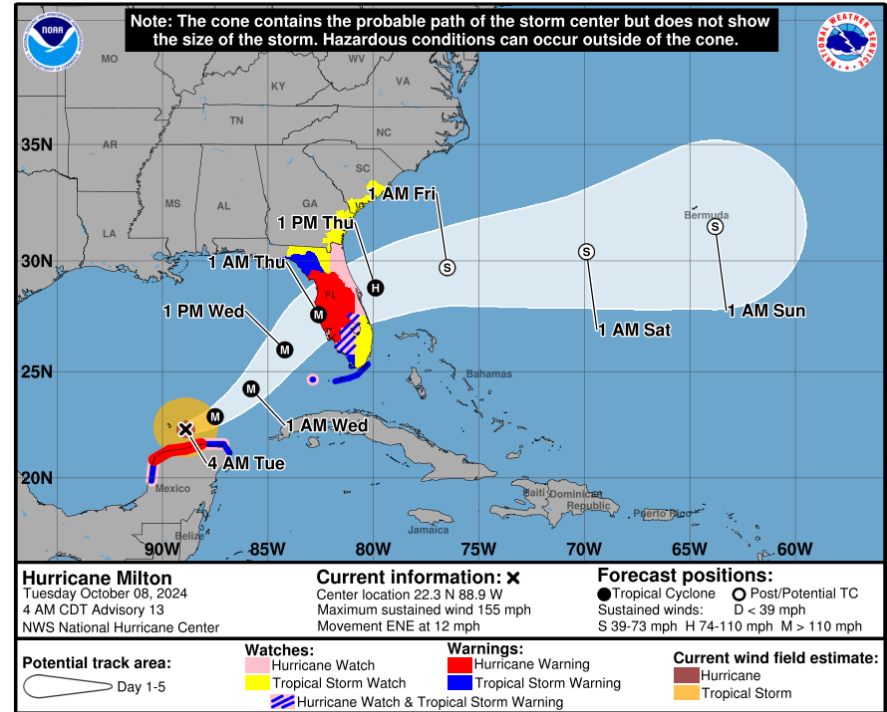
Hurricane Threat and Impact Graphics



- Color-coded maps depict potential threats from winds, surges, rain, and tornadoes
- Graphics incorporate forecast errors, showing a "reasonable worst-case scenario"
- Maps support larger scale decision making to show the full extent of threats

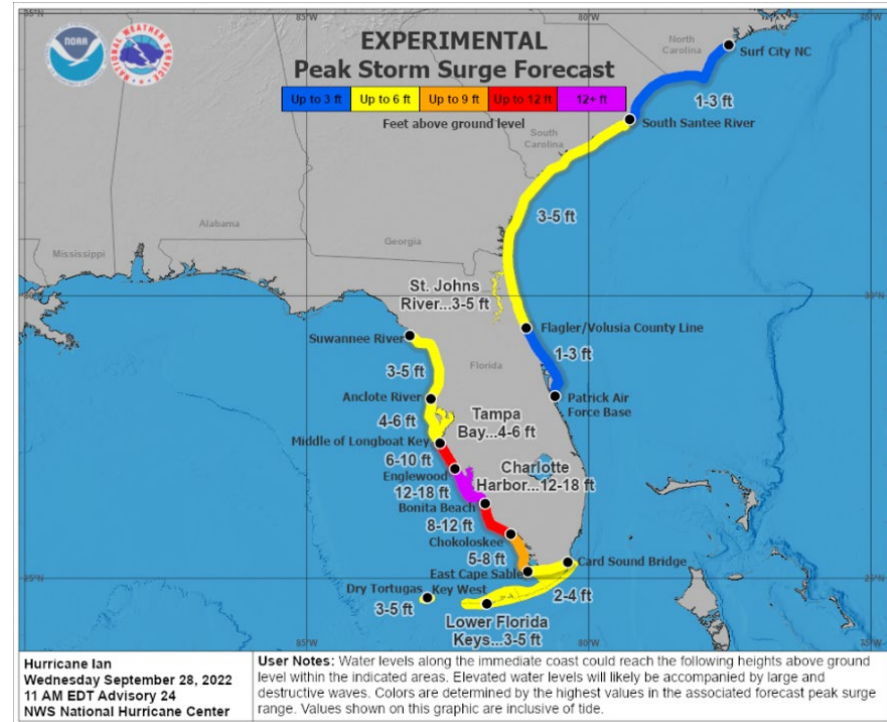
NEW Operational Cone Graphic

- Inland Tropical Storm and Hurricane Watches and Warnings shown
- Provides more complete picture of wind watch/warning picture during a storm by consolidating NWS office hazards



Peak Storm Surge Graphic

- Large scale view of peak storm surge values along stretches of the US coastline
- Heavily coordinated with local NWS offices before, during, and after landfall of a storm

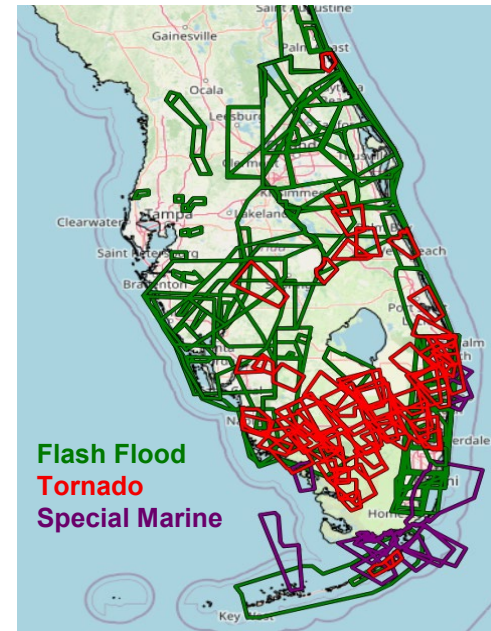


Dual Threat Messaging - Warnings

E-mail Sent to NWS Tampa Bay Emergency Managers and Media During Hurricane Ian

During this multi-hazard event, it will be important for all of us to remain as consistent as possible and to prioritize the hazards that are most critical to the protection of life and property at any particular time in the warning and decision making process. For example, we may not suggest in a particular tornado warning for someone to seek shelter on the lowest floor if we also have a flood warning in effect at their same location stating to seek higher ground.

Hurricane Ian Warnings Sep 27-30, 2022





NWS Flood Inundation Mapping Services

Disclaimer: This map shows the flood extent based on a river crest of 61.5feet. This is an approximate FIM which should be used more conservatively.

Shingle Creek near Campbell (SHIF1)

Potential Crest Height: 61.5 feet

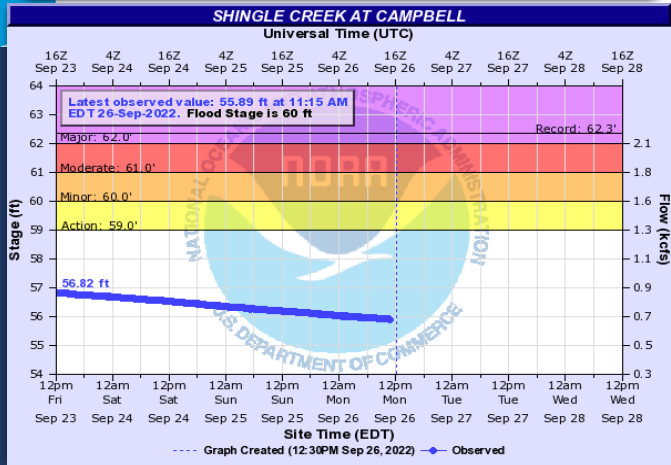
Map Height Shown 61.5 feet

FIM Source Local NWS Map (FESM Model)

FIM Type Static

FIM Creation Time 9/26/2022 1230 pm ET

FOR OFFICIAL USE ONLY



SHIF1 (plotting HGIRG) "Gage 0" Datum: 0' Observations courtesy of US Geological Survey

For the latest observations [Shingle Creek near Campbell](#)

🕒 9/26/22 @ 12:30 PM

Emergency Response Specialists (ERS)

NWS staff responsible for providing support throughout the emergency management cycle

Positions can be filled by general scientists, hydrologists, or meteorologists

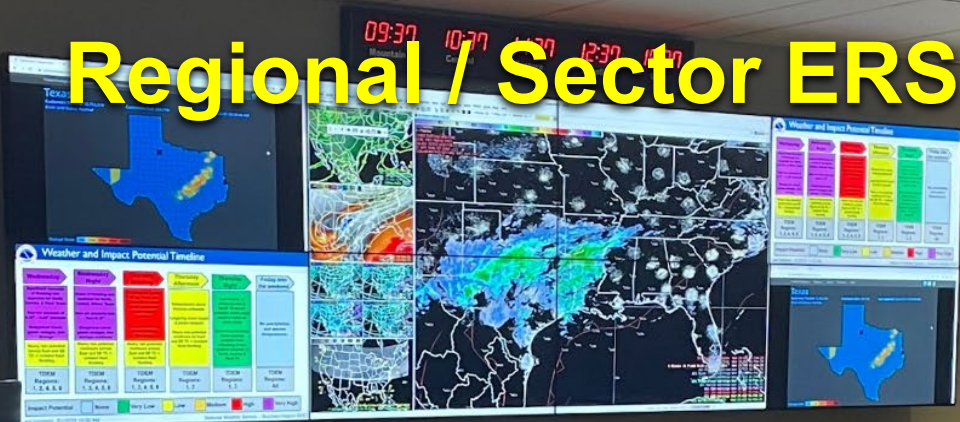
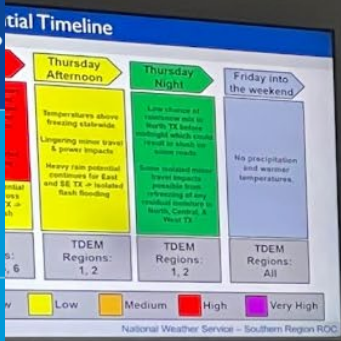
Two primary types:

- Regional / Sector ERS
- Embedded ERS

Regional / Sector ERS can serve as DSS Coordinators during hurricanes



Regional / Sector ERS



Emergency Response Specialist: Meteorology

Emergency Response Specialist: Hydrology



Kentucky Governor Andy Beshear
Team Kentucky Update - March 19, 2026
<https://www.youtube.com/watch?v=DpWRceSI9B8>



Embedded ERS Special Units



NASA
Spaceflight Meteorology Group
Houston, TX



USACE
Mississippi Valley Division
Vicksburg, MS

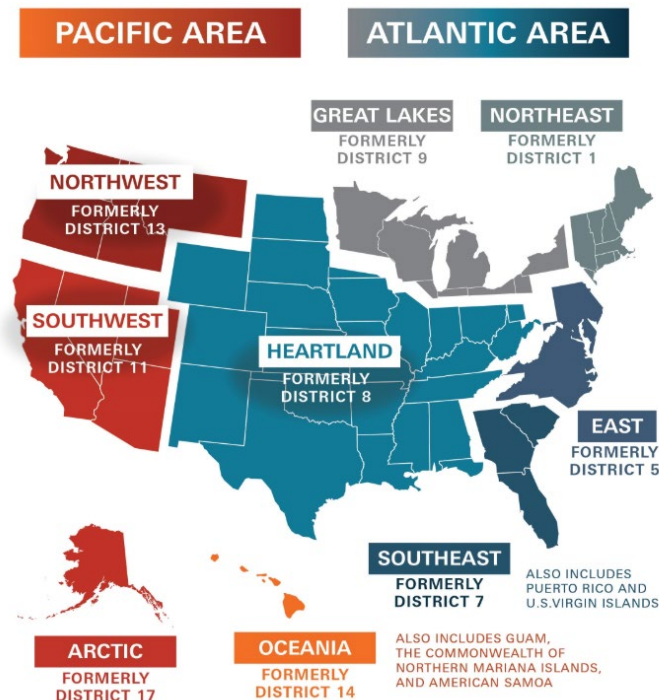
Embedded ERS

US Coast Guard (USCG) Districts

Efforts are underway to provide ERS to each USCG District, for a total of nine embeds

Tropical cyclones are most critical support need, but low/high water events as well as waterway navigability also significant concerns

Embeds will support District operations and serve as a coordination point for alignment with Sector and Area support



Key Takeaways

1. **State and federal partners have to synthesize multiple data sources during a hurricane**
1. **Several graphical resources are available to facilitate this**
1. **A new resource includes strategic embeds transforming forecast data into decisions**

