

2026 HURREVAC Training Webinar Series

Day 1 – Introduction to HURREVAC

June 15, 2026



FEMA



NATIONAL HURRICANE PROGRAM



HURREVAC

HURRICANE DECISION SUPPORT TOOL

Attendee information

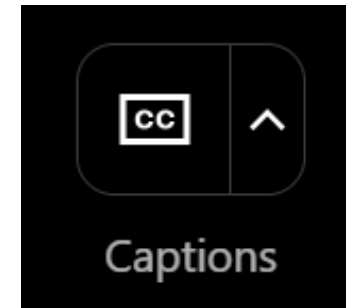


Audio

- All attendees are muted
- If having audio or video issues, restart webinar or try watching on a different device (laptop/desktop recommended)

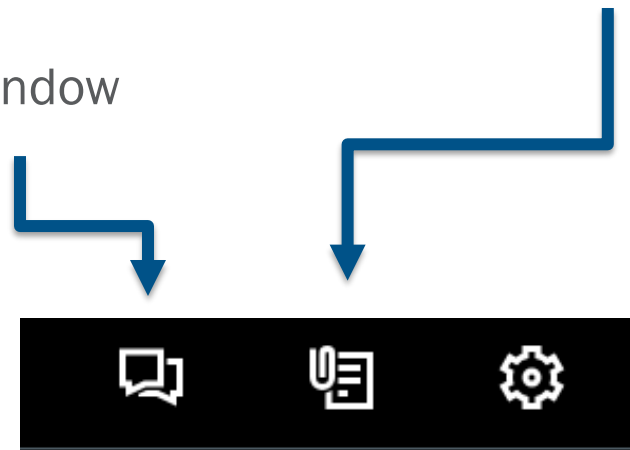
Captions

- Button in lower right



Questions?

- Submit in GoTo window



Downloadable handouts

- Today's slides
- HURREVAC Workspace Guide

*Also available from hurrevac.com in the *Learning Resources* section*

Attendee information



Registration

- You are automatically signed in

Certificate

- Emailed **Thursday** from GoTo Webinar about one hour after conclusion of final session
- One certificate for entire week, but partial attendance still counts
- If missing, check junk/spam first
- Certificates cannot be generated for groups, or makeup viewing on YouTube

Feedback

- Daily survey launches after webinar
- Link also in follow-up email on Thursday

Recording

- Will be posted by tomorrow morning on our YouTube channel and the **Learning Resources** tab of hurrevac.com
- Available if you miss a session, or as a year-round resource



THIS WEEK'S AGENDA

MON. JUNE 15: Introduction to HURREVAC

TUES. JUNE 16: Wind Forecast Features

WED. JUNE 17: Storm Surge and Flooding Hazards

THURS. JUNE 18: Evacuation Timing Features

Today's Presenters



Michael Brennan, Ph.D.

Director of the National Hurricane Center

Frannie Bui

National Hurricane Program Co-Manager
U.S. Army Corps of Engineers, Baltimore District

Karen Townsend

President, Sea Island Software



2026 Hurricane Season Update

Michael Brennan, Director
National Hurricane Center

U.S. Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service / National Hurricane Center



NOAA's 2026 Hurricane Season Outlooks

All ranges of activity are given with a 70% probability.

Central Pacific

Above-Normal Season
5-13 Tropical Cyclones
Average is 4-5 TCs

Atlantic

Below-Normal Season
8-14 Named Storms
3-6 Hurricanes
1-3 Major Hurricanes
Averages are 14 NS, 7 H, 3 MH

Eastern Pacific

Above-Normal Season
15-22 Named Storms
9-14 Hurricanes
5-9 Major Hurricanes
Averages are 15 NS, 8 H, 4 MH

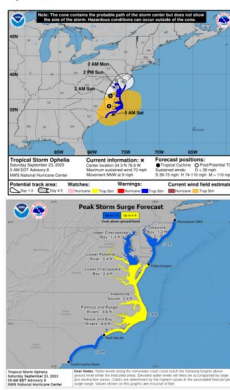
	Atlantic	Eastern Pacific	Central Pacific
Above Normal	10%	70%	70%
Near Normal	35%	20%	20%
Below Normal	55%	10%	10%

Challenge: Communicate the Hazards

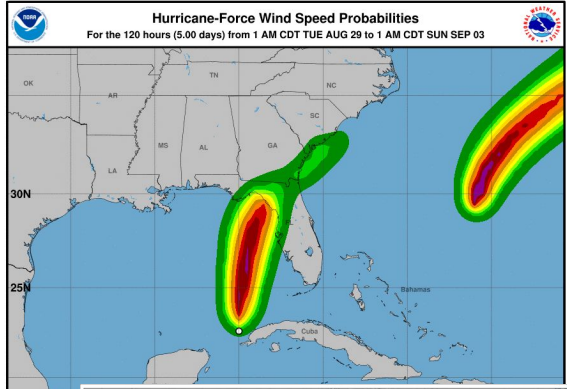
- Emphasize watches, warnings and hazard products
- Focus on risk communication, not category, storm status, or track of the storm center

Key Messages for Tropical Storm Ophelia
Advisory 8: 5:00 AM EDT Sat Sep 23, 2023












1. Tropical storm conditions are expected along portions of the southeastern and mid-Atlantic U.S. coasts within the Tropical Storm Warning area through tonight. Hurricane conditions are possible within the Hurricane Watch area early this morning.
2. There is a danger of life-threatening storm surge inundation over portions of eastern North Carolina and southeastern Virginia, including Pamlico and Albemarle Sounds, the Neuse and Pamlico Rivers, the lower James River, and the lower Chesapeake Bay, where Storm Surge Warnings are in place. Residents in these areas should follow advice given by local officials.
3. Heavy rainfall from this system may produce locally considerable flash, and urban flooding impacts across portions of the Mid-Atlantic states from North Carolina to New Jersey through Sunday.
4. Swells generated by this system will affect much of the U.S. east coast through the weekend, likely causing life-threatening surf and rip currents.

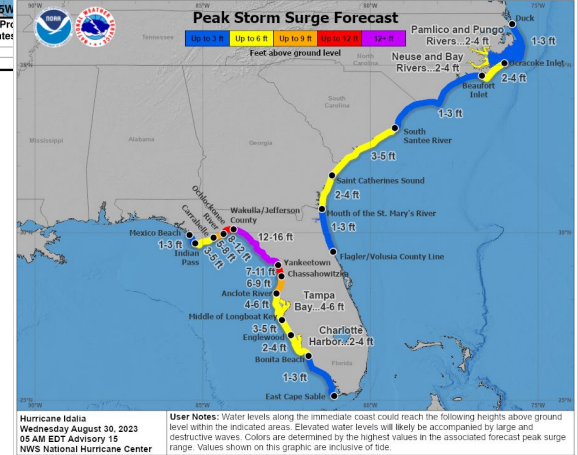


For more information go to hurricanes.gov



Understanding WPC Excessive Rainfall Risk Categories

No Area/Label	MARGINAL (MRGL)	SLIGHT (SLGT)	MODERATE (MDT)	HIGH (HIGH)
Flash floods are generally not expected.	Isolated flash floods possible	Scattered flash floods possible	Numerous flash floods likely	Widespread flash floods expected
	Localized and primarily affecting places that can experience rapid runoff with heavy rainfall.	Mainly localized. Most vulnerable are urban areas, roads, small streams and washes. Isolated significant flash floods possible.	Numerous flash flooding events with significant events possible. Many streams may flood, potentially affecting larger rivers.	Severe, widespread flash flooding. Areas that don't normally experience flash flooding, could. Lives and property in greater danger.
@NWSWPC  Flash flooding near area  NO Flash Flooding				
 WEATHER PREDICTION CENTER				



2026 NHC Product/Service Updates

1. Cone graphic with inland U.S. watches/warnings (now operational)
2. Storm surge watches and warnings, Peak Storm Surge Graphic, and Potential Storm Surge Flooding Map for the Hawaiian Islands
3. Gray “X” on Graphical Tropical Weather Outlook for disturbances in which development is not expected
4. Mobile-friendly version of hurricanes.gov front page
5. EXPERIMENTAL Cone of Uncertainty:
 - Based on 90% along- and cross-track errors vs. 67% absolute errors (ellipses vs. circles)

Cone of Uncertainty

Inclusion of Inland U.S. Watches and Warnings

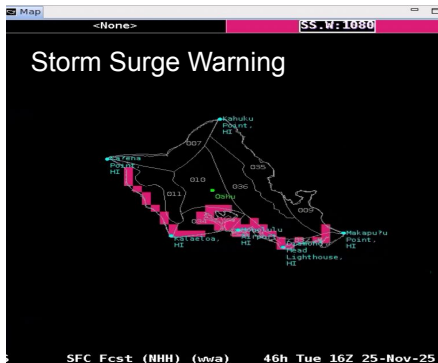
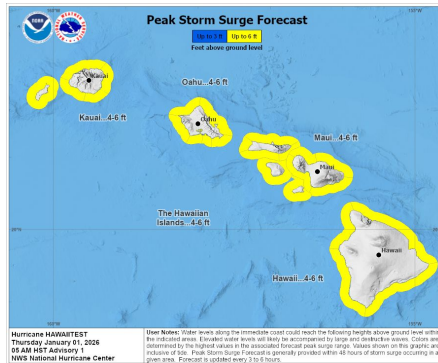
- NHC cone of uncertainty with inland U.S. watches and warnings becomes operational in 2026
- **Key features:**
 - Inland U.S. watches and warnings
 - One shading for entire 5-day cone
- Better representation of both coastal and inland wind risk



Hawaiian Islands: New Storm Surge Products

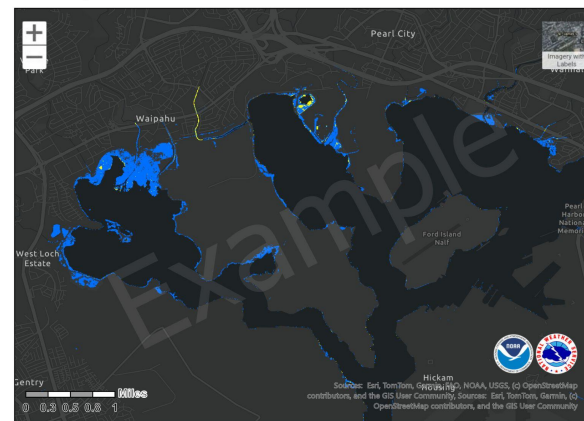
Storm Surge Watches/Warnings and Peak Surge Graphic

- Storm surge operational products and warning services will be available for the main Hawaiian Islands in 2026
- **Storm Surge Watches and Warnings** will be issued 48 and 36 hours, respectively, prior to arrival of tropical-storm-force winds if there is a risk for life-threatening storm surge
- **Peak Surge Graphic** will be issued when a watch/warning is in effect
- **Potential Storm Surge Flooding Map** will be made available up to 72 h before to landfall, dependent on forecast confidence



Potential Storm Surge Flooding Map (Inundation) EXAMPLE

NHC Potential Storm Surge Flooding Map
 Hawaii Test CP82 (2025) Advisory 01
 From 06 AM HST Monday November XX to 09 AM HST Friday November XX



Potential Storm Surge Flooding*

- Intertidal Zone/Estuarine Wetland
- Greater than 1 foot above ground
- Greater than 3 feet above ground
- Greater than 6 feet above ground
- Greater than 9 feet above ground

Map Layer Options:

Map Layer Options:

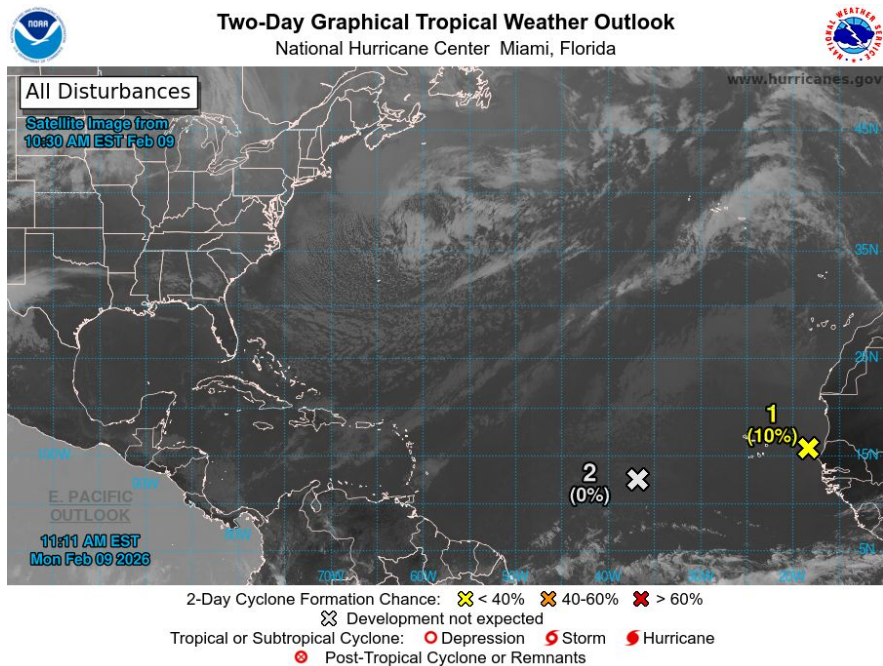
Inundation Layer Only
 Inundation with Intertidal Layer

Download GIS data (Instructions)
 Inundation Layer Only
 Inundation with Intertidal Layer

*Displayed flooding values indicate the water height that has about a 1-in-10 (10%) chance of being exceeded.

Graphical Tropical Weather Outlook

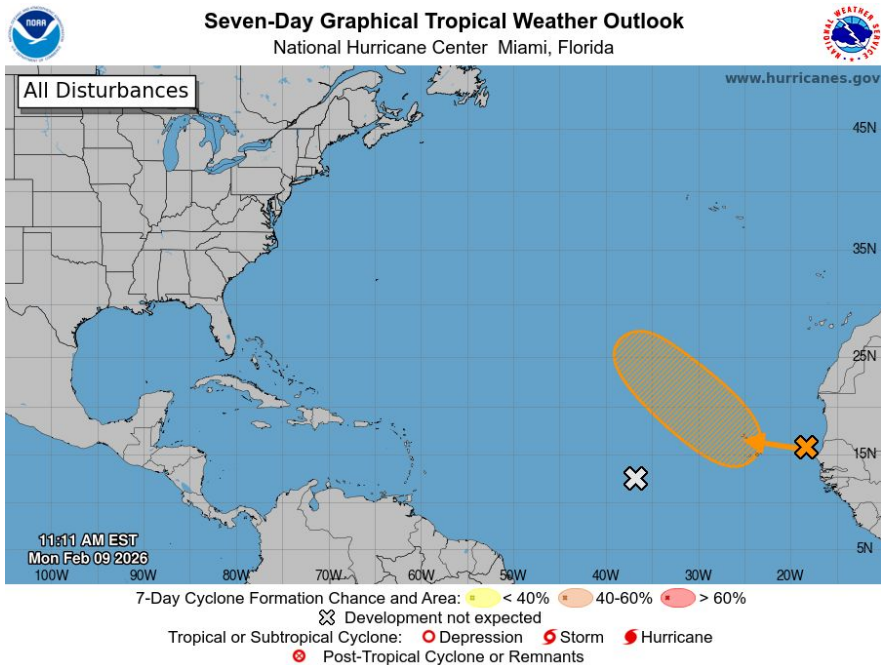
Disturbances in which development is not expected



- Disturbances that have a near 0% chance of development over both the next 2 days **and** the next 7 days will be denoted with a gray instead of a yellow
 - Includes systems where development chances have decreased to 0%, or are mainly being highlighted to communicate a significant rainfall/flooding threat
- Disturbances that have a near 0% chance of development over the next 2 days but a nonzero chance over the next 7 days will still be denoted with a yellow, orange, or red X in both products

Graphical Tropical Weather Outlook

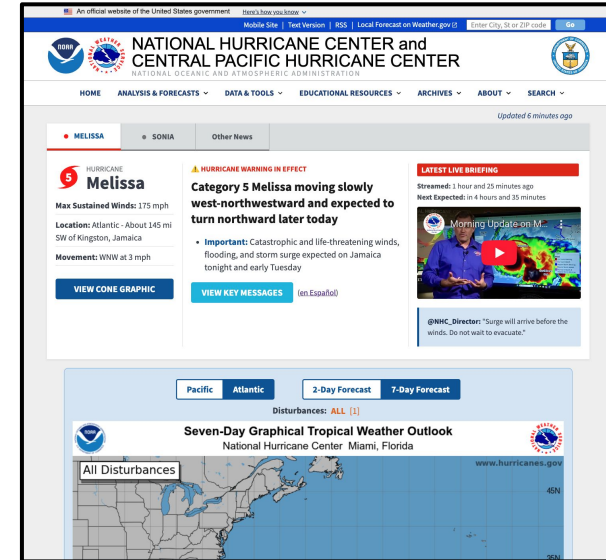
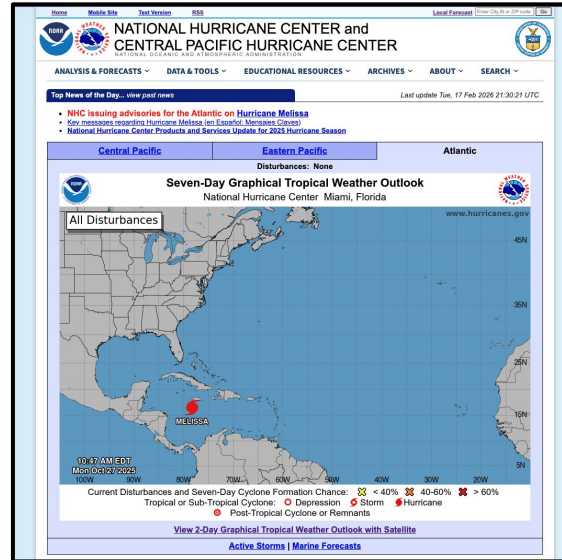
Disturbances in which development is not expected



- Disturbances that have a near 0% chance of development over both the next 2 days **and** the next 7 days will be denoted with a gray ⊠ instead of a yellow ✕
 - Includes systems where development chances have decreased to 0%, or are mainly being highlighted to communicate a significant rainfall/flooding threat
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Mobile-Friendly Version of hurricanes.gov

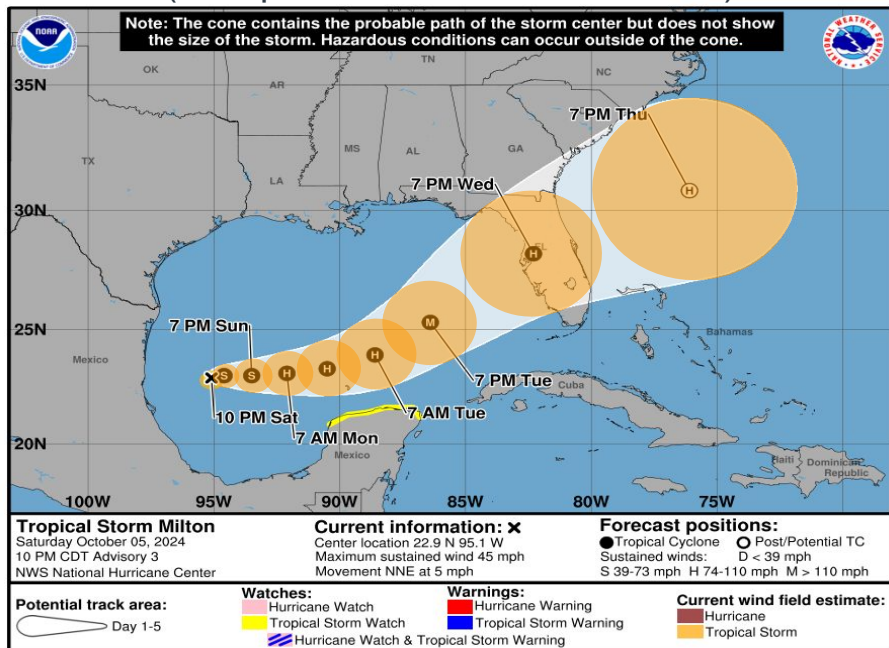
- New mobile-friendly version will be hosted on NHC's mobile URL (<https://hurricanes.gov/mobile/>)
 - Scales to mobile, tablet, or desktop
 - Now live with additional features being added during the season



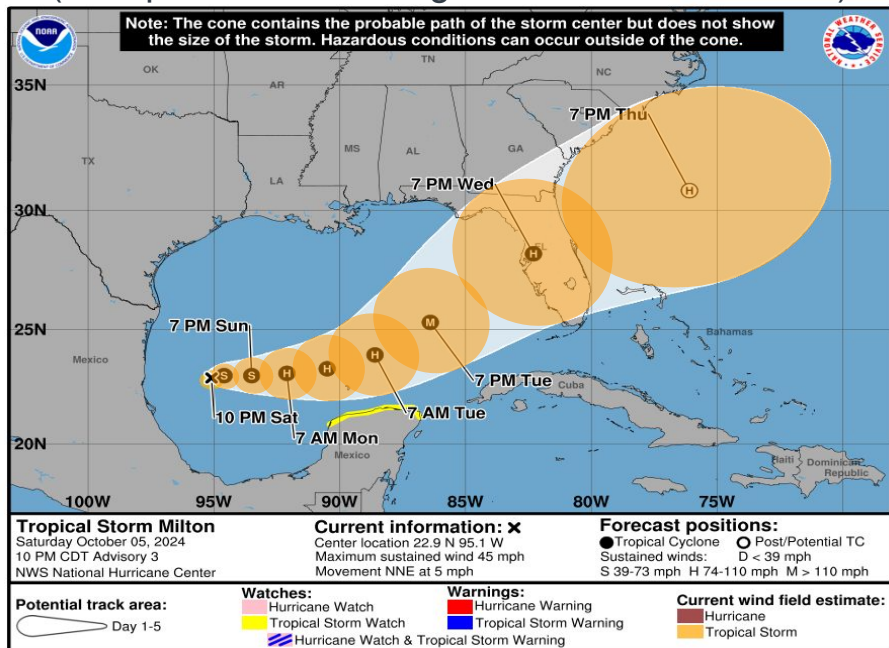
EXPERIMENTAL Cone of Uncertainty

Improving the Representation of Uncertainty

Operational Circle Cone (67th percentile of absolute errors)

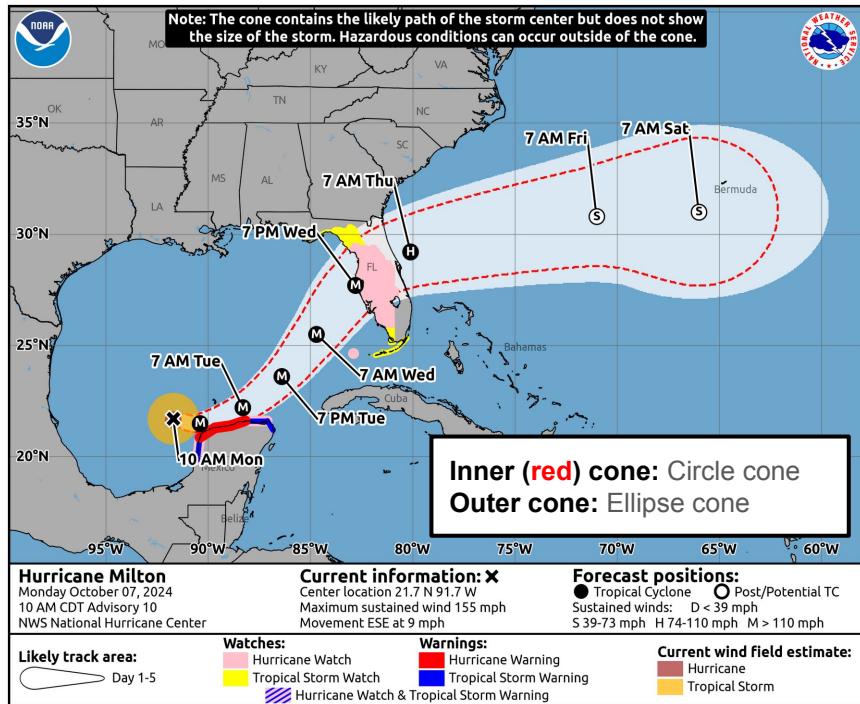


Experimental Ellipse Cone (90th percentile of along- and cross-track errors)



EXPERIMENTAL Cone of Uncertainty

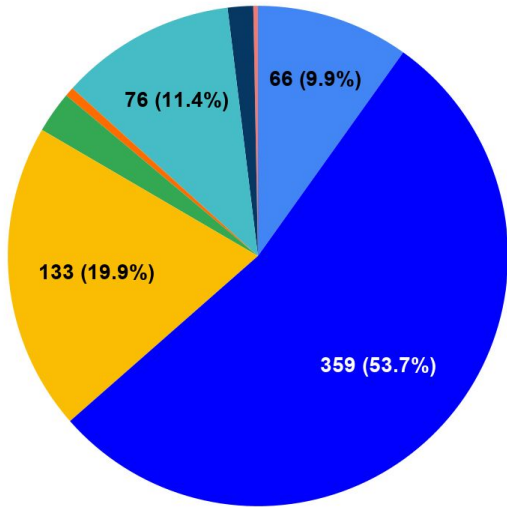
Improving the Representation of Uncertainty



Benefits:

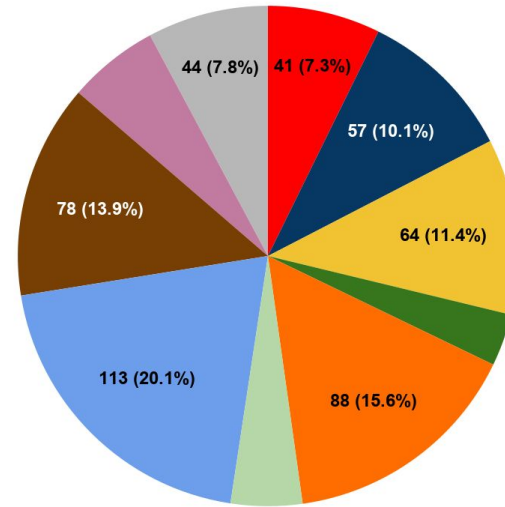
- More accurately depicts forecast track errors
- Easier to communicate as a “likely” track area of the center
- The cones are of *visually* similar size, but there would now be less chance of the storm center moving outside the cone
- Partially mitigates the cone getting smaller, which has led to greater misunderstanding of expected hazards

Recent Fatality Trends



- Storm Surge
- Freshwater Flooding
- Wind
- Tornado
- Lightning
- Surf/Rip Currents
- Marine
- Unknown

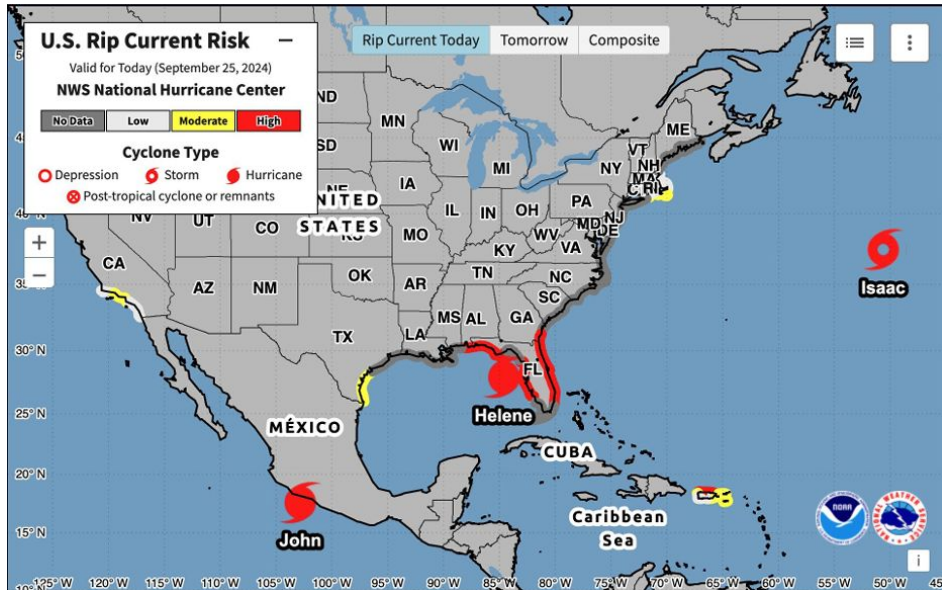
CONUS Direct Hurricane Deaths - 2013-2025
Total: 630



- Cardiac
- Carbon Monoxide Poisoning
- Heat
- Evacuation
- Vehicle Incident
- Power Problem/Electrocution
- Recovery / Preparation
- Medical Access
- Other
- Unknown Cause

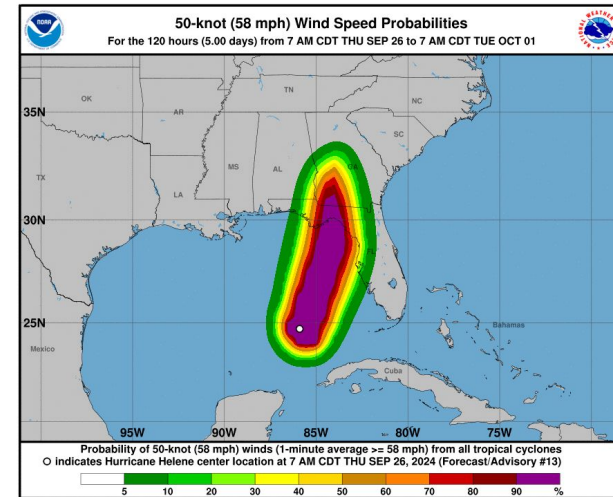
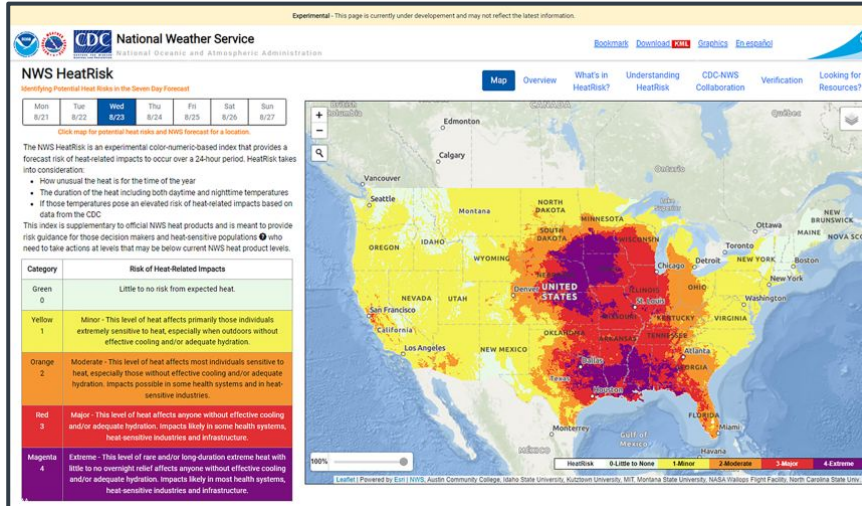
CONUS Indirect Hurricane Deaths - 2013-2025
Total: 562

Rip Current Risk Maps



- Rip current and surf zone fatalities have increased in the past decade due to impacts of swells
- Florida has the most TC related rip current fatalities since 2013 of any state (17)
- National risk map is designed for beach goers to easily view, on one webpage, rip current risk provided by the NWS

Post-Storm Heat Risk



- NHC and the Weather Prediction Center (WPC) will highlight areas at risk of heat impacts after a storm due to power loss
 - Chance of strong, damaging winds (as a proxy for potential power loss)
 - Risk of heat-related impacts over the ensuing days (including use of NWS HeatRisk)

Thank You!

2026 HURREVAC Webinar Series

Introducing The National Hurricane Program

Day 1 (Monday): June 15, 2026



National Hurricane Program Partners



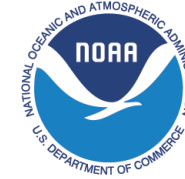
U.S. ARMY CORPS
OF ENGINEERS (USACE)

- National Program Managers
- District Office Study Managers



FEMA

- National Program Managers
- Regional Program Managers
- Hurricane Liaison Team



NATIONAL HURRICANE
CENTER (NHC)

- Hurricane Specialist Unit
- Technology and Science Branch

SERVICES



Operational Decision Support



Planning Support and Technical Assistance



Hurricane Preparedness Training

National Hurricane Program Partners



FEMA

HQ James Rogers | Sunny Wescott
LIASION TO NHC Michael Spagnolo | Somer Erickson
LIASION TO NWC Whitney Flynn
LIASION TO WPC Kevin Kalbaugh
LIASION TO SPC Aaron Treadway

NATIONAL HURRICANE CENTER

Michael Brennan | Dan Brown | Cody Fritz | Robbie Berg

USACE

Frannie Bui | Tom Laczko



FEMA REGION 1
Meghan Wells
USACE DISTRICT
New England



FEMA REGION 2
Chris Moore | Josh Rapp
USACE DISTRICT
New York | Caribbean



FEMA REGION 3
Mike Bilder
USACE DISTRICT
Philadelphia | Norfolk



FEMA REGION 4
Brandon Bolinski
Rebecca Moulton
USACE DISTRICT
Wilmington | Charleston
Savannah | Jacksonville | Mobile



FEMA REGION 6
Arienne Thomas
USACE DISTRICT
New Orleans | Galveston



FEMA REGION 9
Vacant
USACE DISTRICT
Honolulu

National Hurricane Program



products

services

FORECAST PRODUCTS

STORM SURGE MODELING

HURRICANE EVACUATION STUDIES

HURREVAC
HURRICANE DECISION
SUPPORT TOOL

The products section is a grey rounded rectangle containing three product categories on the left and the HURREVAC logo in the center. Each category has an icon and text. The HURREVAC logo is a large red and blue circular emblem with the text 'HURREVAC' and 'HURRICANE DECISION SUPPORT TOOL' below it.

OPERATIONAL SUPPORT

PLANNING SUPPORT

TRAINING

The services section is a blue rounded rectangle containing three service categories on the left. Each category has an icon and text. The icons represent operational support (two people with a headset), planning support (three people with gears), and training (a person at a whiteboard).

INFORMED DECISIONS

The informed decisions graphic is a green rounded square containing an icon of a person with a thought bubble containing gears, and the text 'INFORMED DECISIONS' below it.

What is HURREVAC?



HURREVAC (short for **Hurricane Evacuation**) is the NHP's free storm tracking and decision support tool for government emergency managers.

The software combines:



Real-time official forecast information from NOAA/NHC



Storm surge modeling



Data from Hurricane Evacuation Studies (HES)

The main goal is to help emergency managers make **informed evacuation and response decisions** based on the *timing* and *potential severity* of storm hazards.

Who Uses HURREVAC?



- Restricted and provided at no cost to government emergency managers
- Thousands of registered users in federal, state, local, tribal, and territorial governments
- During major hurricanes, HURREVAC scales up to let thousands of users track the storm simultaneously



HURREVAC Use Cases



A resource for emergency managers during **planning and operations.**

Planning Support:

- ❑ Develop simulated storms
- ❑ Understand storm surge risk
- ❑ Evaluate decision timelines
- ❑ Access Hurricane Evacuation Studies
- ❑ Consider scenarios to support planning, training, and exercises

HURREVAC Use Cases



A resource for emergency managers during **planning and operations.**

Operational Support:

- ❑ View Tropical Weather Outlook
- ❑ Monitor storms and track forecasts
- ❑ Assess wind speed probabilities
- ❑ Estimate arrival and departure of tropical storm force winds
- ❑ Understand storm surge risk
- ❑ Support evacuation decision making
- ❑ Develop decision timelines

HURREVAC Demo

◆ 100 Kilometers

986

992





Goals for Today

- 1. Access and navigate the workspace**
- 2. Find essential storm information**
- 3. Customize the map and other settings**
- 4. Set up points of interest (POI)**
- 5. Create a situation report with annotated tracking map and text-based information**



COMING UP THIS WEEK

NEXT – TUES. JUNE 16: Wind Forecast Features

WED. JUNE 17: Storm Surge and Flooding Hazards

THURS. JUNE 18: Evacuation Timing Features

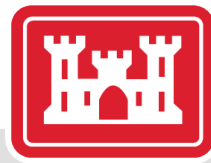
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Thank you!

HURREVAC Support Team
support@hurrevac.com



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NATIONAL HURRICANE PROGRAM



HURREVAC

HURRICANE DECISION SUPPORT TOOL