

2024 HURREVAC Training Webinar Series

Day 1 – Introduction and General Overview

June 10, 2024



FEMA



NATIONAL HURRICANE PROGRAM



HURREVAC

HURRICANE DECISION SUPPORT TOOL

Attendee information



Registration

- You are automatically signed in when you join
- Registration is still open for Days 2-5
- It is not necessary to attend all days

Audio

- All attendees are muted
- If having audio issues, restart webinar or try watching link on a different device

Live Transcription

- Available in English and Spanish
- Opens in a separate browser window
- Links are in the chat window and reminder email

Downloadable handouts

- Today's slides
- HURREVAC Workspace Guide
- Also available from hurrevac.com in the **Learning Resources** section

Attendee information



Questions

- Submit in the question box

Feedback

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

Recording

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

Certificate

- One for each day attended
- Emailed from GoToWebinar about one hour after conclusion
- If missing, check junk/spam first
- Certificates cannot be generated for groups, or makeup viewing on YouTube



THIS WEEK'S AGENDA

JUNE 10: Introduction to HURREVAC and the National Hurricane Program

JUNE 11: Wind Forecast Features

JUNE 12: Evacuation Timing Features

JUNE 13: Storm Surge and Flooding Hazards

JUNE 14: Applying HURREVAC for Planning and Operations

Registration is still open for Days 2, 3, 4 & 5 at webinars.hurrevac.com



Today's Presenters

Michael Brennan, Ph.D.

Director of the National Hurricane Center

Thomas Laczo

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

Karen Townsend

President, Sea Island Software



NATIONAL HURRICANE PROGRAM



NOAA

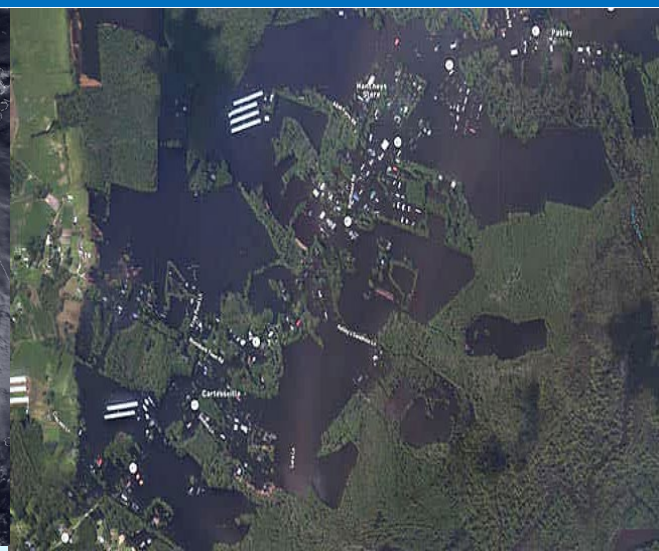
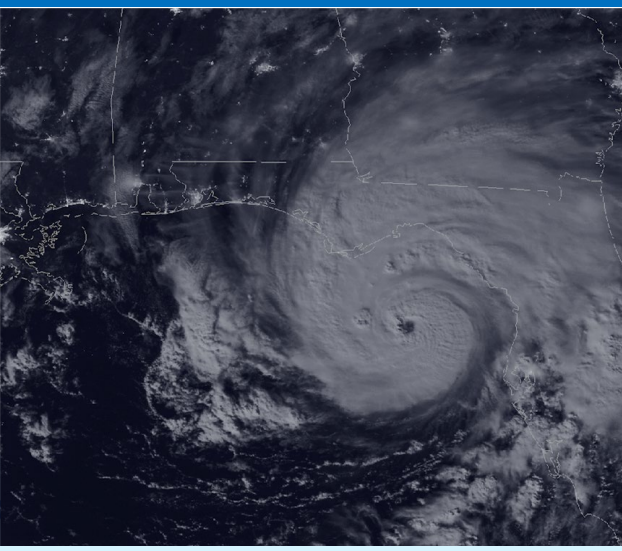
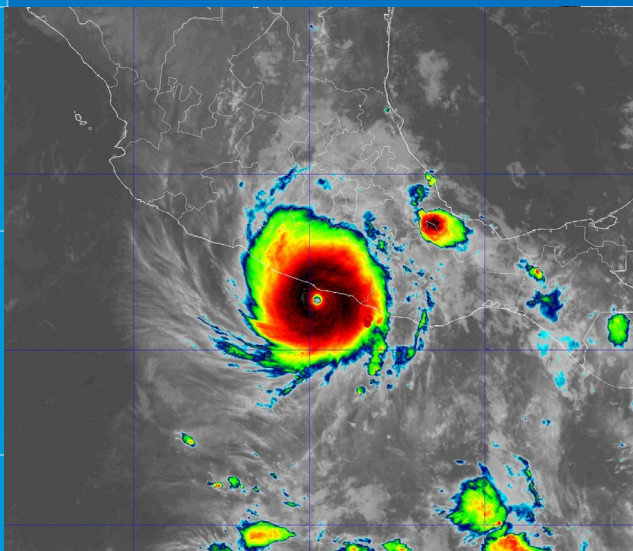
**National
Weather
Service**

2024 Hurricane Season Outlook and NHC Product Updates

Michael Brennan
Director, NWS National Hurricane Center

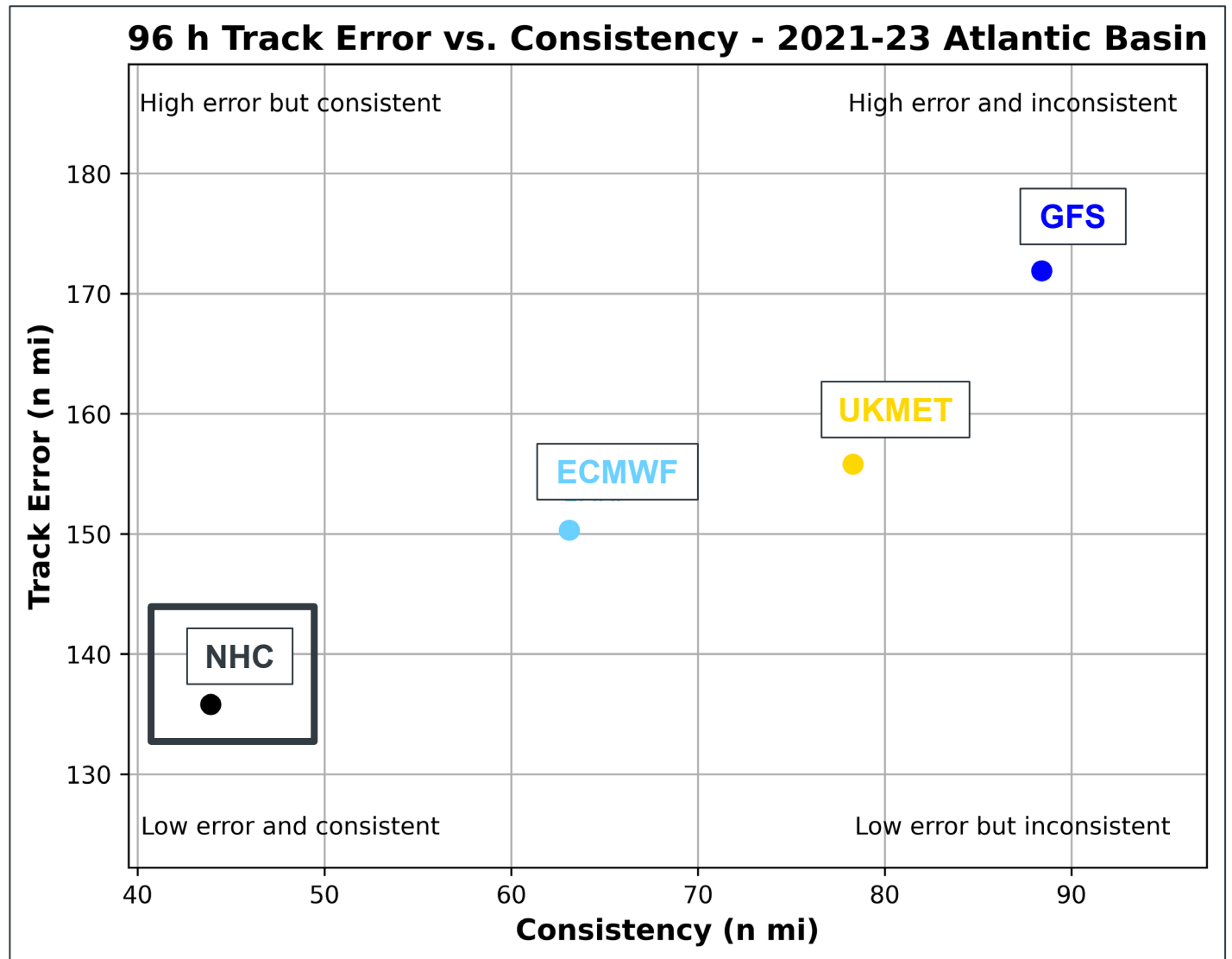
HURREVAC Webinar

June 10, 2024



Challenge: Stop Focusing on Models

NHC's track forecasts have a lower average error and are more consistent than any individual model

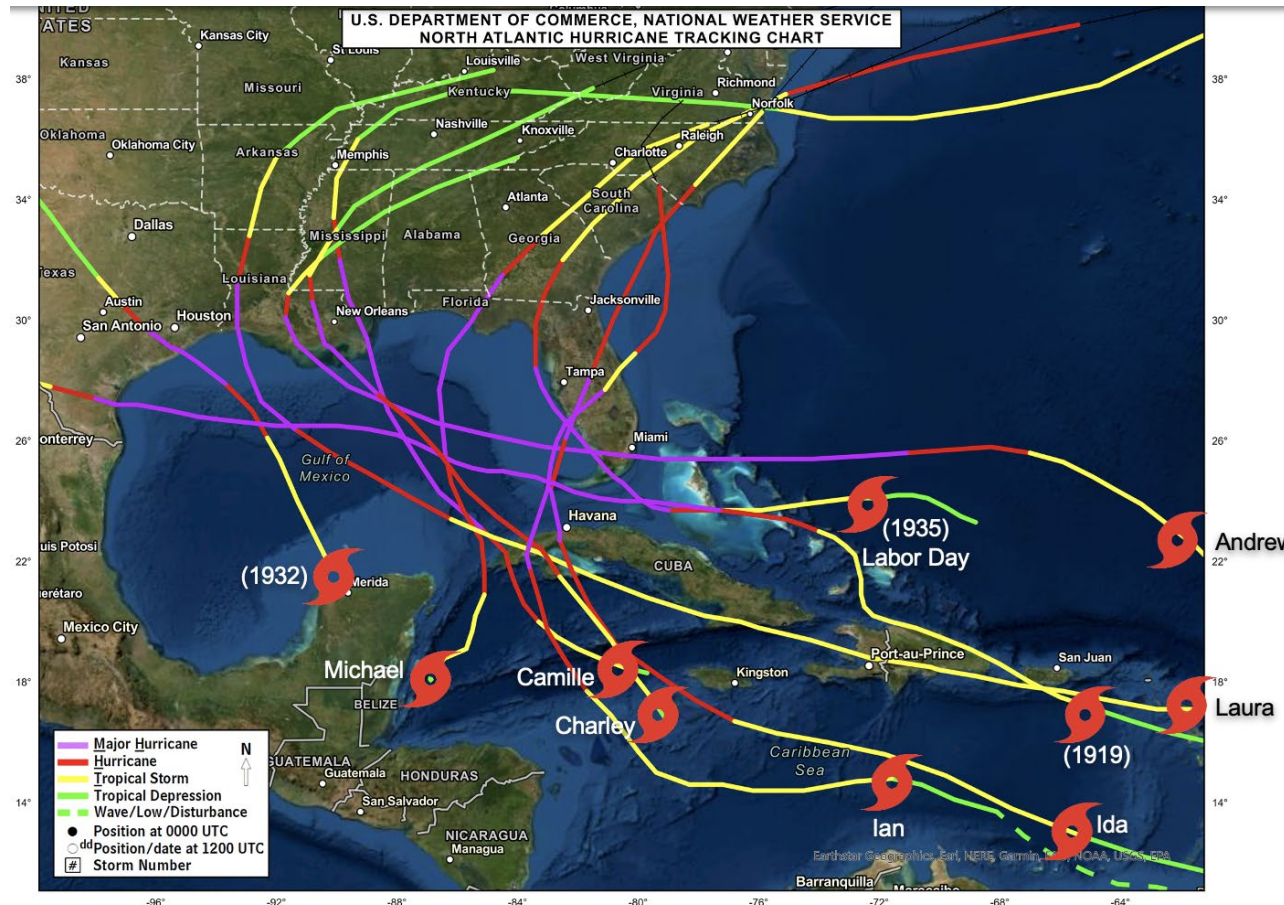


Challenge: Short Lead Times

The Nation's Strongest Hurricanes (150+ MPH) in the last 100 years were all Tropical Storms 3 days before landfall

U.S. 150 mph+

- 1919 – Storm 2
- 1932 – Storm 2
- 1935 – Labor Day
- 1969 – Camille
- 1992 – Andrew
- 2004 – Charley
- 2018 – Michael
- 2020 – Laura
- 2021 – Ida
- 2022 – Ian



Average time to become a hurricane is 50 h before landfall



Challenge: Communicate the Hazards

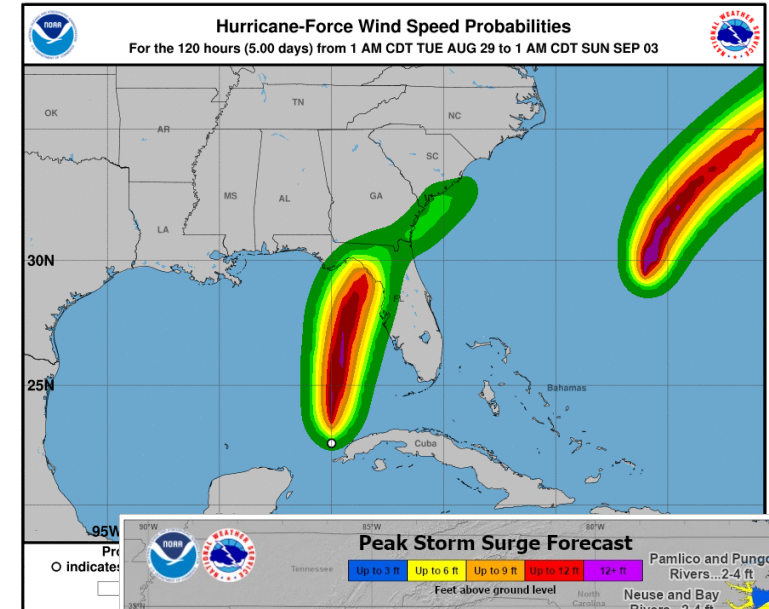
- Emphasize watches, warnings and hazard products
- Focus on risk communication, not category, storm status, or track of the storm center

Key Messages for Tropical Storm Ophelia

Advisory 8: 5:00 AM EDT Sat Sep 23, 2023

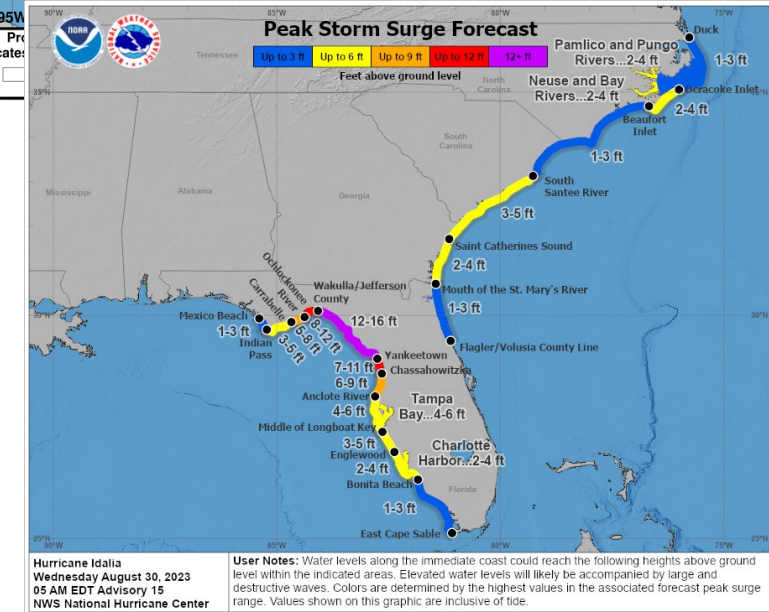
- Tropical storm conditions are expected along portions of the southeastern and mid-Atlantic U.S. coasts within the Tropical Storm Warning area through tonight. Hurricane conditions are possible within the Hurricane Watch area early this morning.
- There is a danger of life-threatening storm surge inundation 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.
- 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.
- 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

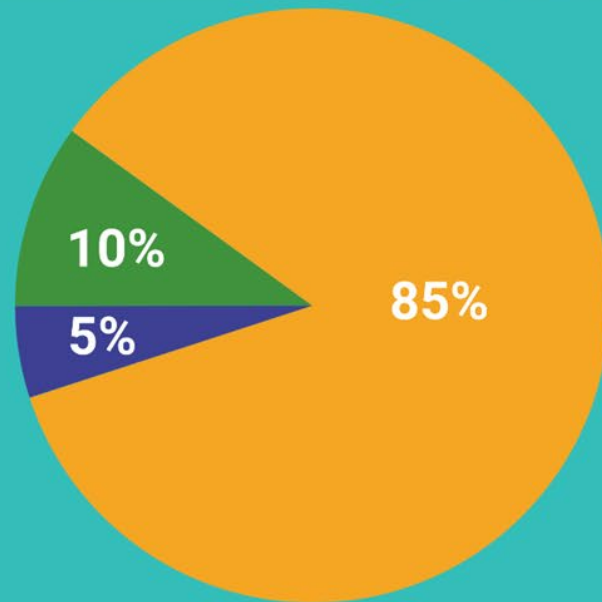


Understanding WPC Excessive Rainfall Risk Categories

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.	
www.wpc.ncep.noaa.gov @NWSWPC				
Flash flooding near me?	NO Flash Flooding			
WEATHER PREDICTION CENTER				



NOAA's 2024 Atlantic Hurricane Season Outlook



■ Above normal ■ Near normal ■ Below normal

Season probability

Named storms
17 - 25

Hurricanes
8 - 13

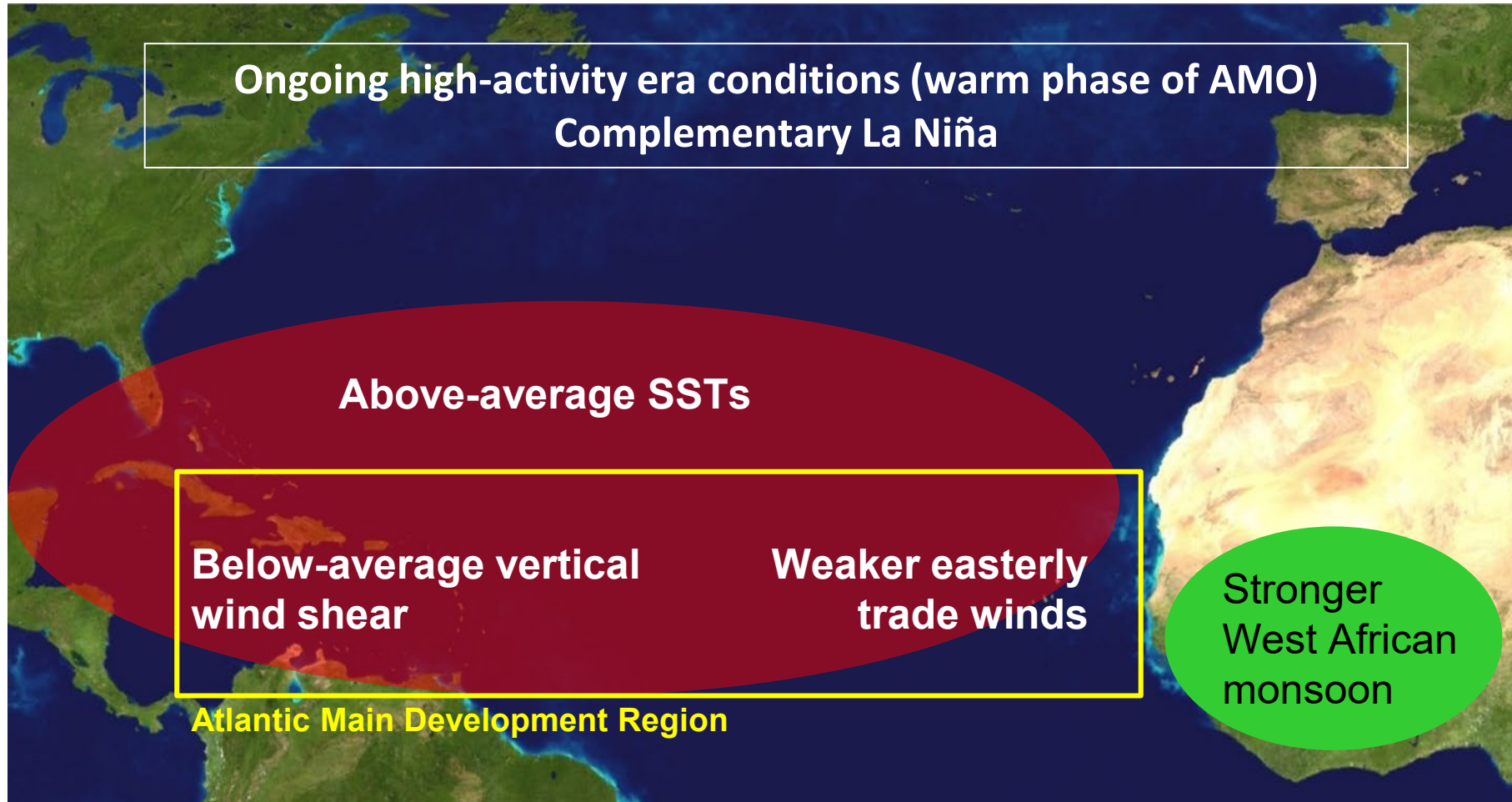
Major hurricanes
4 - 7

Be prepared: Visit hurricanes.gov and follow @NWS and @NHC_Atlantic on X.

May 2024



Expected Atlantic Conditions August-October 2024



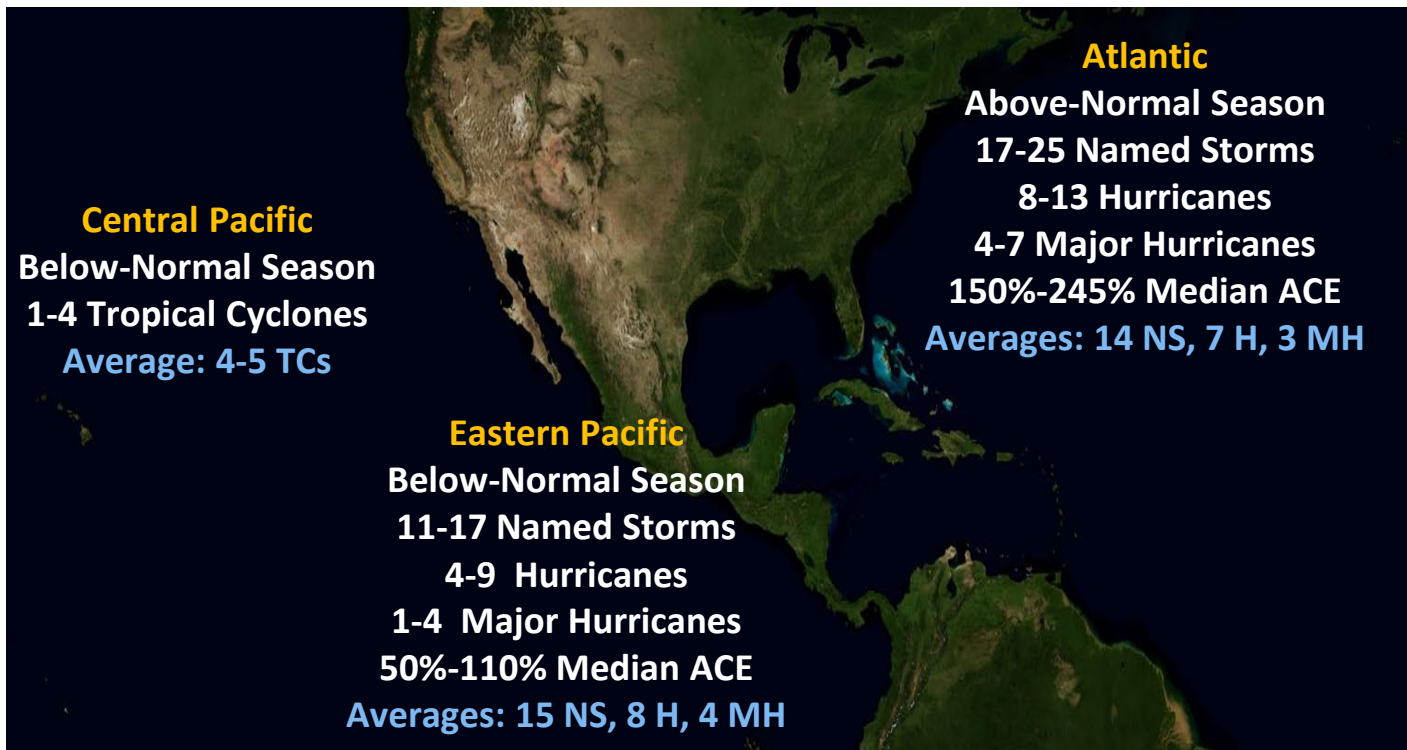
Ongoing high-activity era conditions favor more hurricane activity. These conditions include:

- Sea surface temperatures in the Main Development Region at or near record warmth.
- Weaker trade winds, weaker vertical wind shear, and a neutral to strong West African monsoon
- Predicted La Niña can complement those factors by reducing wind shear and decreasing instability



NOAA's 2024 Hurricane Season Outlooks

All ranges of activity are given with a 70% probability



Highest forecast range of named storms, hurricane and major hurricanes
2nd highest forecast range for ACE (2010)

	Atlantic	Eastern Pacific	Central Pacific
Above Normal	85%	10%	20%
Near Normal	10%	30%	30%
Below Normal	5%	60%	50%

Atlantic: Climate signals and model forecasts indicate that an above-normal season is most likely (85% chance)

Eastern and Central Pacific: a below-normal season is most likely (60% for East Pacific and 50% Central Pacific)

New for 2024: Spanish Advisory Text Products

BOLETÍN
Advertencia Intermedia del Huracán Otis Número 13A
Centro Nacional de Huracanes del SNM Miami FL EP182023
700 AM CDT miércoles 25 de octubre de 2023

...FUERTES VIENTOS CONTINUANDO EXTENDIÉNDOSE TIERRA DENTRO SOBRE EL SUR DE MÉXICO....FUERTES LLUVIAS E INUNDACIONES REPENTINAS QUE OCURREN SOBRE PORCIONES DEL SUR DE MÉXICO...

RESUMEN DE 700 AM CDT...1200 UTC...INFORMACIÓN

UBICACIÓN...17.7N 100.3O
ALREDEDOR DE 60 MI...100 KM NO DE ACAPULCO MÉXICO
VIENTOS MÁXIMOS SOSTENIDOS...110 MPH...175 KM/H
MOVIMIENTO ACTUAL...NNO O 345 GRADOS A 10 MPH...17 KM/H
PRESIÓN CENTRAL MÍNIMA...965 MB...28.50 PULGADAS

VIGILANCIAS Y AVISOS

CAMBIOS CON ESTA ADVERTENCIA:

Ninguno.

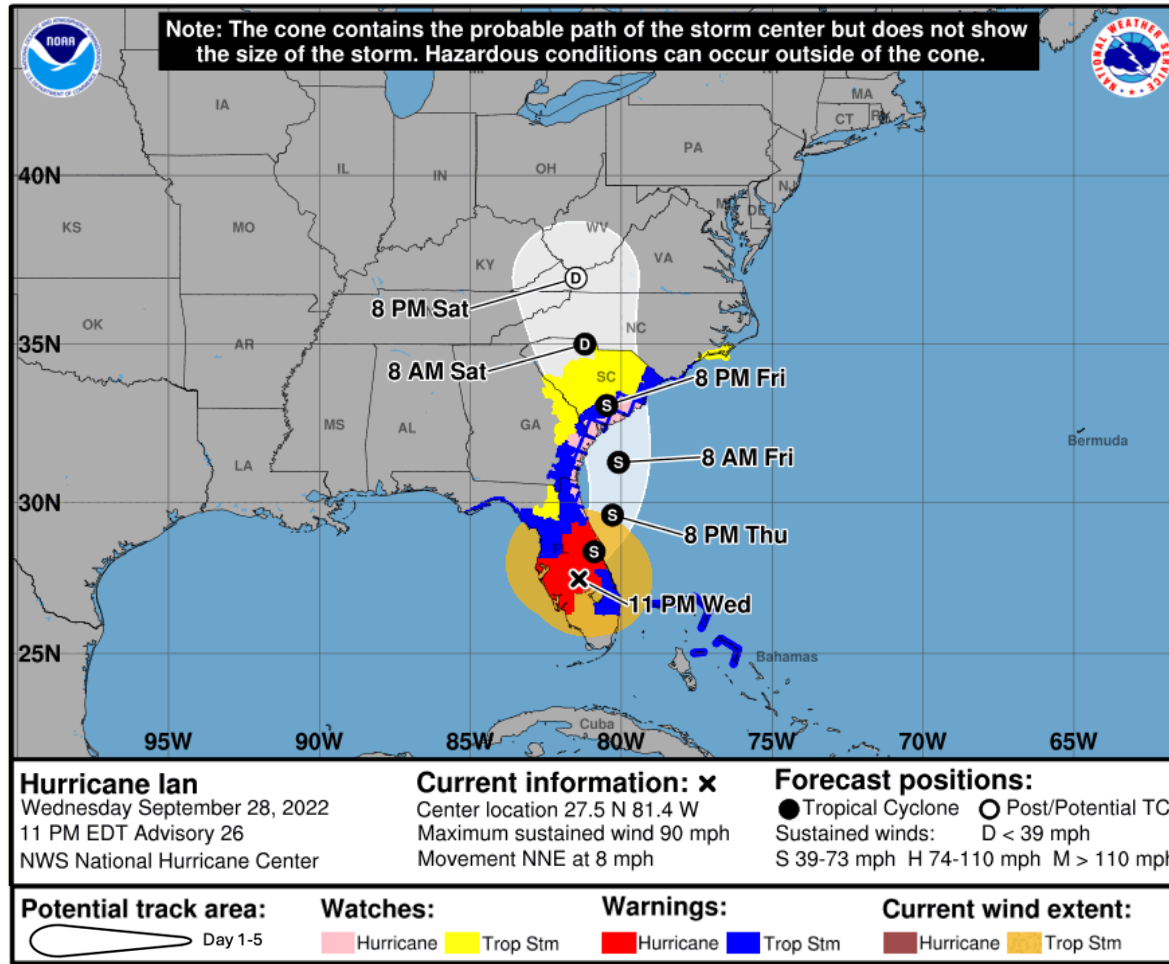
RESUMEN DE VIGILANCIAS Y AVISOS EN EFECTO:

Un Aviso de Huracán está en efecto para...
* Punta Maldonado hacia el oeste a Zihuatanejo

- New AI translation techniques were tested in 2023
- Spanish language Atlantic TCPs and TWOs will be operational in 2024
- NHC will issue experimental Spanish Atlantic Tropical Cyclone Discussions (TCDs) and Key Messages, and full suite of products in the eastern Pacific

Examples available at <https://www.weather.gov/translate/>

New for 2024: Depicting Inland Watches/Warnings on Cone



- Experimental cone graphic depicting inland U.S. tropical storm and hurricane watches and warnings will be available in 2024 around mid August
- Will better convey wind hazard risk
- Graphic may not be available as soon as the current cone graphic due to the time need to compile complete inland watch and warning information
- Feedback and comments will be collected during experimental period

Other Changes for 2024

- Issuance of U.S. watches and warnings on intermediate advisories
- Added links to web graphics in the public advisory to shorten hazard information sections
- 34- and 50-kt wind radii forecasts extended to 5 days
- International tropical cyclone rainfall graphics (experimental)



Introducing the National Hurricane Program



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

HEADQUARTERS Zane Heather

LIAISONS TO NHC Matthew Green | Michael Spagnolo

LIAISON TO NWC Whitney Flynn

NATIONAL HURRICANE CENTER Michael Brennan | Dan Brown | Cody Fritz

USACE Tom Laczó | Frannie Bui



FEMA REGION 1

Paul Morey

USACE DISTRICT

New England



FEMA REGION 2

Chris Moore

USACE DISTRICT

New York



FEMA REGION 3

Mike Bilder

Connor Dacey

USACE DISTRICT

Philadelphia
Norfolk



FEMA REGION 4

Brandon Bolinski

Rebecca Moulton

USACE DISTRICT

Wilmington
Charleston
Savannah
Jacksonville
Mobile



FEMA REGION 6

Arianne Thomas

USACE DISTRICT

New Orleans
Galveston



FEMA REGION 9

Vic DeJesus

USACE DISTRICT

Honolulu

National Hurricane Program



products

services

A grey-bordered rounded rectangle containing three product categories and the HURREVAC logo. The categories are: Forecast Products (with a computer monitor icon), Storm Surge Modeling (with a wave icon), and Hurricane Evacuation Studies (with a magnifying glass over a chart icon). The HURREVAC logo is centered, consisting of a red and blue circular emblem above the text 'HURREVAC' and 'HURRICANE DECISION SUPPORT TOOL'.

FORECAST PRODUCTS

STORM SURGE MODELING

HURRICANE EVACUATION STUDIES

HURREVAC
HURRICANE DECISION SUPPORT TOOL

A blue-bordered rounded rectangle containing three service categories: Operational Support (with a headset and phone icon), Planning Support (with a gear and people icon), and Training (with a person at a whiteboard icon).

OPERATIONAL SUPPORT

PLANNING SUPPORT

TRAINING

A green-bordered rounded square containing an icon of a person with a thought bubble containing gears, representing informed decisions.

INFORMED DECISIONS

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 to government emergency management use
- Thousands of registered users in federal, state, tribal, territorial and local 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 response**.

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 response.**

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



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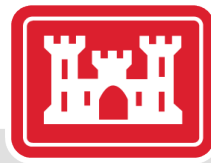
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Thank you!

HURREVAC Support Team
support@hurrevac.com



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