



2024 Hurricane Season Outlook Interagency Congressional Briefing

May 23, 2024

NOAA -- Dr. Richard Spinrad, Under Secretary of Commerce for Oceans and Atmosphere, and NOAA Administrator

NOAA -- Dr. Mike Brennan, Director, NOAA/NWS National Hurricane Center

FEMA -- Erik Hooks, Deputy Administrator

ARC -- Brad Kieserman, Vice President of Disaster Operations and Logistics

Briefing slides available at: www.legislative.noaa.gov



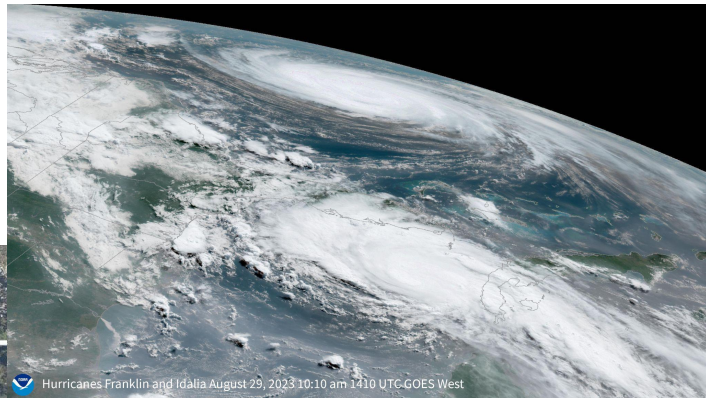
Team NOAA: All in on Hurricanes

THE WHITE HOUSE



MAY 03, 2024

A Proclamation on National Hurricane Preparedness Week, 2024



Hurricanes Franklin and Idalia August 29, 2023 10:10 am 1410 UTC GOES West

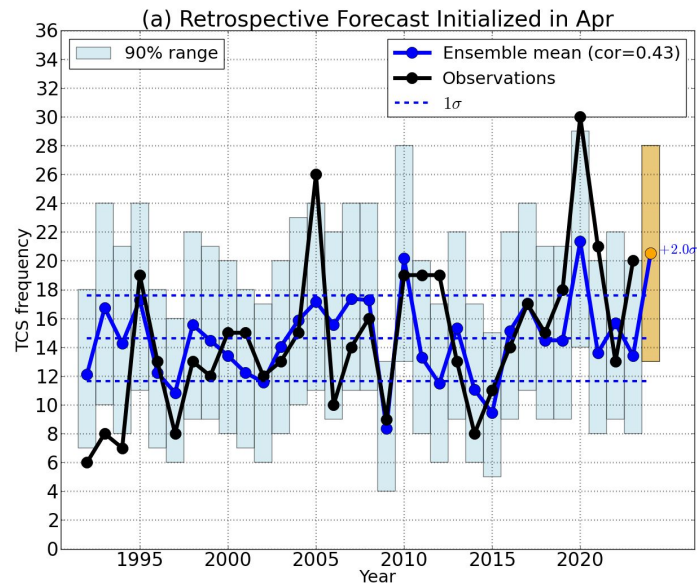


Hurricane Preparedness



Team NOAA: All in on Hurricanes

- The Hurricane Analysis and Forecast System (HAFS - NOAA's next-generation hurricane model) became operational in 2023. Version 2 is slated for 2024.
- NOAA Research's Geophysical Fluid Dynamics Laboratory (GFDL) SPEAR Global Model is **the only U.S. dynamical model used** for NOAA's Hurricane Season Outlooks.
 - Atlantic Niño Effects (El Niño of the Atlantic) are included and provide more accuracy to the outlook.
- NOAA Research's Atlantic Oceanographic and Meteorological Laboratory (AOML) research **develops new ocean observation technologies** and **deploys critical instrumentation** (e.g. Gliders, Tail-Doppler Radar) used by NHC to **reduce hurricane forecast errors and save lives.**



SPEAR predicts an active hurricane season for the 2024 summer (orange).

Team NOAA: All in on Hurricanes

- Satellites are foundational to NWS' ability to observe tropical storms and hurricanes, as well as develop weather and climate forecasts.
- GOES-East/West are in place and providing near real-time imagery.
- About to launch GOES-U, final in the 4-satellite GOES-R Series.



GOES-West imagery of Hurricane Hilary, which caused the first-ever issuance of Tropical Storm Warnings for southern California in August 2023.

Team NOAA: All in on Hurricanes

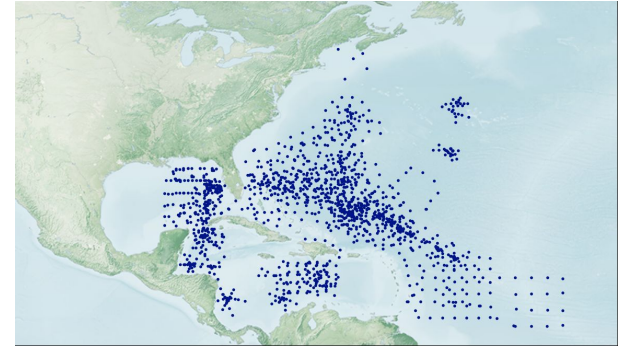
When aircraft data are available, hurricane track forecasts are improved by 15-20%, and hurricane intensity forecasts are improved by 10-15%.

NOAA Hurricane Hunter aircraft flew 449 mission hours over 70 flights in 2023.

- Passed through an eye of a hurricane 120 times

National Defense Authorization Act of 2022 authorized 6 new C-130Js for the NOAA aircraft fleet.

- FY23 Disaster supplemental provided \$327.7M for 1 C-130J
- Due to the sophisticated instrumentation, each plane takes ~6 years to build and outfit.



Drosonde location map for the 2023 hurricane season.



Team NOAA: All in on Hurricanes

- 19 new, upgraded, or repaired CO-OPS water level stations in the US.
 - Providing real-time information on water levels and storm surge.
- National Geodetic Survey and Office of Coast Survey imagery provides response and recovery agencies with critical data following storms.



2023 NOAA Pre-Event Oblique Imagery



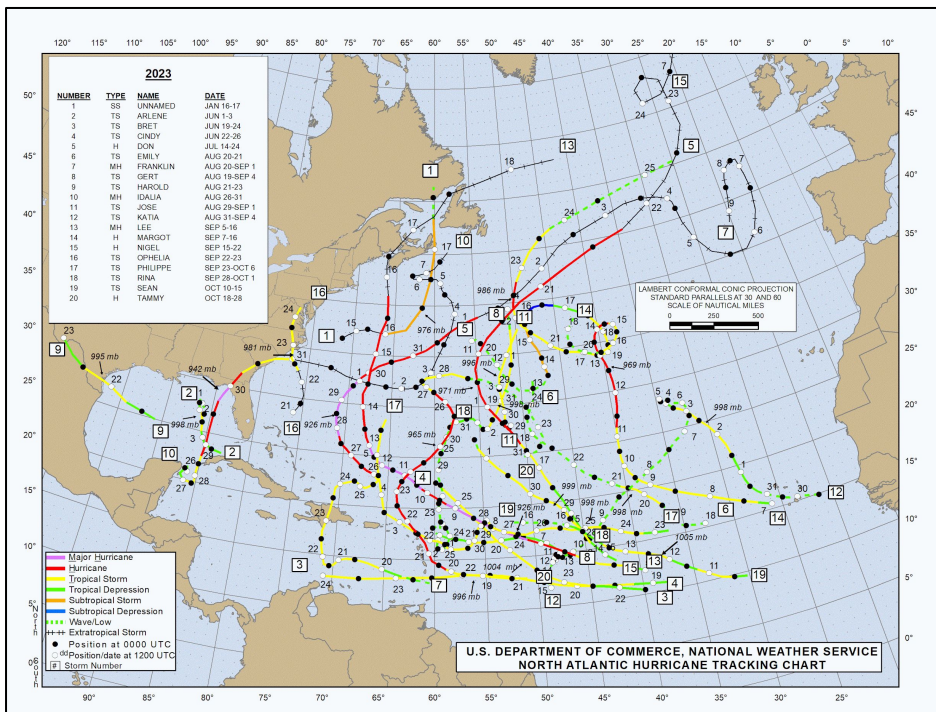
2023 NOAA Hurricane Idalia Imagery



Outline



2023 Atlantic Hurricane Season - In Review

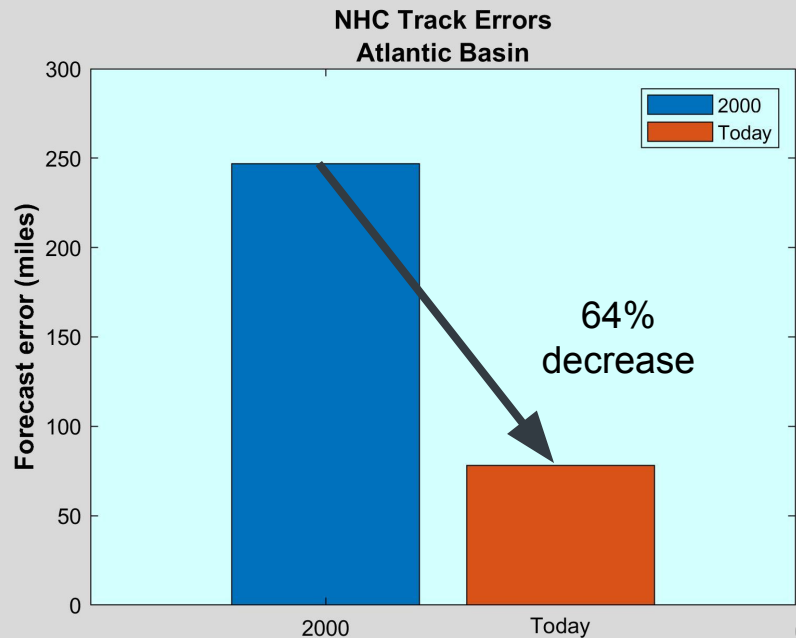


- 20 named storms
- 7 hurricanes
- 3 major hurricanes
- 1 landfalling U.S. hurricane
 - Idalia: Florida
- 12 direct fatalities in the U.S. (including 1 from Hilary in California)
- Nearly \$4B in U.S. damage (plus \$900M from Hilary in California)

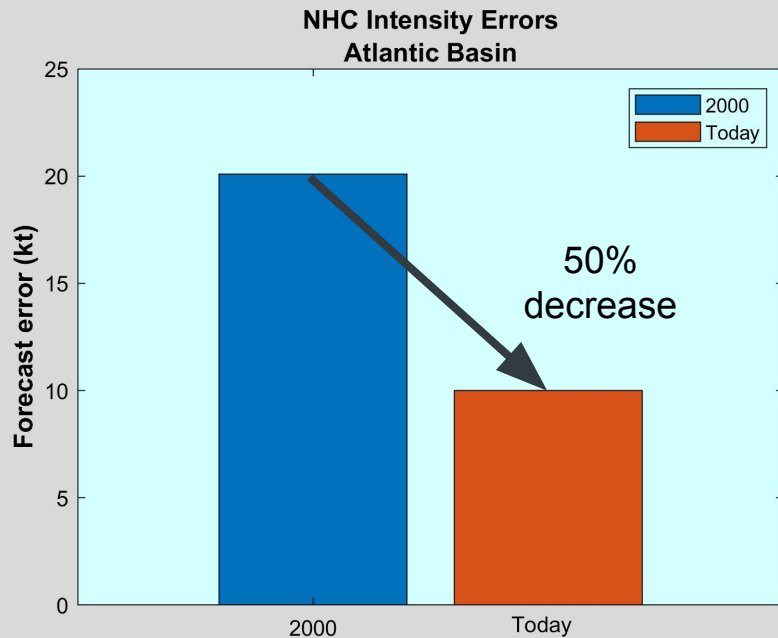
**Risk to life and property grows each year
Improving readiness, communication, and forecasts are vitally important**

NHC's Forecast Accuracy Continues to Improve

72-hr Track Forecast Errors

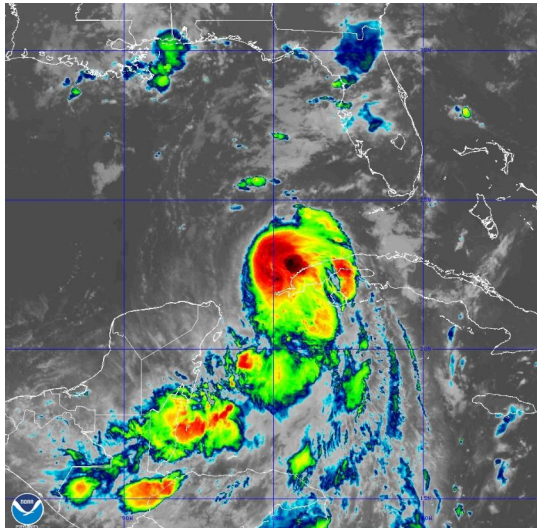


72-hr Intensity Forecast Errors



Intensity Forecast Improvements

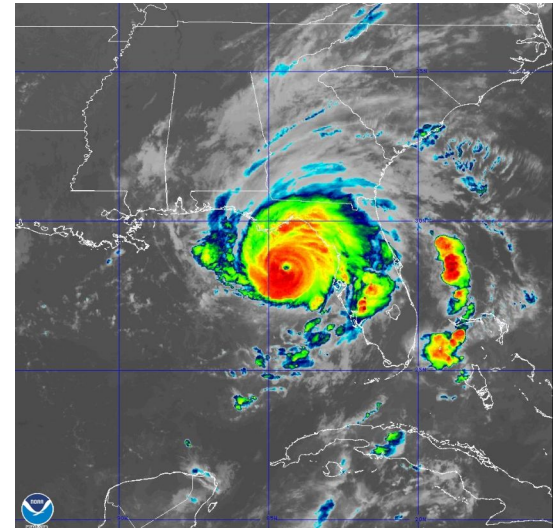
NHC successfully forecast Hurricane Idalia's rapid intensification
50-mph increase in 24 hours



29 Aug 2023 06:00Z - NOAA/NESDIS/STAR - GOES-East - Band 13 - AL102023

70-mph Tropical Storm

24 hours
→

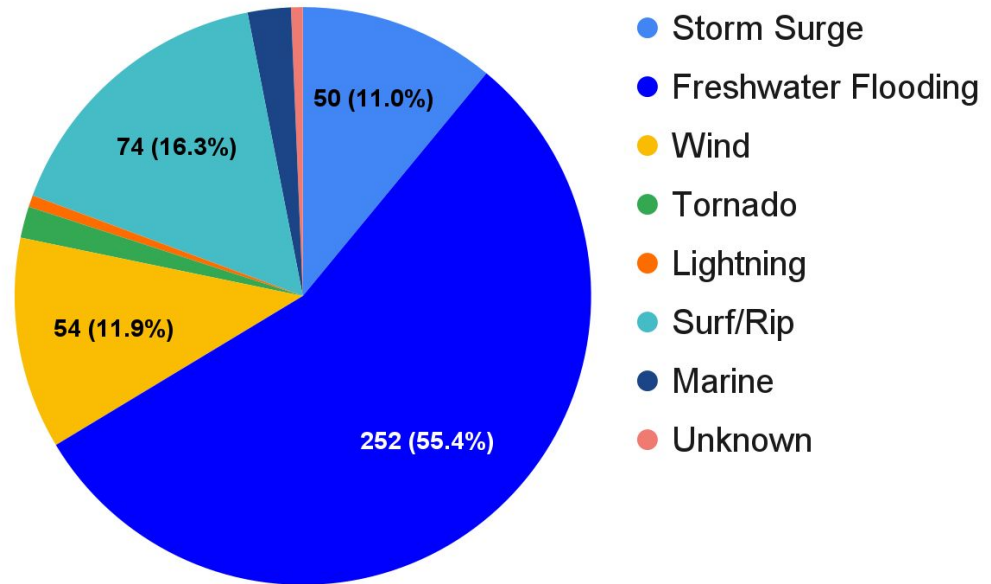


30 Aug 2023 06:00Z - NOAA/NESDIS/STAR - GOES-East - Band 13 - AL102023

120-mph Major Hurricane

Recent Fatality Trends - Direct

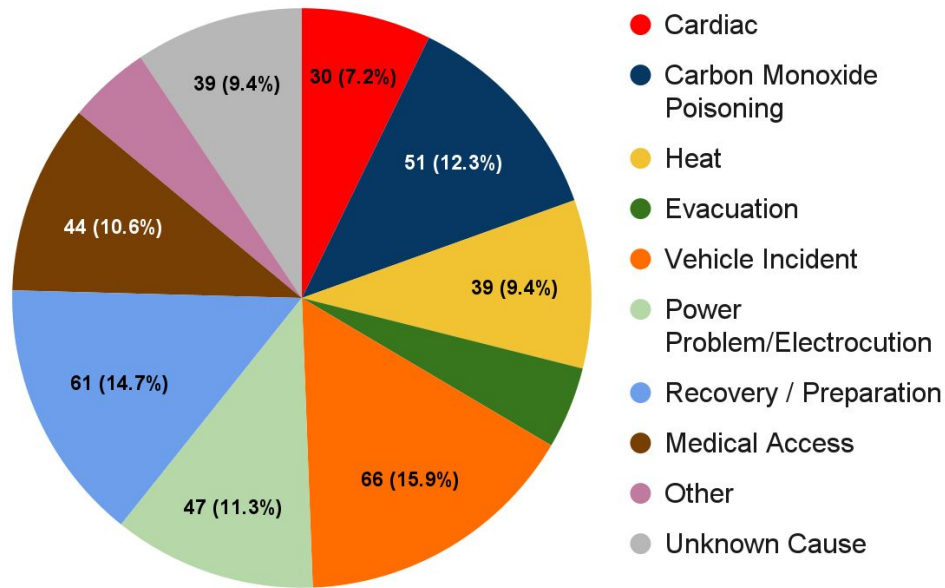
- Since 2013, most fatalities have been due to **drowning due to freshwater flooding from rainfall (55%)**
- 41 storm surge fatalities from Hurricane Ian is a reminder of the potential loss of life from that hazard
- More deaths from surf and rip currents than wind or storm surge



U.S. Direct Hurricane Deaths - 2013-2023
Total: 455

Recent Fatality Trends - Indirect

- Nearly as many “indirect” fatalities after the storm as direct storm deaths
- Most occur after major hurricane landfalls with widespread power outages
 - Post-storm heat responsible for about 10% of indirect deaths
- Disproportionally affect older adults (60+), especially men

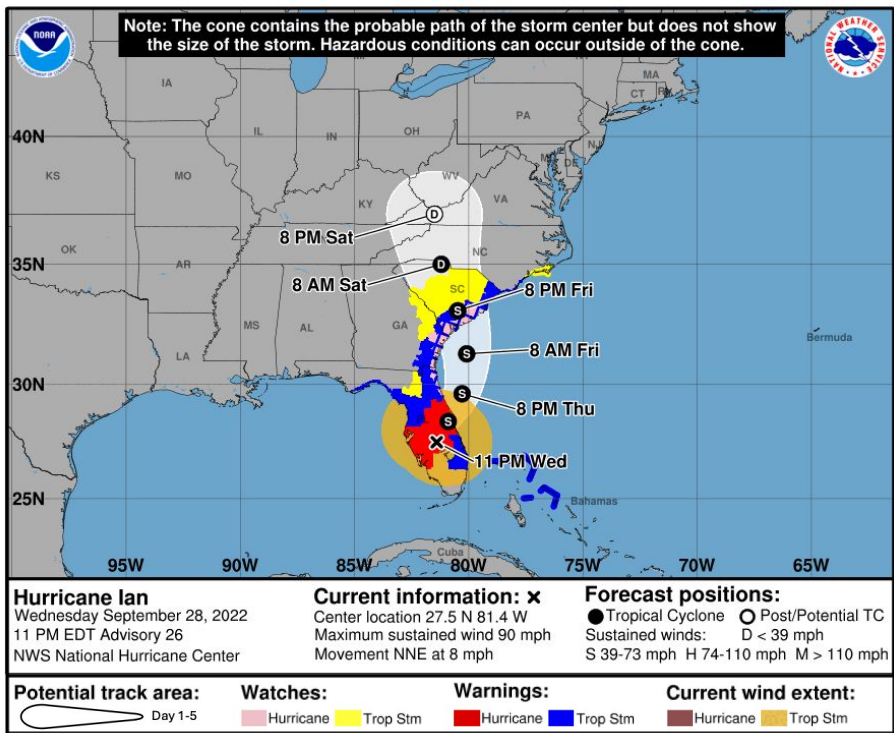


U.S. Indirect Hurricane Deaths - 2013-2023
Total: 418

Outline



New for 2024: Depicting Inland Watches/Warnings on Cone Graphic



- 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 over inland areas
- Feedback and comments will be collected during experimental period

New for 2024: Spanish Language 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:

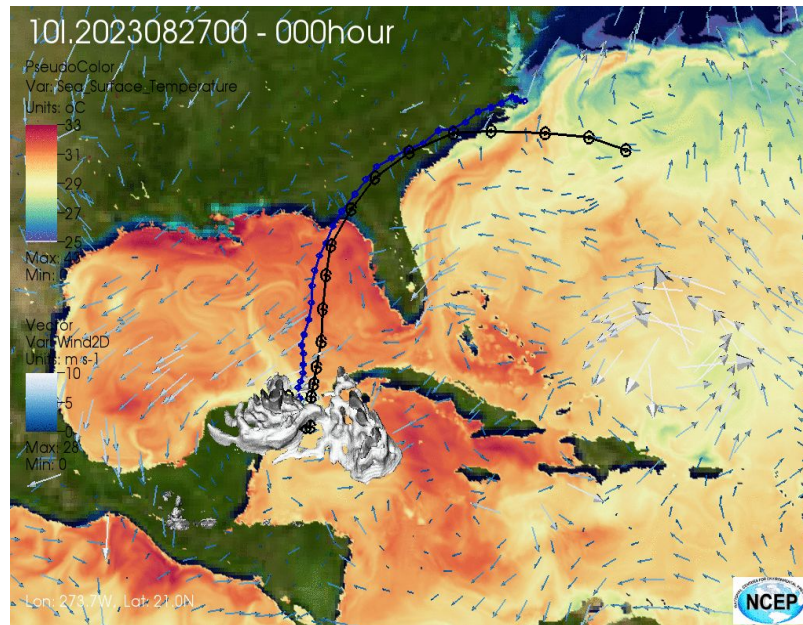
Un Aviso de Huracán está en efecto para...
* Punta Maldonado hacia el oeste a Zihuatanejo

- New AI-driven translation techniques were tested in 2023
- Allows NHC to expand Spanish language information to all hurricane text products in both the Atlantic and east Pacific basins in 2024

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

Hurricane Analysis and Forecast System (HAFS)

- HAFS is NOAA's new hurricane modeling system within the Unified Forecast System (UFS) framework
- A result of disaster supplemental funding (DRSA) which is critical to transition tropical cyclone modeling research to operations
- HAFS has atmosphere-ocean-wave coupling, improved data analysis and physics, and detailed output following the storm
- HAFS will be updated in early July for the 2024 hurricane season
- In 2023, HAFS-B was the best performing mid-range (days 3-5) model guidance for hurricane track in the Atlantic



Hurricane Idalia - HAFS-B

Outline

2023 in
Review

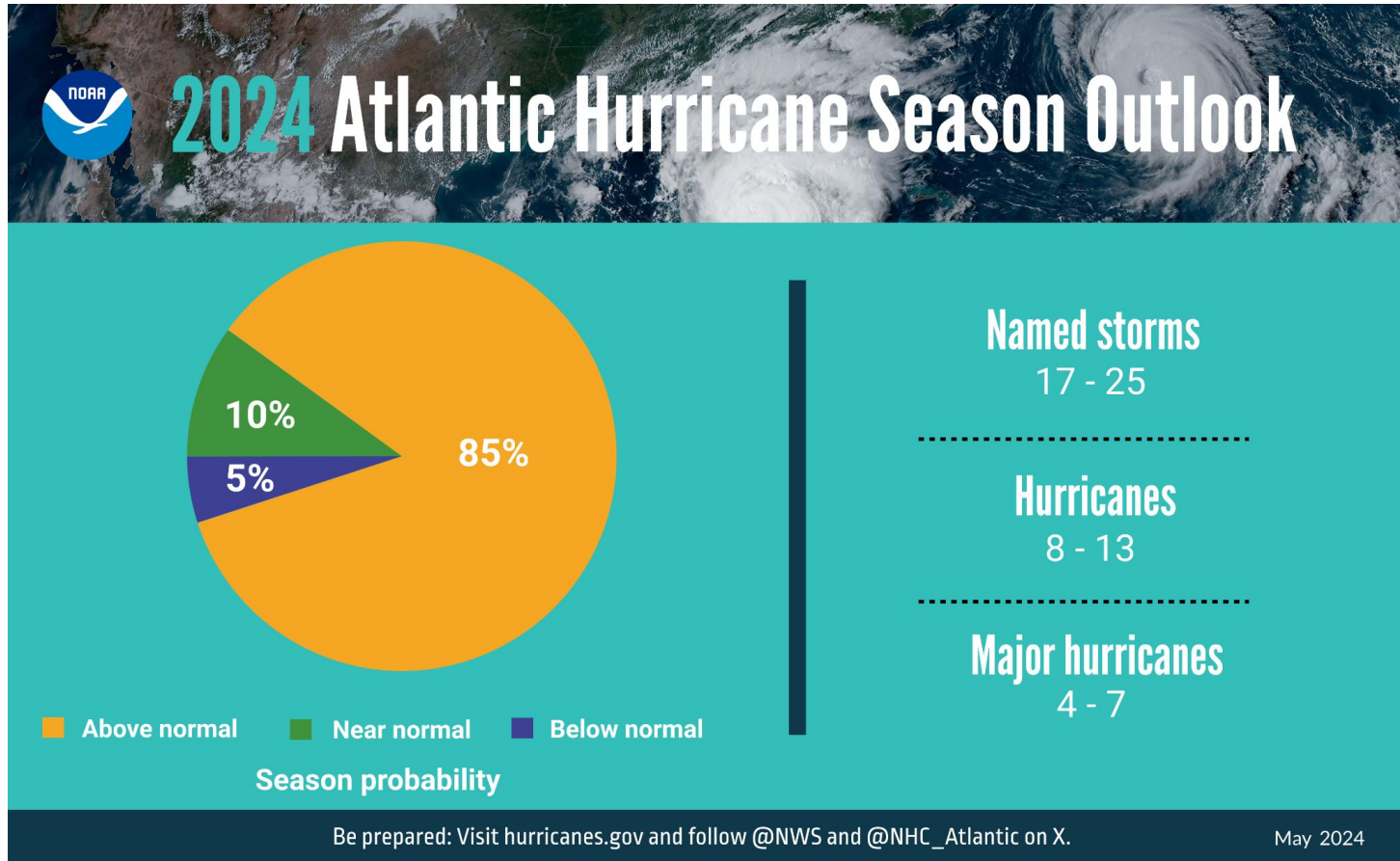
New in
2024

2024
Outlook

Partner
Prep:
FEMA

Partner
Prep:
ARC

NOAA's 2024 Atlantic Hurricane Season Outlook



2024 Atlantic Hurricane Season Names



Alberto
Beryl
Chris
Debby
Ernesto
Francine
Gordon

Helene
Isaac
Joyce
Kirk
Leslie
Milton
Nadine

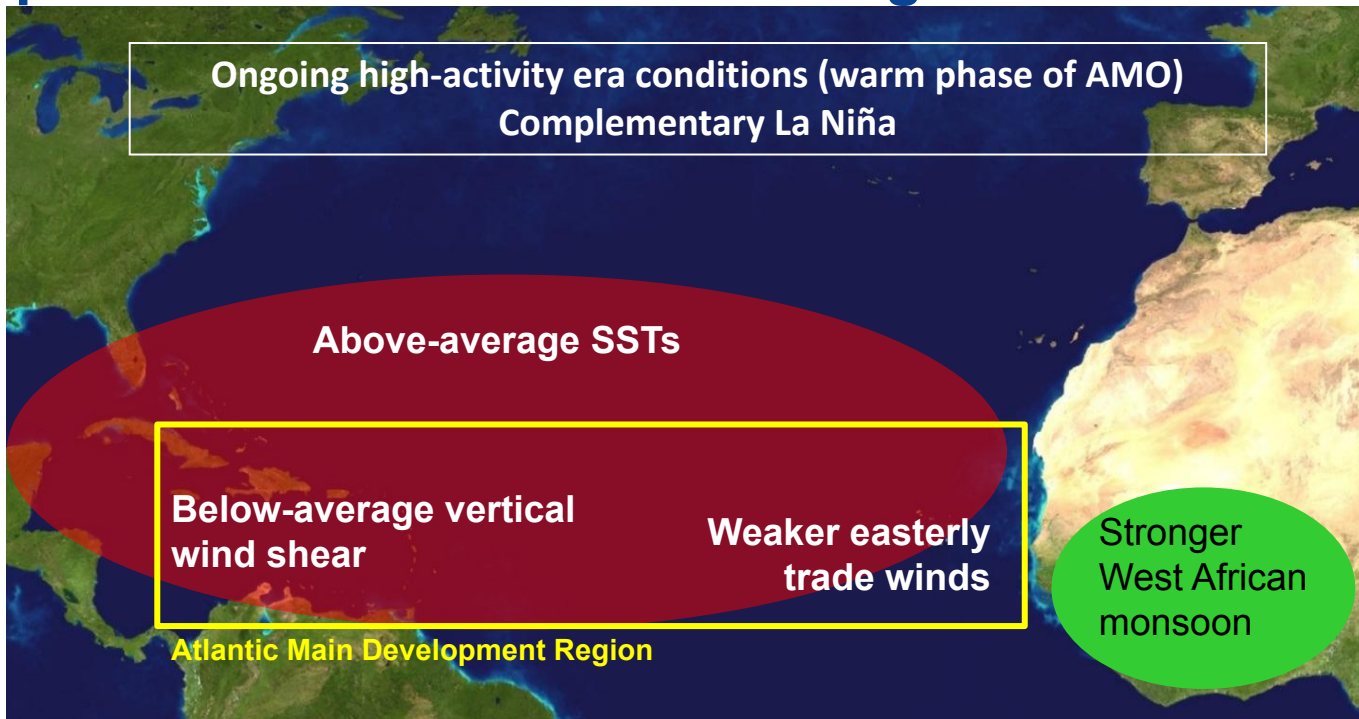
Oscar
Patty
Rafael
Sara
Tony
Valerie
William

Names provided by the World Meteorological Organization

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:

- Above-average sea surface temperatures in the Main Development Region. At or near record warmth.
 - Weaker trade winds, weaker vertical wind shear, and at least a non-competing West African monsoon.
- The predicted La Niña can complement those factors by reducing wind shear and decreasing instability.



NOAA's 2024 Hurricane Season Outlooks



For the Atlantic hurricane region, the outlooks indicate a 85% chance of an above-normal season, a 10% chance of a near-normal season, and a 5% chance of a below-normal season. For the East Pacific Hurricane season, the outlooks indicate a 60% chance of below-normal activity, with a 30% chance for near-normal levels, and a 10% chance for below-normal levels.

These outlooks are for the overall seasonal activity. They are not a hurricane landfall forecast.



Summary

Atlantic Basin:

- Climate signals and model forecasts indicate that an **above-normal** season has the highest chance of occurring (**85%**), with strong confidence leading to small odds for a (10%) near- or (5%) below-normal season.
 - Many models showing record low vertical wind shear and near or record ocean temps in the Atlantic.
- Primary influencing factors include the warm phase of the AMO (near record sea-surface temperatures), high activity era conditions (since 1995), and likely a reinforcing La Niña.

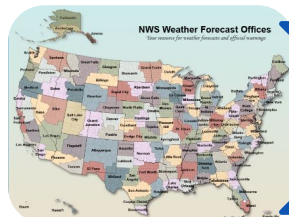
Eastern and Central Pacific Basins:

- Both will most likely have a below-normal seasons. The East Pacific odds break down to **60%** for **below-normal**, 30% for near-normal, and 10% for above-normal.
- The Central Pacific odds are **50%** for **below-normal**, 30% for near-normal, and 20% for an above-normal season. Some models indicate a patch of above-normal SSTs just east of Hawaii, which could support a disturbance moving out of the East Pacific.
- The main climate signals include a likely cooling of the tropical SSTs in these regions (La Niña) and a weaker impact of the a negative phase of the Pacific Decadal Oscillation (PDO) for the Central Pacific.

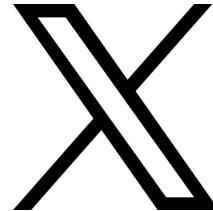
These outlooks are for the overall seasonal activity, not a hurricane landfall forecast.
Whether or not a storm will make landfall typically cannot be predicted beyond several days.

Ways to Stay Informed & Help Your Constituents

- Follow your local NWS office (weather.gov) and NHC (hurricanes.gov) on social media (weather.gov/socialmedia), and share relevant content
- Model safe behavior, follow guidance from local authorities (i.e., don't travel when not recommended; evacuate when requested)
- Do you have a NOAA Weather Radio? (weather.gov/NWR)
- Become a Weather Ready Nation Ambassador (weather.gov/WRN)
- Are you on our congressional email list? Get localized significant weather event information (email: matthew.borgia@noaa.gov)



Follow Your
Forecast
Office



Have multiple
sources of
info! NOAA
Weather Radio



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New in
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FEMA

We Are Ready



28 Urban Search and Rescue Teams
7,692 Surge Capacity Force Rostered
14,252 Overall Incident Management



316,000 households have received **\$1.4B+** dollars in Individual Assistance, including over **\$60M** through direct outreach to people who typically need assistance navigating the FEMA process.



5 National IMATs
13 Regional IMATs
78 Federal Coordinating Officers



40,400,785
Liters of Water



22,969,380
Meals



906
Generators



870,445
Blankets



91,257
Cots

FEMA's Posture



- New, larger distribution center in Greencastle, Pennsylvania.



- Training for over 4,000 emergency managers by National Hurricane Program.



- Be “*In the Know*” on factors to consider if evacuations are ordered.



FEMA

Individual Assistance Program Updates

- We made assistance simpler and easier to access and to jumpstart the recovery process.
- Eligible individuals can now get:
 - Immediate funding for essentials after a disaster,
 - Additional support if they can't return home, and
 - Assistance to repair and improve homes.



FEMA

FEMA's Year of Resilience

- Resilience is key to protect against climate change and evolving hazards
- Build stakeholder knowledge around risks and mitigation
- Enhancing national resiliency through:
 - Program updates,
 - Preparedness campaigns, and
 - Collaboration



FEMA's Outreach to Asian American, Native Hawaiian and Pacific Islanders

- Special National Preparedness Month focus on Asian American, Native Hawaiian, and Pacific Islander population.
- Ensure AANHPI community has reliable information.
- Get lifesaving messages into the hands of those who need it most



FEMA

Federal Emergency Management Agency

The Time to Prepare is Now

- Your constituents prepare themselves, their families, and their pets **today**
 - Visit [Ready.gov](https://www.ready.gov).
 - Make an emergency plan.
 - Sign up for emergency alerts and warnings from local officials.
 - Download the FEMA App to receive weather alerts.
 - Review insurance policies.
 - Know your evacuation zone.



Take advantage of our promotional toolkits to share preparedness information with your constituents.



FEMA



FEMA

Helping People Before, During, and After Disasters.

Outline





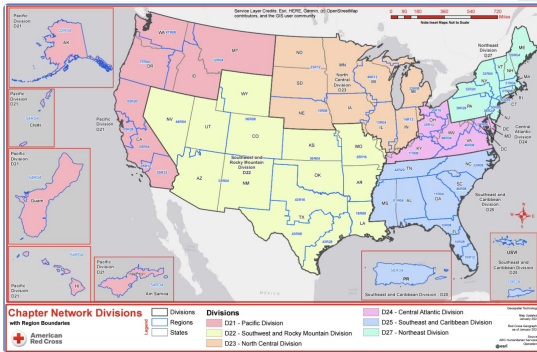
American Red Cross

36 USC § 3001

Who We Are

- Over 275,000 **volunteers**
- About 30,000 employees, including 1,200 in Disaster Cycle Services

Where We Are



- Mutual Aid Model
- National Headquarters (DC & Virtual)
- 6 Divisions
- 49 Regions
- 232 Chapters
- 3 National Incident Command Teams
- 4 National Supply Depots
- Emergency Supplies for 500,000 People
- 220 Tractor Trailers
- 250 Specialty Vehicles
- Extensive GIS Capability & WebEOC

Mission: To prevent and alleviate human suffering in the face of emergencies by mobilizing the power of volunteers and the generosity of donors

What We Do

National Call Center: 1-800-REDCROSS

“Supportive Community” – ARC National Readiness Planning Program

10 Core Services

1. Sheltering (congregate & NCS)
2. Feeding
3. Distribution of Emergency Supplies
4. Reunification
5. **NEW: Information as a Service**
6. Disaster Mental Health
7. Disaster Health Services
8. Disaster Spiritual Care
9. Financial Assistance
10. Casework

8 Special Services

1. Limited Migrant Support: Border & Interior
2. Non-combatant Evacuation Operations
3. Limited Water Contamination
4. **Extreme Temperatures**
5. Civil Disturbances
6. Mass Casualty / Mass Fatality
7. NTSB Transportation Disasters
8. Non-Congregate Sheltering



Biomed International Training Services to the Services Armed Forces

What We Don't Do

- Hotel “vouchers”
- Unsolicited Donations Management
- Non-Disaster-Caused Homelessness

Red Cross Emergency App!

Please Urge Your Constituents to Download Before Disaster Strikes

****NEW** for the 2024 Hurricane Season:**



Quickly locate and get detailed up-to-date information about all active Red Cross service delivery sites.

Available on the Apple & Android Stores



THANK YOU FOR YOUR TIME AND INTEREST

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Contacts:

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ARC -- Jacqueline.Bassermann@redcross.org

Slides will be available at: legislative.noaa.gov