



Hurricane Preparedness for 2025

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**National Oceanic and
Atmospheric Administration**
U.S. Department of Commerce

**National Weather Service
Lake Charles, LA**



A Quick Rundown

- Overview 2024 Hurricane Season
- Forecast indicators for the 2025 Season Forecast
- Tropical Cyclones and their Hazards
- The forecast timeline: Products and Sources
- New to 2025
- How to connect with us!





Overview of the 2024 Hurricane Season



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National Weather Service 2024 Forecast

Atlantic Basin Tropical Activity

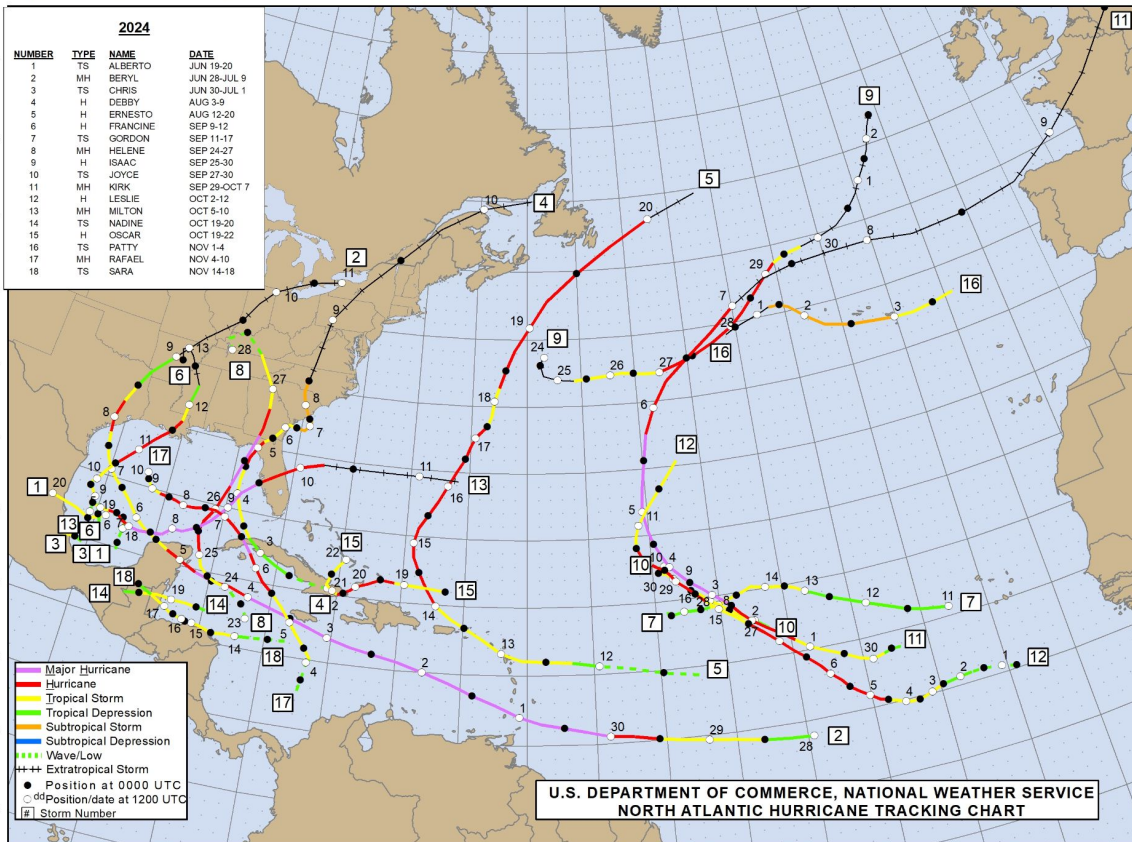
Forecast Parameter	Forecast	1991 - 2020 Average
Named Storms	17-24	18
Hurricanes	8-13	6
Major Hurricanes	4-7	5





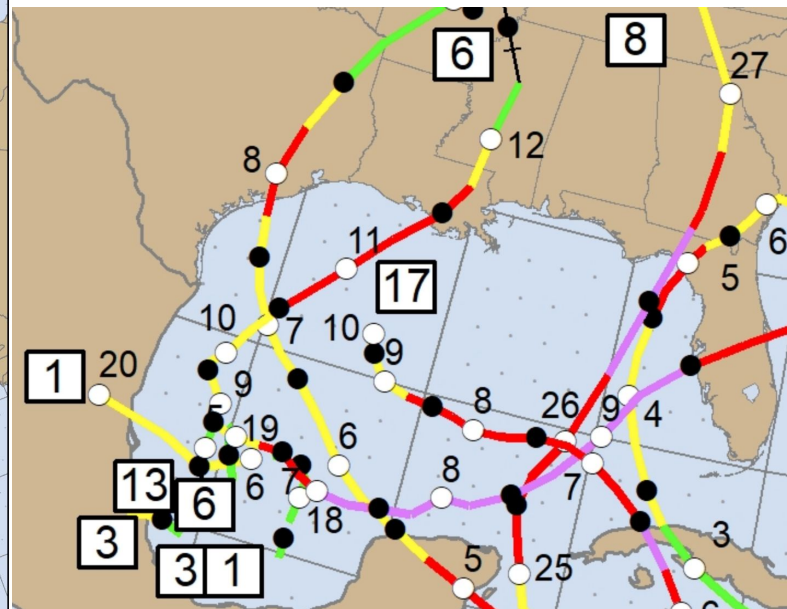
2024 Season: What Happened

Another active year in the Gulf



8 Tropical Cyclones within the Gulf
7 Landfalls

- 5 US (1 TX, 1 LA, 3 FL)
- 2 MX



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2025 Hurricane Season Outlook

Forecasts and Climatological Indicators



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Forecast Parameter	Forecast	1991 - 2020 Average
Named Storms	17	14.4
Hurricanes	9	7.2
Major Hurricanes	4	3.2



**COLORADO STATE
UNIVERSITY**

Predicting Above-Average Season
Updates June 11, July 9 and August 6



National Hurricane Center Forecast

Forecast Parameter	Forecast	1991 - 2020 Average
Named Storms	TBD	14.4
Hurricanes	TBD	7.2
Major Hurricanes	TBD	3.2



Forecast issued within first week of May.
Certain markers we can look at to gauge
activity within the Atlantic Basin...

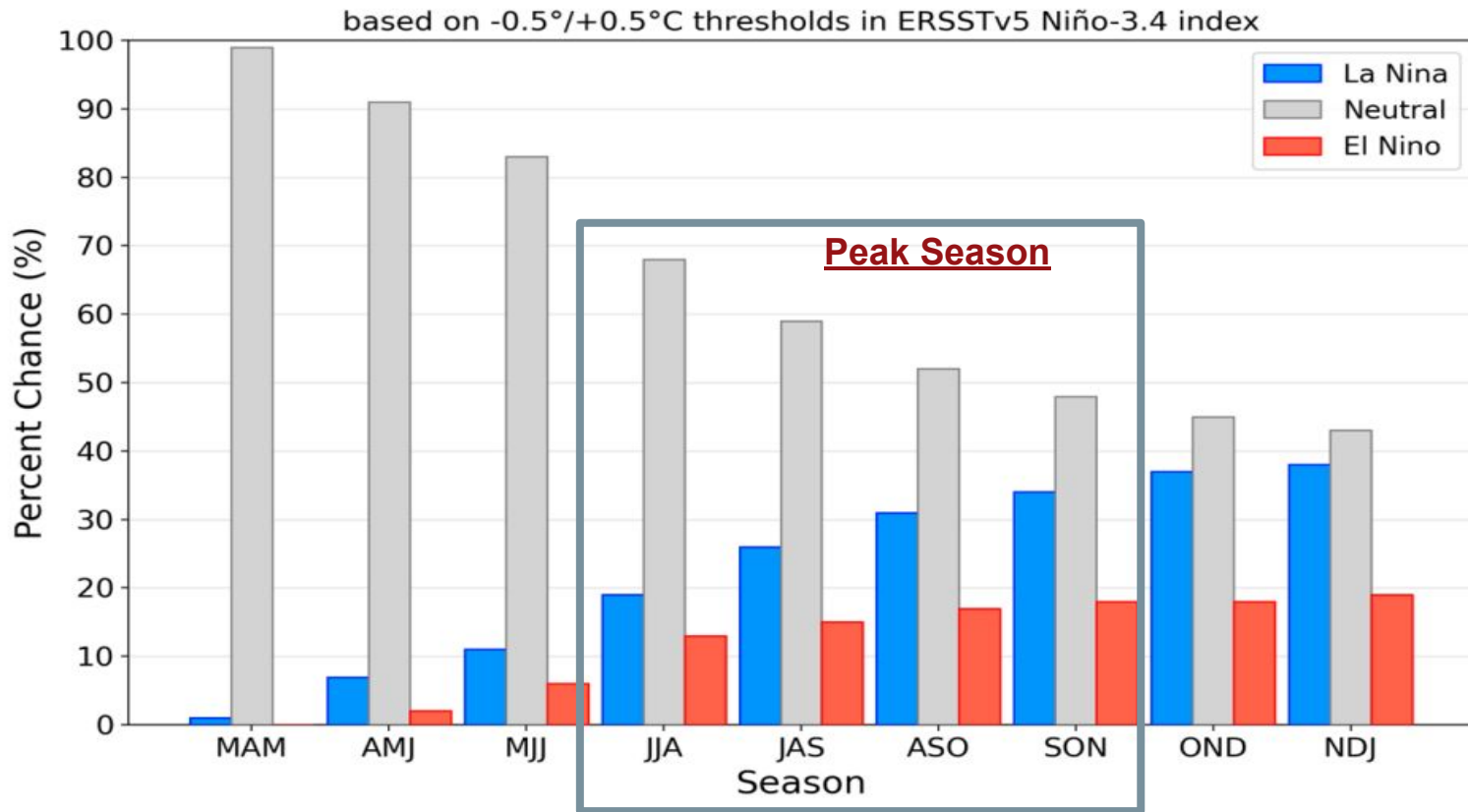




ENSO Neutral Favored through Hurricane Season

Official NOAA CPC ENSO Probabilities

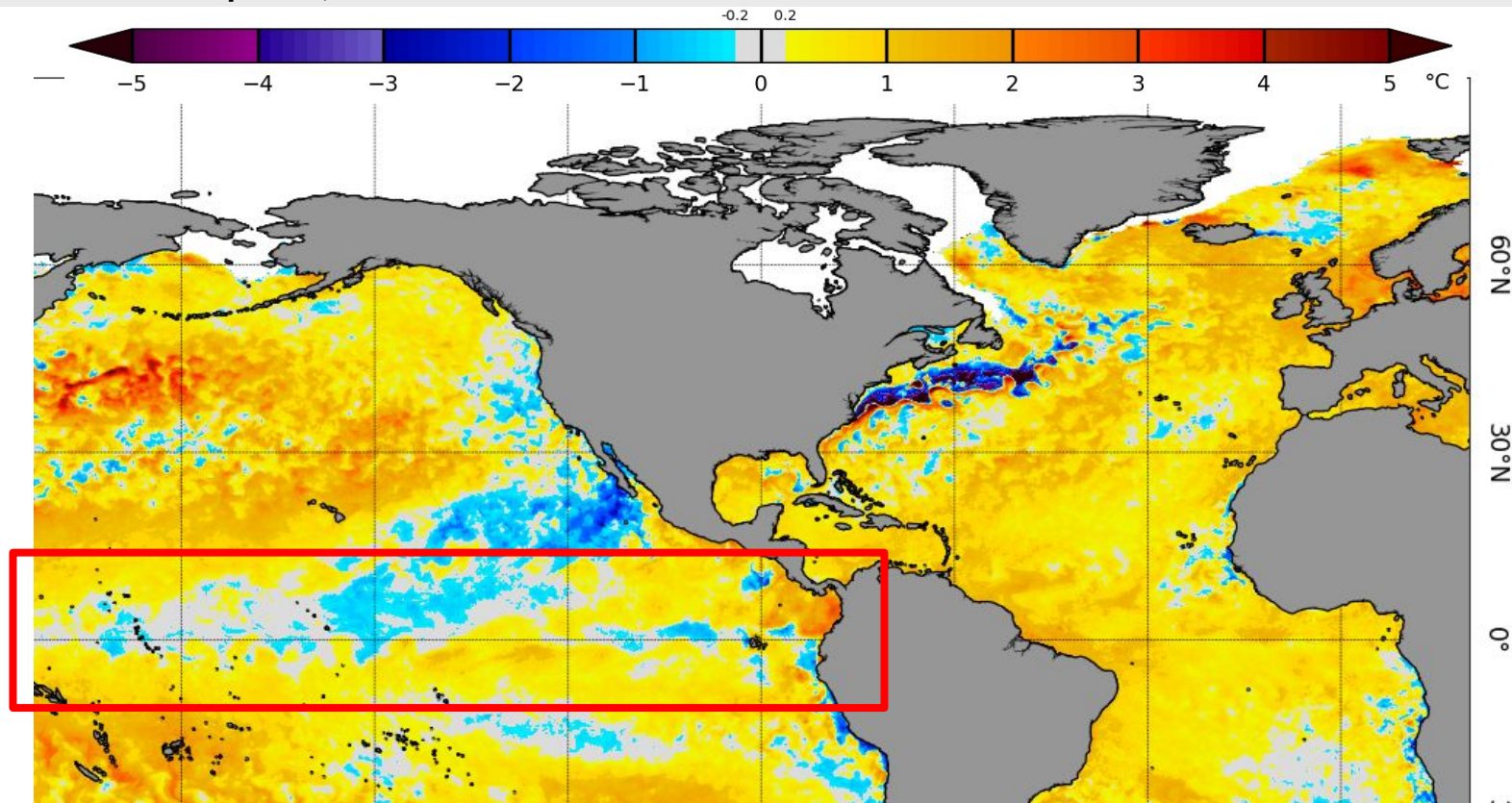
Issued April 2025





Sea Surface Temperature Anomalies

Current as of April 20, 2025

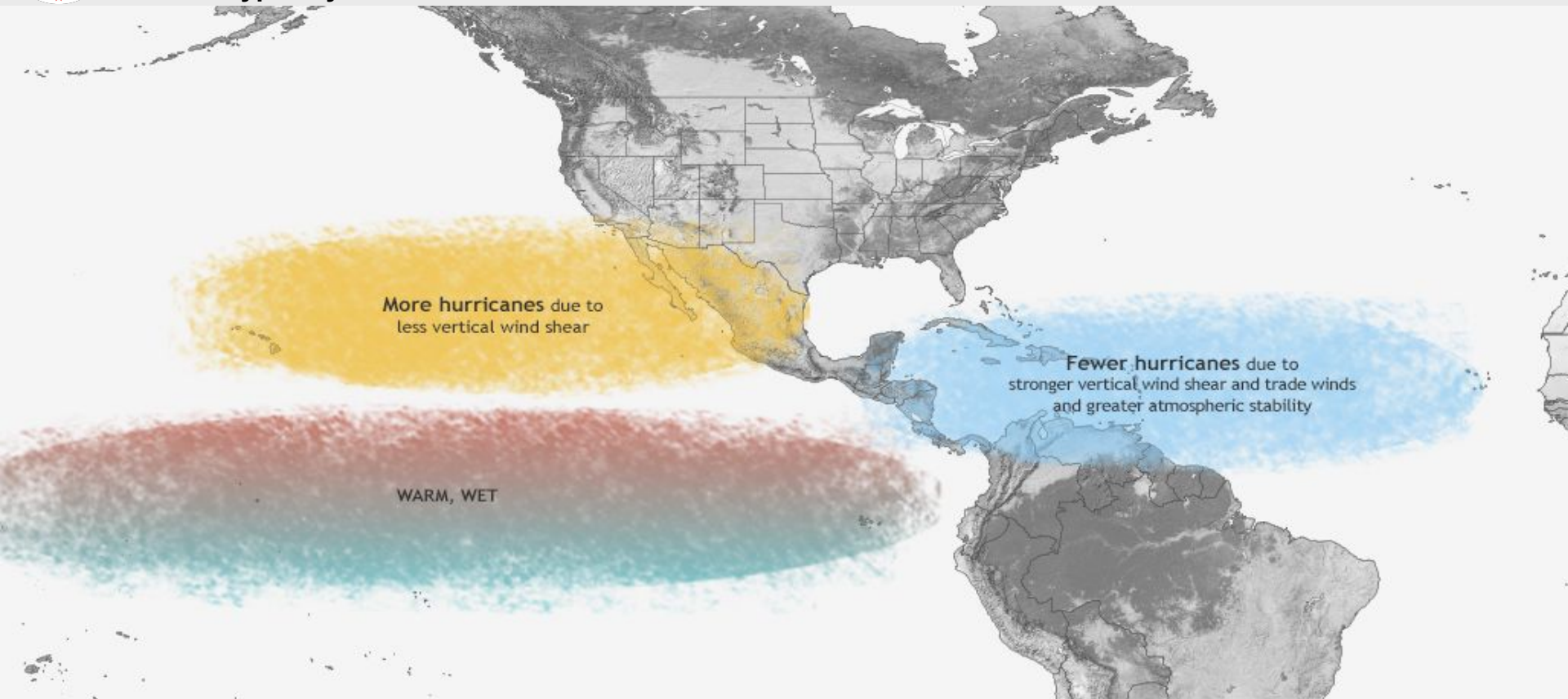


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El Niño's Tropical Influence

El Niño typically results in fewer hurricanes in the Atlantic Basin



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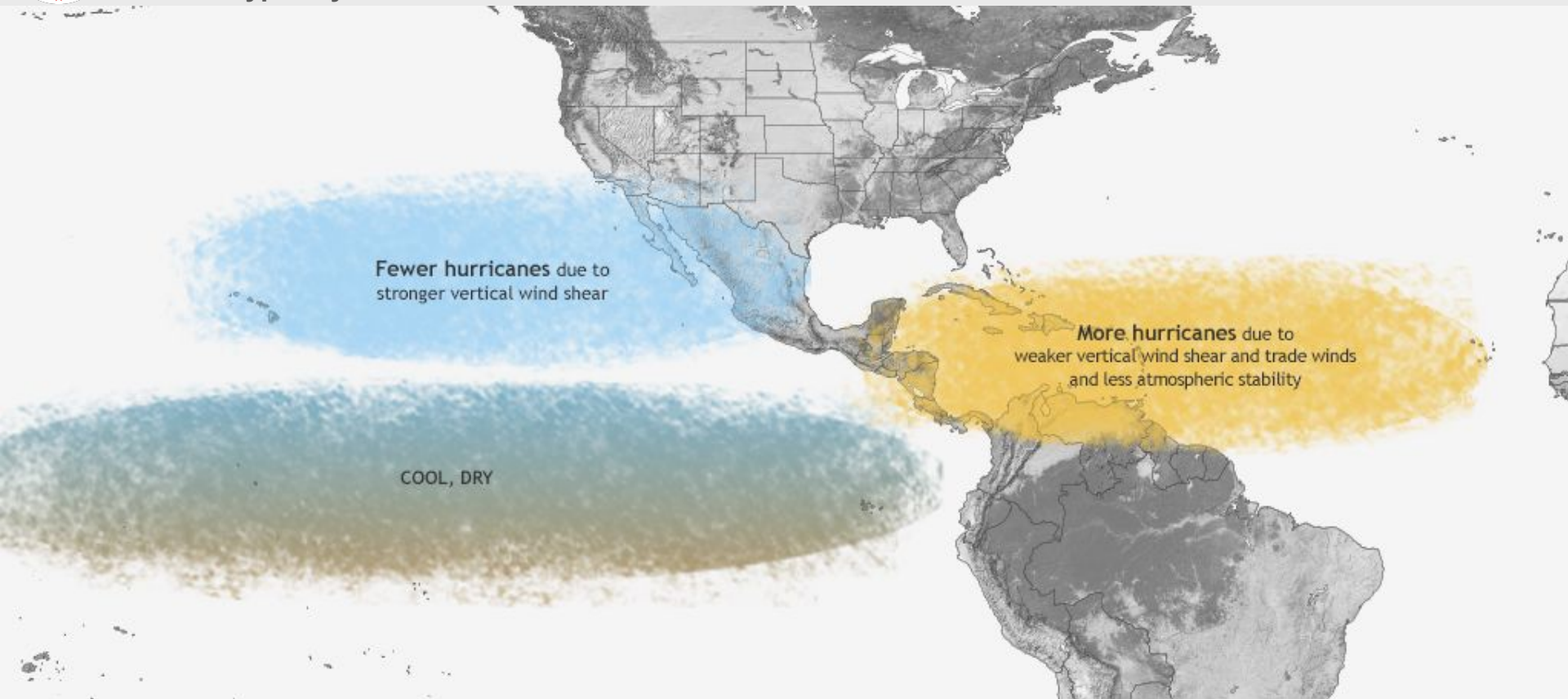
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La Niña's Tropical Influence

La Niña typically results in more hurricanes in the Atlantic Basin



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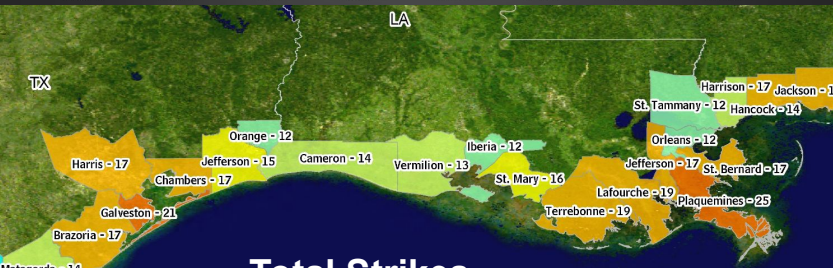
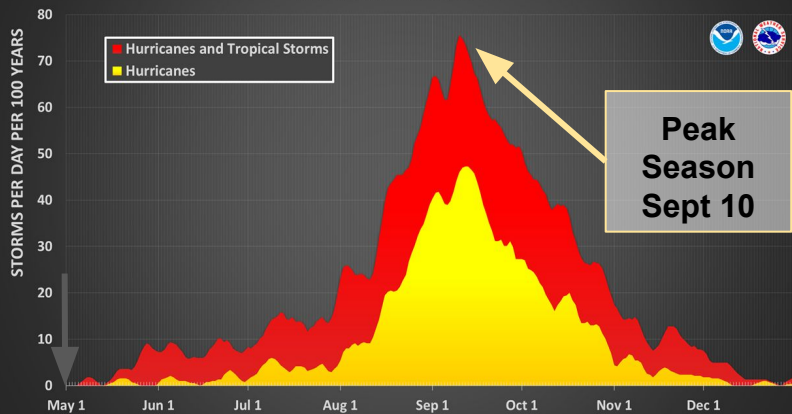


Named Storm Climatology

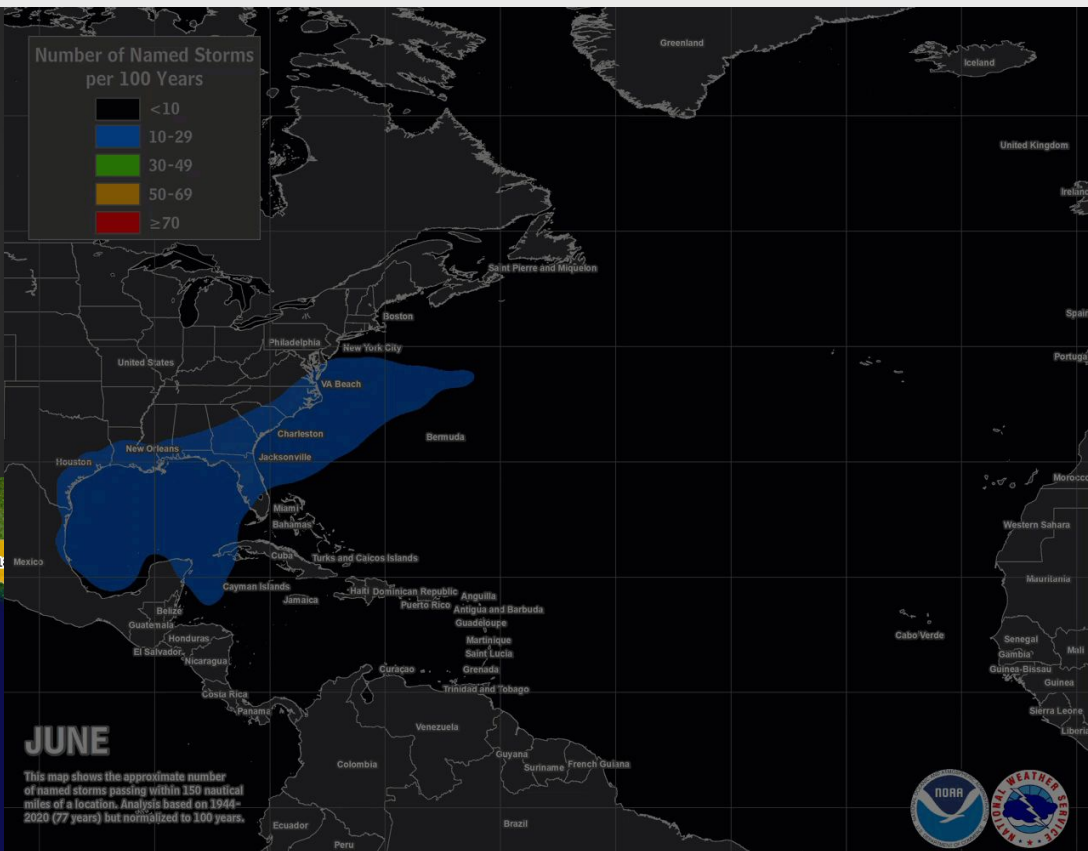
Monthly Climatology of Named Storms

Atlantic Hurricane and Tropical Storm Activity

Based on Data from 1944 to 2020



Total Strikes
1910 - 2010



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Atmospheric Administration

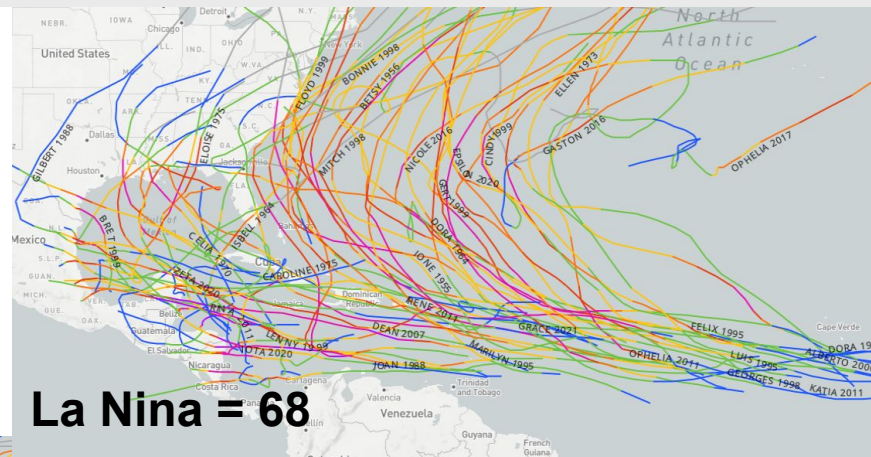
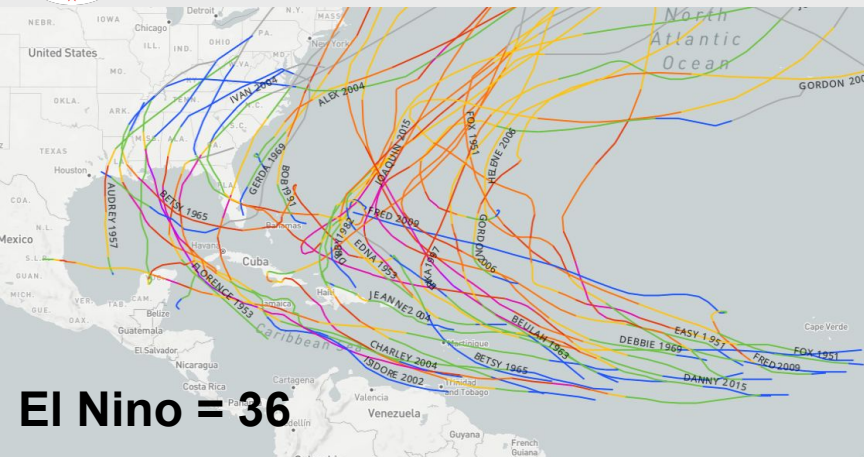
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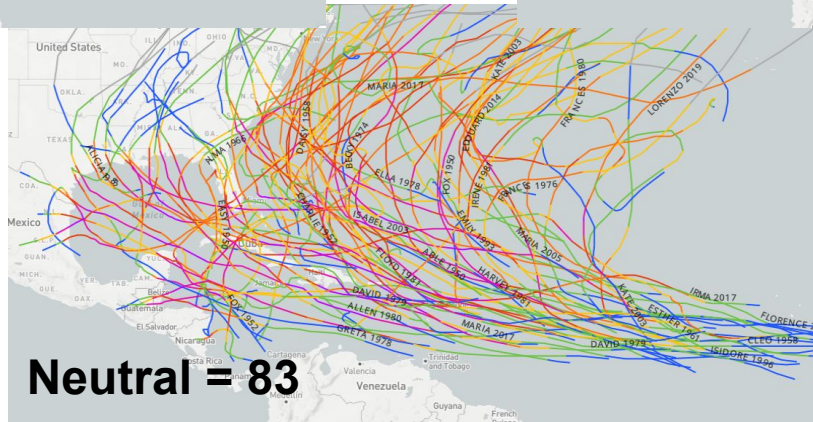




Major Hurricanes by ENSO Phase



- Category 5
- Category 4
- Category 3
- Category 2
- Category 1
- Tropical Storm
- Tropical Depression
- Extratropical





2025 Atlantic Tropical Cyclone Names

Andrea
Barry
Chantal
Dexter
Erin
Fernand
Gabrielle

Humberto
Imelda
Jerry
Karen
Lorenzo
Melissa
Nestor

Olga
Pablo
Rebekah
Sebastien
Tanya
Van
Wendy

Names provided by the World Meteorological Organization



Tropical Cyclone Hazards

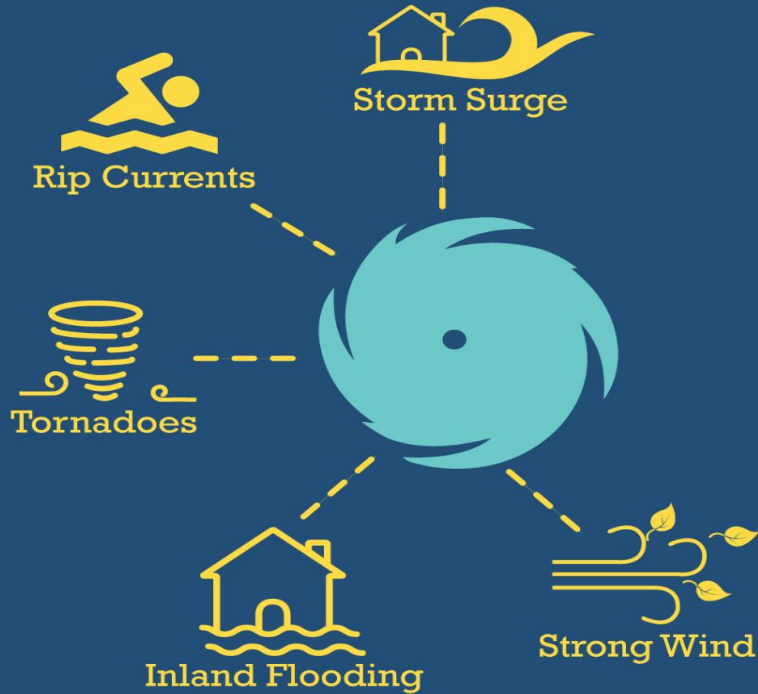


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Let's Talk Tropical Cyclone Hazards



Determine Your Risk

Hurricanes bring many hazards to U.S. coastlines and inland areas, including storm surge along the coast, inland flooding due to heavy rainfall, tornadoes, strong wind, rip currents and large waves.





Hurricane Fatalities by Hazard

Roughly 9 out of 10 direct and indirect hurricane fatalities were related to water*

Nearly half of all fatalities are due to storm surge

Over one-quarter due to rainfall-induced inland flooding.

*For the 50 year period 1963 to 2012

Fatalities

Wind

8.0%

Offshore

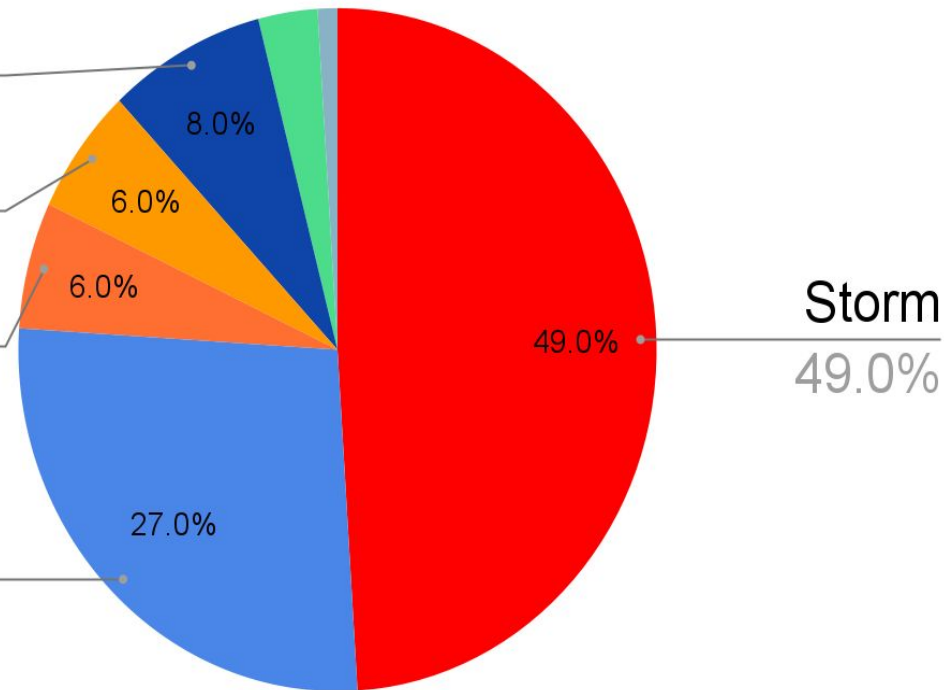
6.0%

High Surf

6.0%

Rain

27.0%





Hurricane Fatalities by Hazard

Hazard	% of direct fatalities from this cause (1963–2012)	% of direct fatalities from this cause (2013–2022)
Storm Surge	49%	11%
Freshwater Flooding	27%	57%
Wind	8%	12%
Surf/Rip Currents	6%	15%
Offshore Marine Incidents	6%	3%
Tornadoes	3%	2%
Other	1%	1%

Stats are largely improving thanks to better warnings and increased overall public understanding of hazards

Preparedness workshops just like these are huge help!

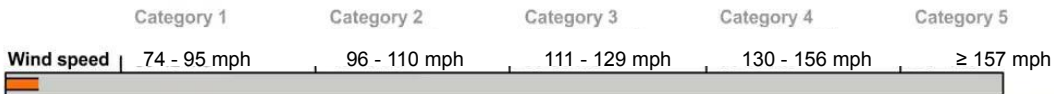
Note: Due to rounding, numbers may not add up to 100%.





Impact of Hurricane Winds

Hurricane Intensity Scale (Wind Damage)



©The COMET Program

Saffir-Simpson Hurricane Wind Scale

Category	Wind Speed	
	MPH	Knots
5	≥ 157	≥ 137
4	130 - 156	113 - 136
3	111 - 129	96 - 112
2	96 - 110	83 - 95
1	74 - 95	64 - 82

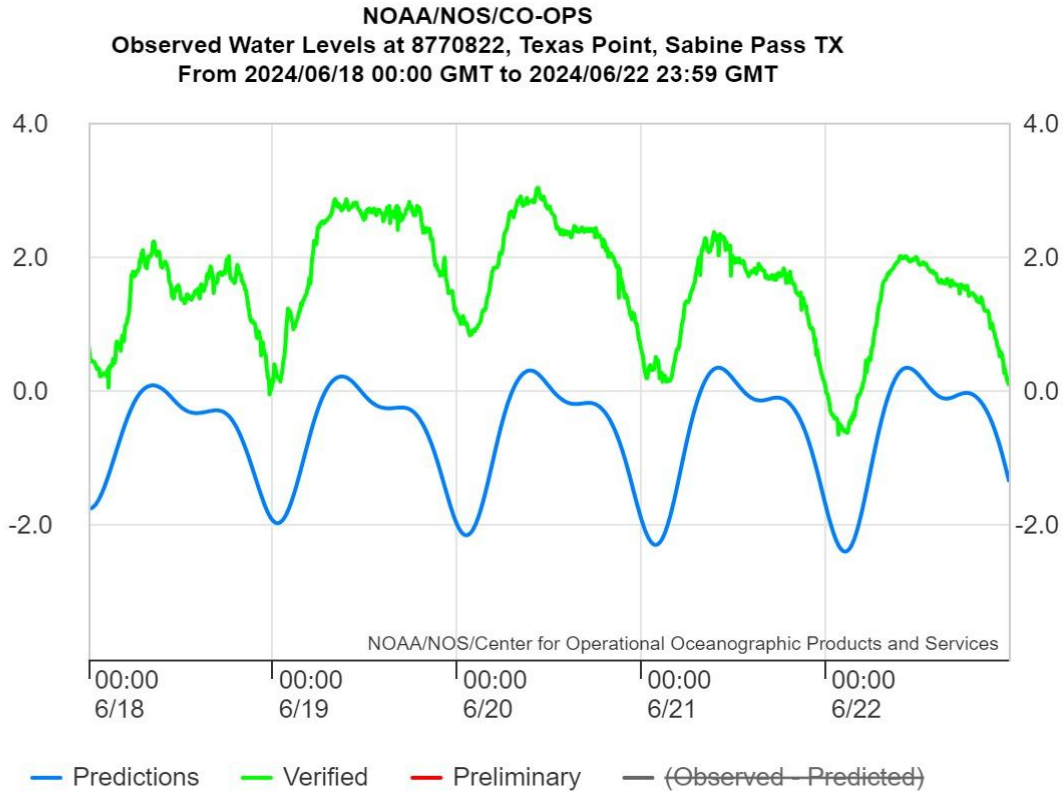
Non-Hurricane Classifications

Tropical Storm	39 - 74	34 - 63
Tropical Depression	≤ 38	≤ 34



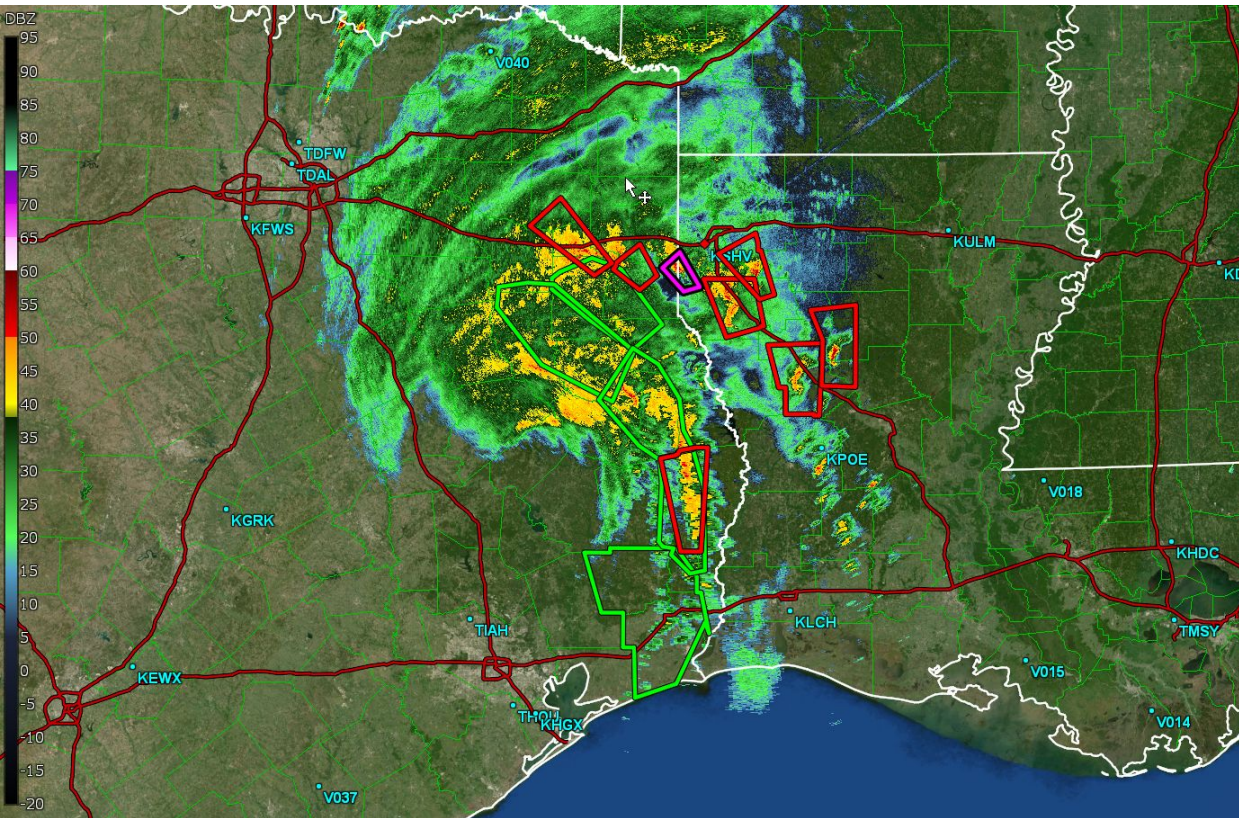


Impacts can be far-removed from the storm center





Impacts can extend well inland...



Tornado warnings on the outer fringes of TS Beryl.

Tornadoes can occur in outer bands as well as within the inner core of a tropical cyclone.

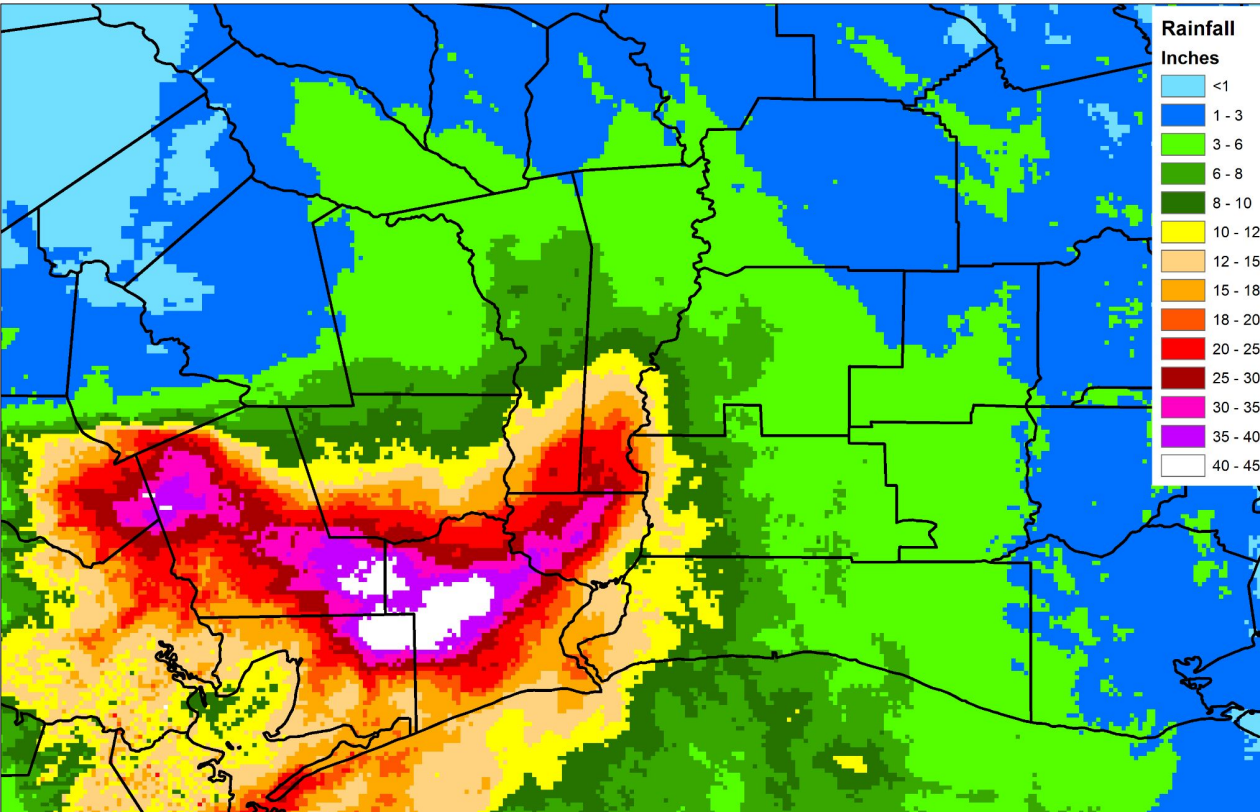
They're most prevalent in the NE quadrant of the cyclone.





Impacts don't always match intensity...

Imelda Radar Derived Storm Total Rainfall



Tropical Storm Imelda (2019) stalled over southeast Texas.

Catastrophic flooding rains occurred as Imelda weakened just inland.

Slow-moving systems often produce the heaviest rainfall totals and most-impactful flooding.





Impacts can be removed AND not match intensity...



Tropical Storm Cristobal (2020) made landfall east of Grand Isle, LA.

Cristobal's windfield caused great surging impacts across the Mississippi Gulf Coast.

Waveland, MS surged between 5.7 and 7.2 feet.

Video Credit: Brett Adair; Live Storms Media



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Impacts can be removed AND not match intensity...



Photo Credit: Brett Adair; Live Storms Media



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So it's a moving target... How do we hit it?



Education: Learn about storms and their possible hazards.

Preparation: What you need to do to ride out or respond to storm impacts.

Sources: Know where to get the latest and most important information!





The Tropical Cyclone Forecast Timeline & Products



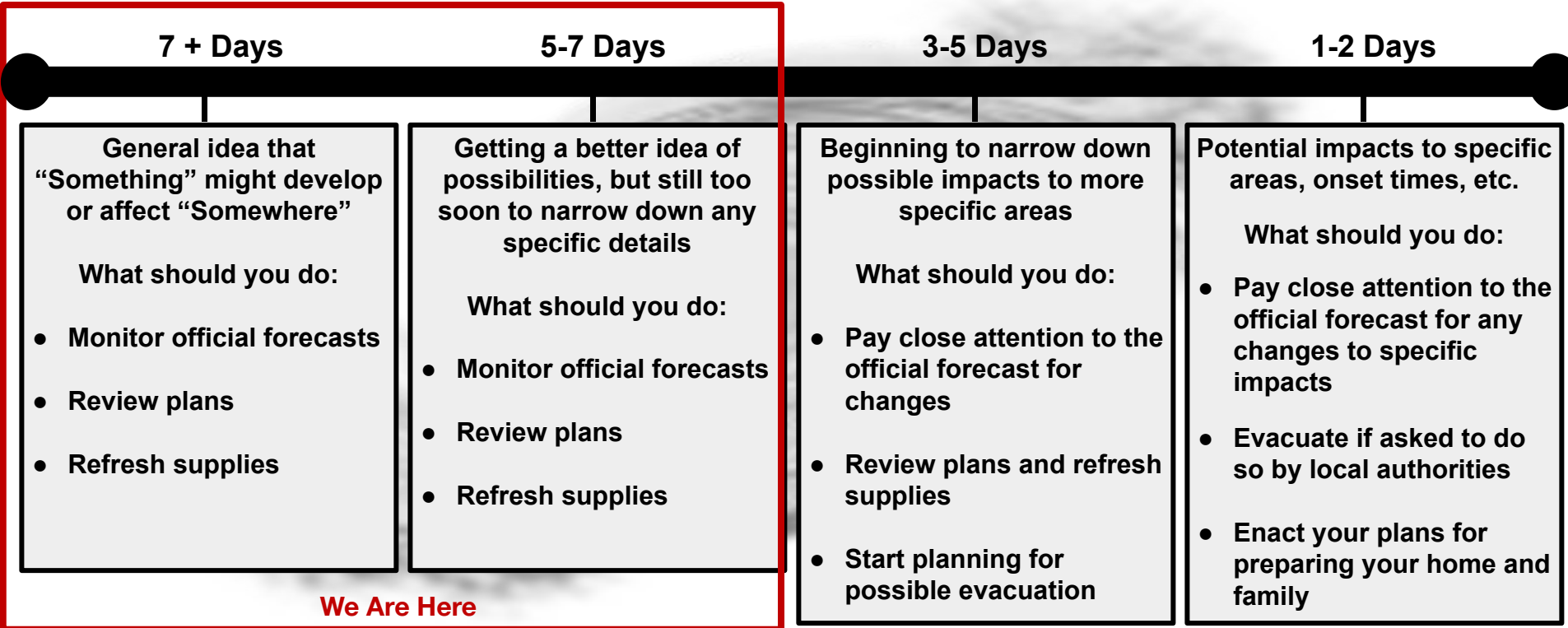
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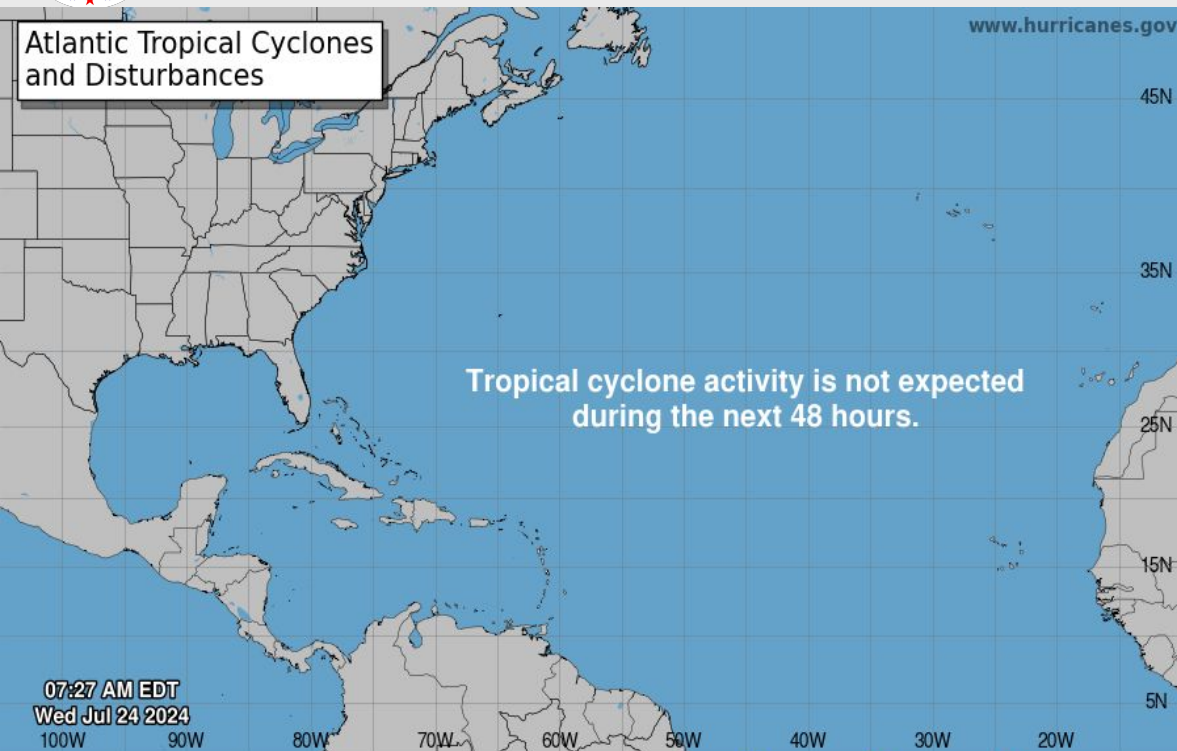
Tropical Storm/Hurricane Forecast Timeline

What details can you REASONABLY expect from a Tropical Storm/Hurricane forecast this far out?





(Seven-Day) Graphical Tropical Weather Outlook



Current Disturbances and Two-Day Cyclone Formation Chance: < 40% 40-60% > 60%

Tropical or Sub-Tropical Cyclone: Depression Storm Hurricane

Post-Tropical Cyclone or Remnants

Updated every 6 hours,
daily from 2 weeks before
to the end of hurricane
season (May 15 thru
November 30)

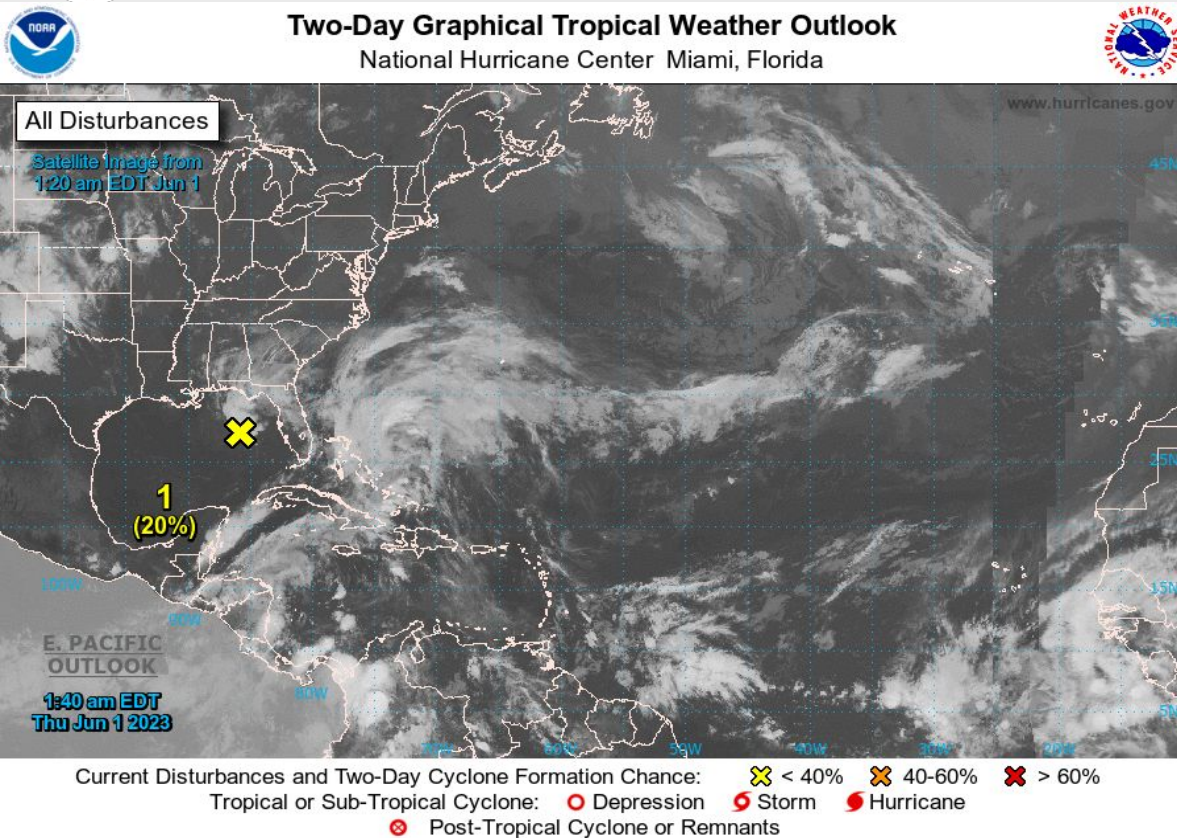
Highlights areas of
potential development in
the next 2 and 7 days



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(Two-Day) Graphical Tropical Weather Outlook



Shows significant areas of disturbed weather and their potential for development during the next 48 hours.

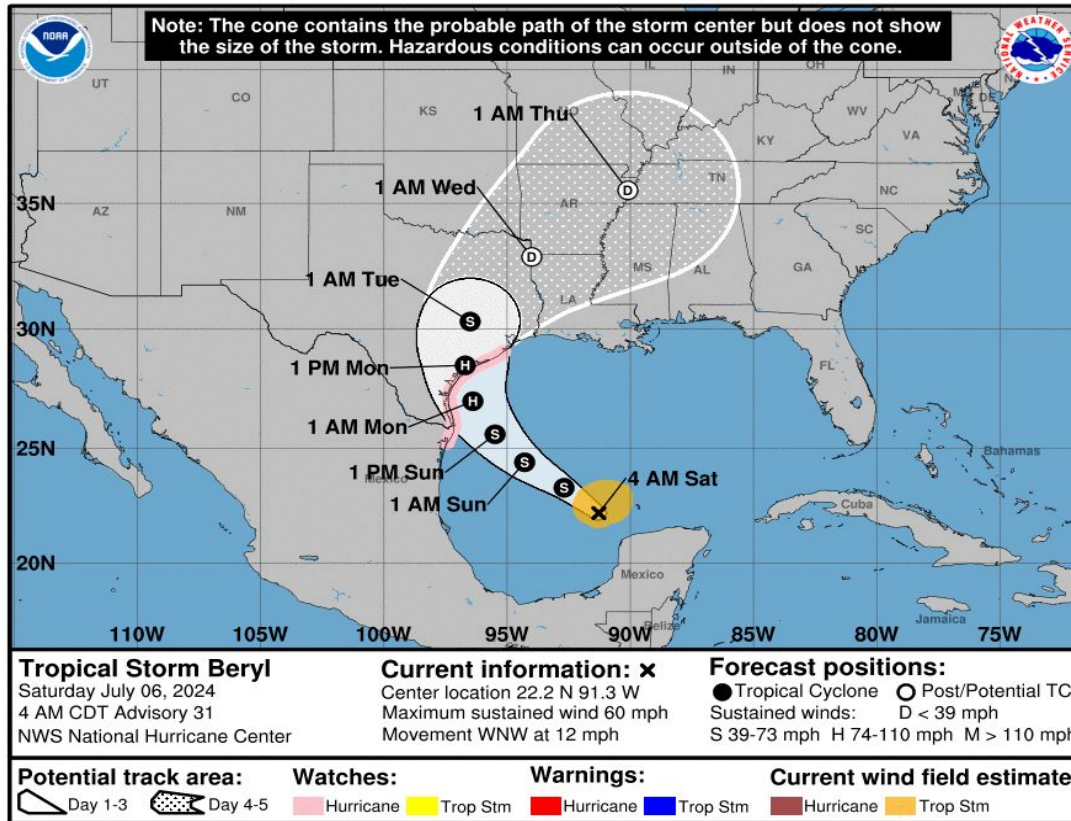
The “X” indicates the area of disturbed weather.



Tropical Cyclone Forecast Track Cone

The most current forecast track for the storm.

Indicates storm center, storm intensity, estimated windfield size, movement and speed, and coastal watches or warnings.





Tropical Storm/Hurricane Forecast Timeline

What details can you **REASONABLY** expect from a Tropical Storm/Hurricane forecast this far out?

7 + Days

5-7 Days

3-5 Days

1-2 Days

General idea that
“Something” might develop
or affect “Somewhere”

What should you do:

- Monitor official forecasts
- Review plans
- Refresh supplies

Getting a better idea of
possibilities, but still too
soon to narrow down any
specific details

What should you do:

- Monitor official forecasts
- Review plans
- Refresh supplies

Beginning to narrow down
possible impacts to more
specific areas

What should you do:

- Pay close attention to the official forecast for changes
- Review plans and refresh supplies
- Start planning for possible evacuation

Potential impacts to specific
areas, onset times, etc.

What should you do:

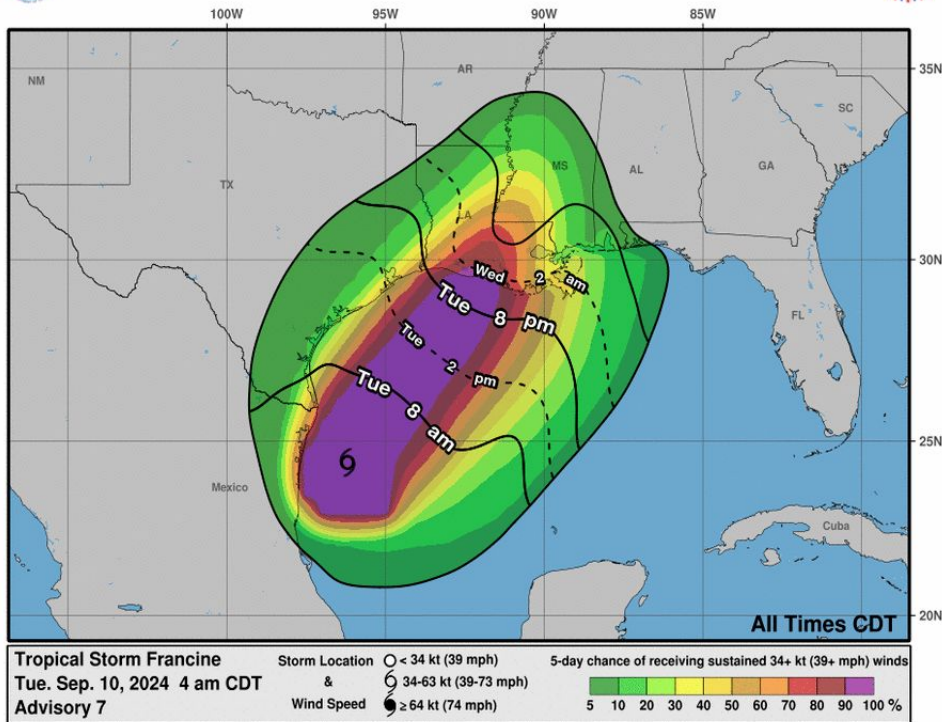
- Pay close attention to the official forecast for any changes to specific impacts
- Evacuate if asked to do so by local authorities
- Enact your plans for preparing your home and family





Earliest Reasonable Arrival Time of TS-Force Winds & TS-Force Wind Speed Probabilities (Next 5 Days)

Earliest Reasonable Arrival Time of Tropical-Storm-Force Winds



Identifies the time window that you can safely assume will be free from tropical-storm force winds.

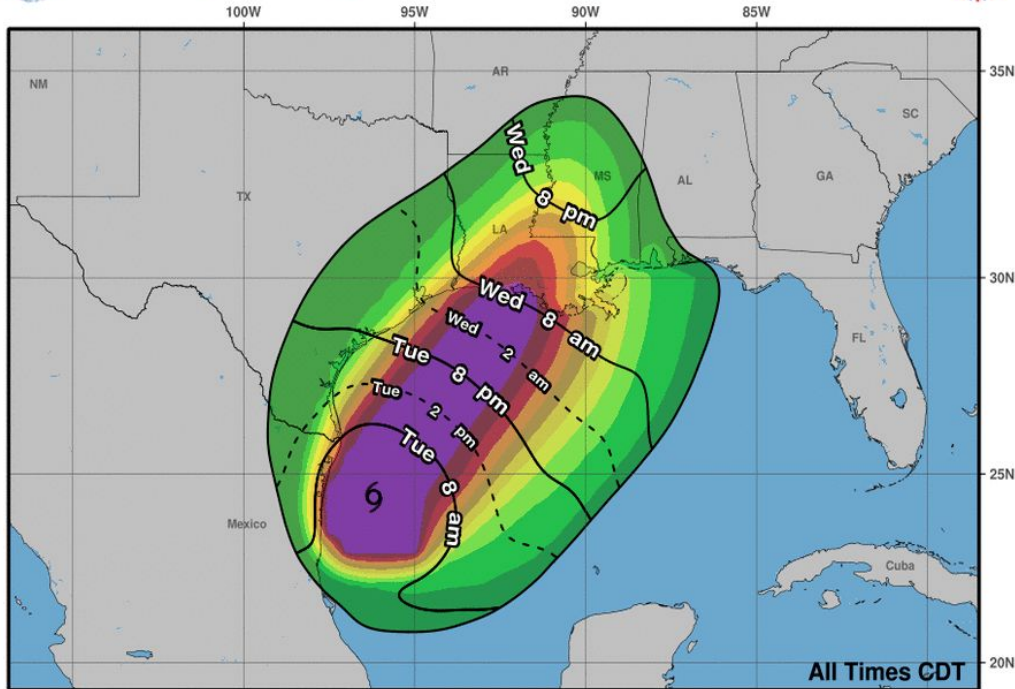
The time before which there is a 10 percent chance or less of seeing onset of TS-force winds - the period when preparation should be completed.



Mostly Likely Arrival Time of TS-Force Winds & TS-Force Wind Speed Probabilities (Next 3 Days)



0-3 Day Most Likely Arrival Time of Tropical-Storm-Force Winds



Tropical Storm Francine
Tue. Sep. 10, 2024 4 am CDT
Advisory 7

Storm Location &
Wind Speed

○ < 34 kt (39 mph)
○ 34-63 kt (39-73 mph)
● ≥ 64 kt (74 mph)

3-day chance of receiving sustained 34+ kt (39+ mph) winds

5 10 20 30 40 50 60 70 80 90 100 %

Identifies the time before or after which the onset of TS-force winds is equally likely.

This graphic is more appropriate for those willing to risk not having completed all preparations before the storm arrives.

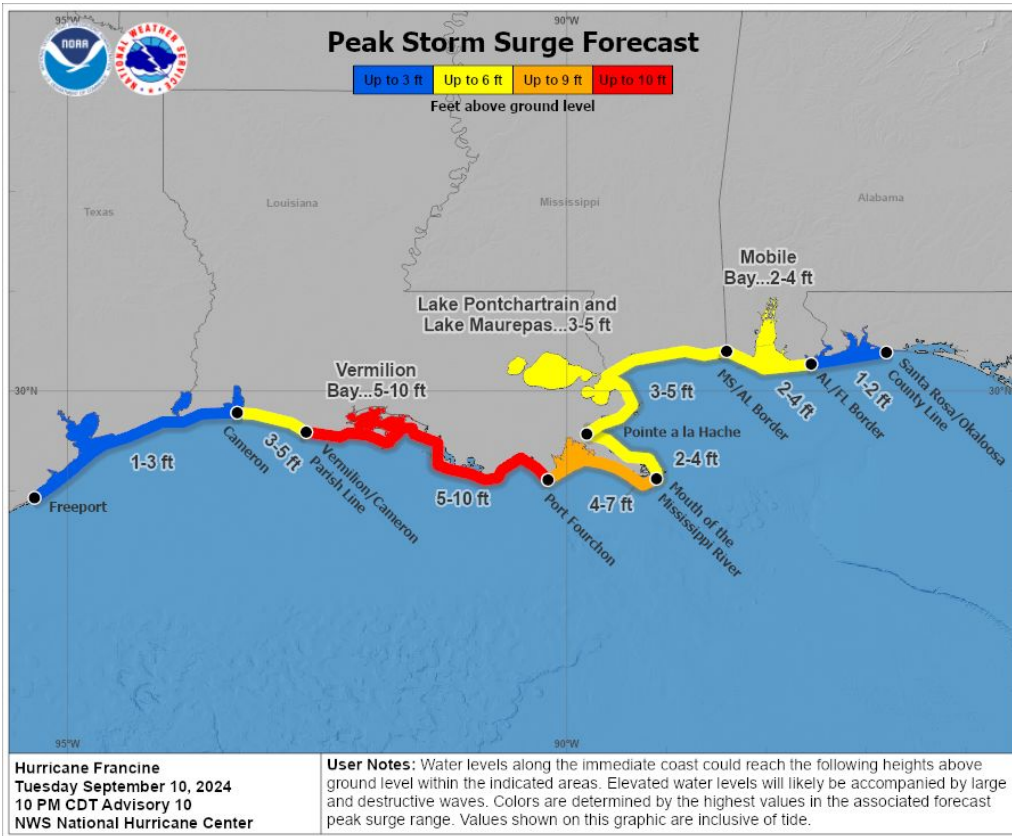


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Peak Storm Surge Forecast



Issued by NHC with every advisory.

Highlights areas with surge potential and their forecasted heights.


Meant for use upon the immediate coastline.





Decision Support Packages

It's like a situation report but strictly to discuss incoming hazardous weather.



National Weather Service

National Weather Service - Lake Charles, LA

Tropical Storm Beryl Briefing

6:00 AM CT

Monday, July 8, 2024

[Beryl Briefing 07/08/2024](#)



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Social media CAN be a place for good info!



US National Weather Service

live.

July 8 at 8:01 AM · 🌐

Meteorologist Donald Jones discusses expected impacts across Southeast TX. This is a live, interactive briefing. Post comments and we will answer them live!



US National Weather Service Houston-Galveston Texas

July 8 at 5:25 PM · 🌐

NEW: A Heat Advisory has been issued for SE TX for Tues with heat index values up to 105F. While this would normally be below criteria, the widespread loss of power and A/C will make for dangerous conditions. Those working outside may not have a chance to properly cool off!

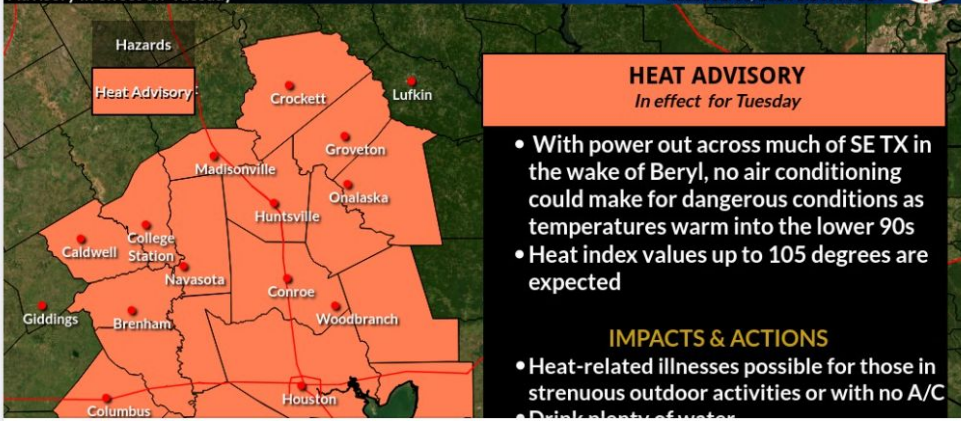
Dangerous Heat Tuesday

Advisory in effect on Tuesday

Weather Forecast Office

Houston/Galveston TX

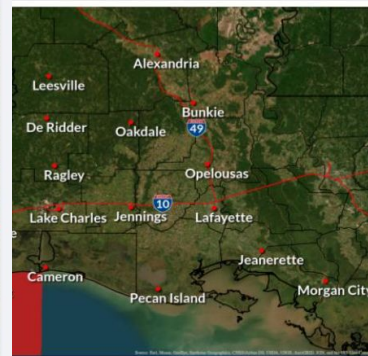
Issued Jul 08, 2024 3:34 PM CDT



Lake Charles Louisiana

Perfect for Jefferson, Hardin and Tropical Storm Warning means PH or greater) are expected in loose objects that could be winds could lead to a few winds knock tree branches on

July 7, 2024 6:40 PM



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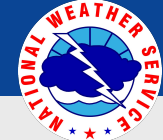
New to the 2025 Season



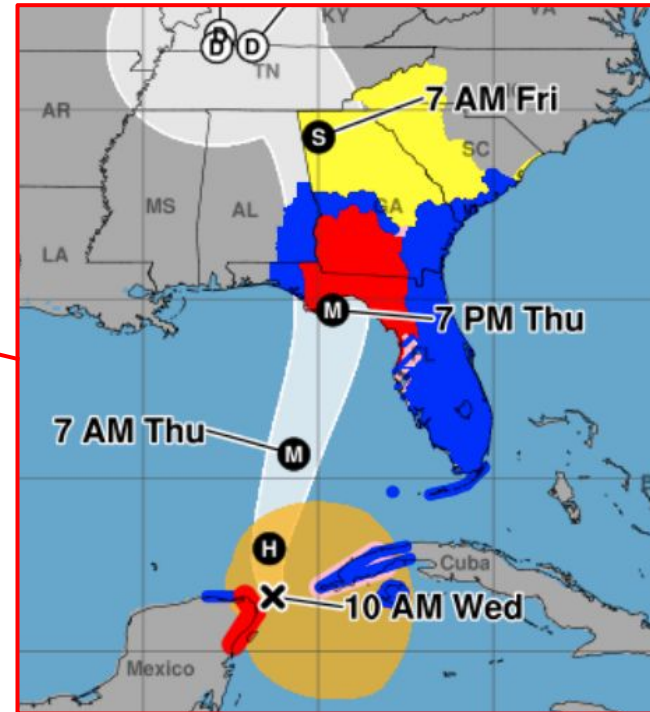
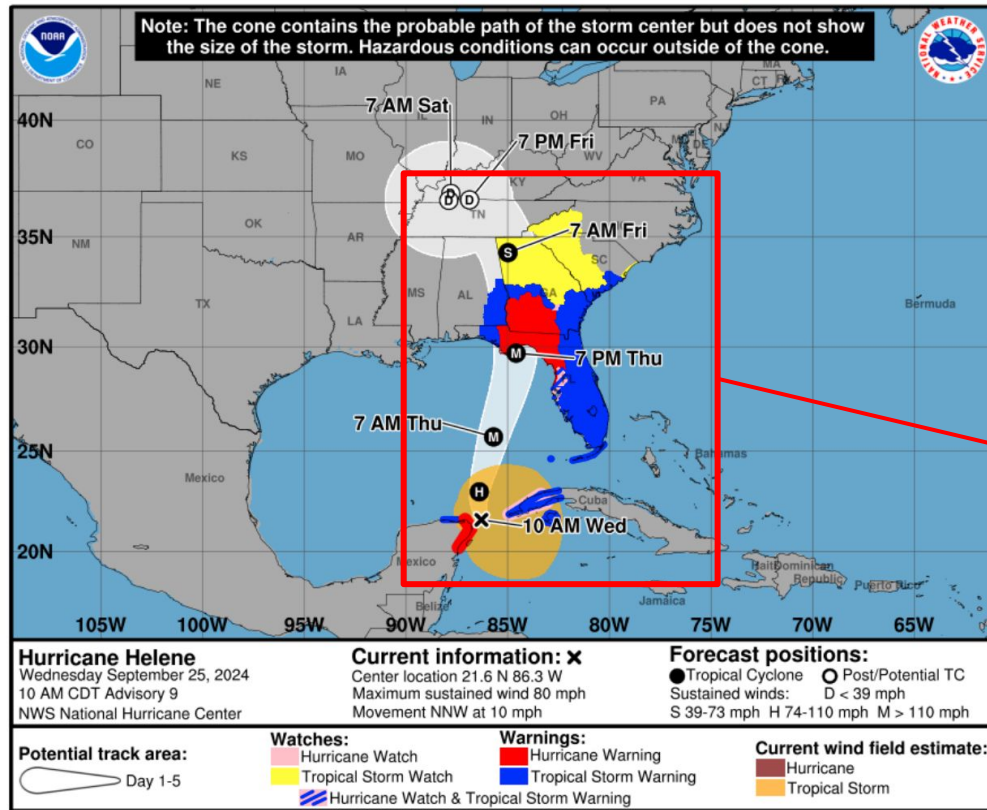
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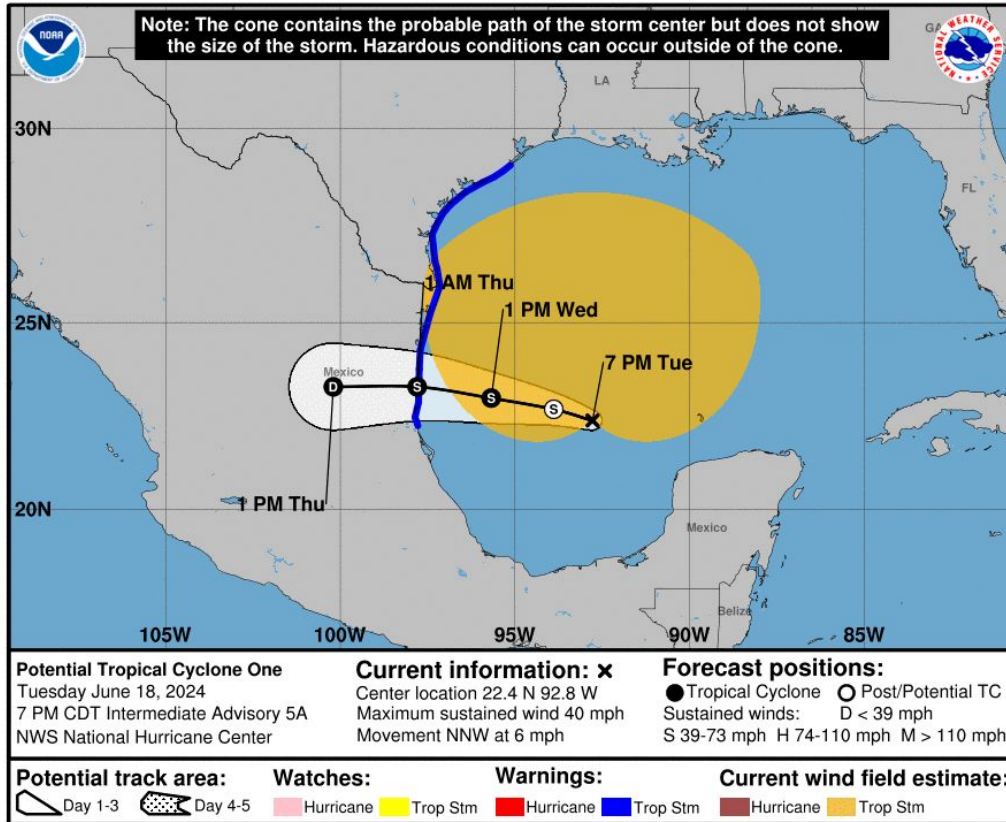


New Experimental Cone Graphic with Updates





PTC Issuance Criteria Update



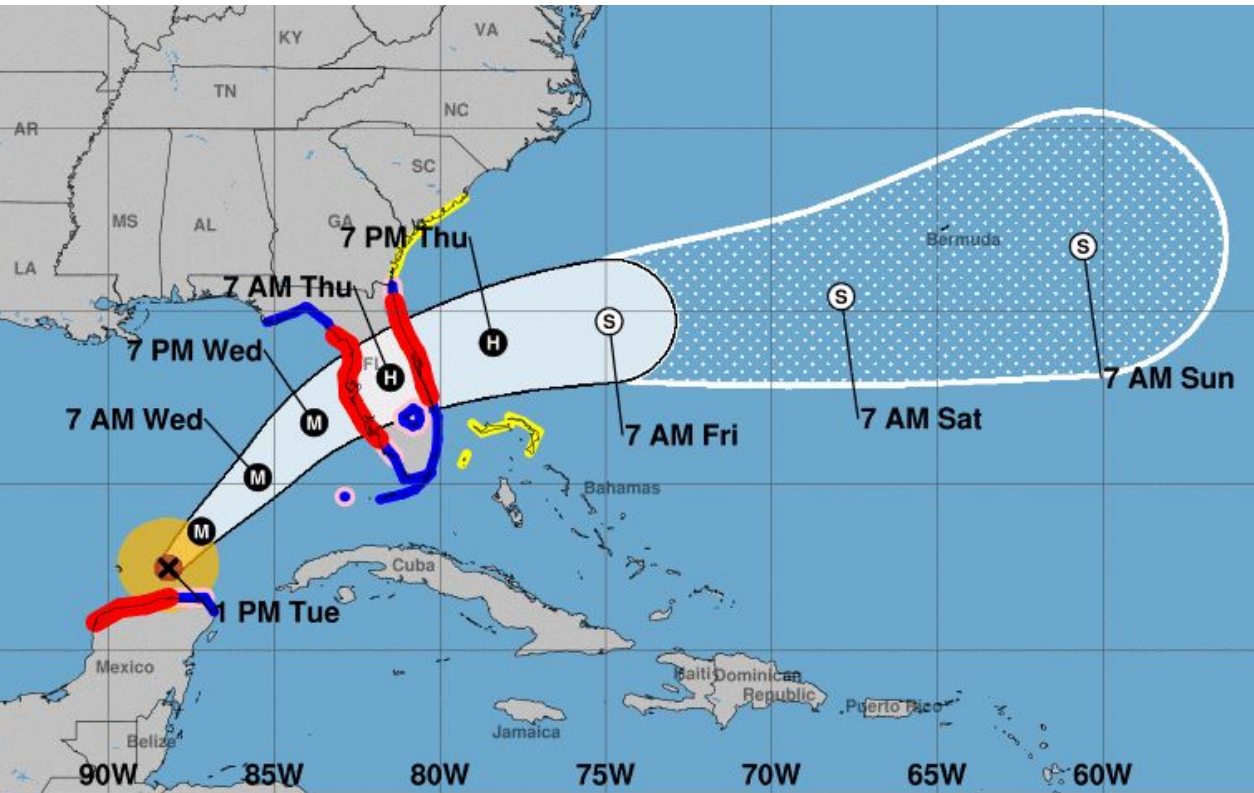
A Potential Tropical Cyclone (PTC) is a disturbance that is not yet a tropical cyclone but poses the threat of bringing tropical storm or hurricane conditions to land areas.

Now: NHC can issue up to 72 hours before the anticipated arrival of storm surge or tropical-storm-force winds on land regardless of the immediate need for land-based tropical storm, hurricane, or storm surge watches or warnings.





Annual Update to the Forecast Cone



The size of the tropical cyclone track forecast error cone for the Atlantic basin in 2025 will be about 3–5% smaller as compared to 2024.

The size of each circle is set so that two-thirds of historical official forecast errors over the previous five years (2020–2024) fall within the circle.





Summary

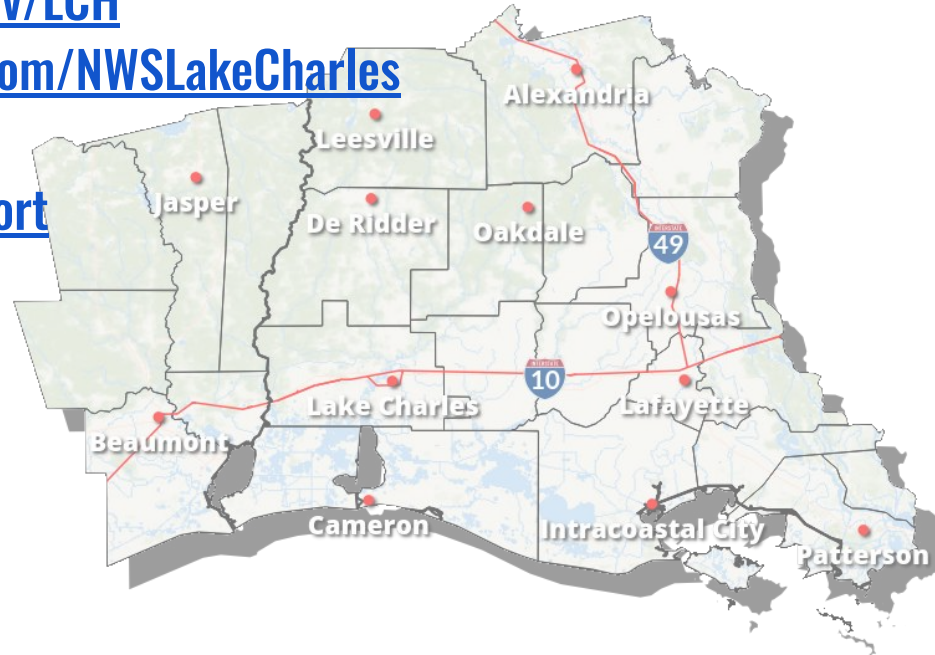
- 2024 Hurricane Season was active with 5 US Gulf-landfalls.
- Indications are present for an above-active 2025 Season. NHC Forecast comes out first week of May.
- Education of the public about tropical hazards can directly result in less deaths.
- Know your Products & Sources!
- New products and updates for 2025
- How we connect with you





How you can connect with us:

- Lake Charles, LA Slack Channel: [wfo-lake-charles-la](#)
- NWS Lake Charles Phone Number: [\(337\) 477-5285 ext. 1](#) (8 AM to 4 PM)
- NWS Lake Charles Webpage: www.weather.gov/LCH
- NWS Lake Charles Facebook www.facebook.com/NWSLakeCharles
- NWS Lake Charles X x.com/NWSLakeCharles
- Online Severe Weather Reporting: [stormReport](#)





Thank you! Feel free to contact your office.

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