2024 Hurricane Season

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Phil Grigsby Meteorologist National Weather Service New Orleans/Baton Rouge

2023 Season in Review





2024 Atlantic Tropical Cyclone Names

Alberto Beryl Chris Debby **Ernesto** Francine Gordon

Helene Isaac Joyce Kirk Leslie Milton Nadine

Oscar Patty Rafael Sara Tony Valerie William

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

NOAA Seasonal Hurricane Forecast

Averáge

is:

14



Forecast is a SEASONAL and BASIN wide forecast. The forecast is for this whole basin from June 1 to November 30!

La Nina Expected!

• 62% chance of transition to La Nina by June

• A reminder that 2023 was El Nino and 2022 was La Nina and we got nothing....proving that neither of these can tell us is LA/MS will get a hurricane!

• Sea Surface temperatures are still at record highs





New Stuff!

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Upgraded Cone Graphic! ~ August 15

New experimental cone graphic depicting <u>inland U.S.</u> <u>tropical storm and hurricane</u> <u>watches and warnings</u> will become available mid-season in 2024.

All 5 days will be solid white. No more hatched.





Old graphic for reference

Intermediate Watches/Warnings



Can now update and/or change watches and warnings during these public advisory times.

Experimental Spanish Translated Products

For the Atlantic basin NHC will issue experimental Spanish translated products of:

- Tropical Cyclone Discussion (TCD)
- Key Messages
- Tropical Cyclone Update (TCU)

BOLETÍN

Restos De La Advertencia Máxima Número 10 Centro Nacional de Huracanes del SNM Miami FL 400 AM CDT martes 10 de octubre de 2023

EP162023

...EL MÁXIMO SE DISIPA SOBRE MEXICO... ...ESTA ES LA ÚLTIMA ADVERTENCIA...

RESUMEN DE 400 AM CDT...0900 UTC...INFORMACIÓN

UBICACIÓN...19.5N 100.5W ALREDEDOR DE 145 MI...230 KM NNE DE ZIHUATANEJO MÉXICO VIENTOS MÁXIMOS SOSTENIDOS...25 MPH...40 KM/H MOVIMIENTO ACTUAL..NNE O 25 GRADOS A 12 MPH...19 KM/H PRESIÓN CENTRAL MÍNIMA...1005 MB...29.68 PULGADAS

VIGILANCIAS Y AVISOS

No hay vigilancias ni avisos costeros en efecto.

DISCUSIÓN Y PERSPECTIVAS

A las 400 AM CDT (0900 UTC), los restos de Max se localizaron cerca de la latitud 19.5 Norte, longitud 100.5 Oeste. Los restos se están moviendo hacia el norte-noreste cerca de 12 mph (19 km/h).

Los vientos máximos sostenidos están cerca de 25 mph (40 km/h) con ráfagas más fuertes.

La presión central mínima estimada es de 1005 mb (29.68 pulgadas).

PELIGROS AFECTANDO TIERRA

OLEAJE: Las marejadas generadas por Max afectarán la costa sur de México hoy. Estas marejadas probablemente causarán condiciones de oleaje y corrientes marinas que amenazan a la vida. Por favor, consulte los productos de su oficina meteorológica local.

New Post Storm Report

POST TROPICAL CYCLONE REPORT...HURRICANE IDA NATIONAL SERVICE NEW ORLEANS LA 318 PM CDT WED SEP 1 2021

Old Text Product

Hard to parse . A not intuitively

readable

KG4 29.

29.

NOTE: THE DATA SHOWN HERE ARE PRELIMINARY....AND SUBJECT TO UPDATES AND CORRECTIONS AS APPROPRIATE.

THIS REPORT INCLUDES EVENTS OCCURRING WHEN WATCHES AND/OR WARNINGS WERE IN EFFECT... OR WHEN SIGNIFICANT FLOODING ASSOCIATED WITH ZETA OR ITS REMNANTS WAS AFFECTING THE AREA

LA PARISHES INCLUDED...ASCENSION...ASSUMPTION...EAST BATON ROUGE... EAST FELICIANA... IBERVILLE... JEFFERSON... LAFOURCHE... LIVINGSTON... DIAQUENTNES POINT COUPEE...ST. BERNARD...ST. CHARLES...

.ST. JOHN THE BAPTIST...ST. TAMMANY... .WASHINGTON...WEST BATON ROUGE...WEST

MITE...HANCOCK...HARRISON...JACKSON...PEARL ...WTLKTNSON

9/1/2021 - INITIAL ISSUANCE INCLUDES WIND, PRESSURE, SURGE AND RIVER CREST DATA FROM AUTOMATED STATIONS. THIS PRODUCT WILL LIKELY BE UPDATED SEVERAL TIMES OVER THE NEXT TWO WEEKS WITH ADDITIONAL DATA WE CONTINUE TO COLLECT, ANALYZE AND QUALITY-CONTROL OBSERVATIONS.

E: ANEMOMET	ER HEIG	HT IS 10 M	HETERS AND	WIND AVE	AGING IS	2 MINUTES
CATION ID	MIN	DATE/	MAX	DATE/	PEAK	DATE/
LON	PRES	TIME	SUST	TIME	GUST	TIME
EG DECIMAL	(MB)	(UTC)	(KT)	(UTC)	(KT)	(UTC)
GAO-GALLIANO						
9.44 -90.26			150/061	29/2035	100/085	29/1855
MSY-NEW ORLEA	NS ARMS	TRONG INT	AIRPORT			
		20/2252	000/054	20/22/0 1	150/070	20/0127

30.04 990.4 29/2253 I 100/057 29/2216 I 110/075 29/2148 I -90.03

KAPS-RESERVE 30.09 -90.58 210/051 30/0315 210/069 30/0315

KREG-GONZALES 30.17 -90.94 320/041 30/0035 T 310/065 30/0115 T

KGPT-GULFPORT AIRPORT 30.40 -89.07 1004.4 30/2207 130/041 29/2315 150/064 30/0729

KASD-SLIDELL AIRPORT 30.35 -89.82 998.8 30/0048 140/038 30/0355 110/060 30/0119

ACUS74 KLIX 202040 PSHLIX

Post Tropical Cyclone Report...Hurricane Ida National Weather Service New Orleans LA 1014 PM CDT Fri Sep 10 2021

A readable summary of observations and impacts within the W Orleans County Warning Area for Hurricane Ida can be found here: https://www.weather.gov/media/lix/TropicalEventSummary/2021 Ida.pdf

Comma-Separated Value (CSV) and additional Portable Document Format (PDF) files that include more thorough listings of observations and impact information can be found here: https://www.weather.gov/lix/TropicalEventSummary

NOTE: The data provided are preliminary. They are subject to updates and corrections as appropriate.

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Forecaster

s summaries Aat Local Observations And Impacts From Past Tropical Cyclones

This page provides links to observational data from our local area for tropical cyclone events since 2021. NOTE: Point-based observations are unlikely to sample the most extreme conditions.

2021

Hurricane Ida

- Observational data summary
- Impacts report
- Downloadable observational data (CSV format)
 - Wind and Pressure
 - Rainfall Water Levels
 - Tornadoes

Simple Website housing readable PDF summaries and downloadable CSV data

New Text Product to let users know when new data is available

Addition of Wave Detail in Coastal Waters Forecast

The purpose of providing greater wave detail
the CWF in a more consistent format will allow
for more clarity for mariners and partners to
support improved decision-making.

Multiple coexisting wave systems are common throughout the oceans, each with their own unique height, period, and direction.

Adding details on each of these wave systems into the CWF will provide valuable, life-saving information for marine users. It is planned starting in May 2024 that the terms "Wind Wave" and "Swell" will no longer be used within the CWF.

Instead, height, direction, and period will be provided for all expected wave groups within the forecast period.



Addition of Wave Detail in Coastal Waters Forecast



Wave direction and period <u>always</u> included
 Total seas/Significant wave (Hs) <u>always</u> included

Individual wave groups will be <u>sorted by heighted</u>
 Insignificant wave groups will be ignored
 Point forecast page changes to come later

ANZ251-120400-Massachusetts Bay and Ipswich Bay-1013 AM EST Thu Jan 11 2024

.TODAY...W winds 10 to 15 kt with gusts up to 25 kt. Seas 3 to 5 ft. Wave Detail: East 3 ft at 11 seconds and West 2 ft at 5 seconds. .TONIGHT...W winds 10 to 15 kt with gusts up to 20 kt. Seas 2 to 4 ft. Wave Detail: East 3 ft at 10 seconds and West 2 ft at 5 seconds. .FRI...W winds 10 to 15 kt, becoming SW 5 to 10 kt in the afternoon. Seas 2 to 3 ft. Wave Detail: East 2 ft at 10 seconds and West 2 ft at 3 seconds.







Matter and a second second

New Cold Products- Winter 2024

Freeze Warning -

First two instances of 32°F Every instance of 32°F on Southshore OR after prolonged warm period

Hard Freeze Warning -25°F or less Air Temperature Anywhere

Wind Chill Advisory -

Wind chills are expected to drop to -5F or less, with winds around 10 mph or more.

Wind Chill Warning -

Wind chills are expected to drop to -20F or less, with wind speeds around 10 mph or more.

Freeze Warning - (Change??)

First two instances of 32°F Every instance of 32°F on Southshore OR after prolonged warm period

Cold Advisory -

25°F South CWA/20°F North CWA) or less Air Temperature OR or less Wind Chill

Extreme Cold Warning -

15°F South CWA/10°F North CWA) or less Air Temperature OR or less Wind Chill

Let's talk about social media..

Click Bait will always win



Lifting the radome onto the relocated KHDC radar... 639 views



Our 2023 #Weather Wrapped #shorts 270 views



10/10/23 OVERVIEW

Low in the Gulf expected to merge with cold front on Wednesday. Low chance (30%) of development

ANY IMPACTS?

Follow and share info form official sources

October 10, 2023 Heavy Rain Update #shorts #youtube... 160 views



2023-24 #Winter Outlook #shorts #ytshorts #weather 2K views #WeatherUpdate for 10/1/23 #shorts #louisiana... 68 views

More info can be found at hurricanes.gov

Atlantic Naming List

18 Storms

6 Hurricanes

3 Majors (Cat 3+)

154% of Normal

Sean Tammv

Vince Whitnev



TOP 5: Strongest Hurricanes to Impact Our Area #shorts... 415 views



The most views of our shorts list is the one we made "look" like Click Bait.

How to know the page is not reputable....

- If they ask you to pay money or subscribe
 - If they use caps for almost every post
- If they frequently post weather models and say this is going to happen
 - If they often post things that aren't weather related

What to do if you or a family Did you fall victim to click bait?

- Don't reshare the information!
- If on Social Media, type "National Weather Service New Orleans" or "National Hurricane Center"
 - If online, go to "Weather.Gov"



Does seeing this image help you make a decision?







Imagine you're trying to make decisions and you see all of these "models" with a NHC cone...you could very quickly make the wrong decision or a poor decision.









Key Takeaways

- Just because a model image goes viral doesn't mean it's likely to happen.
- Individual models constantly create tropical systems. 99% of them don't actually happen.
 - A picture of a potential hurricane on a map tells you nothing about uncertainty or impacts
- There is a 175 mile track error out 5 days. Imagine what that is at 10 days?!



A little on rapid intensification...

First Advisory was Sunday 10AM October 22nd

Cone extended to Thursday with the max wind of 45 mph

Became a Cat 5 by Tuesday at 10PM

Made landfall around 1 AM Wednesday as a 165 MPH Cat 5 10/25

The 12 hours before landfall, it went from Cat 1 to a 5, 70 MPH to 160 MPH.

Weather models had it as a tropical storm at the 160 mark

Hurricane Otis





Close to the last cone

Hurricane Otis



Sometimes the weather models are too low and miss it.

We tend to watch for the ones the models "spin up" and panic. But what about the ones we don't see coming?

Weather models had it as a tropical storm at the 160 mark

NHC Track and Intensity Errors





Challenge: Short Lead Times

The Nation's Strongest – 150 MPH or Greater All But 1 Were Tropical Storms 3 Days Before Landfall



Average time to become a hurricane is <u>50 h</u> <u>before landfall</u>

Progress in Forecasting Rapid Intensification



- NHC's 24-h intensity error during rapid intensification events has been cut in half since 2017 – 10 kt compared to 20 kt
- Largest under-forecast error reduced by 46% (40 kt compared to 75 kt)

Possible Future Enhancements 6 & 7 day Track and Intensity Forecasts





Average track error at day 7 is about 275 n mi, however ~10% of forecasts have errors ≥ 500 n mi (about the distance from Miami to Myrtle Beach!)

Reminders!

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7 Days Out

• Tropical Weather Outlook



60 Hours Out • PSurge (for select, well-behaved

storms)





5 Days Out

 NHC Advisory Packages (cone, wind speed probabilities, TOA)
 SLOSH MOMs and

• SLOSH MOMS MEOWs*

48 Hours Out

Watch/Warning Products

- Hurricane Threats and Impacts Graphics
- PSurge/Inundation
 Forecasts

The NHC Advisory Cycle

• When no watches/warnings in effect anywhere:

 \circ Full advisory packages issued at 4a, 10a, 4p, 10p CDT

• When watches/warnings are in effect somewhere:

- Full advisory packages issued at 4a, 10a, 4p, 10p CDT
- Intermediate advisories issued at 1a, 7a, 1p, 7p CDT

• When a storm with a well defined eye is within radar range:

- Full advisory packages issued at 4a, 10a, 4p, 10p CDT
- Intermediate advisories issued at 1a, 7a, 1p, 7p CDT
- Position updates issued every hour

Note: local products typically issued 5-15 minutes after the NHC advisory package and out **briefing slides will be out** within an hour.

What area will have the highest impact?



What the cone actually is

- Represents the most likely path of the CENTER of the storm- NO forecast of impacts.
- Created by connecting imaginary circles that represent 2/3 the average track error over the past 5 years.
- Small changes in size every year
- Does NOT change for every storm.



Reminder: The Cone Doesn't Tell You About Impacts!



lan: Cone of Uncertainty

Location of lan's Florida landfall was within the forecast cone of uncertainty.

Cone only says that he center will stay in it 66% of the time.



Ian Example



Spaghetti Models- pick your favorite line





Wind hazards and communication

When would you leave?

- 1- Would you evacuate if a hurricane was going to make landfall with a maximum wind speed of 105 MPH?
- 2- What about 18 feet of storm surge with 75 mph winds?
- 3- What about 75 mph winds and 30-40 inches of rain?
- 4- How about maximum wind speeds of 115 MPH? What about 130?
- 5- What Category of Hurricane would you leave for?

THINK about the threats, not the category!



Wind Speed Probabilities



Available for 39MPH, 58MPH, 74MPH wind speeds out 5 days

Remember, low probabilities can be significant!

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How are they made?

- Based on 1,000 realistic alternative scenarios created using:
- Official NHC track and intensity forecast
 Historical NHC track and intensity forecast errors
 Climatology and persistence wind radii model

Jses model spread to account for track uncertai<mark>nty.</mark>

Hurricane Threats and Impacts Graphics (HTI)



- Probabilistic forecast based on the current NHC advisory and accounting for reasonable forecast errors
- Wind, Tornado, Surge, Flooding
- Provides the POTENTIAL of what you should prepare for- likely will be higher than what is in the forecast
- Example from Hurricane Ida 10am 8/28

Why use HTI's?



All graphics associated with the 10am CDT forecast 8/28 for Hurricane Ida

Time of Arrival Graphics





- Provides probabilistic time of arrival of 34 KT/39 MPH winds
- Earliest reasonable is based on 10% threshold- 90% chance that the storm will arrive AFTER the time on the graphic.
- Most likely is based on 50% threshold.



Storm Surge

SLOSH MOMs and MEOWs

- MOMs (maximum of maximums) vary category only and are primarily used during the off season for planning purposes
- MEOWs (maximum envelope of water) vary direction, forward speed, and category and can be used in the 3-5 day time frame when there is still significant uncertainty about the exact track/intensity of a storm
- Available through HVX using the storm surge explorer







Storm Surge Flooding Map



Based on probabilistic surge forecasts

Provides a reasonable worst case inundation at each location based on the current NHC forecast track and intensity.

Shows how high above ground the water is forecast to go, in 3 feet intervals.

Peak Storm Surge Forecast Graphic

- Provides potential peak inundation values along the open coast
- Not everywhere will see these values
- Does NOT indicate potential depths away from the open coast
- Available around advisory time when watches/warnings are in effect.



Storm Surge HTI

- HTI graphics are also created for the storm surge threat
- Because of how they are created, they do not show varying depths away from the coast effectively
- Mostly representative of possible peak values along the open coast



All graphics associated with the 10am CDT forecast 8/28 for Hurricane Ida

Storm Surge Watch/Warning

- Storm surge watch issued up to 48 hours in advance.
- <u>Storm surge warning issued up to 36 hour</u> <u>in advance.</u>
- Issued for areas expected to <u>3 feet or</u> more of storm surge flooding above ground level.
- Probabilistic product accounting for uncertainties in the track, landfall location, intensity, forward speed, and size of the tropical system.
- Can account for flooding inside levees, overtopping of levees, or flooding resulting from levee failures.

Hurricane Ida Advisory 012 Issued: 4:00 AM CDT Sun Aug 29





Flooding Rain

NOFD

Don't forget about flooding!

• Still the most deadly hurricane hazard.

Most people are worried about the wind
and don't think about flood waters.



ABC7 New York after Ida

Deterministic Rainfall Forecast

- Rainfall forecast graphics for tropical systems are created with a broader color scale.
- They are hosted on both the WPC and NHC website and typically include 3 to 5 days of rainfall depending on the storm



Excessive Rainfall Outlooks (ERO)

• Describes flash flood threat

- Probabilistic product accounting for forecast rainfall, uncertainty and antecedent conditions
 High Risk context:
 - 54% result in at least 1 fatality
 - \circ 73% result in at least \$1M damage



Flooding Rain HTI

Describes flash flood threat.

Probabilistic product accounting for forecast rainfall, uncertainty and antecedent conditions.



River Forecasts

Typically only include 24 hours of painting but we can coordinate with them to request a longer duration in some cases, the state of th





Other important topics

Indirect Fatalities 2013-2023



Partner Support



New Orleans/Baton Rouge

SEVERE WEATHER BRIEFING

2:00 PM CST Tuesday, December 13, 2022



This is a reminder that "NWS New Orleans Weekly Webinar" will begin in 1 Hour on:

Thu, Mar 2, 2023 2:00 PM - 3:00 PM CST

Add to Calendar: Outlook[®] Calendar | Google Calendar™ | iCal[®]

 $\label{eq:please} \ensuremath{\texttt{Please}}\xspace \ensuremath{\texttt{sr-lix.forecasters@noaa.gov}}\xspace$

How to Join the Webinar

1. Click the link to join the webinar at the specified time and date:

Join Webinar

Prepared by: w Orleans/Baton Southeast Louisiana and Southern Mississippi partners,

Here is an update concerning an upcoming severe weather threat Tuesday night into Wednesday night.

Changes Since Last Update:

- · Slight expansion of Enhanced Risk for Tuesday into early Wednesday morning.
- · Slightly higher confidence in regards to greater rainfall/flash flooding potential for central and western a
- · Slight risk of Excessive Rainfall Wednesday morning through Wednesday night

Overview:

A strong system is expected to move through the deep south early to mid week bringing the potential for severe

WHAT: Slight to Enhanced Risk of Severe Weather and Slight Risk of Excessive Rainfall.

WHEN: Tuesday night through Wednesday night.

WHERE: All of SE LA and southern MS.

CONFIDENCE: Timing remains a lower confidence as there is a possibility of a line of storms either slowing, east.

This causes a concern for local training of thunderstorms and for now, low to moderate confidence on location

The images below highlight the threats and impacts expected late Tuesday through Wednesday morning:



Public Support

-

Rad



weather.gov/neworleans

Follow us on X (twitter) **@NWSNewOrleans**

Follow us on Facebook at US National Weather Service New **Orleans Louisiana**

My Tweets NWSNewOrle... C ...

In reply to PezznolaPezz and 8 more

8 NWS New Orleans @NWSNewOrleans 1 hour ago

What a great picture! Could we save this for our graphics and use it with your permission/name attached? Thanks!

Show Conversation

NWS New Orleans @NWSNewOrleans 4 hours ago

We will also see locally heavy rain with the cold front. Widespread 1 to 2.5" of rain with locally higher amounts will be possible and with that there is a Marginal risk of excessive rainfall leading to isolated flash flooding, #LAwx #MSwx



My Posts US Nationa... C Q ...

US National Weather Service New Orleans Louisiana

3 hours ago

Much warmer today with highs in the 70s under mostly sunny skies early but clouds should start to return this afternoon. A strong cold front is then...





What will we say every time you call us and ask "What about that storm the models are showing that social media is talking out about that's more than 7 days out?"

It is far too soon to discuss any potential impacts due to the high level of uncertainty in where/when it might develop and where it might move, IF it develops at all. We do not issue forecasts more than 7 days out. Please follow official sources of weather information. Please know that our office WILL send out email updates if/when there is a reasonable threat of tropical activity in the Gulf.

Questions?

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