



Hurricane Hazards and Communication

The 2021 Season

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2021 Hurricane Season Names



Ana	Henri	Odette
Bill	Ida	Peter
Claudette	Julian	Rose
Danny	Kate	Sam
Elsa	Larry	Teresa
Fred	Mindy	Victor
Grace	Nicholas	Wanda



So.... what's the forecast for this year?



La Nina to Neutral

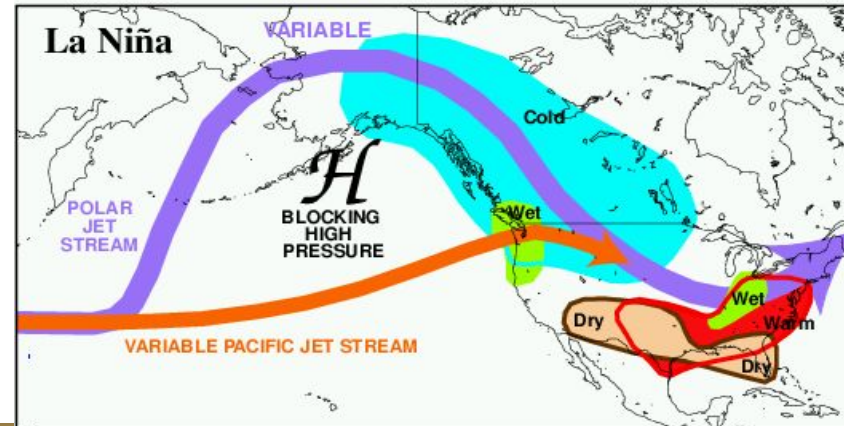
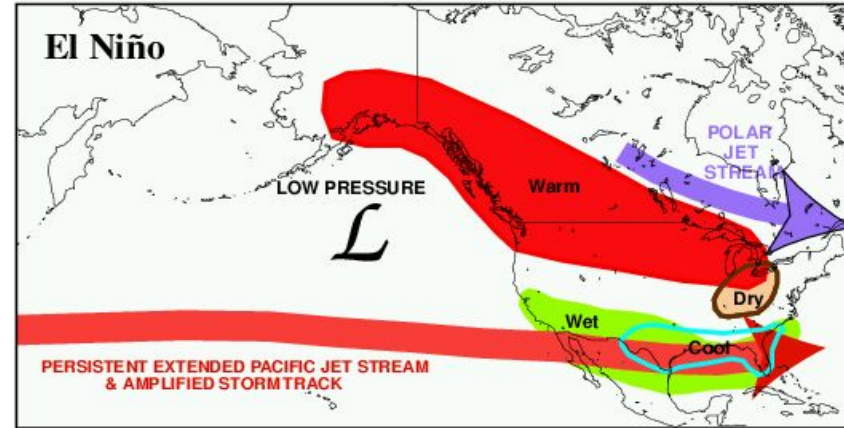
Currently in a La Nina

(Can thank that for the active 2020 hurricane season as well)

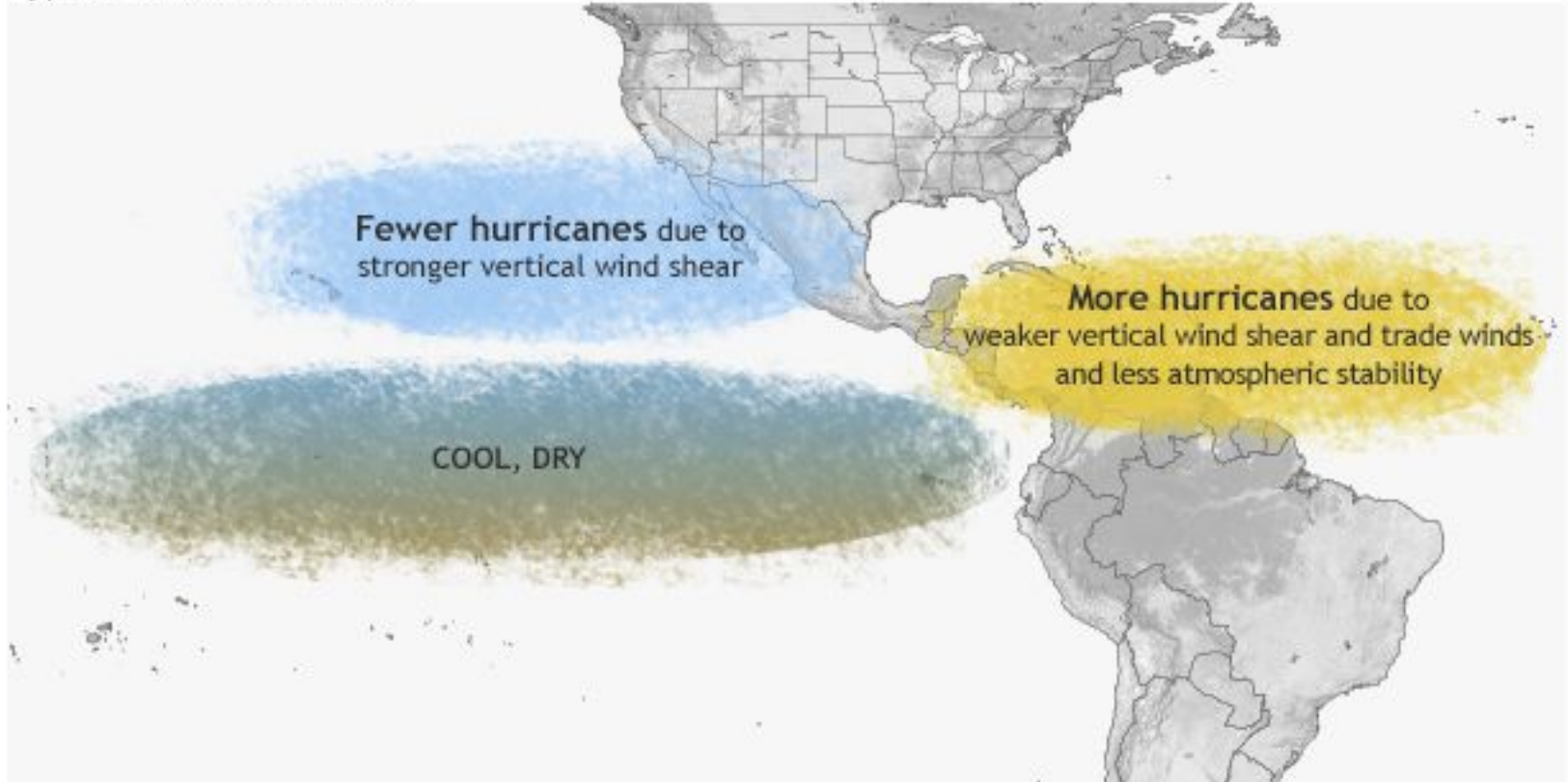
Predicted to go “Neutral” by the summer.

So what does that mean?

TYPICAL JANUARY-MARCH WEATHER ANOMALIES AND ATMOSPHERIC CIRCULATION DURING MODERATE TO STRONG EL NIÑO & LA NIÑA



Typical La Niña influence





ACE= A number describing the strength or energy of all storms combined in a single year.

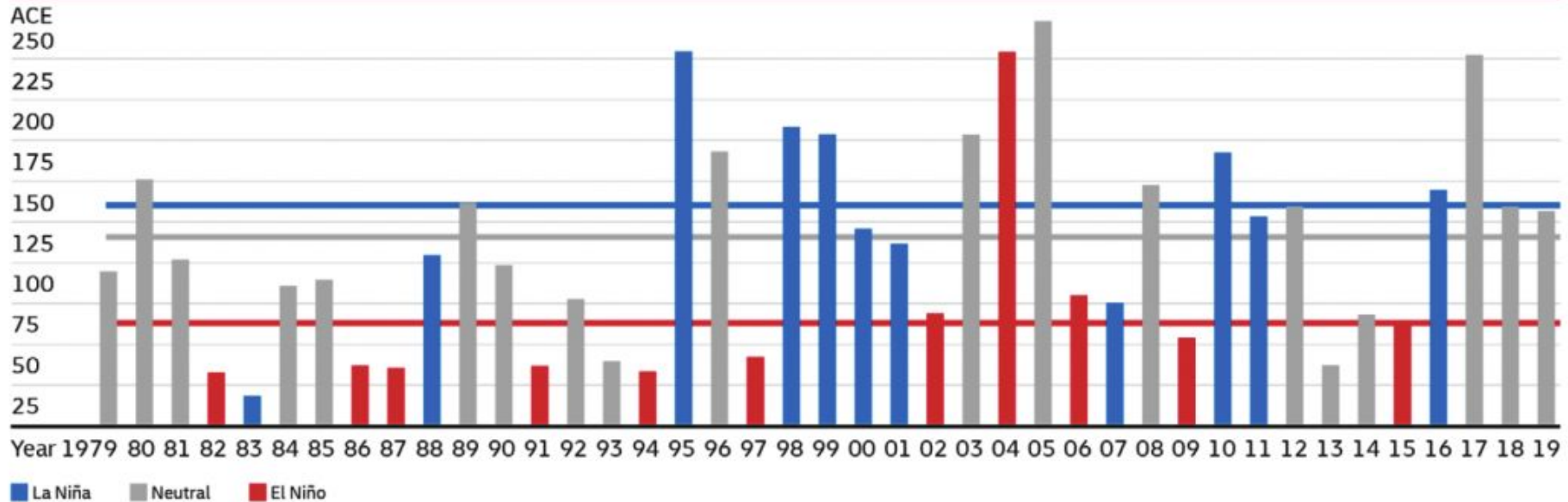


Figure 08: Atlantic ACE vs. ENSO – 1979–2019. Source: Everstream Analytics, NOAA

2021 FORECAST AS OF 8 APRIL 2021

Forecast Parameter	CSU Forecast	1981-2010* Average
Named Storms (NS)	17	12.1
Named Storm Days (NSD)	80	59.4
Hurricanes (H)	8	6.4
Hurricane Days (HD)	35	24.2
Major Hurricanes (MH)	4	2.7
Major Hurricane Days (MHD)	9	6.2
Accumulated Cyclone Energy (ACE)	150	106
Net Tropical Cyclone Activity (NTC)	160	116

**CSU will change its climatology from 1981-2010 to the new climatology that NOAA decides to use with its seasonal outlooks*

'Average' Atlantic Hurricane Season

*** Effective 2021**

1981-2010

**12 Named Storms
6 Hurricanes
3 Major Hurricanes**



1991-2020

**14 Named Storms
7 Hurricanes
3 Major Hurricanes**

* Numbers for an average season reflect the climate record for tropical storms and hurricanes and use the most recent 3 decades as the period of reference. More at: <http://bit.ly/NOAAHurricaneSeasonAverages>



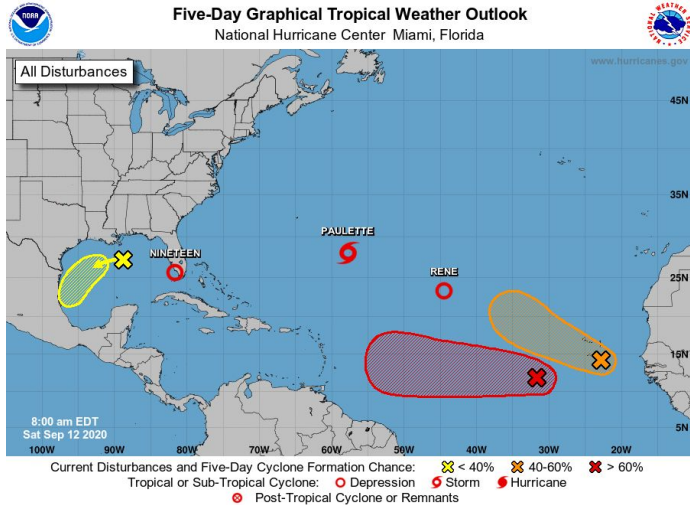
Be prepared: Visit hurricanes.gov and follow @NWS and @NHC_Atlantic on Twitter.

Issued 4/9/21



New for 2021

No more Greek Names- Ever. If we go past the alphabet, we go to a “supplementary list.”



May 15 start to the routine tropical outlooks

7am, 1pm, 7pm, 1am CDT

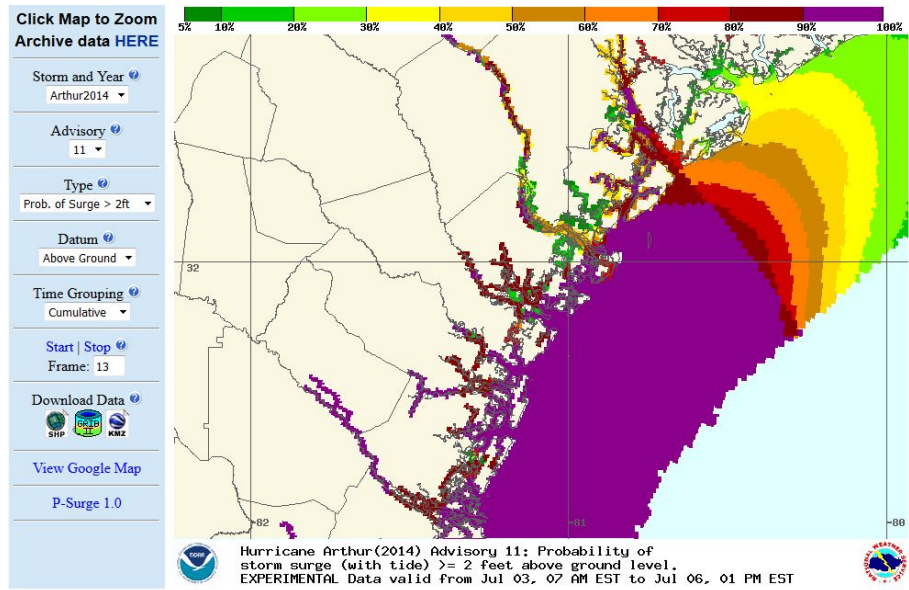
Atlantic tropical cyclone names	
Adria	Aid
Braylen	Br
Caridad	Ca
Deshawn	Da
Emery	Est
Foster	Flo
Gemma	Ge
Heath	He
Isla	Izz
Jacobus	Jac
Kenzie	Ke
Lucio	Lu



New for 2021-PSurge



We MIGHT get PSurge forecast data out to 60 hours. This will not occur on every storm. Only on well forecast, high confidence storms.

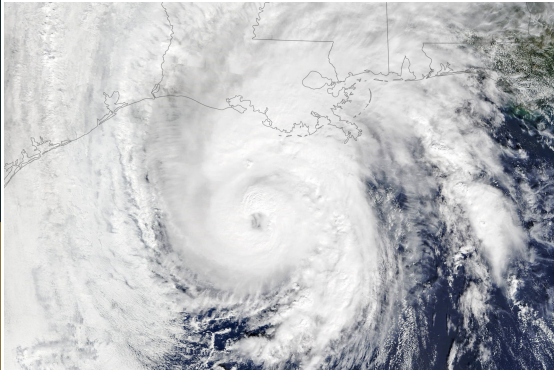




REMINDER- IT ONLY TAKES ONE



You only need one strong storm to make it a bad season!



BuT WhAt AbOuT LoUiSiAnA?!

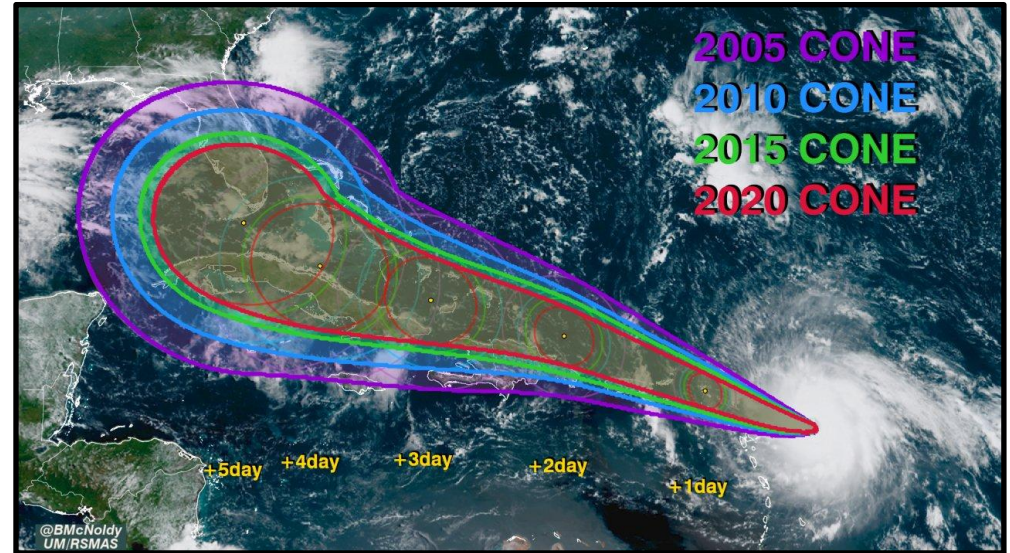
We don't know! We can't forecast landfalls! All we know is it looks to be an above average season.



Broken Record- don't just use the cone!

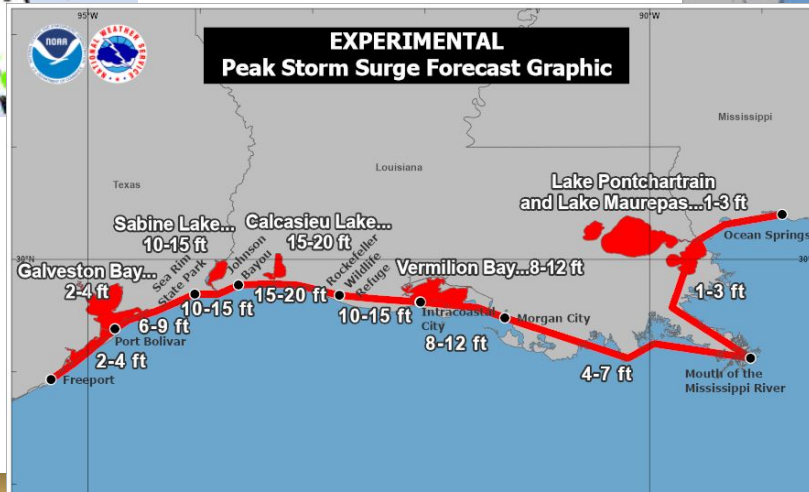
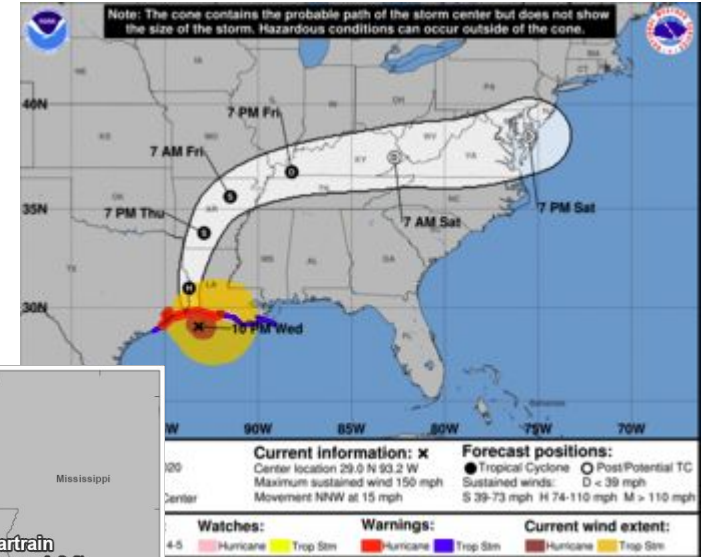
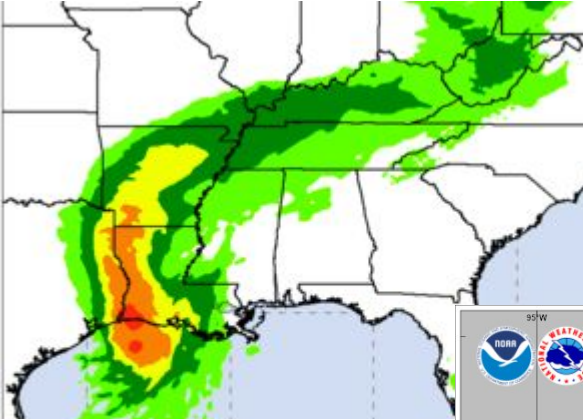


- Represents the most likely path of the CENTER of the storm
- Small changes in size every year
- Created by connecting imaginary circles that represent 2/3 the average track error over the past 5 years.





The Cone does NOT show impacts



Hurricane Laura

— Laura Actual Track

- - - Simulated Track Shifted West

How Might Storm Surge Inundation Have Been Different Had Hurricane Laura Made Landfall 20 Miles Farther West?

3 to 5 feet lower

1 to 3 feet lower

No Significant Difference

1 to 3 feet higher

3 to 5 feet higher

5 to 10 feet higher

10 to 15 feet higher

Inundation not mapped for levee area

Texas

Louisiana



Wireless Emergency Alerts (WEA)



Those 4 AM alert complaints- **We heard you!**

Per NWS Directive, NHC can only change US watches/warnings at 10 AM/PM and 4 AM/PM on Daylight Time. (9 AM/PM and 3 AM/PM in Standard Time). Keep in mind, NHC technically issues the watches and warnings for about half of our forecast zones, so we have little control over the timing.

For Zeta, we held off our side of the alert until 7AM which caused a brief inconsistency in some products.



Tropical Products Timeline



Hurricane Season

Tropical Weather Outlook

3-5 Days

Official Forecast Advisory

Track Forecast Cone
Time of Arrival Graphics
Forecast Discussion

48 Hours or less

Official Forecast Advisory TS/Hurricane Watch/Warning

TCV and HLS
SS Inundation Graphic
HTI Graphics

TCV - Local
Watch/Warning Statement
HLS - Hurricane Local
Statement
SS - Storm Surge
HTI - Hurricane Threat
and Impacts

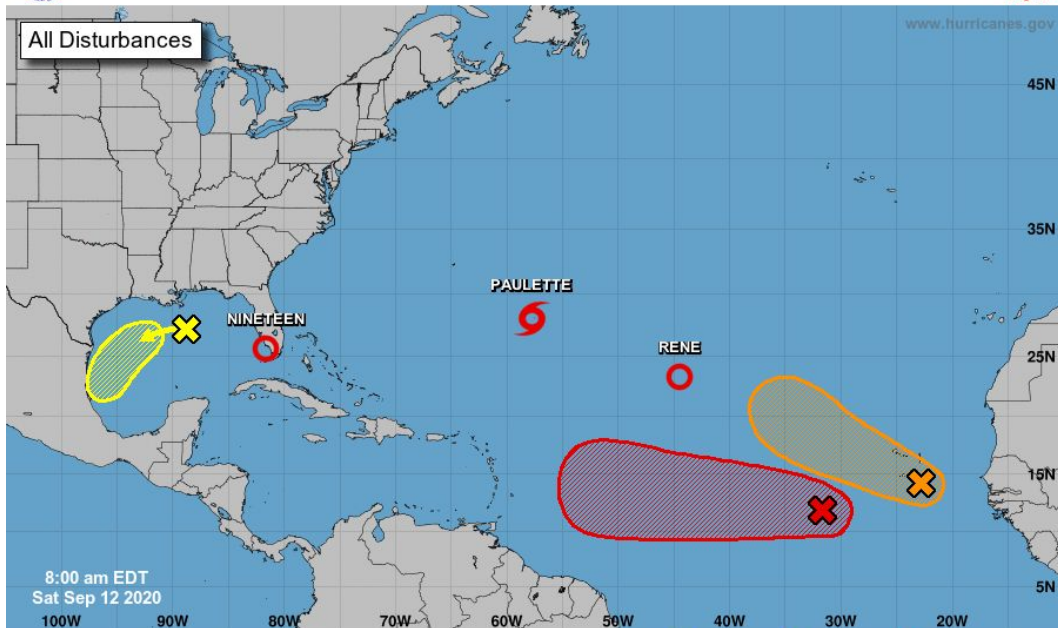


NHC Tropical Outlooks



Five-Day Graphical Tropical Weather Outlook

National Hurricane Center Miami, Florida



May 15 start to the routine tropical outlooks- 3 day and 5 day.

Two and Five Day Outlooks

7am, 1pm, 7pm, 1am CDT

Current Disturbances and Five-Day Cyclone Formation Chance:
 X < 40% X 40-60% X > 60%
 Tropical or Sub-Tropical Cyclone: O Depression S Storm H Hurricane
 X Post-Tropical Cyclone or Remnants



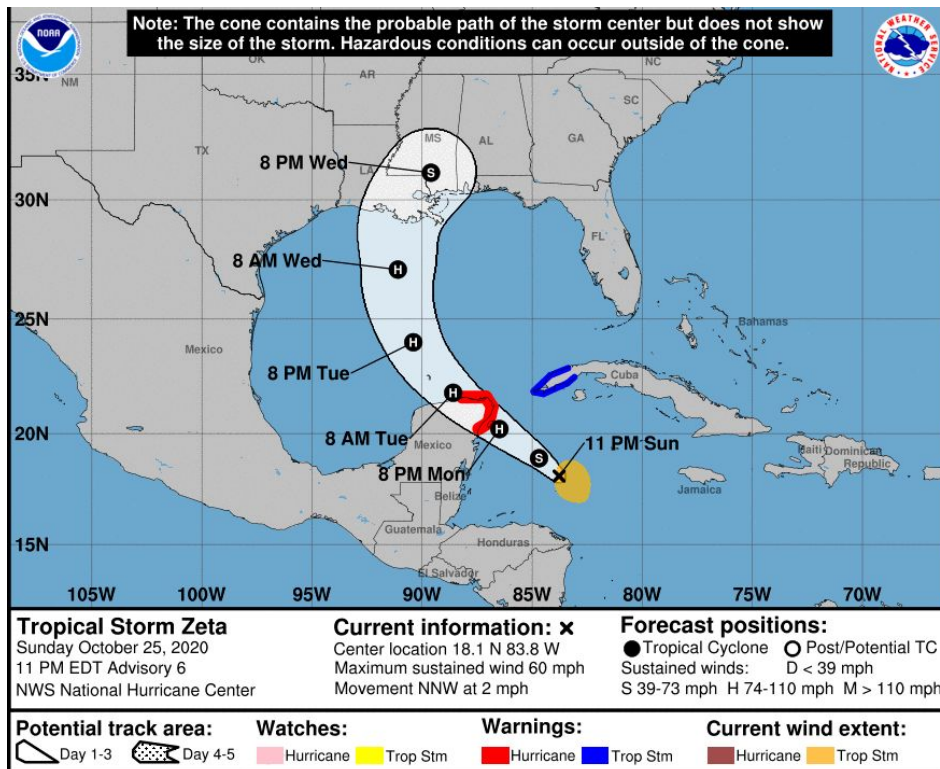
Official Forecast Advisory



Issued by NHC at

- 4 AM (CDT)
- 10 AM
- 4 PM
- 10 PM

Intermediate updates are issued between advisories when close to the coast or when new information has been received.





Official Forecast Advisory



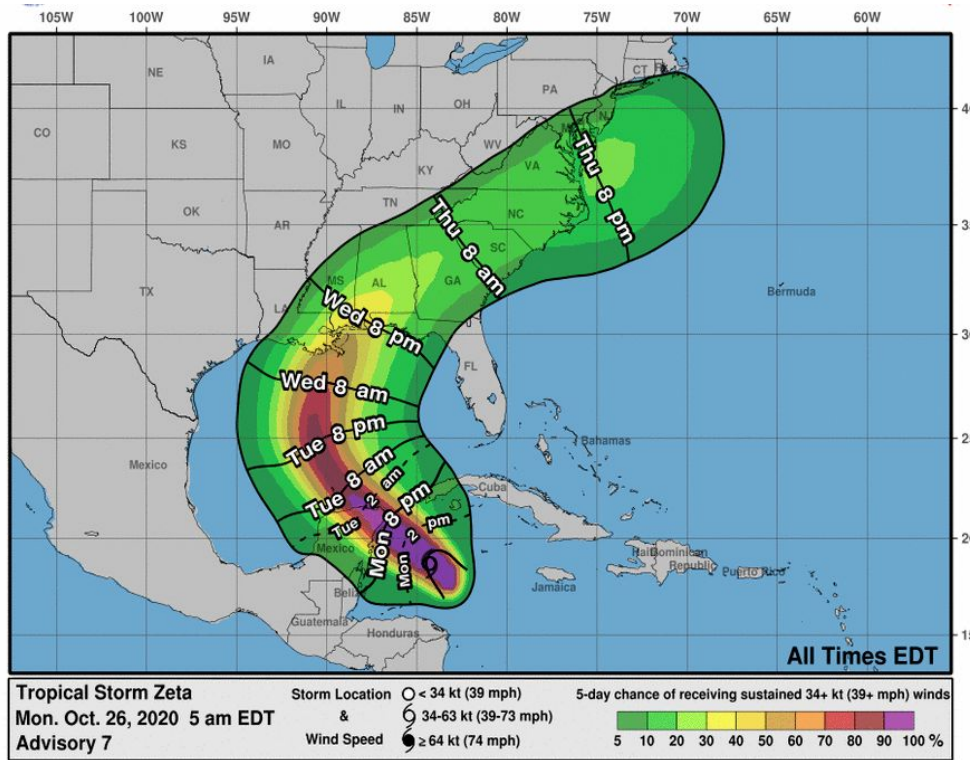
Key Messages for Tropical Storm Zeta

Advisory 8: 10:00 AM CDT Mon Oct 26, 2020



1. Hurricane conditions and dangerous storm surge are expected in portions of the northern Yucatan Peninsula of Mexico tonight and early Tuesday. Tropical storm conditions could occur over extreme western Cuba beginning later today.

2. Through Tuesday, heavy rainfall is expected from Zeta across the Yucatan Peninsula of Mexico, the Cayman Islands, and central to western Cuba. This rainfall may lead to flash flooding in urban areas. Between Tuesday night and Thursday, heavy rainfall is expected from portions of the central U.S. [Loading images](#) into the southern Appalachians, and Mid-Atlantic



ZCZC MIATCAT3 ALL
TTAA00 KNHC DDHHMM

TROPICAL STORM ZETA FORECAST/ADVISORY NUMBER 4
NWS NATIONAL HURRICANE CENTER MIAMI FL AL282020
1500 UTC SUN OCT 25 2020

CHANGES IN WATCHES AND WARNINGS WITH THIS ADVISORY...

THE GOVERNMENT OF MEXICO HAS ISSUED A TROPICAL STORM WARNING FOR THE YUCATAN PENINSULA FROM TULUM TO RIO LAGARTOS...INCLUDING COZUMEL.

SUMMARY OF WATCHES AND WARNINGS IN EFFECT...

A HURRICANE WATCH IS IN EFFECT FOR...
* TULUM TO RIO LAGARTOS MEXICO
* COZUMEL

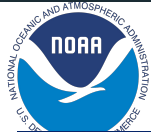
A TROPICAL STORM WARNING IS IN EFFECT FOR...
* PINAR DEL RIO CUBA
* TULUM TO RIO LAGARTOS MEXICO
* COZUMEL



“Localized” tropical products



**Tropical Storm/Hurricane Watch/Warning
TCV (Local watch/warning statement)
HLS (Hurricane Local Statement)
Storm Surge Inundation Graphic
HTI (Hazards, Threats, Impacts) Graphics**



Local tropical products



Tropical Storm/Hurricane Warnings

Strongest Winds Expected This Afternoon and Early This Evening

Weather Forecast Office
New Orleans/Baton Rouge
Issued October 28, 2020 5:19 AM CDT



Situation Overview:

Strong to damaging winds are expected this afternoon and evening. The strongest winds will occur closest to the storms center and well to the east.

Impacts and Safety:

- Hurricane force winds, mainly in gusts are expected across parts of SE LA and coastal MS, with the strongest winds across areas nearest Zeta's track
- Power outages will be possible along with damage to trees, power lines and structures.
- Secure loose outdoor household items that could blow around and cause property damage.
- All preparations should be completed BEFORE WEDNESDAY.

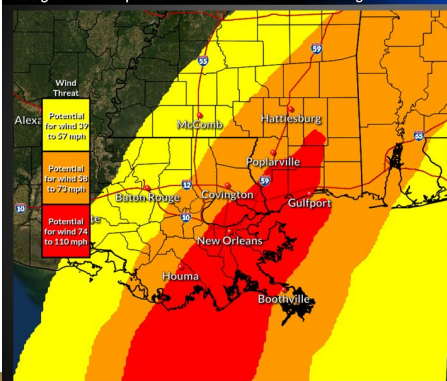
f t NWSNewOrleans

weather.gov/NewOrleans

Wind Threat Potential from TS Zeta

Strongest Winds Expected This Afternoon and This Evening

Weather Forecast
New Orleans/Baton R
Issued October 28, 2020 5:18 A



Situation Overview:

Strong to damaging winds are expected through this evening. The strongest winds will occur closest to the storms center and well to the east.

Impacts and Safety:

- Hurricane force winds, mainly in gusts are expected across parts of SE LA and coastal MS, with the strongest winds across areas nearest the center to the east of Zeta's track
- Power outages are likely along with damage to trees, power lines and structures.
- Secure loose outdoor household items that could blow around and cause property damage.
- All preparations should be IMMEDIATELY this morning.

f t NWSNewOrleans

weather.gov/NewOrleans

075

WTUS84 KLIX 281205

HLSLIX

LAZ034>037-039-040-046>050-056>072-MSZ068>071-077-080>082-282015-

Hurricane Zeta Local Statement Intermediate Advisory Number 15A
National Weather Service New Orleans LA AL282020
705 AM CDT Wed Oct 28 2020

This product covers Southeast Louisiana and South Mississippi

****ZETA EXPECTED TO BRING HURRICANE CONDITIONS AND STORM SURGE TO SOUTHEAST LOUISIANA AND MISSISSIPPI TODAY****

NEW INFORMATION

* CHANGES TO WATCHES AND WARNINGS:

- The Tropical Storm Warning has been upgraded to a Hurricane Warning for Pearl River and Washington

* CURRENT WATCHES AND WARNINGS:

- A Storm Surge Warning and Hurricane Warning are in effect for Hancock, Harrison, Jackson, Lower Jefferson, Lower Lafourche, Lower Plaquemine, Lower St. Bernard, Lower Terrebonne



Local tropical products



911

WTUS84 KLIX 141604

TCVLIX

URGENT - IMMEDIATE BROADCAST REQUESTED

Sally Local Watch/Warning Statement/Advisory Number 12

National Weather Service New Orleans LA AL192020

1104 AM CDT Mon Sep 14 2020

LAZ062-150015-

/O.CON.KLIX.SS.W.1019.00000T0000Z-00000T0000Z/

/O.CON.KLIX.HU.W.1019.00000T0000Z-00000T0000Z/

Orleans-

1104 AM CDT Mon Sep 14 2020

...HURRICANE WARNING REMAINS IN EFFECT...

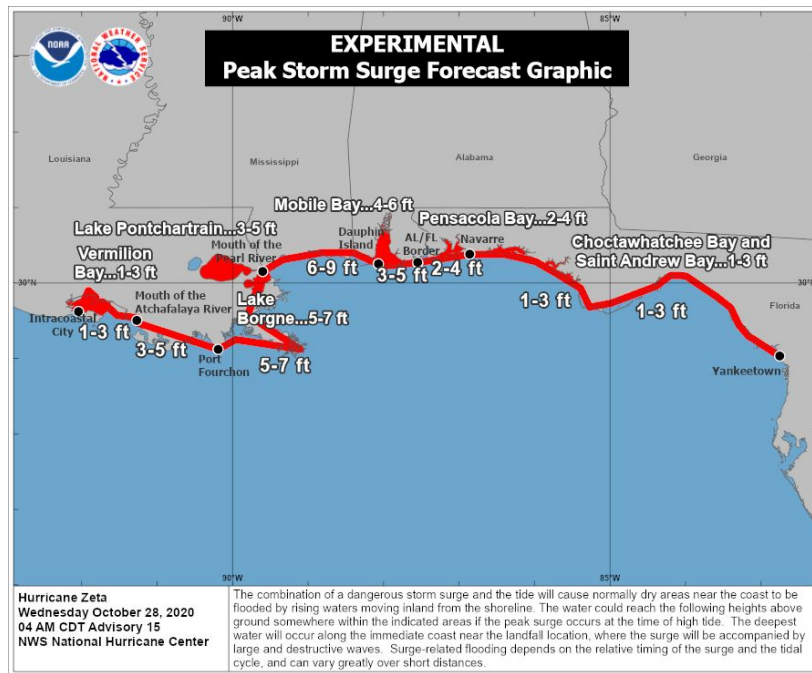
...STORM SURGE WARNING REMAINS IN EFFECT...

* LOCATIONS AFFECTED

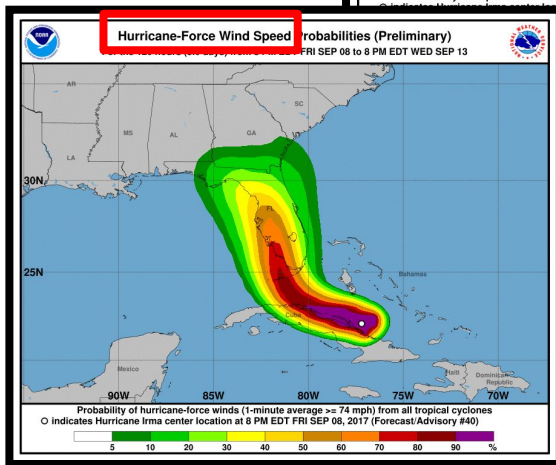
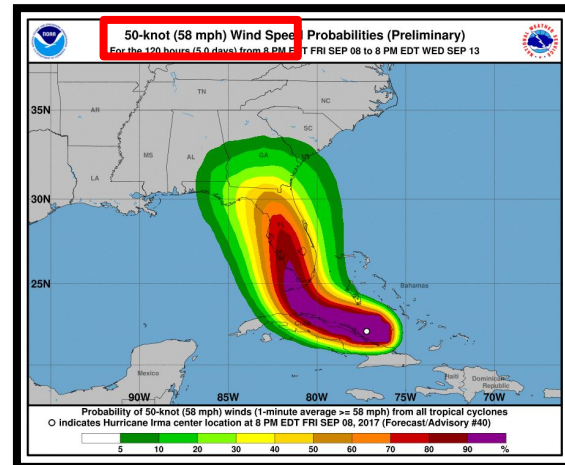
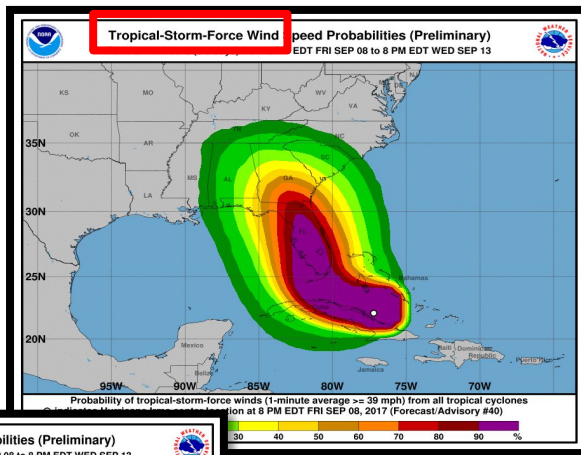
- New Orleans
- Lakefront Airport
- Lake Catherine

* WIND

- LATEST LOCAL FORECAST: Equivalent Tropical Storm
- Peak Wind Forecast: 30-40 mph with gusts to 90




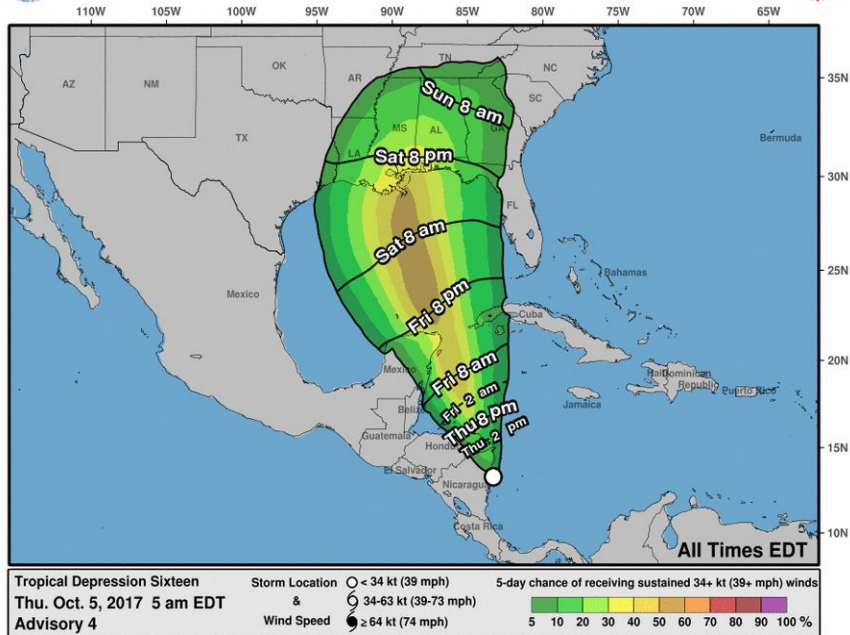
Wind Speed Probabilities



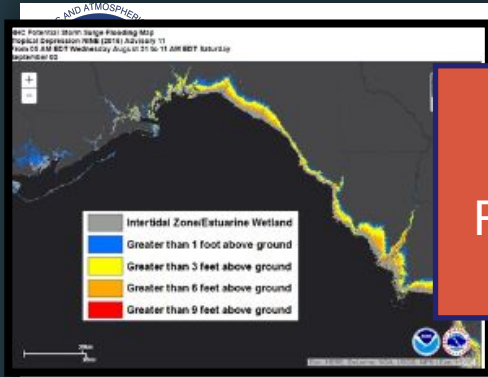
- Represents the cumulative probability or the total risk of observing these wind speed thresholds at any individual location on the map in the next **5 days**
- Takes into account more than just the “center of the storm” – think impacts!
- Accounts for wind reduction over land

Time of Arrival Graphics: EARLIEST REASONABLE

 **Earliest Reasonable Arrival Time of Tropical-Storm-Force Winds** 



- Shows earliest reasonable arrival time of tropical storm force winds (lines) and 5 day cumulative tropical storm force wind speed probabilities (shading)
- Only a 1 in 10 chance of tropical storm force winds arriving earlier than the noted time
- Best for users with low tolerance for risk



Potential Storm Surge Inundation Map
 Reasonable worst-case scenario at individual locations



HAZARDS AFFECTING LAND

Storm Surge: The combination of a dangerous storm surge and the tide will cause normally dry areas near the coast to be flooded by rising waters moving inland from the shoreline.

The water is expected to reach the following heights above ground if the peak surge occurs at the time of high tide...

- Destin to Indian Pass...1 to 3 feet
- Indian Pass to Chassahowitzka...4 to 7 feet
- Chassahowitzka to Aripeka...2 to 4 feet
- Aripeka to Bonita Beach...1 to 3 feet
- Florida-Georgia line to Cape Fear...1 to 3 feet

* STORM SURGE
 - LATEST LOCAL FORECAST:
 Life-threatening storm surge possible
 - Peak Storm Surge Inundation: The potential for 2-4 feet above ground somewhere within surge prod...
 - Window Begins early Thu

Local Watch/Warning Product (TCV)
 Reasonable worst-case scenario (farther out) trending towards expected values (near landfall)

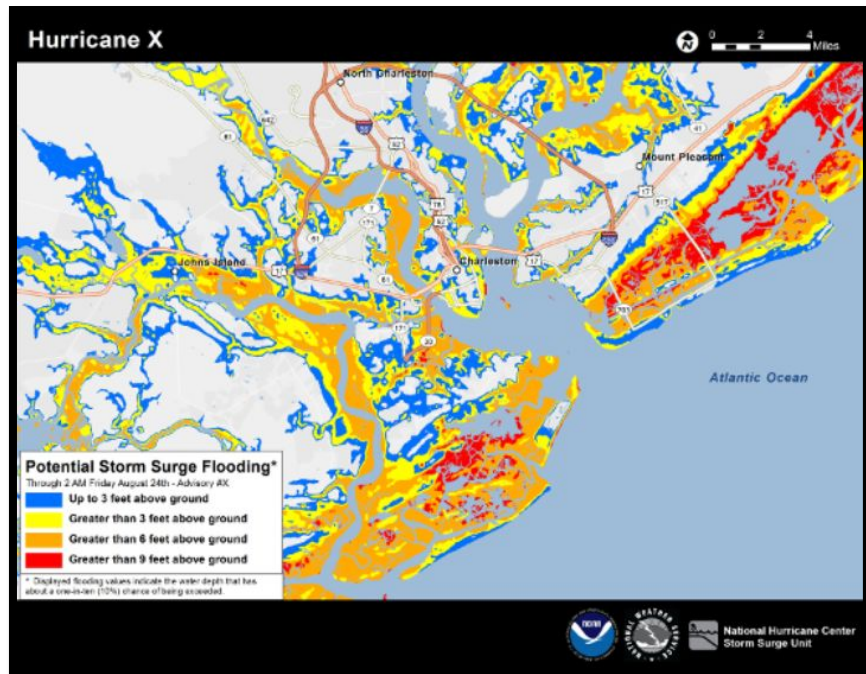
NHC Public Advisory and Peak Storm Surge Graphic
 Highest inundation expected values over broad stretches of coastline



Storm Surge Inundation Graphic



- **Graphic provides inundation levels that only have a 10% chance of being exceeded – a reasonable worst-case scenario.**
- **Issued when the first Hurricane (and sometimes Tropical Storm) Watch is issued – 48 hours out**





Questions??

24/7 Operations

985-649-0429

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