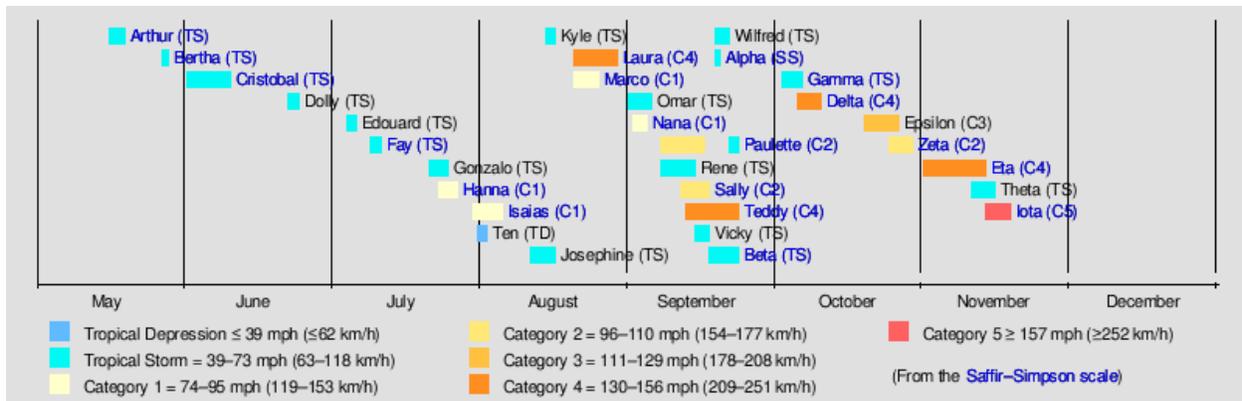


# Summary

The 2020 Atlantic hurricane season was the most active season in the US history with a total of 30 named storms, 13 hurricanes, and 6 major hurricanes. Many of the historic records were broken in this season. We start with some of the key facts below:

- All meteorological agencies in the world under-forecast this season’s tropical storm activity.
- Of the 30 named storms, 12 made landfall in the contiguous U.S., breaking the last record of 9 landfalls in 1916.
- It was the second season since the use of the Greek letters began in 2005.
- This season was the fifth consecutive season in which at least one Category 5 hurricane formed.
- This season also featured a record 10 tropical cyclones that had undergone rapid intensification.
- We had early storms before the season began officially; Tropical Storm Arthur and Bertha on May 16 and 27. This marked the record sixth consecutive year with pre-season systems.
- Early in the year, US government and state officials expressed concerns that the hurricane season could potentially exacerbate the spread of COVID-19, should evacuation and sheltering be required.

The major hurricanes (Category 3 or greater) in this season were Hurricane Laura (CAT4), Hurricane Teddy (CAT4), Hurricane Delta (CAT4), Hurricane Epsilon (CAT3), Hurricane Eta (CAT4), and Hurricane Iota (CAT5).



We summarize the characteristics of each named storm in greater detail below:

## 1. Tropical Storm Arthur

- May 16 - May 19 (4 days)
- Max Sustained Wind: 60 mph / 55 knots
- Max Wave Height: 28 feet (ft) / 8.5 meters(m)



- d. Lowest Pressure: 990 hectopascal (hPa)
- e. No landfall
- f. Fun Facts:
  - i. It marked the record 6th consecutive year in the Atlantic basin with an early storm before June 1.
  - ii. It began as a broad low pressure that was expected to form near Cuba.
  - iii. The center skirted the coast of the Outer Banks, North Carolina, passing a mere 20 miles (32 km) southeast of Cape Hatteras, North Carolina.
  - iv. It transitioned into an extra-tropical cyclone.
  - v. Offshore Georgia reported 3 to 6 ft (0.9 to 1.8 m) waves.
  - vi. Wave heights as high as 12.5 ft (3.8 m) were recorded at buoys along the coast of the outer banks.
  - vii. SpaceX was forced to delay the launch of several Starlink Internet Satellites due to the adverse weather from Arthur affecting the recovery fleet.

## 2. Tropical Storm Bertha

- a. May 27 - May 28 (2 days)
  - i. Extratropical after May 28
- b. Max Sustained Wind: 50 mph / 45 knots
- c. Max Wave Height: 25 ft / 7.6 m
- d. Lowest Pressure: 1005 hPa
- e. Landfall
  - i. May 27 at 1330 UTC - Near Mt. Pleasant South Carolina  
50 mph/ 45 knots of winds at landfall
- f. Fun Facts:
  - i. Unsettled weather related to Bertha delayed the launch of the Crew Dragon Demo-2 from Cape Canaveral for 3 days.
  - ii. It originated as a trough (elongated area of low pressure) in the southeastern Gulf of Mexico.
  - iii. About an hour after the National Hurricane Center (NHC) began issuing advisories, Bertha made landfall near Isle of Palms, South Carolina while maintaining its peak intensity.
  - iv. It transitioned into an extra-tropical cyclone.
  - v. Wrightsville Beach, North Carolina recorded water levels were 1.32 ft (0.4 m) above normal.



## 3. Tropical Storm Cristobal

- a. June 1 - June 12 (12 days)
  - i. Extra-tropical after June 10
- b. Max Sustained Wind: 60 mph / 50 knots
- c. Max Wave Height: 31 ft / 9.4 m



- d. Lowest Pressure: 992 hPa
- e. Landfall
  - i. June 3 at 1335 UTC - Atasta, Mexico  
60 mph / 50 knots of winds at landfall
  - ii. June 7 at 2200 UTC - Southeast Louisiana coast between Mouth of Mississippi River and Grand Isle  
50 mph / 45 knots of winds at landfall
- f. Fun Facts:
  - i. It was the earliest 3rd named storm in the North Atlantic on record.
  - ii. It was the first Atlantic tropical cyclone to form in the month of June since Cindy in 2017.
  - iii. It was the first June tropical cyclone to make landfall in Mexico since Danielle in 2016.
  - iv. It formed from the remnants of Tropical Storm Amanda in the East Pacific.
  - v. It was the second earliest tropical cyclone to make landfall in Louisiana.
  - vi. It became an extra-tropical cyclone over southern Wisconsin.
  - vii. It combined with Amanda, Cristobal led to nearly a week of devastating rainfall across Guatemala, El Salvador, and southern Mexico.
  - viii. It was the farthest northwest tropical system that had traveled in North America. The storm was only the fourth tropical cyclone remnant on record to have moved over Wisconsin and the first since Gilbert in 1988.
  - ix. It became the first known case of a tropical system encountering Lake Superior.
  - x. Its waves reached up to 10 ft (3 m) at the mouth of the Grijalva River in Mexico.
  - xi. Some areas of Yucatan peninsula received a year's worth of rain in four days.
  - xii. It caused minor damage to a PEMEX Platform in the Gulf of Mexico.
  - xiii. A 5 ft (1.5 m) storm surge caused flooding along the much of the Louisiana coast.
  - xiv. A squall line associated with Cristobal's remnants was later classified as a derecho. It brought wind gusts up to 70 mph (61 knots).

#### 4. Tropical Storm Dolly

- a. June 22 - June 24 (3 days)
- b. Max Sustained Wind: 45 mph / 40 knots
- c. Max Wave Height: 19 ft / 5.8 m
- d. Lowest Pressure: 1002 hPa
- e. No Landfall



f. Fun Facts:

- i. It started as an area of disturbed weather off the southeastern US coast.
- ii. It started out as a subtropical depression at 2100 UTC on June 22. Over the next several hours, its wind field contracted significantly showing signs of becoming a tropical cyclone.
- iii. It became a post-tropical cyclone.

## 5. Tropical Storm Edouard

- a. July 4 - July 7 (4 days)
- b. Max Sustained Wind: 45 mph / 40 knots
- c. Max Wave Height: 19 ft / 5.8 m
- d. Lowest Pressure: 1007 hPa
- e. No Landfall
- f. Fun Facts:
  - i. It started as a Mesoscale Convective Vortex (MCV) which formed over the northern Tennessee Valley and slowly moved southeastward.
  - ii. It became an extra-tropical cyclone, approximately 450 miles southeast of Cape Race, Newfoundland.



## 6. Tropical Storm Fay

- a. July 9 - July 12 (4 days)
- b. Max Sustained Wind: 60 mph / 50 knots
- c. Max Wave Height: 25 ft / 7.6 m
- d. Lowest Pressure: 998 hPa
- e. Landfall
  - i. July 10 at 2100 UTC - Just north-northeast of Atlantic City, New Jersey  
50 mph / 45 knots of winds at landfall
- f. Fun Facts:
  - i. It was the first tropical cyclone to make landfall in the state of New Jersey since Superstorm Sandy in 2012.
  - ii. It was the earliest 6th named storm on record in the Atlantic Basin.
  - iii. It originated from a Surface Low that formed over the Northern Gulf of Mexico.
  - iv. It strengthened slightly on July 10, despite southwesterly wind shear which exposed the circulation from the main area of thunderstorms causing it to entrain dry air.
  - v. It transitioned into a post-tropical cyclone
  - vi. Augusta, Georgia recorded its wettest July day on record, breaking the last record that stood since 1887.
  - vii. It flooded New York City subway stations.



## 7. Tropical Storm Gonzalo

- a. July 21 - July 25 (5 days)
- b. Max Sustained Wind: 65 mph / 55 knots
- c. Max Wave Height: 28 ft / 8.5 m
- d. Lowest Pressure: 997 hPa
- e. Landfall
  - i. July 25 @ between 1500 and 1800 UTC  
- Trinidad



40 mph / 35 knots of winds at landfall

f. Fun Facts:

- i. It started as a tropical wave.
- ii. Strengthening was halted as its central dense overcast was significantly disrupted when the storm entrained very dry air into its circulation.
- iii. It opened up into a tropical wave as it made landfall in northern Venezuela.
- iv. The Tobago Emergency Management Agency only received 2 reports of damage on the Island: a fallen tree on a health care facility in Les Coteaux and damaged roof of a bus stop roof in Argyle.

## 8. Hurricane Hanna

- a. July 23 - July 27 (5 days)
- b. Max Sustained Wind: 90 mph / 80 knots
- c. Max Wave Height: 43 ft / 80 knots
- d. Lowest Pressure: 973 hPa
- e. Landfall

- i. July 25 @ 2200 UTC - Padre Island, TX, 15 miles north of Port Mansfield, TX  
90 mph / 80 knots of winds at landfall

- ii. July 25 at 2315 UTC - Kenedy County Texas, 15 miles north-northwest of Port Mansfield, Texas  
90 mph / 80 knots of winds at landfall

f. Fun Facts:

- i. It was the first Atlantic hurricane to make landfall in Texas in the month of July since Dolly in 2008. It was the first of a record tying 6 hurricanes to make landfall in the US.
- ii. It was the first Hurricane of the 2020 season.
- iii. It started as a tropical wave near Hispaniola.
- iv. It was the earliest 8th named storm in the Atlantic Basin.
- v. It dissipated over Mexico.
- vi. It was the first Hurricane to make landfall in Texas since Harvey in 2017.
- vii. Its storm surge reached as high as 7 ft (2 m) at landfall in the Rio Grande Valley.



## 9. Hurricane Isaias

- a. July 30 - August 6 (8 days)
  - i. Extratropical after August 5
- b. Max Sustained Wind: 85 mph/ 75 knots
- c. Max Wave Height: 45 ft / 13.7 m
- d. Lowest Pressure: 987 hPa
- e. Landfall
  - i. July 30 near 1500 UTC - South coast of Dominican Republic  
60 mph/50 knots of winds at landfall
  - ii. August 1 at 1500 UTC - Northern Andros Island, Bahamas  
80 mph /70 knots of winds at landfall
  - iii. August 4 at 0310 UTC - Ocean Isle Beach, North Carolina  
85 mph/75 knots of winds at landfall
- f. Fun Facts:
  - i. It spawned a large tornado outbreak that generated the strongest tropical-cyclone-spawned tornado since Rita in 2005.
  - ii. It originated from a vigorous tropical wave off the coast of Africa.
  - iii. It was the earliest 9th named storm on record in the Atlantic Ocean.
  - iv. The mountainous terrain of Hispaniola did not weaken the storm as predicted by meteorologists.
  - v. It was the earliest 5th named storm to make landfall in the US since 1916.
  - vi. It became extra-tropical as it merged with a cold front.
  - vii. Heavy Rain from Isaias and its precursor disturbance alleviated drought in many areas of the Caribbean
  - viii. It caused 109 tornado warnings across 12 states with 39 tornadoes touching down, 8 of which were significant (EF2+).
  - ix. It generated the 3rd highest high tide ever recorded in Myrtle Beach, South Carolina.



## 10. Tropical Storm Josephine

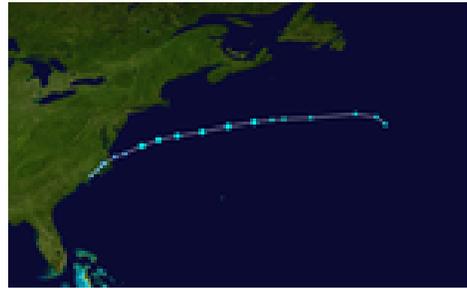
- a. August 11 - August 16 (7 days)
- b. Max Sustained Wind: 45 mph / 40 knots
- c. Max Wave Height: 19 ft / 5.8 m
- d. Lowest Pressure: 1004 hPa
- e. No landfall
- f. Fun Facts:
  - i. It started as a tropical wave over the tropical Atlantic.
  - ii. Intensification was slow for the depression as dry air and wind shear prevented much development.



- iii. It weakened into a trough of low pressure north of the Virgin Islands.

### 11. Tropical Storm Kyle

- a. August 14 - August 16 (3 days)
- b. Max Sustained Wind: 50 mph / 45 knots
- c. Max Wave Height: 22 ft / 6.7 m
- d. Lowest Pressure: 1000 hPa
- e. No Landfall
- f. Fun Facts:
  - i. It started as an area of low pressure over eastern North Carolina.
  - ii. It moved quickly east-northeastward along the Gulf Stream.
  - iii. The remnants were absorbed by Extra-Tropical Storm Ellen, a European windstorm which brought several gales to the British Isles.



### 12. Hurricane Laura

- a. August 20 - August 29 (10 days)
- b. Max Sustained Wind: 150 mph / 130 knots
- c. Max Wave Height: 72 ft / 21.9 m
- d. Lowest Pressure: 937 hPa
- e. Landfall
  - i. August 22 - Lesser Antilles
  - ii. August 23 - Southeastern Dominican Republic  
50 mph / 45 knots of winds at landfall
  - iii. August 24 at 0000 UTC - Santiago de Cuba Province, Cuba  
60-65 mph / 50-55 knots of winds at landfall
  - iv. August 27 at 0600 UTC - Cameron, Louisiana  
150 mph / 130 knots of winds at landfall
- f. Fun Facts:
  - i. It tied with the 1856 Last Island Hurricane as the strongest hurricane on record to make landfall in Louisiana.
  - ii. It was the first major hurricane of 2020.
  - iii. It originated as a large tropical wave off of West Africa.
  - iv. It was the earliest 12th named storm in the Atlantic.
  - v. It strengthened slowly at first, before a period of rapid intensification.
  - vi. It was the 10th strongest US hurricane landfall by wind speed on record.
  - vii. The remnant low moved eastward, before being absorbed by an approaching extra-tropical system over Maryland.



- viii. At one point, the western tip of Cuba was under both a tropical storm watch from Laura and a tropical storm warning from Marco at the same time.
- ix. By August 23rd, approximately 58% of oil & gas production was shut down, which included the evacuation of 114 platforms.
- x. Three rare Extreme Wind Warnings were issued for Louisiana and Texas as Laura approached landfall.
- xi. As the threat of surge increased for the coastline of Louisiana, the National Hurricane Center (NHC) stated that there would be “unsurvivable storm surge with large destructive waves”.
- xii. For the first time in Arkansas’ history, the National Weather Service (NWS) issued tropical storm watches and warnings for several southern counties of Arkansas.
- xiii. Tropical Storm force winds went over almost all of the Antillean Islands, hurricane and tropical storm force winds impacted parts of Florida, Louisiana, Texas, Mississippi, and Arkansas.
- xiv. It became the first major hurricane to strike the mainland US since Michael in October 2018.
- xv. It caused the largest power outage in Baton Rouge LA since Isaac in 2012
- xvi. Cameron, Louisiana saw at least 9.19 ft (2.8 m) of storm surge.
- xvii. Intracoastal city saw a storm surge of 6 ft (1.8m).
- xviii. The NWS radar at Fort Polk, Louisiana suffered a communication outage, causing it to go down. The NWS Radar in Lake Charles, Louisiana failed during the storm as it got severely damaged.
- xix. It spawned the largest tornado outbreak ever recorded in Arkansas in August.

### 13. Hurricane Marco

- a. August 20 - August 26 (7 days)
  - i. Remnant Low after August 25
- b. Max Sustained Wind: 75 mph / 65 knots
- c. Max Wave Height: 34 ft / 10.4 m
- d. Lowest Pressure: 991 hPa
- e. Landfall
  - i. August 24 at 2300 UTC - Mouth of the Mississippi River  
40 mph / 35 knots of winds at landfall
- f. Fun Facts:
  - i. It developed from a fast moving tropical wave west of the Windward Islands.
  - ii. Due to strong shear, Marco’s intensification temporarily halted, however after entering the warm waters of the Gulf of Mexico on August 23, Marco briefly intensified into a hurricane.



- iii. It became a remnant low over the northern Gulf of Mexico.
- iv. It was the earliest 13th named storm in the Atlantic.

**14. Tropical Storm Omar**

- a. August 31 - September 5 (6 days)
- b. Max Sustained Wind: 40 mph / 35 knots
- c. Max Wave Height: 16 ft / 4.9 m
- d. Lowest Pressure: 1003 hPa
- e. No Landfall
- f. Fun Facts:
  - i. It formed from a trough spawned by a cold front over Northern, Florida.
  - ii. It degenerated into a remnant low, which moved northeast reaching Scotland.



**15. Hurricane Nana**

- a. September 1 - September 4 (4 days)
- b. Max Sustained Wind: 75 mph / 65 knots
- c. Max Wave Height: 34 ft / 10.4 m
- d. Lowest Pressure: 994 hPa



- e. Landfall
  - i. September 3 at 0600 UTC - Between Dangriga and Placencia Belize  
75 mph / 65 knots of winds at landfall
- f. Fun Facts:
  - i. It started as a tropical wave near the Lesser Antilles.
  - ii. It degenerated into a mid-level remnant low. The remnants moved into the Eastern Pacific and they reformed into Tropical Storm Julio.
  - iii. It was the first hurricane to make landfall in Belize since Earl in 2016.
  - iv. It was the earliest formation of a 14th named storm.

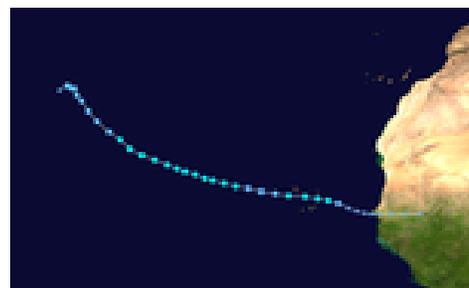
### 16. Hurricane Paulette

- a. September 7 - September 30 (24 days)
  - i. Rem-Low after September 23
- b. Max Sustained Wind: 105 mph / 90 knots
- c. Max Wave Height: 48 ft / 14.6 m
- d. Lowest Pressure: 965 hPa
- e. Landfall
  - i. September 14 at 0900 UTC - Northeast Bermuda  
90 mph / 80 knots of winds at landfall
- f. Fun Facts:
  - i. It was the first hurricane to make landfall in Bermuda since Gonzalo in 2014.
  - ii. It started as a tropical wave.
  - iii. On September 15, it began to weaken and undergo extra tropical transition, but it regenerated into a tropical storm on September 22 south of the Azores. It became post-tropical again a day later. It finally dissipated on September 30.
  - iv. It was the earliest 16th named Atlantic storm.
  - v. It had swells as high as 10 ft (3 m) affected the East Coast.



### 17. Tropical Storm Rene

- a. September 7 - September 14 (8 days)
- b. Max Sustained Wind: 50 mph / 45 knots
- c. Max Wave Height: 25 ft / 7.6 m
- d. Lowest Pressure: 1000 hPa
- e. Landfall
  - i. September 8 at 0000 UTC - Boa Vista Island, Cape Verde Islands  
40 mph / 35 knots of winds at landfall
- f. Fun Facts:
  - i. It started as a tropical wave off West Africa.



- ii. It continued suffering from dry air, and easterly wind shear weakened the storm to a tropical depression.
- iii. It degenerated into a remnant low.

## 18. Hurricane Sally

- a. September 11 - September 18 (8 days)
- b. Max Sustained Winds: 105 mph / 90 knots
- c. Max Wave Height: 48 ft / 14.6 m
- d. Lowest Pressure: 965 hPa
- e. Landfall
  - i. September 12 at 0600 UTC - Key Biscayne, Florida  
35 mph/30 knots of winds at landfall
  - ii. September 16 at 0945 UTC - Near Gulf Shores, Alabama  
105 mph / 90 knots of winds at landfall
- f. Fun Facts:
  - i. It was the first Hurricane to make landfall in Alabama since Ivan in 2004, coincidentally, on the same day.
  - ii. It began as an area of disturbed weather first monitored over the Bahamas.
  - iii. It became a remnant low quickly after landfall.
  - iv. It was the earliest 18th tropical or subtropical Atlantic storm.
  - v. Due to the asymmetrical structure, almost all of Florida saw continuous shower and thunderstorm activities starting on September 12.
  - vi. It had 5.6 ft (1.7 m) of storm surge in Pensacola, Florida.
  - vii. A Pier in Gulf Shores, Alabama, which was destroyed in Ivan in 2004, was partially destroyed again by storm surge from Sally just days after it had been reopened following renovations.
  - viii. Remnants of Sally affected Norway, causing power outages.



## 19. Hurricane Teddy

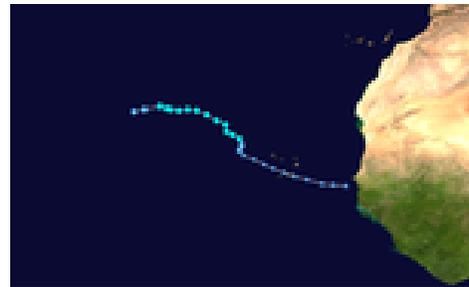
- a. September 12 - September 27 (16 days)
  - i. Extra-Tropical after September 23
- b. Max Sustained Wind: 140 mph / 120 knots
- c. Max Wave Height: 66 ft / 20.1 m
- d. Lowest Pressure: 945 hPa
- e. Landfall:
  - i. September 23 at 1200 UTC - Near Ecum Secum, Nova Scotia  
65 mph/55 knots of winds at landfall as a Post-Tropical Cyclone
- f. Fun Facts:



- i. It was the 4th largest Atlantic hurricane by diameter of gale force winds recorded.
- ii. It began from a tropical wave.
- iii. It became post-tropical as it approached Atlantic Canada.
- iv. It was the earliest 19th tropical or subtropical storm in the Atlantic.
- v. Large swells were generated by the storm, which affected the Lesser Antilles, the East Coast of the US, Bermuda, and Atlantic Canada.
- vi. A Buoy in the northern Atlantic off of Nova Scotia reported a wave height of 35 ft (11 m), and another Wave height of 40 ft (12 m). Another Buoy recorded 42 ft (13 m) north of the storm on the same day.

## 20. Tropical Storm Vicky

- a. September 14 - September 17 (4 days)
- b. Max Sustained Wind: 50 mph / 45 knots
- c. Max Wave Height: 22 ft / 6.7 m
- d. Lowest Pressure: 1000 hPa
- e. No Landfall
- f. Fun Facts:
  - i. It began as a tropical wave off of west Africa.
  - ii. It degenerated into a remnant low after wind shear took a toll on the storm.



## 21. Tropical Storm Beta

- a. September 17 - September 25 (9 days)
  - i. Post Tropical after September 23
- b. Max Sustained Wind: 60mph / 50 knots
- c. Max Wave Height: 25 ft / 7.6 m
- d. Lowest Pressure: 994 hPa
- e. Landfall
  - i. September 21 at 0400 UTC - Matagorda Peninsula, Texas  
45 mph / 40 knots of winds at landfall
- f. Fun Facts:
  - i. It began as a trough of low pressure that developed in the northeast Gulf of Mexico.
  - ii. It became post-tropical as it moved northeastward, before merging with a cold front.
  - iii. It was the earliest 23rd tropical or subtropical storm in the Atlantic.
  - iv. Prior to the storm being upgraded into a tropical storm, a hurricane hunter mission which started at Keesler Air Force Base in Mississippi was aborted when lightning struck the Lockheed WC-130J Hercules,



which was sent to gather data, causing the planes radar system to go down, endangering the occupants of the flight.

## 22. Tropical Storm Wilfred

- a. September 18 - September 21 (4 days)
- b. Max Sustained Wind: 40 mph / 35 knots
- c. Max Wave Height: 16 ft / 4.9 m
- d. Lowest Pressure: 1007 hPa
- e. No Landfall
- f. Fun Facts:
  - i. It began as a tropical wave over Africa.
  - ii. It remained weak and changed little in appearance due to wind shear and unfavorable conditions, caused by the outflow of Hurricane Teddy.
  - iii. It degenerated into a trough of low pressure.



## 23. Subtropical Storm Alpha

- a. September 18 - September 20 (3 days)
  - i. Remnant Low after September 19
- b. Max Sustained Wind: 50 mph / 45 knots
- c. Max Wave Height: 22 ft / 6.7 m
- d. Lowest Pressure: 996 hPa
- e. Landfall
  - i. September 18 at 1830 UTC - Central Portugal  
50 mph / 45 knots of winds at landfall
- f. Fun Facts:
  - i. It was the first ever tropical/subtropical landfall in Portugal and the 3rd to have made landfall in continental Europe.
  - ii. It was the easternmost forming Atlantic tropical cyclone on record.
  - iii. It originated from a large non-tropical low.
  - iv. In Spain, the front associated with Alpha caused a train to derail in Madrid.
  - v. It was the earliest 22nd Atlantic tropical/subtropical storm.
  - vi. It was the second time in the recorded history (joining 2005) that the main naming list has been exhausted and the Greek letters were used.



## 24. Tropical Storm Gamma

- a. October 2 - October 7 (6 days)
  - i. Remnant Low after October 6
- b. Max Sustained Wind: 70 mph / 60 knots
- c. Max Wave Height: 31 ft / 9.4 m
- d. Lowest Pressure: 980 hPa
- e. Landfall
  - i. October 3 at 1645 UTC - Tulum, Quintana Roo, Mexico



70 mph / 60 knots of winds at landfall

- f. Fun Facts:
  - i. It developed from a vigorous tropical wave as it entered the eastern Caribbean.
  - ii. The areas affected by Gamma were affected by stronger Hurricane Delta 4 days after Gamma made landfall.
  - iii. It was the earliest 24th tropical or subtropical Atlantic storm.
  - iv. It was very near hurricane strength at landfall.
  - v. Its remnants were absorbed into the circulation of Hurricane Delta as Delta passed through the Yucatan Peninsula and into the Gulf of Mexico.

## 25. Hurricane Delta

- a. October 5 - October 12
  - i. Remnant Low after October 10
- b. Max Sustained Wind: 145 mph / 125 knots
- c. Max Wave Height: 69 ft / 21 m
- d. Lowest Pressure: 953 mb
- e. Landfall
  - i. October 7 at 0545 UTC - Puerto Morelos, Quintana Roo, Mexico  
110mph / 95 knots of winds at landfall
  - ii. October 8 at 2300 UTC - Near Creole, Louisiana  
100 mph / 85 knots of winds at landfall
- f. Fun Facts:
  - i. It was a record tying 4th named storm of 2020 to strike Louisiana.
  - ii. Extremely rapid intensification ensued throughout October 5 into October 6 with Delta becoming a Category 4 within 28 hours of attaining tropical storm status. The rate of intensification was the fastest in the Atlantic Basin since Wilma in 2005.
  - iii. It began to develop a small pinhole eye only 6 nm (6.9 miles) in diameter, although it was not visible on Satellite imageries.
  - iv. It intensified from a tropical depression to a Category 4 in just over 36 hours. It was the fastest intensification rate since Keith in 2000.
  - v. Freshwater Canal Locks, Louisiana reported 8 ft (2.4 m) storm surge.
  - vi. It made landfall 12 miles (19 km) east of where Hurricane Laura made landfall 6 weeks earlier.
  - vii. It was the strongest hurricane to form in the western Caribbean between Jamaica and the Yucatan Peninsula since Paloma in 2008.



**26. Hurricane Epsilon**

- a. October 19 - October 26
- b. Max Sustained Wind: 115 mph / 100 knots
- c. Max Wave Height: 54 ft / 16.5 m
- d. Lowest Pressure: 951 hPa
- e. No Landfall



- f. Fun Facts:
  - i. It started as a non-tropical low meandering southeast of Bermuda.
  - ii. Its unusual rapid intensification over cool sea surface temperature was very unprecedented and it was also the farthest east any storm had rapidly intensified this late in the season.
  - iii. It began extra-tropical transition in the north Atlantic.

## 27. Hurricane Zeta

- a. October 24 - November 2 (10 days)
  - i. Post Trop after October 29
- b. Max Sustained Wind: 110 mph / 95 knots
- c. Max Wave Height: 51 ft / 15.5 m
- d. Lowest Pressure: 970 hPa
- e. Landfall
  - i. October 27 at 0400 UTC - North of Tulum, Quintana Roo, Mexico  
80 mph / 70 knots of winds at landfall
  - ii. October 28 at 2100 UTC - Cocodrie, Louisiana  
110 mph / 95 knots of winds at landfall



- f. Fun Facts:
  - i. It was a record tying 6th hurricane to make landfall in the US and 5th named storm to strike Louisiana in 2020.
  - ii. It started as a broad area of low pressure in the western Caribbean
  - iii. It became post-tropical over Virginia, and the remnants moved quickly over the Atlantic and brought squally weather to the UK.
  - iv. It was the earliest 27th Atlantic tropical/subtropical storm.
  - v. It was the third tropical cyclone of October 2020 to threaten Western Cuba and the Yucatan Peninsula.
  - vi. Waveland Mississippi reported 8.16 ft (2.49 m) storm surge.
  - vii. Buoy at Bayou la Batre Bridge, Alabama reported 6.89 ft (2.1 m) storm surge.

## 28. Hurricane Eta

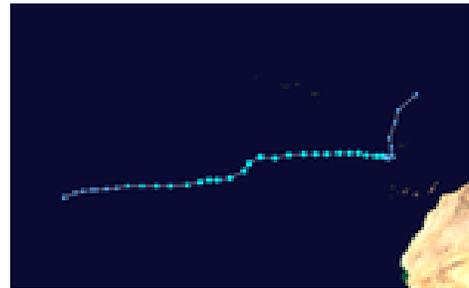
- a. October 31 - November 13 (14 days)
- b. Max Sustained Wind: 150 mph / 130 knots
- c. Max Wave Height: 72 ft / 21.9 m
- d. Lowest Pressure: 923 hPa
- e. Landfall
  - i. November 3 at 2100 UTC - South of Puerto Cabezas, Nicaragua  
140 mph / 120 knots of winds at landfall
  - ii. November 8 at 0900 UTC - Sancti Spiritus Province, Cuba  
65 mph / 55 knots of winds at landfall



- iii. November 9 at 0400 UTC - Lower Matecumbe Key, Florida  
5 mph / 55 knots of winds at landfall
- iv. November 12 at 0900 UTC - Cedar Key, Florida  
50 mph / 45 knots of winds at landfall
- f. Fun Facts:
  - i. It began as a tropical wave over the eastern Caribbean.
  - ii. It was the first time the 7th letter of the Greek Alphabet has been used to name an Atlantic tropical storm.
  - iii. It was the earliest 28th tropical or subtropical storm on record.
  - iv. The formation of Eta tied the 2020 season with the 2005 season as the most active season
  - v. It was a record setting 12th tropical cyclone to make landfall in the continental U.S.
  - vi. It was the longest-lived November Atlantic tropical cyclone since the 1912 Jamaica hurricane

### 29. Tropical Storm Theta

- a. November 10 - November 15 (6 days)
- b. Max Sustained Wind: 70 mph / 60 knots
- c. Max Wave Height: 31 ft / 9.4 m
- d. Lowest Pressure: 989 hPa
- e. No Landfall
- f. Fun Facts:
  - i. It began as a non-tropical low and strengthened into a subtropical storm.
  - ii. It transitioned into a tropical storm shortly after becoming a subtropical storm.
  - iii. It became the 29th named storm of the 2020 season, officially breaking the record from 2005.



### 30. Hurricane Iota

- a. November 13 - November 18 (6 days)
- b. Max Sustained Wind: 160 mph / 140 knots
- c. Max Wave Height: 78 ft / 23.8 m
- d. Lowest Pressure: 917 hPa
- e. Landfall
  - i. November 17 at 0340 UTC - Near Haulover, Nicaragua  
155 mph/135 knots of winds at landfall
- f. Fun Facts:
  - i. It was only the 2nd Category 5 hurricane to exist in the Atlantic in November.
  - ii. It originated as a tropical wave.



- iii. There was intense lightning found in lotas southwest eyewall along with hail which is extremely rare for a hurricane.
- iv. It became the season's first Category 5 hurricane.
- v. It became the latest recorded date of a storm becoming a Category 5.
- vi. It was the strongest hurricane to make landfall in Nicaragua in November.
- vii. It made landfall only 15 miles away from where Eta made landfall 13 days earlier.

## What to Expect Next Year 2021

We expect the next year to be another active season with above-average warm sea surface temperature and continuation of La Niña condition, suppressing the vertical wind shear in the North Atlantic Ocean. In an effort to provide our clients the most insightful information available, we began developing wind and wave swaths for the 2021 season, whose storm names are as follows:

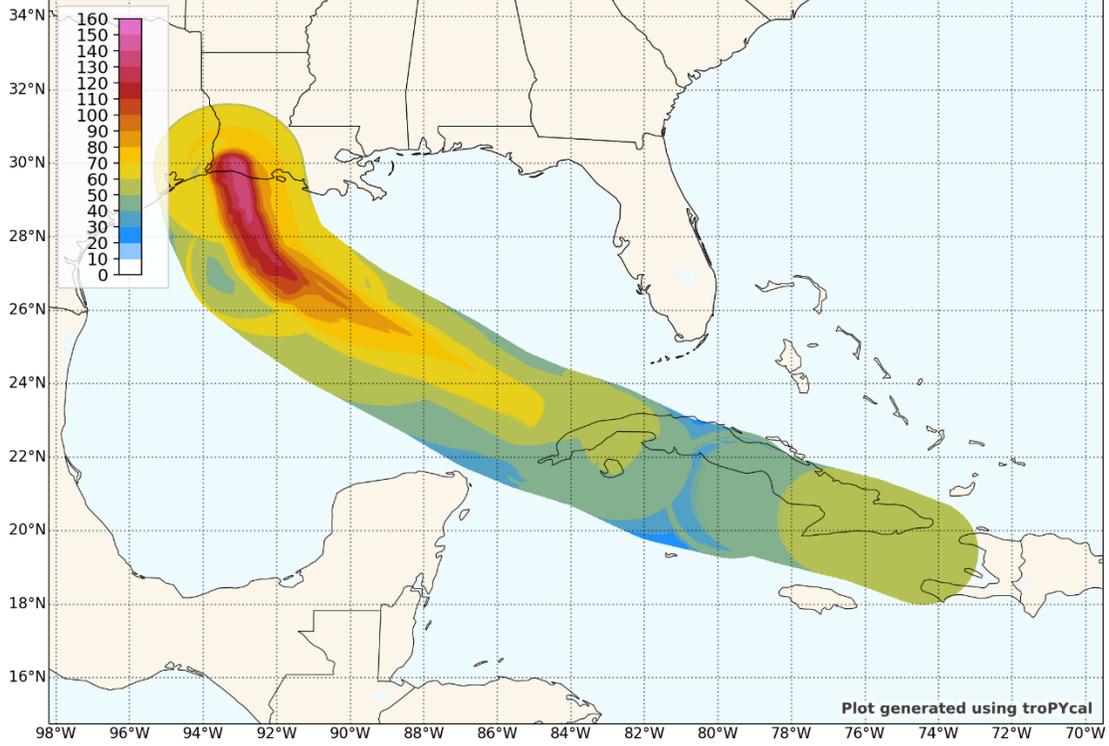
Ana Bill Claudette Danny Elsa Fred Grace Henri Ida Julian Kate Larry  
Mindy Nicholas Odette Peter Rose Sam Teresa Victor Wanda

We look forward to the next season and, until then, please do not hesitate to contact us for assistance with any insurance and legal claims, relating to elements of weather.

Example of Wind Swath Map:

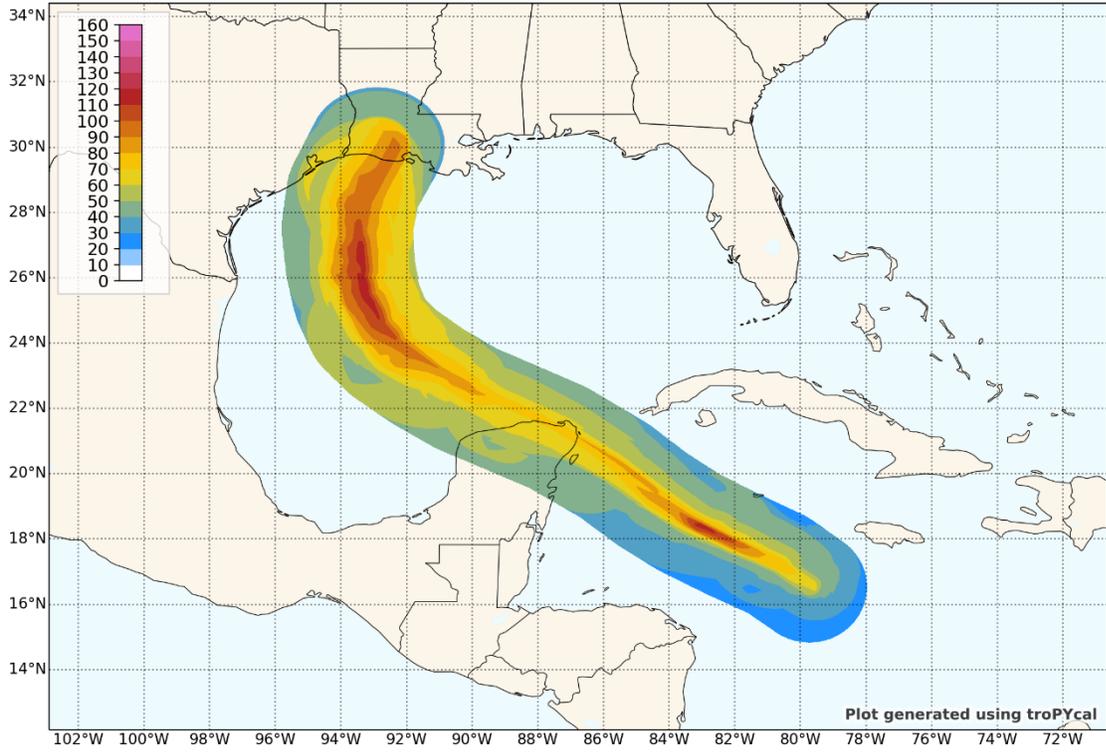
**Hurricane LAURA**  
**Recon: 10s FL wind (kt)**

Start ... 18:00 UTC 23 Aug 2020  
End ... 06:12 UTC 27 Aug 2020



**Hurricane DELTA**  
**Recon: 10s FL wind (kt)**

Start ... 00:00 UTC 06 Oct 2020  
End ... 00:12 UTC 10 Oct 2020



**Hurricane ETA**  
**Recon: 10s FL wind (kt)**

Start ... 12:00 UTC 02 Nov 2020  
End ... 00:12 UTC 08 Nov 2020

