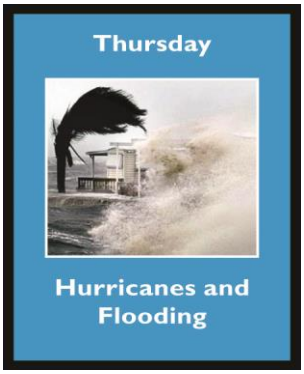
Florida's Severe Weather Awareness Week takes place from February 1-5, 2021. Severe Weather Awareness Week is an opportunity for Floridians to learn about the various weather hazards that frequently impact the state and how families and businesses can prepare for these natural events.



Each day focuses on a specific weather event. **Thursday's focus is on hurricanes and flooding.**

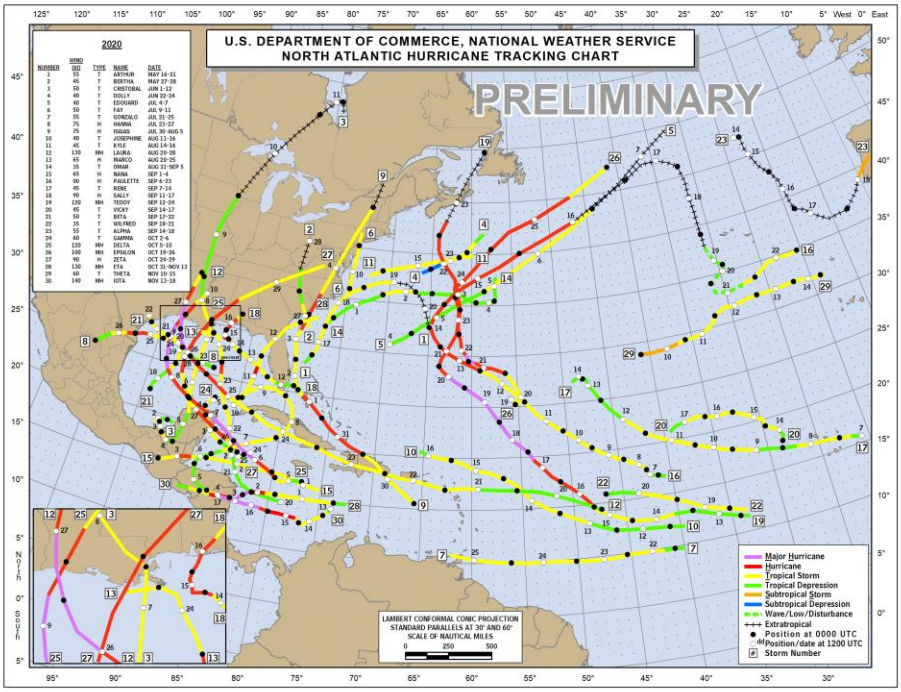
The most feared weather phenomenon throughout Florida during the summer and early fall is the tropical cyclone. Close to the tropics and surrounded on three sides by warm water, the unique location of Florida makes it particularly vulnerable to these systems as they develop across the Atlantic Ocean, Gulf of Mexico, and Caribbean Sea. The relatively flat terrain of Florida can also make it susceptible to flooding.

Florida has a long history of hurricanes. Records indicate that approximately 118 hurricanes and around 164 tropical storms have impacted the state since 1888 (133 years), with many more cited in history books prior to that year and even before official records were kept.

DID YOU KNOW??? No other state in the country has more hurricane landfalls per year on average than Florida does. Nearly 40% of all hurricanes that strike the United States make landfall in Florida.
DID YOU KNOW??? In the last 150 years, all of Florida's counties have been impacted by at least one hurricane.

The North Atlantic Ocean hurricane season officially begins on June 1 and continues through November 30. However, tropical systems can still form outside of hurricane season as early as May and as late as December. Although the number of tropical storms and hurricanes typically peaks during August and September, it is important to remember that Florida can be impacted by tropical weather systems any time during the season. Residents and visitors need to plan ahead and remain ready for possible hurricane impacts.

The 2020 hurricane season was the fifth in a consecutive series of above average and damaging Atlantic hurricane seasons. It started early, continued with little break between named storms all season long, and ended late with two major hurricanes in November. Advisories were issued on 31 systems by the National Hurricane Center. A record-setting 30 of them became named tropical storms and another record-setting 13 of those became hurricanes. Six of the hurricanes reached major hurricane strength (category 3 or higher): Laura, Teddy, Delta, Epsilon, Eta, and Iota. The 2020 hurricane season ran well into the Greek alphabet, which had only been done one other time in 2005. A record 12 named storms made landfall along the U.S. coastline, with the hardest hit being Louisiana (five landfalls!).



The year started early for the 6th year in a row with Tropical Storm Arthur forming off the coast of Jupiter, FL on May 16. The disturbance that became Arthur brought flooding to South Florida in the days before development. This was the first of many flood events for Southeast Florida in what would become a record wet season in many locations. May continued being active with Tropical Storm Bertha making landfall in South Carolina on May 27, with once again the disturbance that became Bertha bringing a round of heavy rainfall and flooding to South Florida and an EF-1 tornado to Miami.

June picked up where May left off with Tropical Storm Cristobal developing near the Yucatan Peninsula on June 2. Cristobal made landfall one week later in Louisiana, but the system was large with heavy rain bands bringing flash flooding as far east as the Suwannee River valley. On the afternoon and evening of June 7, all lanes of I-10 were closed in Suwannee County due to flood waters as the area measured over 10” of rain in 24 hours. An outer band of Cristobal produced a damaging EF-1 tornado just east of downtown Orlando. Tropical Storm Dolly and Edouard develop late in June and early July and remained in the open Atlantic.

On July 9, Tropical Storm Fay developed and eventually moved north along the U.S. East Coast. Before the system developed, Fay brought heavy rainfall and some severe weather to North Florida. Tropical Storm Gonzalo developed late in July in the open Atlantic. The first hurricane of the season was Hanna that made landfall on July 25 in Padre Island, Texas. As was the theme so far this season, the disturbance that eventually developed into a named tropical system brought another round of heavy rainfall and flooding to the Florida Keys. In addition, rip currents created by Hanna resulted in numerous rescues and a fatality at Panhandle beaches.

The next hurricane of the season was Isaias, which threatened South Florida during the first week of August. Isaias ended up remaining offshore, but eventually made landfall in North Carolina and bringing damaging winds into the Mid-Atlantic and New England. Isaias resulted in locally heavy rainfall and beach erosion to Florida’s east coast. Tropical Depression Ten was short-lived near the Cape Verde Islands and was followed by Tropical Storm Josephine and Tropical Storm Kyle in mid-August. All three systems had little impact on land remaining over water.

The first major hurricane of the 2020 season was Laura at the end of August. Laura was a long-track system that first developed in the eastern Atlantic, tracked across the entire Caribbean island chain, then across the Gulf of Mexico before making landfall in Louisiana as a Category 4 hurricane with maximum sustained winds of 150 mph. Laura at first threatened South Florida before the track shifted south and west towards Cuba and Louisiana. However, strong outer rain bands still moved through the Florida Keys on August 24. A peak wind gust of 69 mph was measured in Key West. Impacts to the Panhandle were minimal.

Before Major Hurricane Laura made it into the Gulf of Mexico, Hurricane Marco developed near the Yucatan Peninsula and moved north towards the Florida Panhandle. Marco weakened considerably before landfall in southeast Louisiana, but not before bringing heavy rainfall and flash flooding to the Panhandle on August 24. 11.81” of rain was measured form Marco in Apalachicola.

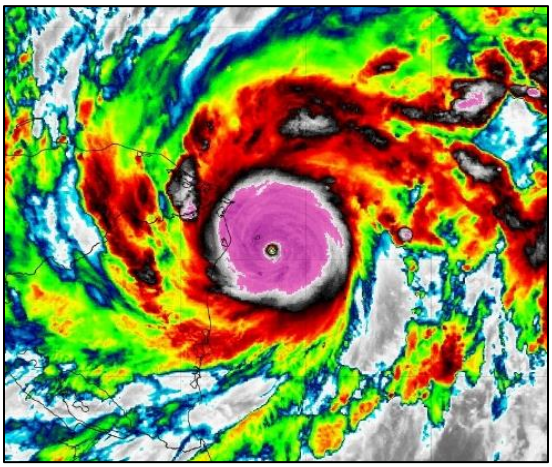
September’s tropical cyclones came in rapid-fire, with nine named systems developing during the month, exhausting the original list of names. Tropical Storm Omar formed off the coast of Northeast Florida and tracked out to sea, and Hurricane Nana developed in the Central Caribbean and made landfall in Belize on September 3. Hurricane Paulette was next and was another long-track system. It transitioned from a tropical to a non-tropical system multiple times in its life over the North Atlantic, first developing on September 7 and dissipating on September 23. Also in mid-September, Tropical Storm Rene developed and tracked across the eastern Atlantic.

Florida’s most impactful storm of the 2020 Hurricane Season was Hurricane Sally. Sally first became a Tropical Depression on September 11. The original forecasts for Sally were not enthusiastic for development. Sally moved slowly across South Florida bringing widespread flash flooding to South Florida and the Keys, much like they had seen a dozen times so far this year. Collier County measured almost 10” of rain. However, the main impact from the system would be a few days later in the Panhandle. Sally rapidly strengthened to a Category 2 Hurricane just before landfall on the morning of September 15. What was originally supposed to be a track into Louisiana ended up as a track into southwestern Alabama. Sally made landfall in Gulf Shores, AL, with maximum sustained winds of 105 mph. While making landfall, Sally was moving less than 5 mph. This resulted in a significant and historic flash flood and river flood event across the Florida Panhandle the week of September 15. Pensacola measured over 22” of rain with numerous locations across the Panhandle measuring over a foot of rainfall. The Naval Air Station in Pensacola also gusted to 92 mph with widespread power outages reported in the region, along with some structural damage and the third highest storm surge in Pensacola’s history. In the days after the rainfall, rivers across the Panhandle rose into major flood stage. New floods of record were set along parts of the Shoal River, Chipola River, and Holmes Creek to name a few.

Teddy was the next Major Hurricane of 2020, and the powerful post-tropical remnants made landfall in Nova Scotia. Tropical Storm Vicky was a short-lived system in the eastern Atlantic a few days before Tropical Storm Wilfred took a similar path at a similar intensity. Wilfred was the final name on the original 2020 list. The next nine named storm used the back-up Greek Alphabet. Sub-tropical Storm Alpha was short-lived and made landfall in Portugal on September 18. Tropical Storm Beta developed in the western Gulf of Mexico and made landfall near Houston, Texas on September 22 causing extensive urban flooding in the region.

October continued to be just as active as September with the 2020 Hurricane Season showing no signs of slowing down. Tropical Storm Gamma formed in the western Caribbean and made landfall in the Yucatan Peninsula before dissipating. Right on the heels of Gamma came Major Hurricane Delta that reached Category 4 strength in the western Caribbean. Delta made landfall first in the Yucatan Peninsula and then in Louisiana as a Category 2 on October 9 just miles from where Laura made landfall a month earlier. Major Hurricane Epsilon tracked near Bermuda in mid-October.

The western Caribbean remained active, with Hurricane Zeta once again moving across the Yucatan Peninsula and towards Louisiana. Zeta made landfall on October 28 as a Category 2 hurricane in southeast Louisiana. The outer rain bands of Zeta brushed the western Panhandle with some scattered damaging wind gusts (52 mph observed in Pensacola) that resulted in some power outages. Localized flooding and minor storm surge also occurred across the region.

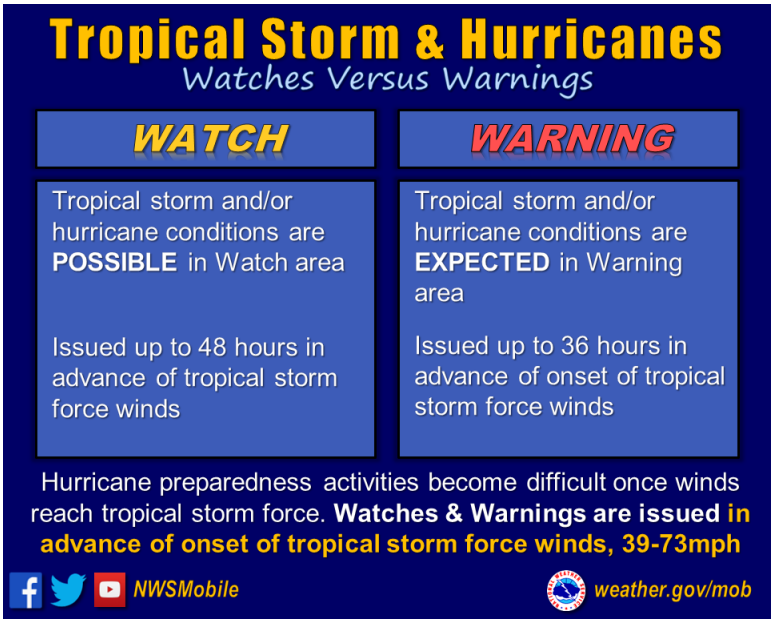


Tropical activity usually slows down dramatically in November, but the record pace continued with three final systems in the first three weeks of November. Major Hurricane Eta made landfall in Honduras on November 3 with maximum sustained winds of 140 (Category 4). Eta eventually drifted back north across Cuba and made landfall as a Tropical Storm on Lower Matecumbe Key, Florida on November 8. A maximum wind gust of 70 mph was reported at Carysfort Reef with rainfall totals as high as 15” in Broward County. Numerous communities in Southeast Florida were flooded from heavy rainfall from Tropical Storm Eta.

After moving across South Florida, Eta moved back over the warm waters of the southeastern Gulf of Mexico. Eta regained strength as a hurricane and threatened a second landfall near Tampa Bay. Eta made a 2nd Florida landfall on November 12 near Cedar Key as a tropical storm with maximum sustained winds of 50 mph. The heavy rainfall and storm surge In Tampa Bay and along the coast of Southwest Florida resulted in water entering hundreds of homes. Tropical Storm Eta was an alarming message to residents of the region of what could come from a major hurricane that parallels the coast.

Just after Eta, Tropical Storm Theta developed in the eastern Atlantic and had no impact to land. The final storm of the 2020 Hurricane Season ended up being the strongest of the season. Major Hurricane Iota reached Category 5 intensity with maximum sustained winds of 160 mph. It made landfall as a strong Category 4 hurricane on November 17 in Honduras, just miles from where Hurricane Eta made landfall 13 days earlier.

The 2020 Hurricane Season seemed to be the year of repeats, with Louisiana, Honduras, and the Yucatan Peninsula seeing multiple strong hurricane landfalls just weeks apart. In any hurricane season, back-to-back major hurricane landfalls are a real possibility, and all Floridians should take this possibility into account when packing their supply kit and making their emergency plan.



When a tropical system approaches the state, The National Hurricane Center will issue watches and warnings. **Do you know the difference between a watch and warning?** Watches are issued 48 hours in advance of the time dangerous winds or surge are *possible* within the specified area. Warnings are issued 36 hours prior to the time when damaging winds or storm surge are *expected*. A watch should trigger your family's disaster plan, and protective measures should be initiated. Once a warning has been issued, your family should be in the process of completing protective actions and deciding the safest location to be during the storm.

Your main protection against hurricanes is to be prepared and have a plan. Hurricane force winds can easily destroy poorly constructed buildings and mobile homes. A hurricane plan does not have to be anything extremely complicated, but should at least consist of the following two things. **First, determine whether you live in an evacuation zone.** This information can be obtained from your local emergency management office through links at https://www.floridadisaster.org/knowyourzone/. If you live in an evacuation zone, know when and where you will be going to pass the storm. **Second, have a disaster supply kit ready** with non-perishable food, batteries for electronic devices such as your NOAA Weather Radio, and enough supplies to last 3 to 5 days. Asses your property to ensure that landscaping and trees do not become a wind hazard.

Know Your Zone

While hurricanes are known and feared for their ferocious winds, historically it is the water that causes most of the deaths in hurricanes. About 90% of all hurricane fatalities occur from drowning in either storm surge or freshwater flooding. The widespread flooding caused by Tropical Storm Fay in 2008 serves as a reminder that tropical storms can cause as much or greater devastation than hurricanes with freshwater flooding.

Even outside of tropical systems, flooding is a serious concern in Florida since it can happen anywhere and at any time. Effects from flooding can be localized, impacting just a few streets in a neighborhood or community, or very large, affecting multiple cities, counties, and even whole states. Flooding is caused by the amount of rainfall and what happens to the rain after it hits the ground.

As our state's population increases, buildings and pavement replace the natural land. This creates more water runoff and can increase flood problems. Most deaths due to flooding in the United States are from people driving their cars into flooded areas. Once a vehicle begins to float, the situation becomes dangerous and often deadly. Residents should be aware of their location with respect to flood-prone areas and know evacuation routes. People are also urged to be extremely cautious when driving in heavy rains, especially when water covers the road. Because it is difficult to determine the depth of water or the condition of the road under the water, if you come to a flooded road, remember the phrase "Turn Around, Don't Drown".

Meteorologists at the National Weather Service watch the weather to try to warn people well in advance of the flooding so they can save lives and property. Flood Watches and Warnings, along with Flash Flood Watches and Warnings, are issued for a specific area when flooding conditions are likely or are already occurring. The National Hurricane Center will also issue Storm Surge Watches and Warnings for areas of the U.S. that have the potential for damaging storm surge from a tropical cyclone.

National Flood Safety Awareness Week is March 15-19, 2021. National Hurricane Preparedness Week is May 2-8, 2021. More information about hurricanes and flooding and what you can do to protect yourself and others can be found at www.nhc.noaa.gov/prepare, http://www.nhc.noaa.gov/surge/resources.php, https://www.weather.gov/safety/hurricane, https://www.weather.gov/safety/flood, https://www.floridadisaster.org/hazards/hurricanes/, and https://www.floridadisaster.org/hazards/floods/.

Friday's topic will be on temperature extremes and wildfires.