

Looking Ahead to the 2021 Atlantic Basin Hurricane Season

*From
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Outlook for 2021

Following a very active hurricane season in 2020, the initial outlook for 2021 appears to indicate that another busy tropical season is likely.

The two most commonly referenced sources of hurricane predictions are:

- Colorado State University
- The Weather Channel

Their 2021 forecasts and the actual versus predicted results for 2020 are as follows:

	2020 Predicted	2020 Actual	30 Year Average	2021 Predictions From Colorado State University	2021 Predictions From The Weather Channel
Total Named Storms	18	30	14	17	18
Hurricanes	8.5	13	7	8	8
Category 3 or Higher (Major Hurricanes)	4	6	3	4	3

Definitions of Storm Categories

The following chart shows the wind speed associated with each Category of tropical event.

Tropical Storm Windspeed: 39-73 mph

Hurricane Category	Wind Speed
1	74 - 95 mph
2	96 - 110 mph
3	111 - 129 mph
4	130 - 156 mph
5	Over 156 mph

Hurricane Category Levels Under Review

It has become apparent in recent years that wind speed alone is not a definitive determinant of the destructive power of a tropical event.

The size and scope of the storm surge is equally, if not more important. This view, while long known, came fully to the front as a result of hurricane Ike which struck the Galveston area in 2008. While the wind speed never got beyond a Category 2 event, the size of the storm's wind field produced an enormous storm surge more commonly associated with a Category 4 hurricane. The storm surge statistics for Ike were:

- Highest storm surge recorded on Galveston Island since 1915
- 12-15 foot Ike storm surge along the Galveston / Houston coastal area
- 15-17 foot Ike storm surge across Bolivar Peninsula

The National Hurricane Center is still considering how to better classify the potential effects of a storm beyond the simple wind speed-based Category designation. The NHC is also now publishing storm surge prediction maps as part of their forecast, but they remain a little hard to read and interpret for now.

The message here is to pay attention to all aspects of the forecast for a tropical event, not just the wind speed predictions.

When Does Hurricane Season Begin?

The official onset of Hurricane Season in the Atlantic Basin is June 1, with the official season ending November 30.

However, there are numerous examples of tropical events in the Atlantic basin occurring prior to June 1 and after November 30.

2021 Storm Names

Once a tropical system reaches tropical storm intensity (winds of 39 MPH or more), it will be assigned the next name from the following list:

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

If there are more than 21 named storms this season, subsequent storms will take names from an auxiliary list of names . This use of Greek alphabet names was discontinued after the 2020 season brought to light multiple shortcomings with the use of the Greek alphabet.

What Large Scale Factors Affect the Number and Intensity of Storms?

Two significant factors which affect the number and intensity of storms that form are:

- The El Nino / La Nina Effect
- Sea Surface Temperatures

El Nino / La Nina Effects

El Nino and La Nina are climate patterns in the Pacific Ocean that can affect weather worldwide.

The occurrence of an El Nino event typically results in increased wind shear in the Atlantic. Such wind shear often limits or suppresses the formation of storms. Without that El Nino driven wind shear, storms are more likely to form and strengthen as they cross the Southern Atlantic without their tops being blown off (which tends to cause them to weaken and/or dissipate).

Long-range forecasters are generally in agreement with the outlook that neutral conditions (neither El Niño nor La Niña) are anticipated through the first half of the hurricane season (June through August), with either neutral or La Niña conditions possible in the second half (September through November).

Again, this likely absence of El Nino tends to indicate more and possibly stronger storms are likely to form in the Atlantic basin during the 2021 tropical season.

(See addendum for further discussion of El Nino / La Nina)

Sea Surface Temperatures

Warmer sea surface conditions in the Atlantic basin tend to provide energy to help form storms and increase the intensity of storms that do form.

Sea surface temperatures across the tropical Atlantic are currently near average, while subtropical Atlantic sea surface temperatures are warmer than normal.

What Does This Mean for the United States?

There is no strong correlation between the number of storms or hurricanes and U.S. landfalls in any given season.

One or more of the 18 named storms predicted to develop this season could hit the U.S. or all may avoid land, remaining out to sea.

While probabilities of a strike along the lower east coast, the upper east coast and along the coast of the Gulf of Mexico are made each year, they are not very reliable and are not included here.

Given the uncertainty of whether and where any storm might make a landfall is why residents of the coastal U.S. should prepare each year no matter the overall forecast.

Remember:

- Regardless of the pre-season predictions, it only takes only one storm event impacting your area of interest to make the season an unpleasant one.
- So it is important for all those with interests along the Atlantic, Gulf of Mexico or Caribbean coastal zones to pay close attention to any tropical systems which may possibly affect those locations and to have a storm preparation and evacuation plan in place.

Signing Up to Receive Tropical Weather Update Emails

During the hurricane season we will send a brief email each day when there are one or more active tropical systems in the Atlantic Basin.

You can sign up to receive these free tropical updates by clicking on:

[Sign Up For the Tropical Weather Update Emails](#)

You can view active 2021 tropical system tracks by clicking on:

[View 2021 Tropical Systems Tracks](#)

Addendum: Discussion of El Nino and La Nina Climate Conditions

El Nino

During El Nino, trade winds weaken. Warm water is pushed back east, toward the west coast of the Americas.

El Nino means Little Boy, or Christ Child in Spanish. South American fishermen first noticed periods of unusually warm water in the Pacific Ocean in the 1600s.

The full name they used was El Nino de Navidad, because El Nino typically peaks around December.

El Nino can affect our weather significantly. The warmer waters cause the Pacific jet stream to move south of its neutral position. With this shift, areas in the northern U.S. and Canada are dryer and warmer than usual. But in the U.S. Gulf Coast and Southeast, these periods are wetter than usual and have increased flooding.

La Nina

La Nina means Little Girl in Spanish.

La Nina is also sometimes called El Viejo, anti-El Nino, or simply "a cold event."

La Nina has the opposite effect of El Nino. During La Nina events, trade winds are even stronger than usual, pushing more warm water toward Asia. Off the west coast of the Americas, upwelling increases, bringing cold, nutrient-rich water to the surface.

These cold waters in the Pacific push the jet stream northward. This tends to lead to drought in the southern U.S. and heavy rains and flooding in the Pacific Northwest and Canada. During a La Nina year, winter temperatures are warmer than normal in the South and cooler than normal in the North. La Nina can also lead to a more severe hurricane season.