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Caribbean Region to See 57 Percent Chance of Landfall for Cat. 1-2 Storms, 42 Percent Chance Landfall for Major Hurricanes in 2020, Says CSU

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Colorado State University's Landfall Predication for the 2020 Hurricane Season By. CSU

The Colorado State University Department of Atmospheric Science's Tropical Metereology Project has released what it's calling the "Qualitative Discussion of Atlantic Basin Seasonal Hurricane Activity for 2020", which includes probabilities on what should be expected for the 2020 Hurricane Season. CSU's first quantitative forecast for 2020 will be issued on Thursday, April 2.

The qualitative discussion includes a number of highlights, and it hones in on two big questions that will play significant roles in determining the strength of the 2020 Hurricane Season: What

will happen with the current warm ENSO (El Niño–Southern Oscillation) neutral state, as well as what trends are likely to occur with the Atlantic Multi-decadal Oscillation (AMO).

El Niño–Southern Oscillation is an irregularly periodic variation in winds and sea surface temperatures over the tropical eastern Pacific Ocean, affecting the climate of much of the tropics and subtropics. The warming phase of the sea temperature is known as El Niño and the cooling phase as La Niña.

CSU said it assessed the upcoming year's activity in its December 2019 outlook in terms of two primary physical parameters, which are the strength of the Atlantic Multi-Decadal Oscillation and the phase of El Niño–Southern Oscillation.

The Atlantic Multidecadal Oscillation, also known as Atlantic Multidecadal Variability, is a climate cycle that affects the sea surface temperature of the North Atlantic Ocean based on different modes on multidecadal timescales.

"The Atlantic had three quiet hurricane seasons from 2013-2015, followed by a slightly above-average season in 2016, near record-breaking levels of activity in 2017 and slightly above-average seasons in 2018 and 2019. Four above-average seasons lends confidence that the Atlantic Multi-Decadal Oscillation remains in a positive phase, although the far North Atlantic has generally been characterized by below-average sea surface temperatures (SSTs). Another big question for 2020 is how the El Niño–Southern Oscillation will trend over the next few months. As is typically the case at this time of year, there is considerable model disagreement as to what the phase of ENSO will look like for the summer and fall of 2020," CSU said.

To that end, CSU said it's anticipating five possible scenarios for the coming season:

1. AMO becomes very strong in 2020 and no El Niño occurs (resulting in a seasonal average Accumulated Cyclone Energy (ACE) activity of ~ 170) – 15% chance.
2. AMO is above average and no El Niño occurs (ACE ~ 130) – 30% chance.
3. AMO is above average and El Niño develops (ACE ~ 80) – 20% chance.
4. AMO is below average and no El Niño occurs (ACE ~ 80) – 25% chance.
5. AMO is below average and El Niño develops (ACE ~ 50) – 10% chance.

CSU said that typically, seasons with the above-listed Accumulated Cyclone Energy values have Tropical Cyclone activity as follows:

- 170 ACE – 14-17 named storms, 9-11 hurricanes, 4-5 major hurricanes
- 120 ACE – 12-15 named storms, 6-8 hurricanes, 2-3 major hurricanes
- 80 ACE – 8-11 named storms, 3-5 hurricanes, 1-2 major hurricanes
- 50 ACE – 5-7 named storms, 2-3 hurricanes, 0-1 major hurricane

Climatological Landfall Probabilities

CSU said a significant focus of its recent research has involved efforts to develop forecasts of the probability of hurricane landfall along the U.S. coastline and in the Caribbean. "While we are not issuing a quantitative forecast in this early outlook, we can still provide interested readers with the climatological probabilities of landfall," CSU said.

According to CSU, during the 2020 Hurricane Season, there's an 82 percent probability that the Caribbean region will see landfall of one more tropical storms; a 57 percent probability of landfall for one or more category 1-2 hurricanes; and a 42 percent probability of landfall for one or more major hurricanes, which ranges from categories 3-5. (The chart [here](#) includes U.S. mainland probabilities as well.)

Unlike the mainland U.S., where CSU also included probabilities for coastal states, it did not provide such for the Caribbean region.

In closing remarks, CSU said it detailed in this outlook two key parameters that are critical for determining levels of Atlantic hurricane activity: North Atlantic Sea Surface Temperatures (SSTs) and the El Niño–Southern Oscillation (ENSO).

"Currently, tropical Atlantic SSTs are slightly above normal and far North Atlantic SSTs are slightly cooler than normal. The tropical Pacific currently has warm neutral ENSO conditions. Most models predict that neutral ENSO conditions will persist for the next few months. We are closely monitoring these conditions and will have additional extensive discussion with our early April outlook," CSU said.