



March 2022 Early Outlook

Atlantic Hurricane Outlook

// Active Hurricane Season Forecast for 2022

Signals point to above-normal number of named storms.

Elevated risk of major hurricane impacts to the eastern Caribbean islands.

Atlantic coast may see a greater risk of a major impact than the Gulf Coast.

The 2021 Atlantic Hurricane Season was the third most-active season on record with 21 named storms, 7 of which were hurricanes, including 4 major (category 3 or higher) hurricanes. In past seasons, typically about half of the named storms are hurricanes. That was not the case in 2021, as named storms equaled three times the number of hurricanes. Last season featured the formation of 10 “shorties”, which are weak, short-lived storms that typically form away from land. New technology is allowing for the detection of these short-lived storms that would not have previously been recognized. Future seasons may follow this pattern of having a greater named storm to hurricane ratio.

// El Niño or La Niña

One important signal that we closely monitor is sea surface temperatures across the Tropical Pacific. Warming waters there suggest the formation of an El Niño, a pattern

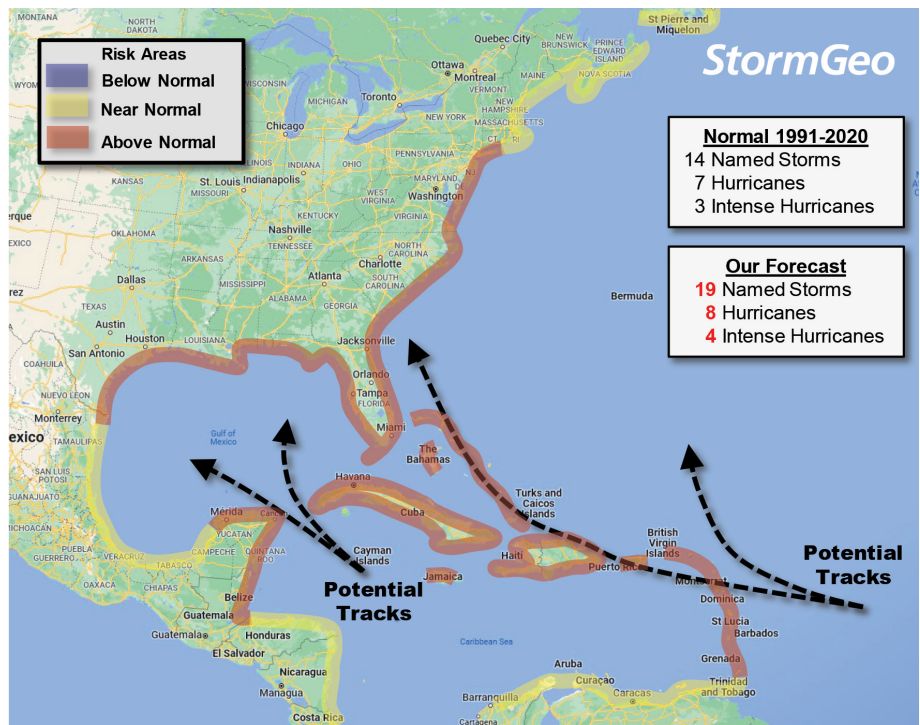
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that enhances hurricane development in the East and Central Pacific and inhibits development in the Atlantic Basin. After two very active seasons that featured a persistent La Niña, there are signs that La Niña is only very slowly waning.

The current forecast is for an equal chance of La Niña or neutral conditions by peak season. There is only a 10% chance of El Niño developing this season. While a La Niña would likely enhance hurricane development in the Atlantic, neutral conditions would certainly not be an inhibiting factor. Either way, signs point to a more active season.

// Atlantic Water Temperatures

Water temperatures across most of the Atlantic Basin are currently above normal. In addition, oceanic heat content remains above normal across the Caribbean Sea and the southern Gulf of Mexico. Since hurricanes require a deep layer of warm water to become strong, the increased oceanic heat content will provide the necessary energy for strong hurricanes in the Caribbean Sea and the Gulf of Mexico this season.

Contrary to last season, we are seeing less below normal water temperatures in the far eastern Tropical Atlantic at present. This may signal a weaker Azores-Bermuda high-pressure system, which would result in weaker easterly trade winds in the deep tropics. This would mean decreased low-level wind shear in the main development region between the eastern Caribbean Sea and the coast of Africa. Recent hurricane seasons have not featured any long-lasting strong hurricanes reaching the islands of the eastern Caribbean; that may not be the case this season. We think that there is an elevated risk of major hurricane activity across the eastern Caribbean islands.

// Analog Seasons

An analog season is a past season with a similar setup of ocean temperatures and atmospheric flow patterns to current signals. If the current state of the tropics closely matches that of a previous year, then the premise is that seasonal activity this season would be somewhat similar to the analog season's storm numbers and track locations. For 2022, we have identified 10 analog seasons. Currently, the best analogs are 2001 and 2003, although 2020 and 2021 are also good analogs. These analog seasons featured above-normal activity, though only half of these seasons had major hurricane impacts on the Gulf Coast.

// What to Expect Based on Current and Predicted Conditions

We are forecasting an above-normal number of named storms in 2022 due to the low probability of an El Niño, above-normal ocean heat content and decreased low-level shear in the main development region. For the first time since 2017, the islands of the eastern Caribbean may be impacted by a major hurricane. The entire region from south Texas to southern New England may be at a greater risk for a significant impact, though the Atlantic coast may be at a greater risk of a major impact than the Gulf Coast.