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# Record-Breaking Hurricane Activity Expected to Impact Caribbean, Coastal U.S. in 2024

## Experts highlight extremely active forecast with major implications for the Caribbean

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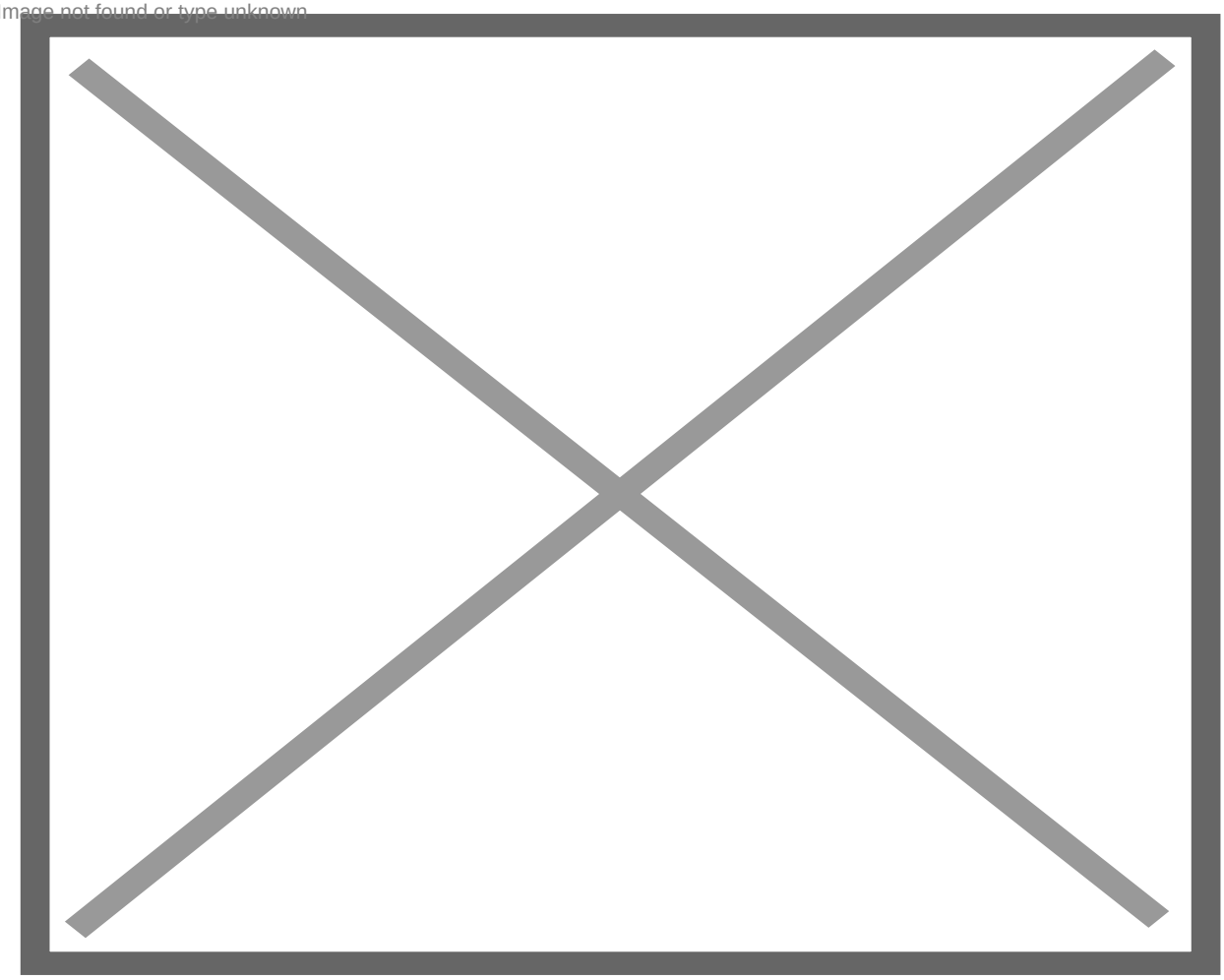

The Colorado State University Tropical Meteorology Project on Thursday released a forecast predicting an "extremely active" 2024 Atlantic hurricane season, highlighting the potential for above-average hurricane activity.

As of April 4, conditions such as the current El Niño transitioning to La Niña, coupled with record warm sea surface temperatures in the eastern and central Atlantic, are setting the stage for a season conducive to hurricane formation and intensification.

The CSU team anticipates significant activity, including 23 named storms, 11 hurricanes, and 5 major hurricanes of Category 3 or above. This forecast surpasses the 1991–2020 averages in all categories, reflecting an anticipated Accumulated Cyclone Energy (ACE) of 210 and a Net Tropical Cyclone Activity (NTC) of 220%, significantly higher than the long-term averages.

The forecast also points to a well above-average probability of major hurricanes making landfall along the continental United States coastline and the Caribbean. Historical data from 1880–2020 suggests average probabilities of a major hurricane landfall at 43% for the entire U.S. coastline, 21% for the U.S. East Coast including Florida, and 27% for the Gulf Coast from the Florida Panhandle westward to Brownsville. The 2024 season forecasts these probabilities to increase to 62%, 34%, and 42% respectively, with a 66% chance of at least one major hurricane tracking through the Caribbean.

In comparison to the 1991–2020 averages, the final forecast calls for nearly 60% more named storms (23 vs. an average of 14.4), about 52% more hurricanes (11 vs. an average of 7.2), and approximately 56% more major hurricanes (5 vs. an average of 3.2). Additionally, the forecast projects an Accumulated Cyclone Energy (ACE) Index of 210, up from the average of 123, and a Net Tropical Cyclone Activity (NTC) of 220%, compared to the long-term average of 135%.

The CSU team’s analysis is based on a comprehensive statistical model developed from over 40 years of data, supplemented by predictions from European Centre for Medium Range Weather Forecasts, the UK Met Office, the Japan Meteorological Agency, and the Centro Euro-Mediterraneo sui Cambiamenti Climatici model. All models are in agreement, indicating a hyperactive season ahead.

Key to the forecast is the anticipated shift from El Niño to La Niña conditions, which typically reduces vertical wind shear in the Atlantic, thereby favoring more hurricane activity. Furthermore, the record warm temperatures in the tropical Atlantic are expected to provide a more conducive environment for hurricanes.

El Niño and La Niña are significant climate phenomena that significantly impact weather patterns globally, including influencing the Atlantic hurricane season's activity.

El Niño is characterized by the warming of sea surface temperatures in the central and eastern Pacific Ocean. This warming can lead to increased vertical wind shear across the tropical Atlantic, which can disrupt the formation and strengthening of hurricanes. Thus, El Niño conditions are often associated with fewer hurricanes in the Atlantic.

La Niña, on the other hand, represents the opposite condition, where cooler sea surface temperatures prevail in the same regions of the Pacific. La Niña is associated with reduced vertical wind shear in the Atlantic, creating an environment more favorable for hurricanes to form and intensify. Reduced wind shear allows storms to develop vertically without being torn apart, leading to more and potentially stronger hurricanes.

Given these conditions, the CSU team urges coastal residents to prepare for the season, emphasizing that it only takes one hurricane making landfall to have a significant impact.