



## Cooling La Niña Weather Phenomenon Could Heat Up Atlantic Hurricane Season

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Call it a case of bad timing. Just as the United States heads into what traditionally are the most active months of the Atlantic hurricane season (August and September), Pacific Ocean waters are showing signs of cooling vis-a-vis the La Niña weather phenomenon -- something that may contribute to a stronger storm season.

Indeed, if history is any indication of what to expect, East Coast residents should prepare for the arrival of at least one hurricane, conclude two hurricane researchers.

A historical study of hurricanes that made landfall in the United States between 1900 and 1983 revealed that there is a 66 percent chance of two or more hurricanes making landfall along the U.S.'s Eastern seaboard as a result of La Niña. In neutral years, or years when there is neither a La Niña or its warm-water counterpart, El Niño, the chance of two or more hurricanes making landfall drops to 46 percent.

Additionally, the chance of more than one storm striking the coast during an El Niño cycle is only 28 percent, said Mark Bove, a graduate student in meteorology at Florida State University and one of the researchers who worked on the study. The results will be published in the *Bulletin of the American Meteorological Society* this fall.

The results of the study raise some "cause for concern," said James Elsner, a researcher at Florida State University's Center for Ocean-Atmospheric Prediction Studies and a co-author of the study. As early as next week, the likelihood of a hurricane affecting coastal areas increases, he said.

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This is worrisome not only to Bove and Elsner, but also emergency management officials who for years have watched coastal populations increase in number. Additionally, many of those new arrivals are unfamiliar with the awesome power of a hurricane or the safety information necessary to survive one. "Preparation and awareness are crucial," Elsner said.

Bove's and Elsner's research is based on the work of William Gray, a well-known hurricane researcher at Colorado State University who determined more than a decade ago that El Niño reduces the number of hurricanes in the Atlantic Ocean, a principle now widely accepted among meteorologists and borne out by the marked reduction in Atlantic hurricanes last year. Studying hurricane data from 1900 to 1983, Gray pinpointed that only four of the 54 major hurricanes to strike the U.S. coast during that time occurred during one of 16 El Niño years.

In fact, no El Niño event has ever resulted in more than one major U.S. hurricane. Last year, one of the strongest El Niño years in history, there were only seven named tropical storms in the Atlantic and only three hurricanes and only one actually packed winds of more than 100 mph, according to statistics from the National Hurricane Center in Miami. Overall, there is an average of 5.7 hurricanes in any given year.

Although El Niño has become a familiar and, in many cases, unwelcome event during the past year, much less is known about its cooling counterpart, La Niña. During a La Niña cycle, Pacific trade winds blow harder and cold water from the eastern tropical Pacific is pushed to the central Pacific and the International Dateline. The results of this climate change often include heavy rains that can drench India and southeast Asia.

At the same time, the Gulf of Mexico and central United States sees much dryer weather. Texas and Oklahoma could see wet weather in early fall, while the southeast could see wet weather in late summer. Many meteorologists blame La Niña for the Midwest drought in 1988, which was a strong year for cool water conditions in the Pacific. Now, Bove said, they know a more active Atlantic hurricane season can be added to the list of its effects.

Every three years, an average of two hurricanes make landfall in the U.S., said Frank Lepore, a National Hurricane Center spokesman. The costs are devastating -- an average of \$4.8 billion worth of damage every time a hurricane hits land.

For that reason, Elsner continues to study the affects of climate changes on hurricane formation and landfall probability. Many questions remain unanswered, he said, including the affects of global warming on the number of

hurricanes that brew in the Atlantic.

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