

Recent Hurricanes Not Matched Since Middle Ages

by Jon Hamilton

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Jeff Schmaltz/MODIS/NASA/GSFC

Hurricane Katrina was one of the most powerful storms to strike the United States, with winds of 160 miles per hour and stronger gusts. Medieval sediments taken from lagoons in the Atlantic suggest that 1,000 years ago there was a hurricane season similar in intensity to the 2005 season.

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The Atlantic Ocean is experiencing the most intense period of hurricane activity in 1,000 years, according to a study in the journal *Nature*.

The study looked at hurricane activity during the past 1,500 years using techniques that have emerged from a field often called paleotempestology.

The discipline relies on scientists who hunt for physical evidence of ancient storms, says Michael Mann, an author of the study and director of the Earth Systems Science Center at Pennsylvania State University. These researchers often search for evidence of ancient storms by studying lagoons that are separated from the open ocean except when a hurricane causes water to rush over the land barrier, Mann says.

"Typically they send a coring device into the bed of the lagoon," he says. "What one looks for are layers of sediment in that core that tell you that there was an event that was strong enough to take the stuff from the open ocean and bring it all the way across the barrier into that lagoon environment."

Studying these layers is a bit like using tree rings to see what the weather was like hundreds of years ago.

Paleotempestologists also search for evidence of conditions that would have favored hurricanes centuries ago. These include warm ocean temperatures in parts of the Atlantic and the presence of La Nina, an atmospheric phenomenon that creates wind conditions that help storms gain strength.

Coral growth patterns can reveal when the water was warm. Ice cores help identify La Nina years.

Medieval Era Ideal For Hurricanes

When Mann and his team reviewed that sort of evidence, they found that the conditions were ideal for hurricanes in the Middle Ages. "There appears to have been sort of a perfect storm of conditions about a thousand years ago that relate to these various influences," he says.

Perfect conditions don't necessarily produce storms, though. So Mann's team looked at medieval sediments taken from lagoons between Massachusetts and Puerto Rico.

And the sediments confirmed that a number of storms actually had struck the coast during that period.

It was probably a lot like the 2005 season, which was the busiest hurricane season in the Atlantic in recorded history. The season witnessed 28 named storms, including Katrina and Rita.

But the current period of intense hurricane activity differs from the medieval one in an important way, Mann says. Today's storms are associated primarily with warmer ocean temperatures, rather than the influence of La Nina.

"We believe a substantial part of the reason for that anomalous recent warmth is in fact the human influence on climate," Mann says.

There is still debate among scientists about the effect of warmer water on hurricanes. And skeptics say it could have been a coincidence that the medieval storms came during a period of warm water and La Nina conditions.

But the new research on ancient hurricanes is providing a kind of information that modern satellites and aircraft surveillance just can't, says James B. Elsner, a professor of geography at Florida State University.

"It does provide us some additional clues about how things might change in the long term," he says.

And this study, he says, supports the idea that global warming is one reason we're seeing so many hurricanes these days.