

September 4, 2008

Strongest Storms Grow Stronger Yet, Study Says

By [KENNETH CHANG](#)

A new study finds that the strongest of [hurricanes](#) and typhoons have become even stronger over the last two and a half decades, adding grist to the contentious debate over whether [global warming](#) has already made storms more destructive.

“I think we do see a climate signal here,” said James B. Elsner, a professor of geography at [Florida State University](#) who is the lead author of the paper, being published in Thursday’s issue of the journal Nature.

The study, which also found that more typical, less powerful tropical storms had not become stronger over the 26-year period studied, is consistent with other researchers’ hurricane models, Dr. Elsner said.

With oceans expected to continue warming, “one would expect more 4s and 5s,” he said of Category 4 and Category 5 hurricanes, those with maximum sustained winds of at least 131 miles per hour.

About 90 tropical cyclone storms form each year around the world. In the Atlantic, the stronger ones, with winds of at least 74 m.p.h., are hurricanes; the equivalents in the Pacific and Indian Oceans are typhoons. Ten named storms have formed in the Atlantic this hurricane season, which continues to the end of November.

Heat from the warming oceans will provide more energy to spin up hurricanes and typhoons, but the changing climate could also heighten conditions like wind shear — winds blowing at different speeds and different directions at different altitudes — that tend to tear a storm apart.

Because of these environmental factors, most storms fall far short of their maximum possible intensity. But Dr. Elsner, along with Thomas H. Jagger, a postdoctoral researcher at Florida State, and James P. Kossin, a research scientist at the [University of Wisconsin-Madison](#), reasoned that warmer waters increased the possible intensity and that storms that develop in ideal conditions might have become stronger.

Having examined satellite data from 1981 through 2006, a period in which sea surface temperature rose to 83.3 degrees Fahrenheit from 82.8 degrees, they concluded that the highest wind speeds of the strongest storms averaged 156 m.p.h. in 2006, up from 140 m.p.h. hour in 1981. The increases in cyclone intensity were greatest in the Atlantic and Indian Oceans.

Because the data came from one set of satellites, the scientists avoided some of the calibration difficulties that had troubled earlier studies.

“This study offers definitive evidence that there are more of the very strongest hurricanes around the world, even though the total number of storms globally shows hardly any trend,” said Kerry A. Emanuel, a professor

of atmospheric science at the [Massachusetts Institute of Technology](#), who suggested in 2005 that global warming had already intensified cyclones.

Christopher W. Landsea, science and operations manager at the National Hurricane Center, who has been skeptical of the connection, said the statistical methodology in the new study was excellent. But Dr. Landsea questioned the underlying data, particularly corrections for data taken from the Indian Ocean before 1997, when there were fewer satellites observing the storms.

He also said that the conclusions might have been skewed because the starting point of the data, 1981, coincided with a relatively quiet period of Atlantic hurricane activity, whereas the ending point, 2006, coincided with an active period that began around 1995.

“The paper has some elegantly calculated statistics, but these are generated on data that are not, in my opinion, reliable for examining how the strongest tropical cyclones have changed around the world,” Dr. Landsea said.

Thomas R. Knutson of the Geophysical Fluid Dynamics Laboratory at Princeton said the data involved too short a period to draw long-term conclusions.

“One is left with a very suggestive result and a very interesting result,” Dr. Knutson said, “but it’s not a definitive smoking gun for a greenhouse warming signal on hurricanes.”

[Copyright 2008 The New York Times Company](#)

[Privacy Policy](#) | [Search](#) | [Corrections](#) | [RSS](#) | [First Look](#) | [Help](#) | [Contact Us](#) | [Work for Us](#) | [Site Map](#)