

# When it comes to hurricanes, climate change effects may be 'a wash'

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In some ways, hurricane season 2011, which ended Wednesday, seems to fit right in with the wild weather wreaking havoc in recent years - a string of severe floods, droughts and heat waves that the world's top climate scientists recently warned will likely worsen with global warming.

The tropics churned out 18 named storms, a number that tied for sixth place in 160 years of record-keeping and continued a hyperactive hurricane period going back more than a decade. Florida escaped unscathed for the sixth straight year, but much of the Atlantic coast was not so lucky. [Hurricane Irene](#) and Tropical Storm Lee combined to kill 58 people and cause an estimated \$8 billion in damage from North Carolina to Maine.

That frightening destructive power has made hurricanes a symbol of the perils of global warming, with the image of a whirling eye spewed from a smoke stack adorning posters for Al Gore's ground-breaking and Oscar-winning 2006 documentary, "An Inconvenient Truth."

But a new report on [extreme weather](#) from the United Nations-led Intergovernmental Panel on [Climate Change](#), released last month, suggests that for hurricanes at least, the effects of global warming remain uncertain and likely so incremental that it might be difficult to even measure them. Some storms might grow slightly more intense, the report concludes, but there might be fewer of them - at least over the next century.

"That's kind of a wash in my book," said Chris Landsea, science and operations officer at the National Hurricane Center in Miami-Dade.

The report, the first from the IPCC to focus on extreme weather, concludes the impacts of climate change - fueled by increasing greenhouse gases generated by humans - won't necessarily be uniform but could be both dangerous and costly in some places.

It's almost certain that global warming is behind soaring, record-setting high temperatures around the world. The world is also likely to see more droughts like one searing Texas, and the unprecedented flooding that has hit Russia, Thailand and Australia also will likely be more common, the report concludes.

David Easterling, chief of global climate applications at the National Climatic Data Center in North Carolina and one of the authors, called the findings "a wake-up call."

But when it comes to hurricanes and their Pacific cousins known as typhoons, the alarm is considerably more muted. That's a significant shift from positions argued by some IPCC scientists in the past, who viewed the decade-long increase in storm numbers as compelling evidence of climate change at work. Some studies have suggested that rising sea temperatures could perhaps double the number of storms in the future.

The IPCC's official, more cautious position reflects both scientific consensus and new research into historic hurricane patterns, said Easterling. The report isn't ruling out impacts, he said, but "the bottom line is there is probably less confidence in the long-term increase in hurricanes than were reported earlier."

The report amounts to vindication for the hurricane center's Landsea,

who resigned from the IPCC in 2005, contending a fellow scientist had made "scientifically unsound" statements linking global warming to increased hurricane formation.

By one measure, the number of named storms, the last decade has seen an unprecedented explosion of tropical cyclones. Including 2011, nine of the 15 busiest storm seasons have occurred since 2000, with activity peaking with 28 hurricanes and tropical storms in 2005.

But Easterling and Landsea said the number of named storms has been skewed upward by advances in radar and other technology capable of detecting storms that were virtually invisible even a few decades ago. Landsea estimates some 240 storms may have been uncounted since 1851, when the official record book begins, including "shorties" that last only a day or two and often spin harmlessly in the open Atlantic.

Toss out those shorties, Landsea said, and the trend line turns nearly flat. Other measures, including landfalls and intense storms, also haven't changed significantly over the last century, he said.

Instead, the numbers have swung from decade to decade, with hurricane development likely driven by other global weather patterns - among them La Nina, El Nino and the Atlantic Multidecadal Oscillation, a pattern of ocean temperature shifts that can last 20 to 40 years. Warm phases like the current one, in its 17th year, tend to produce more storms.

The IPCC does find it "likely" that climate change could increase both rainfall and average intensity but Landsea said computer models have estimated that wind speeds would rise only 1 to 3 percent. On a major Category 3 storm, that could ramp up winds an extra 1 to 5 mph.

"That's so small we can't even measure it," Landsea said.

There's little doubt rising sea temperature will provide hurricanes with more starting fuel but computer models also suggest formation may be blunted by more moisture in the overall atmosphere and increased windshear, which can shred developing storms. By Landsea's estimate, that could result in up to 25 percent fewer storms by century's end.

None of the findings, unfortunately, suggest hurricanes will become any less of a threat. Public safety concerns and economic losses are more likely to continue to soar, the IPCC finds, with rising sea levels and populations increasing along vulnerable coastlines - though those risks could be reduced by tougher building codes and restrictions on coastal building.

Some global-warming skeptics have pointed to Landsea's resignation from the IPCC, delivered in an open letter to [climate scientists](#), as evidence that the threat of climate change has been exaggerated.

The National Hurricane Center doesn't have an official position on climate change. Landsea does have a personal opinion: There is, he said, "quite a bit of evidence" that manmade [global warming](#) is real and poses an array of uncertain risks, including to hurricanes.

"We are doing an experiment with the atmosphere. We're adding all these [greenhouse gases](#) and we're not sure what is going to happen," he said. "That makes me a little nervous."

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