

Link between cyclones, climate change unclear

31 October 2012, by Claire Snegaroff And Richard Ingham



The Tampa Bay Times Forum is seen in August 2012 as the city prepared for the Republican National Convention as Tropical Storm Isaac caused disruptions. Many climate scientists would agree climate change is behind droughts and floods, but when it comes to tropical storms, experts don't have an answer.

Was Hurricane Sandy caused by climate change? This was the contention Tuesday of Andrew Cuomo, governor of New York state, which bore the brunt of the superstorm.

"Anyone who thinks there isn't a change in [weather patterns](#) is denying reality," he said.

Many climate scientists would agree with Cuomo when it comes to identifying the cause of the record-breaking droughts and floods of recent years.

But when it comes to [tropical storms](#), the experts also say they cannot give a black-or-white answer for one of the most complex issues in meteorology.

Tropical storms are fuelled by warm seas, so intuition says that as ocean temperatures rise, hurricanes—known as typhoons in Asia—should become more frequent and more brutal.

But a clear rise in Earth's surface temperature

since the 1970s has so far failed to engender a similar increase in tropical cyclone numbers, which have remained stable at about 90 per year.

In the Atlantic alone, however, the US [National Oceanic and Atmospheric Administration](#) (NOAA) says major storms have become more frequent and intense since 1995.

The agency also warns that science right now cannot tease out how much of the change should be attributed to natural climate variability, and how much to man-made warming.

As for the future, experts give conflicting or sketchy predictions of what could happen this century, when surface temperatures are predicted to warm two or three degrees Celsius (3.5 to five degrees Fahrenheit).

"There is some evidence to suggest that with climate change we might see stronger wind speeds but that the overall number of [tropical cyclones](#) (will show) no change or maybe even go down a little bit," said Tom Mitchell, head of climate change at Britain's Overseas Development Institute.

Serge Planton, head of climate research at French weather forecasting service Meteo France, explained why the picture is so fuzzy.

"It's a very complex phenomenon," he said.

"A cyclone depends not only on the sea surface temperature, but also on the structure of the winds at every layer of the atmosphere. This means it does not respond in a simple, linear fashion to climate change."

When it comes to storm surge, there seems to be more scientific consensus that climate change's impact is clear.

Sandy's swells were entirely consistent with

scenarios sketched by the UN's Intergovernmental Panel on Climate Change (IPCC) in a report on extreme weather events, published in March, contended Mitchell.

"What the IPCC said there is with sea level rising a little bit already and with the potential for stronger storms, we are likelier to see surges increasing."

Mitchell was a coordinating lead author in the report.

"At some level, we can point to the [climate change](#) signal in that," he said.

"The examples that we are seeing in New York today of very considerable storm surges are directly in line with the predictions of the IPCC."

The IPCC report had said it was also likely that tropical cyclones will increase rainfall this century, and placed a heavy emphasis on preparedness to reduce the risk to lives and property.

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