

Science Video

Global Warming Equals Stronger Hurricanes Meteorologists Find That Increased Ocean Temperatures Cause Increasingly Intense Hurricanes

February 1, 2008 — Climate change experts studying hurricanes documented a 35-year warming trend in ocean surface temperature and linked it to larger hurricanes. The increase has been 1 degree Fahrenheit, resulting in four percent more atmospheric water vapor and six to eight percent more rainfall. Though global warming does not guarantee that each year will see record-strength hurricanes, the long-term ocean warming should raise the baseline of hurricane activity.

According to new research, hurricanes in the North Atlantic are stronger and larger than ever before. Scientists now say they know what's to blame. Winds topping over 75 miles per hour ... rain slamming down ... waves crashing into the coast!

Some climate scientists believe hurricanes in the North Atlantic loom more dangerous than ever. But now they say ... they think know why.

"Since about 1970, there has been a warming of the global oceans including the areas where the hurricanes form due to increases in carbon dioxide and greenhouse gases in the atmosphere," Kevin Trenberth, NCAR Scientist in Boulder, Colo., told Ivanhoe.

Trenberth builds his case asking the tough questions. "Do they get more intense? Do they get bigger? Do they last longer? Are there more of them?" Trenberth asks.

Over the past 35 years, the Atlantic's sea surface temperature has increased one degree Fahrenheit. The result ... a four-percent increase of atmospheric water vapor and a six to eight-percent increase in rainfall. Conditions that contribute to larger, more forceful, hurricanes. The cause -- Trenberth says predominantly global warming. "What we think is likely to happen, they will get more intense, they will likely get a little bigger, but maybe there may not be quite as many," Trenberth said. Other scientists aren't so convinced and believe the warming is a natural occurrence, but either way -- a forecast for the future that impacts us all.

How does a hurricane form? A hurricane is a type of tropical cyclone, a low-pressure system that usually forms in the tropics and has winds that circulate counterclockwise near the earth's surface.

Storms are considered hurricanes when their wind speeds surpass 74 MPH. Every hurricane arises from the combination of warm water and moist warm air. Tropical thunderstorms drift out over warm ocean waters and encounter winds coming in from near the equator.

Warm, moist air from the ocean surface rises rapidly, encounters cooler air, and condenses into water vapor to form storm clouds, releasing heat in the

process. This heat causes the condensation process to continue, so that more and more warm moist air is drawn into the developing storm, creating a wind pattern that spirals around the relatively calm center, or eye, of the storm, much like water swirling down a drain. The winds keep circling and accelerating to form a classic cyclone pattern.

The *American Meteorological Society* and the *American Geophysical Union* contributed to the information contained in the video portion of this report.