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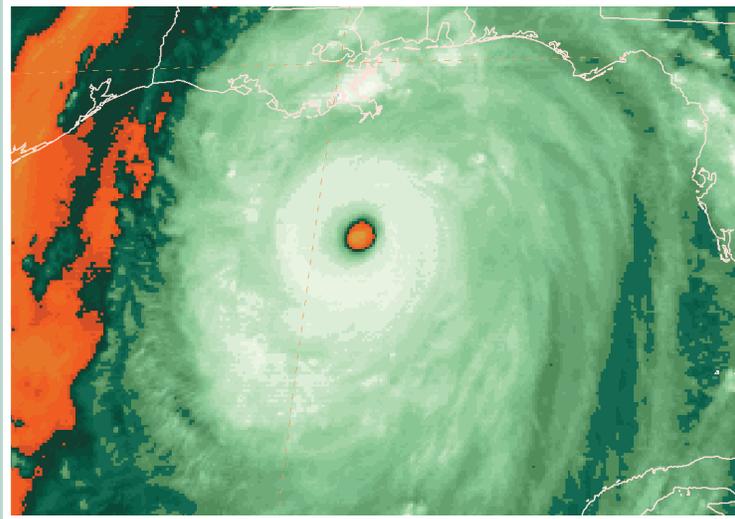
Global Warming & Hurricanes: Cause & Effect?

By Darin Langerud

Hurricanes, those whirling tropical dynamos, have been documented through history dating as far back as 1494, when, during his second voyage, Christopher Columbus sheltered his fleet from a tropical cyclone. Our attempts to forecast and warn of impending hurricanes are barely 100 years old, while scientific research on hurricanes began in earnest during the mid 1950s. Our understanding of tropical cyclones, especially demonstrated in the area of forecasting skill, has improved dramatically during the last 20 years, yet the hurricane still keeps some of its mysteries hidden from our probing satellites, radars, aircraft, and computer models.

The last two years of the Atlantic hurricane season have led many to wonder why so many intense storms have made landfall on U.S. shores, sparking debate and musings that global climate change may be (at least partly) to blame. Global warming has been a hot topic lately, and hurricane frequency has increased substantially in the Atlantic Ocean basin over the last decade, which begs the question: does the former have anything to do with the latter?

Scientists familiar with hurricane processes recognize the countless number of factors that affect the development, intensity, and track of these tropical cyclones. As they are a relatively rare event, when compared to other atmospheric phenomena



Satellite image of Hurricane Katrina, August 2005.

such as thunderstorms, the year-to-year variability of their occurrence, intensity, and location can be large. This “natural variability” makes it difficult to detect relatively small changes in a widely varying phenomenon.

We do have some ideas, however. When questioned about the possible effect of climate change on hurricanes, researchers point out a well-documented, naturally occurring oscillation of sea surface temperatures in the North Atlantic Ocean. These temperatures fluctuate between cool (fewer hurricanes) and warm (more hurricanes) phases on multi-decadal cycles on the order of 25-40 years or so. Based on recent data, it appears that the Atlantic shifted to a warm phase around 1995, which most believe is the primary reason behind the recently active hurricane seasons. Prior to 1995, the decades of the 1970s and 1980’s were relatively quiet (cool phase), whereas, the period during the mid-century was, as now, more active. The reasons for the

sea-surface temperature oscillation are not well known, but the fact that these oscillations predate any indication of global warming should give pause to anyone making the case that global warming is primarily responsible for the recent increase in hurricane activity.

A few scientists running global climate models have reported indications that global warming may have an effect, not on the number of storms, but by slightly increasing their intensity. Indications are that assumed global warming in the later 21st century may increase hurricane wind speed intensity by up to 5 percent, while others suggest the potential impact could only be half that; either way, not a very significant impact, and well within their natural variability.

As with most things science, better understanding of the impacts of climate variability will come with more research. But, the answer to our question today is that global warming doesn’t appear to be playing a significant role in the recent, record-breaking hurricane seasons.

The National Hurricane Center was a source for some of the material in this article.

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