2004-2005 hurricane seasons 'odd but explainable'

March 24 2006

Were the 2004 and 2005 hurricane seasons all that odd? Can they be explained? Robert Weisberg, a University of South Florida College of Marine Science hurricane expert, and his colleague, Jyotika Virmani, concluded that when a record number of hurricanes lashed the Gulf coasts in 2004-2005 we were reaping what elevated surface sea temperatures (SSTs) sewed. It's happened before, said co- Weisberg and Virmani, who co-authored a paper recently published in *Geophysical Research Letters* (Vol.33 No.5) examining the 2005 hurricane season.

"The 2004 and early 2005 hurricane seasons were connected," said Weisberg, a physical oceanographer who also serves on the Committee on New Orleans Regional Hurricane Protection Projects established by the National Academy of Engineering and the National Research Council.

“The unusually warm SSTs that developed in the Atlantic Ocean in the fall of 2004 did not decrease as much as usual in winter, so SSTs were higher than normal in the spring of 2005.”
According to Virmani and Weisberg, a hurricane season tends to lower SSTs, but the unusual condition in 2004 favored earlier developing and more intense hurricanes for 2005.

“Unusually warm SSTs have occurred before, and rather recently, giving us very active hurricane seasons in 1958, 1969, 1980, 1995 and 1998,” explained Virmani.

What accounted for the cataclysmic 2005 hurricane season?

According to Weisberg and Virmani, the Atlantic Multidecadal Oscillation (AMO), a large-scale temperature cycle in the north Atlantic, and an increasing temperature trend by global warming, may have been co-factors. However, these factors alone were not the sole contributors.

“Hurricane frequency is generally greater when the AMO is in its positive stage,” said Weisberg. “Over the last 120 years, the AMO has fluctuated, but has been in a positive phase since the mid-1990s. When a positive phase AMO combines with abnormally high SSTs, a record season results.”
How did the 2004 and 2005 hurricane seasons compare with past seasons?

“The 2004 and 2005 hurricane seasons were not unique over the last 50 years,” explained Weisberg. “Nine of the last 11 hurricane seasons show above average activity, but it is interesting to note that less than two percent of intense hurricanes occur in June and July. Last year we had two major hurricanes before August.”

The most unusual aspect of the 2004-2005 seasons, concluded Weisberg

and Virami, were the unusually high SSTs.

“Hurricanes and the subsequent winter months usually adjust SSTs back toward normal. That just didn’t happen after the 2004 season,” Weisberg said.

Source: University of South Florida