

**NOAA
Questions and Answers**

2008 Winter Tornadoes

Question: What is the explanation for the active 2008 US Tornado Season To Date?

Answer:

· **The moderate to strong La Nina event we have experienced since Fall 2007 is in line with the historical precedence of increased risk and compatibility of La Niña conditions with increased tornadic activity (Cook and Schaefer 2008).** During La Niña conditions, the states with substantially enhanced activity all lie within the southwest to northeast band from Louisiana to Michigan. The states on either side of this zone generally have markedly reduced activity.

· **There is no evidence for a detected change in tornado activity to date due to greenhouse gas emission increases.** CCSP SAP 3.3, Chapter 2 states, “There is no trend in the frequency of tornadoes and other severe convective storms when the data are adjusted for changes in observing practices.”

· **There is no clear link between future climate change and increased tornadic activity (Trapp et al. 2007). Recent research results based on 21st Century climate simulations suggests that there may be an increase in the frequency of severe thunderstorms that sometimes spawn tornadoes. This effect is expected to be greatest during summer. However, the research is preliminary.**

Background:

· Based on the recent published studies, Joe Schaefer (Director, NOAA/NWS Storm Prediction Center) stated, “The two tornado outbreaks so far this year (January 7 and Super Tuesday) were text book examples of organized La Niña tornado activity.”

· La Niña is a naturally occurring cooling of the sea surface temperatures of the tropical central and east Pacific Ocean that impacts global weather patterns. La Niña conditions recur every few years and can persist for as long as two years. NOAA has a realtime monitoring system in place in the tropical Pacific for improved detection and prediction of La Niña, and its counterpart El Niño.. .

· The Super Tuesday event was the 10th largest on record with 121 reported

tornadoes and only the second example of organized tornado activity in the winter. The last example, on January 21, 1999, of this was also during a La Niña event

· The Storm Prediction Center was able to predict a greatly elevated risk of tornadic activity 48 hours in advance of the 5 February outbreak, saving countless lives.

○ Nevertheless, 59 people lost their lives and we are increasing our efforts to work with social scientists and first responders to better communicate to the public.

○ The ability to predict tornadoes that far in advance is an incredible achievement attributable to the increased research and technological capabilities of the Storm Prediction Center in Norman, OK.

- Sources: *Changes in severe thunderstorm environment frequency during the 21st century caused by anthropogenically enhanced global radiative forcing*, Trapp et. al 2007 study from the Proceedings from the National Academies of Science
- Cook and Schaffer (2008, in press)
- CCSP SAP 3.3 Report (2008, in press)