

Tropics Appears to be Getting Bigger, Says NOAA Study

The Associated Press

Washington – Earth’s tropical belt seems to have expanded a couple hundred miles over the past quarter century, which could mean more arid weather for some already dry subtropical regions, new climate research shows.

Geographically, the tropical region is a wide swath around Earth’s middle stretching from the Tropic of Cancer, just south of Miami, to the Tropic of Capricorn, which cuts Australia almost in half. It’s about one-quarter of the globe and generally thought of as hot, steamy and damp, but it also has areas of brutal desert.

To meteorologists, however, the tropics region is defined by long-term climate and what’s happening in the atmosphere. Recent studies show changes that indicate an expansion of the tropical atmosphere.

The newest study, published Sunday in the new scientific journal *Nature Geoscience*, shows that by using the weather definition, the tropics are expanding toward Earth’s poles more than predicted. And that means more dry weather is moving to the edges of the tropics in places like the U.S. Southwest.

Independent teams using four different meteorological measurements found that the tropical atmospheric belt has grown by anywhere between 2 and 4.8 degrees latitude since 1979. That translates to a total north and south expansion of 140 to 330 miles.

One key determination of the tropical belt is called the Hadley circulation, which is essentially prevailing rivers of wind that move vertically as well as horizontally, carrying lots of moisture to rainy areas while drying out arid regions on the edges of the tropics. That wind is circulating over a larger area than a couple decades ago.

But that’s not the only type of change meteorologists have found that shows an expansion of the tropics. They’ve seen more tropical conditions by measuring the amount of ozone in the atmosphere, measuring the depth of the lower atmosphere, and the

level of dryness in the atmosphere at the edges of the tropics.

Climate scientists have long predicted a growing tropical belt toward the end of the 21st century because of man-made global warming. But what has happened in the past quarter century is larger and more puzzling than initially predicted, said Dian Seidel, a research meteorologist with the National Oceanic and Atmospheric Administration lab in Silver Spring, Md. She is the author of the newest study.

“They are big changes,” she said. “It’s a little puzzling.”

She said this expansion may only be temporary, but there’s no way of knowing yet.

Seidel said she has not determined the cause of this tropical belt widening. While a leading suspect is global warming, other suspects include depletion in the ozone layer and changes in El Nino, the periodic weather phenomenon in the Pacific Ocean.

Other climate scientists are split on the meaning of the research because it shows such a dramatic change – beyond climate model predictions. Some scientists, such as Richard Seager at Columbia University’s Lamont-Doherty Earth Observatory, say changes in El Nino since the 1970s probably are a big factor and could make it hard to conclude there’s a dramatic expansion of the tropical belt.

But climate scientists Andrew Weaver of the University of Victoria and Richard Somerville of the Scripps Institution of Oceanography said Seidel’s work makes sense and that computer models have consistently been underestimating the ill effects of global warming.