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Third warmest May in satellite record might portend record-setting El Niño

Global Temperature Report: May 2014

Global climate trend since Nov. 16, 1978: +0.14 C per decade

May temperatures (preliminary)

Global composite temp.: +0.33 C (about 0.59 degrees Fahrenheit) above 30-year average for May.

Northern Hemisphere: +0.33 C (about 0.59 degrees Fahrenheit) above 30-year average for May.

Southern Hemisphere: +0.33 C (about 0.59 degrees Fahrenheit) above 30-year average for May.

Tropics: +0.17 C (about 0.31 degrees Fahrenheit) above 30-

year average for May.

April temperatures (revised):

Global Composite: +0.19 C above 30-year average

Northern Hemisphere: +0.36 C above 30-year average

Southern Hemisphere: +0.02 C at 30-year average

Tropics: +0.09 C at 30-year average

(All temperature anomalies are based on a 30-year average (1981-2010) for the month reported.)

Notes on data released June 11, 2014:

May 2014 was the third warmest May in the 35-year satellite-measured global temperature record, and the warmest May that wasn't during an El Niño Pacific Ocean warming event, according to Dr. John Christy, a professor of atmospheric science and director of the Earth System Science Center at The University of Alabama in Huntsville. The global average temperature for May was 0.33 C (about 0.59 degrees Fahrenheit) warmer than seasonal norms for the month. The warmest May was in 1998, during the "El Niño of the century." Temperatures in May 1998 were 0.56 C (about 1.0 degrees F) warmer than normal. May 2010 — also an El Niño month — was second warmest at 0.45 C (0.81 degrees F).

While May 2014 was not officially an El Niño month, indications are that an El Niño is forming in the eastern central Pacific off the equatorial coast of South America. Even if that El Niño is nothing spectacular, it might become a record setter simply because it is getting a warmer start,

Christy said. "The long-term baseline temperature is about three tenths of a degree (C) warmer than it was when the big El Niño of 1997-1998 began, and that event set the one-month record with an average global temperature that was 0.66 C (almost 1.2 degrees F) warmer than normal in April 1998."

January through August of 1998 are all in the 14 warmest months in the satellite record, and that El Niño started when global temperatures were somewhat chilled; the global average temperature in May 1997 was 0.14 C (about 0.25 degrees F) cooler than the long-term seasonal norm for May.

"With the baseline so much warmer, this upcoming El Niño won't have very far to go to break that 0.66 C record," Christy said. "That isn't to say it will, but even an average-sized warming event will have a chance to get close to that level."

Compared to seasonal norms, the coldest place in Earth's atmosphere in May was over the northern Pacific Ocean, where temperatures were as much as 2.08 C (about 3.74 degrees Fahrenheit) cooler than seasonal norms. Compared to seasonal norms, the warmest departure from average in May was along the western border of Kazakhstan. Temperatures there were as much as 4.18 C (about 7.52 degrees Fahrenheit) warmer than seasonal norms.

Archived color maps of local temperature anomalies are available on-line at:

<http://nsstc.uah.edu/climate/>

As part of an ongoing joint project between UAHuntsville, NOAA and NASA, Christy and Dr. Roy Spencer, an ESSC principal scientist, use data gathered by advanced microwave sounding units on NOAA and NASA satellites to get accurate temperature readings for almost all regions of

the Earth. This includes remote desert, ocean and rain forest areas where reliable climate data are not otherwise available.

The satellite-based instruments measure the temperature of the atmosphere from the surface up to an altitude of about eight kilometers above sea level. Once the monthly temperature data is collected and processed, it is placed in a "public" computer file for immediate access by atmospheric scientists in the U.S. and abroad.

Neither Christy nor Spencer receives any research support or funding from oil, coal or industrial companies or organizations, or from any private or special interest groups. All of their climate research funding comes from federal and state grants or contracts.