Jan. 3, 2013

Vol. 22, No. 9

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Global Temperature Report: December 2012

Globally, 2012 was ninth warmest of the past 34 years;

In the U.S., 2012 sets a new record high temperature

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

December temperatures (preliminary)

Global composite temp.: +0.20 C (about 0.36 degrees Fahrenheit) above 30-year average for December.

Northern Hemisphere: +0.14 C (about 0.25 degrees Fahrenheit) above 30-year average for December.

Southern Hemisphere: +0.26 C (about 0.47 degrees Fahrenheit) above 30-year average for December.

Tropics: +0.13 C (about 0.23 degrees Fahrenheit) above 30-year average for December.

November temperatures (revised):

Global Composite: +0.28 C above 30-year average

Northern Hemisphere: +0.30 C above 30-year average

Southern Hemisphere: +0.27 C above 30-year average

Tropics: +0.17 C above 30-year average

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

Notes on data released Jan. 3, 2013:

Globally, 2012 was the ninth warmest year among the past 34, with an annual global average temperature that was 0.161 C (about 0.29 degrees Fahrenheit) warmer than the 30-year baseline average, 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. 2012 was about three one-hundredths of a degree C warmer than 2011, but was 0.23 C cooler than 2010.

Eleven of the 12 warmest years in the satellite temperature record have been been since 2001. From 2001 to the present only 2008 was cooler than the long-term norm for the globe. Despite that string of warmer-than-normal years,

there has been no measurable warming trend since about 1998. The long-term warming trend reported in the satellite data is calculated using data beginning on Nov. 16, 1978.

1979 through 2012
Warmest to coolest

1. 1998 0.419
2. 2010 0.394
3. 2005 0.260
4. 2002 0.218
5. 2009 0.218
6. 2007 0.202
7. 2003 0.187
8. 2006 0.186
9. 2012 0.161
10. 2011 0.130
11. 2004 0.108
12. 2001 0.107
13. 1991 0.020
14. 1987 0.013
15. 1995 0.013
16. 1988 0.012
17. 1980 -0.008
18. 2008 -0.009
19. 1990 -0.022
20. 1981 -0.045
21. 1997 -0.049
22. 1999 -0.056
23. 1983 -0.061
24. 2000 -0.061
25. 1996 -0.076
26. 1994 -0.108
27. 1979 -0.170
28. 1989 -0.207
29. 1986 -0.244
30. 1993 -0.245

31. 1982 -0.250
32. 1992 -0.289
33. 1985 -0.309
34. 1984 -0.353

While 2012 was only the ninth warmest year globally, it was the warmest year on record for both the contiguous 48 U.S. states and for the continental U.S., including Alaska. For the U.S., 2012 started with one of the three warmest Januaries in the 34-year record, saw a record-setting March heat wave, and stayed warm enough for the rest of the year to set a record.

Compared to seasonal norms, March 2012 was the warmest month on record in the 48 contiguous U.S. states. Temperatures over the U.S. averaged 2.82 C (almost 5.1° Fahrenheit) warmer than normal in March; the warmest spot on the globe that month was in northern Iowa. The annual average temperature over the conterminous 48 states in 2012 was 0.555 C (about 0.99 degrees F) warmer than seasonal norms.

Compared to seasonal norms, the coolest area on the globe throughout 2012 was central Mongolia, where temperatures averaged about 1.39 C (about 2.5 degrees Fahrenheit) cooler than seasonal norms. The warmest area was north of central Russia in the Kara Sea, where temperatures averaged 2.53 C (about 4.55 degrees Fahrenheit) warmer than seasonal norms for 2012.

Compared to seasonal norms, over the past month the coldest area on the globe was eastern Mongolia, where temperatures were as much as 4.55 C (about 8.19 degrees Fahrenheit) cooler than seasonal norms. The “warmest” area was off the coast of the Antarctic near South America, where temperatures averaged 3.79 C (about 6.82 degrees Fahrenheit) warmer than seasonal norms for December.

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

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

The processed temperature data is available on-line at:

vortex.nsstc.uah.edu/data/msu/t2lt/uahncdc.lt

As part of an ongoing joint project between UAHuntsville, NOAA and NASA, John Christy, a professor of atmospheric science and director of the Earth System Science Center (ESSC) at The University of Alabama in Huntsville, 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.

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