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Global Temperature Report: November 2010

**Third warmest November  
leaves 2010 behind '98**

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

November temperatures (preliminary)

Global composite temp.: +0.38 C (about 0.69 degrees Fahrenheit) above 20-year average for November.

Northern Hemisphere: +0.51 C (about 0.92 degrees Fahrenheit) above 20-year average for November.

Southern Hemisphere: +0.25 C (about 0.45 degrees Fahrenheit) above 20-year average for November.

Tropics: -0.07 C (about 0.23 degrees Fahrenheit) below 20-year average for November.

October temperatures (revised):

Global Composite: +0.43 C above 20-year average

Northern Hemisphere: +0.37 C above 20-year average

Southern Hemisphere: +0.48 C above 20-year average

Tropics: +16 C above 20-year average

(All temperature anomalies are based on a 20-year average (1979-1998) for the month reported.)

Notes on data released Dec. 6, 2010:

November 2010 came in as the third warmest November in the 32-year satellite temperature record, but still warmer than November 1998, according to Dr. John Christy, professor of atmospheric science and director of the Earth System Science Center at The University of Alabama in Huntsville. From January through November, that leaves 2010 only 0.012 C (0.022° F) cooler than 1998, which was the warmest year in the satellite record.

“The globe was cooling in late November, with daily anomalies around +0.1 C,” said Christy. “It looks like 1998 might stay the warmest year in the record, but will most certainly be within 0.1 C -- an amount that isn’t significant in terms of measurement precision. It would be a statistical tie.”

2010 will be the 13th consecutive year with global average temperatures that were warmer than their seasonal baseline norms.

#### Warmest Novembers\*

##### Globe

1. 2009 0.50
2. 2005 0.42
3. 2010\* 0.38
4. 2002 0.36
5. 2003 0.33
6. 1990 0.32
7. 2006 0.30
8. 2001 0.28
9. 2008 0.28
10. 2004 0.26

##### NH

1. 2009 0.53
2. 2005 0.51
3. 2010 0.46
4. 2002 0.44
5. 2003 0.44
6. 1990 0.38
7. 2006 0.38
8. 2001 0.38
9. 2008 0.35
10. 2004 0.34

\*Compared to seasonal norms.

November temperatures in the tropics were more than 0.8 C (about 1.4 degrees Fahrenheit) cooler than the +0.79 C peak in February 2010.

Technical Note:

Beginning with the December 2010 Global Temperature Report, the baseline period used to determine seasonal norms will change. It has been the 20-year (1979 to 1998) period at the beginning of the satellite record. Starting next month the report will use a new 30-year (1981 to 2010) reference average to match the climatological period normally used with climate data by the U.N.'s World Meteorological Organization.

This will not affect the long-term trend, but will "reshuffle" the anomalies to reflect the new base period.

Color maps of local temperature anomalies may soon be available on-line on the new site at:

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

The processed temperature data is available on-line at:

[vortex.nsstc.uah.edu/data/msu/t2lt/uahncdc.lt](http://vortex.nsstc.uah.edu/data/msu/t2lt/uahncdc.lt)

As part of an ongoing joint project between UAHuntsville, NOAA and NASA, Christy and Dr. Roy Spencer, a principal research scientist in the ESSC, 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.