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For Additional Information:
Dr. John Christy, (256) 961-7763
john.christy@nsstc.uah.edu
Dr. Roy Spencer, (256) 961-7960
roy.spencer@nsstc.uah.edu

Global Temperature Report: January 2016

Warmest January in satellite record leads off 2016

Global climate trend since Nov. 16, 1978: +0.12 C per decade

January temperatures (preliminary)

Global composite temp.: +0.54 C (about 0.98 degrees Fahrenheit) above 30-year average for January.

Northern Hemisphere: +0.70 C (about 1.25 degrees Fahrenheit) above 30-year average for January.

Southern Hemisphere: +0.39 C (about 0.70 degrees Fahrenheit) above 30-year average for January.

Tropics: +0.85 C (about 1.52 degrees Fahrenheit) above 30-year average for January.

December temperatures (revised):

Global Composite: +0.43 C above 30-year average

Northern Hemisphere: +0.53 C above 30-year average

Southern Hemisphere: +0.37 C above 30-year average

Tropics: +0.61 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 Feb. 4, 2016:

As widely anticipated, global temperatures in January set a record for the month, eclipsing January 1998 as the warmest January in the satellite temperature dataset, according to Dr. John Christy, director of the Earth System Science Center at The University of Alabama in Huntsville. In a sense, that could mean 2016 is in a "race" to see if it will pass 1998 as the warmest year on record. In addition to a major El Niño Pacific Ocean warming event, 2016 has 17 years of warming to raise the base temperature from which the El Niño begins.

While the global temperature in January was a record setter, in the tropics January 2016 fell significantly (more than 0.25 C) short of the 1998 record. It could mean less energy is available to be transferred from the ocean into the atmosphere. It could mean the heat transfer might peak later this year than in previous El Niño years or might already be near its peak. What we know is that under the

best of circumstances the climate system is complex and difficult to forecast. It will be interesting to see how this plays out in the coming months.

The warmest Januaries in the satellite temperature record are:

Warmest Januaries
How much warmer than seasonal norms

2016	**0.54 C**
1998	0.49 C
2010	0.48 C
2013	0.43 C
2007	0.41 C
2003	0.31 C
2005	0.27 C
2015	0.27 C
2002	0.21 C
2004	0.18 C

Warmest NH Januaries

2016	**0.70 C**
2010	0.55 C
2007	0.48 C
2003	0.41 C
1998	0.40 C
2015	0.39 C
2013	0.34 C
2002	0.31 C
2005	0.30 C
1995	0.23 C

Warmest SH Januaries

1998 0.58 C
2013 0.51 C
2010 0.41 C
2016 0.39 C
2007 0.33 C
2004 0.30 C
2005 0.24 C
2003 0.21 C
2006 0.20 C
2014 0.17 C

Warmest Januaries in the tropics

1998 1.13 C
2016 0.85 C
2010 0.60 C
2007 0.55 C
1983 0.51 C
2013 0.42 C
2003 0.42 C
2004 0.32 C
1988 0.32 C
2005 0.29 C

Compared to seasonal norms, the warmest average temperature anomaly on Earth in January was over north central Russia, near the small town of Volochanka. January temperatures there averaged 7.20 C (almost 13 degrees F) warmer than seasonal norms. Compared to seasonal norms, the coolest average temperature on Earth in January was over the northern Pacific Ocean, where the average January 2016 temperature was 2.78 C (just over 5 degrees F) cooler than normal.

The long-term climate trend ticked up over the rounding margin this month, so the global climate trend since December 1978 is now 0.12 C per decade.

In other news, the 6.0beta5 version of the satellite temperature record, which has been available online for public comment for about eight months, is now complete and should soon be submitted for peer review in the scientific literature. The newest version of the dataset provides a more consistent transition between earlier MSU Channel 2 data and the new AMSU Channel 5. The new code causes no change in the long-term global temperature trend.

The complete version 6 beta lower troposphere dataset is still available here:

http://vortex.nsstc.uah.edu/data/msu/v6.0beta/tlt/uahncdc_lt_6.0beta4.txt

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 are collected and processed, they are 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.