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Global Temperature Report: March 2016

March was 3rd warmest month in satellite record

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

March temperatures (preliminary)

Global composite temp.: +0.73 C (about 1.31 degrees Fahrenheit) above 30-year average for March.

Northern Hemisphere: +0.95 C (about 1.71 degrees Fahrenheit) above 30-year average for March.

Southern Hemisphere: +0.52 C (about 0.94 degrees Fahrenheit) above 30-year average for March.

Tropics: +1.09 C (about 1.96 degrees Fahrenheit) above 30-year average for March.

February temperatures (revised):

Global Composite: +0.83 C above 30-year average

Northern Hemisphere: +1.17 C above 30-year average

Southern Hemisphere: +0.50 C above 30-year average

Tropics: +0.99 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 April 4, 2016:

March 2016 was the warmest March in the satellite temperature record and the third warmest month overall, when compared to seasonal norms, as the El Niño Pacific Ocean warming event continues to warm the tropical atmosphere, according to Dr. John Christy, director of the Earth System Science Center at The University of Alabama in Huntsville. While the record high set in February 2016 was driven by transient heat spikes aided by fluctuating weather patterns in the high latitudes, temperatures in March were pumped by a broad band of warmer than normal air that girdled the tropics entirely around the globe.

While temperatures in the Northern Hemisphere cooled 0.22 C (almost 0.4 degrees Fahrenheit) between February and March (compared to seasonal norms), temperatures in the tropics were 0.1 C warmer during that same time.

Globally, the average temperature anomaly in March (+0.73

C) was 0.1 C cooler than February, and very slightly cooler (0.01 C) than the previous record high set in April 1998 (+0.74 C), during the so-called "El Niño of the century."

As expected, while the El Niño continues to pump heat into the atmosphere, this event hasn't been powerful enough by itself to push the atmosphere to new record highs. Without the kind of transient heat spikes caused by weather events, such as were seen in February, this El Niño may continue to fade. The February anomaly might stand out as an anomalous spike in the dataset rather than part of an ongoing trend.

The warmest months in the satellite temperature record are:

Warmest Months, Global
How much warmer than seasonal norms

Feb.	2016	0.83 C
Apr.	1998	0.74 C
Mar.	**2016**	**0.73C**
Feb.	1998	0.65 C
May	1998	0.64 C
June	1998	0.57 C
Jan.	2016	0.54 C
Aug.	1998	0.52 C
Mar.	2010	0.50 C
Jan.	1998	0.48 C
Mar.	1998	0.47 C
Feb.	2010	0.47 C

Warmest Marches, Global
How much warmer than seasonal norms

2016	**0.73**
2010	0.52

1998 0.47
2004 0.35
2007 0.26
2002 0.24
1991 0.23
2005 0.19
2015 0.17
1988 0.16

Compared to seasonal norms, the warmest average temperature anomaly on Earth in March was over south central Greenland. March temperatures there averaged 5.19 C (about 9.34 degrees F) warmer than seasonal norms. Compared to seasonal norms, the coolest average temperature on Earth in March was over the Ross Sea, north of Marie Byrd Land in Antarctica, where the average March 2016 temperature was 3.04 C (about 5.47 degrees F) cooler than normal for March.

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

http://vortex.nsstc.uah.edu/data/msu/v6.0beta/tlt/uahncdc_lt_6.0beta5.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.

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