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Global Temperature Report: January 2010

Warmest January in 32 years  
is 3rd warmest month overall

Global climate trend since Nov. 16, 1978: +0.13 C per decade

January temperatures (preliminary)

Global composite temp.: +0.72 C (about 1.3 degrees Fahrenheit) above 20-year average for January.

Northern Hemisphere: +0.84 C (about 1.51 degrees Fahrenheit) above 20-year average for January.

Southern Hemisphere: +0.61 C (about 1.1 degrees Fahrenheit) above 20-year average for January.

December temperatures (revised):

Global Composite: +0.29 C above 20-year average

Northern Hemisphere: +0.33 C above 20-year average

Southern Hemisphere: +0.25 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 Feb. 10, 2010:

A large El Nino Pacific Ocean warming event exposed the atmosphere to enough extra heat energy to cause the warmest January and the third warmest month overall in 32 years, and the warmest month in almost a decade (compared to seasonal norms), according to Dr. John Christy, professor of atmospheric science and director of the Earth System Science Center (ESSC) at The University of Alabama in Huntsville.

"This has the potential of breaking the records set in February and April 1998, during the 'El Nino of the Century,'" Christy said. "I looked at sea surface temperatures in the Central Pacific and it wasn't as warm as 1998, but what is there is spread out further than it was in 1998. That exposes the atmosphere to a lot of extra heat."

Hottest months in the satellite record  
(Compared to seasonal norms)

Apr 1998 +0.76 C  
Feb 1998 +0.76 C  
Jan 2010\* +0.72 C  
May 1998 +0.65 C  
Jan 2007 +0.59 C  
Jan 1998 +0.58 C  
Jun 1998 +0.57 C  
Mar 1998 +0.53 C  
Jul 1998 +0.52 C  
Aug 1998 +0.51 C  
Nov 2009 +0.50 C  
Jan 2005 +0.49 C

Hottest Januaries in the satellite record  
(Compared to seasonal norms)

2010\* +0.72 C  
2007 +0.59 C  
1998 +0.58 C  
2005 +0.49 C  
2003 +0.48 C  
2002 +0.40 C  
2004 +0.37 C  
2006 +0.37 C

2009 +0.30 C  
1988 +0.27 C  
1999 +0.17 C  
1987 +0.14 C

#### Hottest months in the tropics

Feb 1998 +1.31 C  
Jan 1998 +1.09 C  
Apr 1998 +1.06 C  
Mar 1998 +1.05 C  
May 1998 +0.89 C  
Jan 2010\* +0.74 C  
Dec 1997 +0.73 C  
Feb 2005 +0.68 C  
Dec 1987 +0.62 C  
Mar 1983 +0.60 C  
Jan 1983 +0.58 C  
Jan 2007 +0.58 C

#### Hottest months, southern non-tropics

Jul 2009 +0.71 C  
Jan 2010\* +0.58 C  
Nov 2009 +0.58 C  
Feb 1981 +0.55 C  
Oct 2002 +0.49 C  
Aug 1996 +0.47 C  
Oct 2005 +0.46 C  
Feb 2001 +0.45 C  
Jun 1998 +0.44 C  
Sep 2002 +0.44 C  
Sep 1980 +0.44 C  
Apr 2002 +0.44 C

#### Hottest months, northern non-tropics

Apr 1998 +1.01 C  
Feb 2009 +0.99 C  
Feb 2006 +0.97 C  
Feb 2007 +0.89 C

Feb 2004 +0.88 C  
Mar 2008 +0.88 C  
Jan 2007 +0.86 C  
Jan 2010\* +0.84 C  
Feb 1999 +0.84 C  
Mar 2004 +0.84 C  
Mar 2007 +0.83 C  
Jul 1998 +0.82 C

Color maps of local temperature anomalies -- including the anomaly map from April 1998 -- may soon be available on-line at:

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

The processed temperature data is available on-line at:

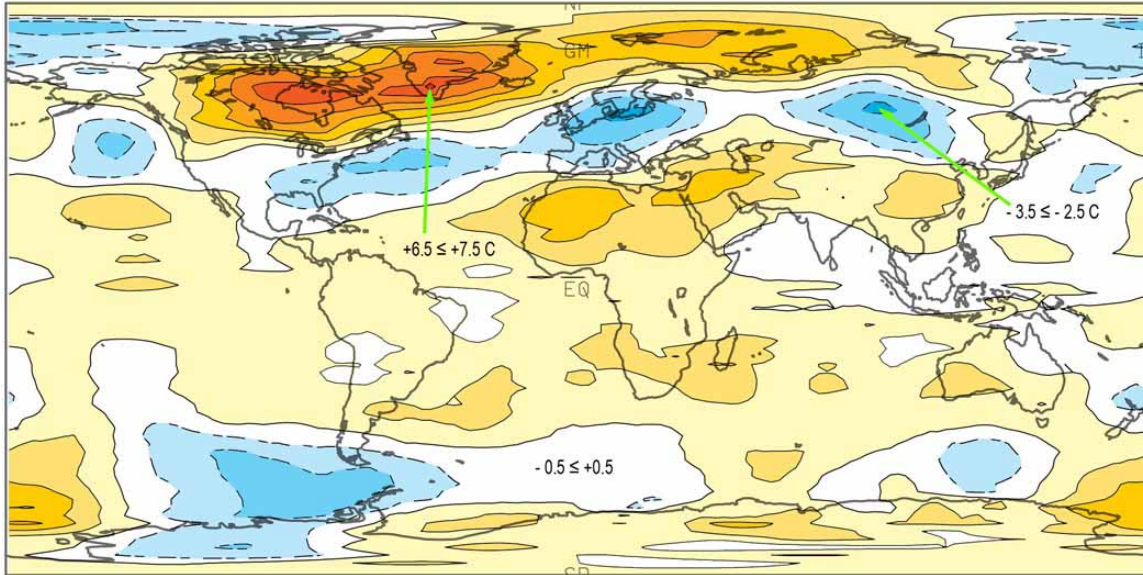
[vortex.nsstc.uah.edu/data/msu/t2lt/uahncdc.lt](http://vortex.nsstc.uah.edu/data/msu/t2lt/uahncdc.lt)

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 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.

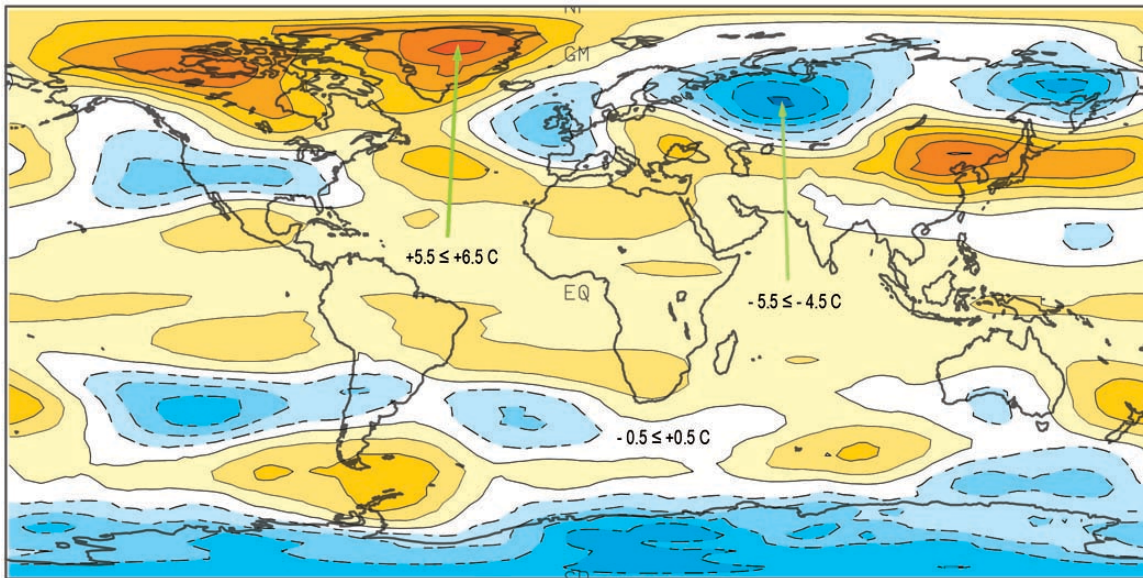
JAN 2010  
 LAYER = LT LOWER TROPOSPHERE



ZERO CONTOUR OFF  
 CONTOUR FROM -10.500 TO 10.500 CONTOUR INTERVAL OF 1.0000 PT(3,3)= 0.49000

Broken lines outlines areas that were cooler than seasonal norms; solid lines outline areas that were warmer than seasonal norms. Each contour represents one degree Celsius, starting at -0.5 and +0.5 degrees C.

APR 1998  
 LAYER = LT LOWER TROPOSPHERE



ZERO CONTOUR OFF  
 CONTOUR FROM -10.500 TO 10.500 CONTOUR INTERVAL OF 1.0000 PT(3,3)= -1.5800

Broken lines outlines areas that were cooler than seasonal norms; solid lines outline areas that were warmer than seasonal norms. Each contour represents one degree Celsius, starting at -0.5 and +0.5 degrees C.

# Global Lower Troposphere

