Dec. 4, 2017

Vol. 27, No. 8

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Global Temperature Report: November 2017

Global temperatures drop; November still warm

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

November temperatures (preliminary)

Global composite temp.: +0.36 C (about 0.65 degrees Fahrenheit) above 30-year average for November.

Northern Hemisphere: +0.33 C (about 0.59 degrees Fahrenheit) above 30-year average for November.

Southern Hemisphere: +0.38 C (about 0.68 degrees Fahrenheit) above 30-year average for November.

Tropics: +0.26 C (about 0.47 degrees Fahrenheit) above 30-year average for November.

October temperatures (revised):

Global Composite: +0.63 C above 30-year average

Northern Hemisphere: +0.67 C above 30-year average

Southern Hemisphere: +0.59 C above 30-year average

Tropics: +0.47 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 Dec. 4, 2017:

The average global temperature drop between October and November, 2017, tied for the fifth largest one-month-to-the-next drop in the 39-year satellite temperature record, according to Dr. John Christy, director of the Earth System Science Center (ESSC) at The University of Alabama in Huntsville. Compared to seasonal norms, the average temperature around the globe fell 0.27 C (almost 0.49 degrees F) between October and November. (The largest drop was from January to February 2013, when the global average temperature fell 0.32 C.)

Despite that temperature drop, however, November 2017 was still the second warmest November in the 39-year satellite temperature record for both the globe and the southern hemisphere. In both cases, the warmest November on record was in 2016.

Compared to seasonal norms, the coldest spot on the globe in November was in Hudson Bay, near Fort Severn, Ontario. Temperatures there were 2.94 C (about 5.29 degrees Fahrenheit) cooler than seasonal norms.

Compared to seasonal norms, the warmest place on Earth in November was over the Bering Sea near the island of St. George, Alaska. Temperatures there averaged 6.47 C (about 11.65 degrees Fahrenheit) warmer than seasonal norms.

Christy and Dr. Richard McNider, a professor emeritus at UAH, recently published in the Asia-Pacific Journal of Atmospheric Sciences a study that mathematically removed from the satellite temperature record the effects of volcanic eruptions and of El Nino and La Nina Pacific Ocean heating and cooling events. This was done in an attempt to identify that part of the overall warming during the 39-year period that might be attributed to human influences. The 0.155 C per decade trend reported in that study differs from the 0.13 C per decade trend reported here in the Global Temperature Report. That is because this most recent research in the APJAS was done using an earlier version of the satellite microwave sounding unit dataset. That dataset was revised and updated, and the revisions published (Spencer et al., APJAS 2017) while the research looking at the effects of natural climatic events was under peer review.

As part of an ongoing joint project between UAH, 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.

The complete version 6 lower troposphere dataset is available here:

http://www.nsstc.uah.edu/data/msu/v6.0/tlt/uahncdc_lt_6.0.txt

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

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

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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