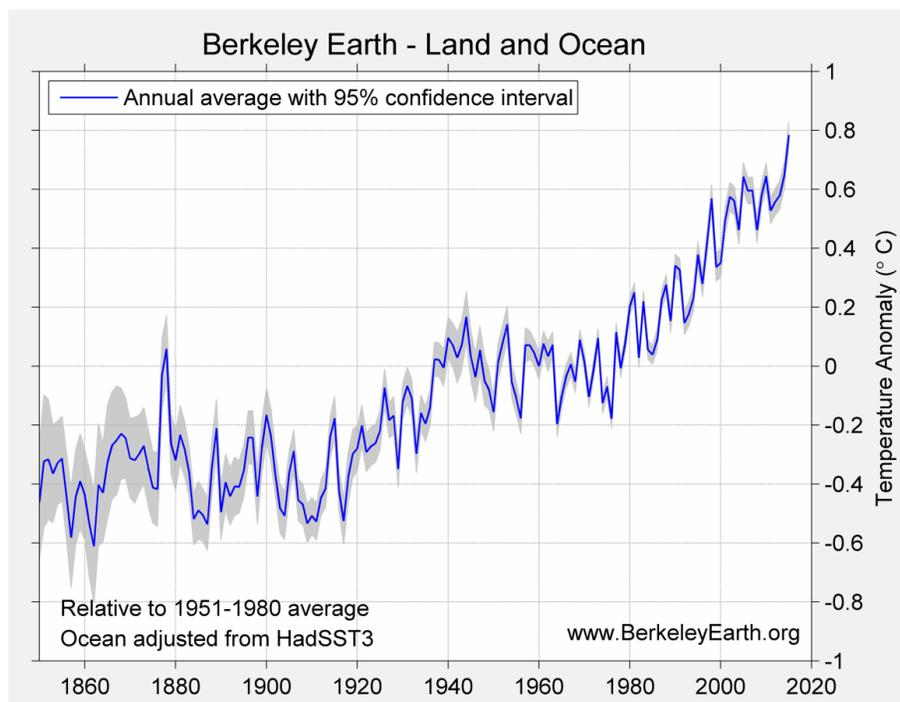




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2015 Unambiguously the Hottest Year on Record

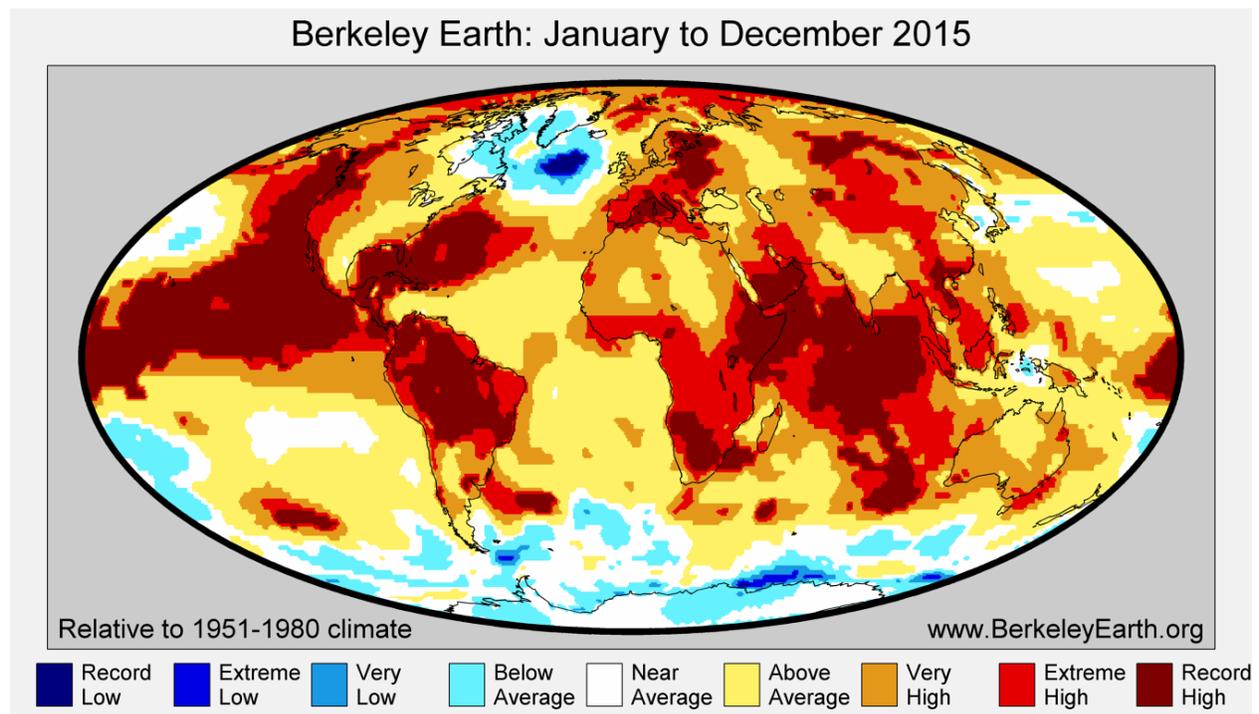
According to new Berkeley Earth analysis, 2015 was unambiguously the hottest year on record. For the first time in recorded history, the Earth's temperature is clearly more than 1.0 C (1.8 F) above the 1850-1900 average. 2015 was approximately 0.1 degree C (about 0.2 degrees F) hotter than 2014, which had tied with 2005 and 2010 as the previous hottest years. 2015 set the record with 99.996% confidence. The analysis covered the entire surface of the Earth, including temperatures from both land and oceans. The warming was not uniform, and for the contiguous United States, it was the 2nd warmest year ever (+1.33 C), surpassed only by 2012.



Elizabeth Muller, Executive Director of Berkeley Earth, notes, "Berkeley Earth has taken a cautious approach to announcing hottest years. A year ago, we announced that 2014 was not a clear record, but only in a statistical tie with 2005 and 2010. Now, however, it is clear that 2015 is the hottest year on record by a significant margin."

Including 2015 in the plot of temperature over time also seems to erase the much talked about “pause” in recent warming. Richard Muller, Scientific Director of Berkeley Earth says, “This new high temperature record confirms our previous interpretation that the pause was temporary and that global warming has not slowed”. Lead scientist Robert Rohde adds, “The decades-long rise due to greenhouse gas emission is now clearly continuing.”

In total, Berkeley Earth estimates that 16.9% of Earth's surface and 16.4% of its land surface set record high annual averages in 2015. There were record highs in much of South America and the Middle East, and parts of the US, Europe, and Asia.



The international community has set a goal of limiting warming to no more than 2 C above pre-industrial levels; the Earth is now approximately half way to that limit. Robert Rohde said “At the recent rate of warming may begin to cross that threshold in about 50 years.”

Elizabeth Muller stressed, “The most important things we can do to mitigate global warming include energy efficiency and the increased use of renewables, natural gas, and nuclear power. It is time for us to stop being picky about which is the very best solution to global warming – we need all solutions that are available to us today.”

The details behind these conclusions, including charts showing the warming and maps showing the distribution, have been posted on the Berkeley Earth website, at: <http://berkeleyearth.org/temperature-reports/>

Additional information:

Berkeley Earth has constructed an estimate of the global average temperature for 2015. Key findings are:

- The global surface temperature average (land and sea) for 2015 was the warmest since the global instrumental record began in 1850. This year exceeded the previous warmest year, 2014, by 0.14 C. As this amount greatly exceeds the margin of error by over 5 standard deviations, giving 2015 an unambiguous claim as the warmest year.
- Since 1970, the Earth has been warming at an average rate of 0.17 C per decade.
- Both land and ocean separately set record highs in 2015. For land, it was the warmest year since the records began in 1753, and exceeds the previous record in 2007 by 0.10 C. For oceans, 2015 was the warmest year on record since 1850 and exceeds the previous record in 2014 by 0.10 C. This exceptional warmth was enhanced by an exceptional El Niño event.

The warmth in 2015 is not uniform across the Earth. The US state of Maine in 2015 recorded only its 32nd warmest year (+0.40 C relative to the 1951-1980 average). In contrast, the US state of Oregon recorded its warmest year to date (+1.96 C) besting the previous record by 0.12 C. The record for the contiguous United States had its 2nd warmest year (+1.33 C), second only to 2012.

Internationally, Brazil (+1.38 C), Italy (+1.69 C), Finland (+2.71), Ethiopia, (+1.35 C), Ukraine (+2.19 C), Vietnam (+1.07 C) and several other countries set all-time records for annual average temperature, as did the average for the continents of South American (+1.18 C) and Asia (+1.63 C) as a whole. By contrast, Antarctica had its 13th coldest year since continuous monitoring began in 1954 (-0.29 C).

In total, Berkeley Earth estimates that 16.9% of Earth's surface and 16.4% of its land surface set record high annual averages in 2015; 0.16% of the Earth's surface and none of its land set record low annual averages in 2015.

Berkeley Earth's analysis over land is based on temperature observations from more than 40,000 weather stations, including 20,755 stations reporting in 2015. This is

combined with an interpolated version of the HadSST3 ocean temperature data set produced by the Hadley Centre in the UK.

The estimated margin of uncertainty on the combined global average is 0.05 C with 95% confidence. Since 2015 exceeded all previous years by more than this margin of uncertainty, we are confident that 2015 was distinctly the warmest year since records began in 1850.

The warmth in 2015 is the result of a long-term trend towards global warming combined with warm weather fluctuations such as El Niño. The Earth has warmed at an average rate of 0.08 C/decade since 1900, and 0.17 C/decade since 1970. On top of this, weather variations such as El Niño lead to fluctuations of +/- 0.1 C in typical years and +/- 0.2 C in unusual years. Relative to the early industrial period of 1850-1900, Earth's surface temperature has risen 1.14 C +/- 0.08 C as of 2015. In our estimation, this is the first year that Earth's temperature is clearly more than 1.0 C above the 1850-1900 average.

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