2014 confirmed as one of the warmest years on record globally

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Credit: Tiago Fioreze / Wikipedia

Provisional full-year global mean temperature figures show 2014 was one of the warmest years in a record dating back to 1850.

The HadCRUT4 dataset, compiled by the Met Office and UEA's Climatic Research Unit, shows last year was 0.56C (±0.1C) above the long-term (1961-1990) average.

Nominally this ranks 2014 as the joint warmest year in the record, tied with 2010, but the uncertainty ranges mean it's not possible to definitively say which of several recent years was the warmest.

Colin Morice, a climate monitoring scientist at the Met Office, said: "Uncertainties in the estimates of global temperature are larger than the differences between the warmest years. This limits what we can say about rankings of individual years.

"We can say with confidence that 2014 is one of ten warmest years in the series and that it adds to the set of near-record temperatures we have seen over the last two decades."

Prof Phil Jones, of UEA's Climatic Research Unit, said: "2014 was an exceptionally warm year which saw warm tropical pacific temperatures, despite not being officially regarded as an El Niño."

Updates to the HadCRUT4 dataset are compiled using temperature measurements from around 1,600 observation sites over land and from ships and buoys at sea. Uncertainties arise from incomplete global coverage, particularly a lack of observations from the Polar Regions and limitations of the measurements used to produce the data sets.

Several global datasets in broad agreement

Global mean temperature datasets run independently by the US National Oceanic and Atmospheric Administration (NOAA) and NASA, whose data sets run from 1880, have announced similar findings for 2014. The World Meteorological Organization (WMO) will issue a statement about 2014 later this week which combines output from NASA, NOAA and HadCRUT4.

Datasets compiled by the Japan Meteorological Agency (JMA) and

Berkeley Earth both found 2014 to be nominally the warmest in their respective records, with Berkeley Earth concluding that – once data uncertainties are considered – the year was tied with 2010 and 2005.

A global climate reanalysis by the European Centre for Medium-range Weather Forecasts (ECMWF) found that 2014 was within the top 10% of the warmest years over the reanalysis period (since 1979).

Human influence a factor

Recent research from the Met Office, announced in December, concluded that the global average temperatures seen in recent years would be highly unlikely in a world without human influence on the climate.

This is based on an attribution study, where scientists use climate models and observations to see how likely an event would be in the real world and in a world without human greenhouse gas emissions - enabling assessment of how human influence has altered the chances of an event.

Peter Stott said: "It's important to look over long timescales to see how human influence has affected global climate. Looking at three decades or more, we can observe a clear warming trend which is reflected in the near-record temperatures we have seen in recent years."

Provided by University of East Anglia

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