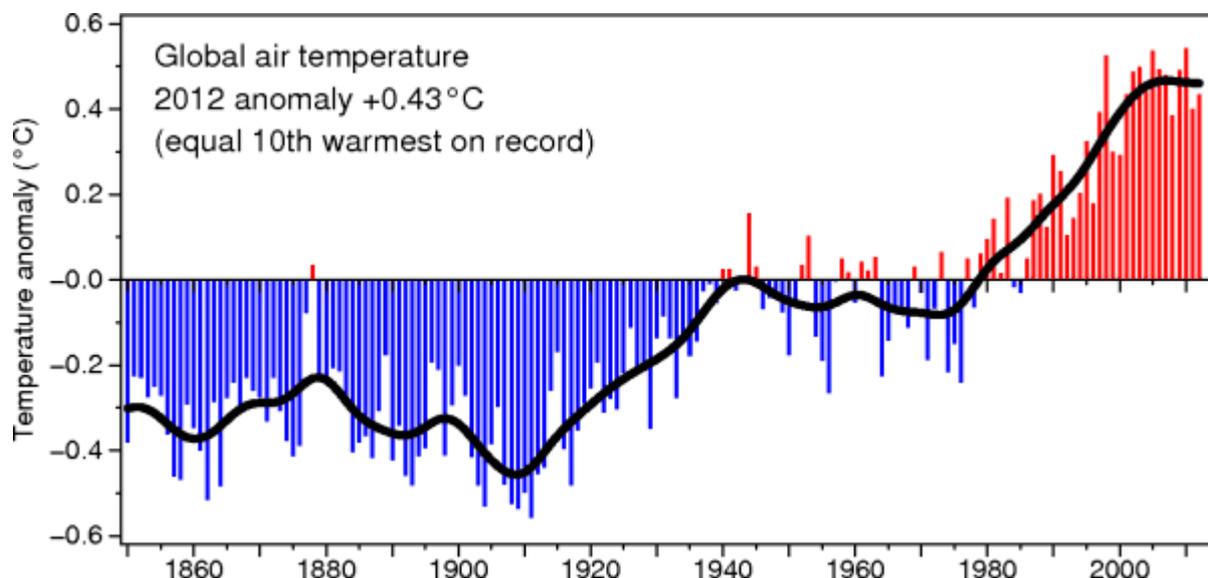


1: Global Temperature Record

Phil Jones



(this graph of HadCRUT4 is also available as [Encapsulated PostScript](#) and [PDF](#) suitable for publication and the data are available as [Comma-Separated Values](#))

The time series shows the combined global land and marine surface temperature record from 1850 to 2012. This year was the tenth warmest on record. This record uses the latest analysis, referred to as HadCRUT4 (Morice *et al.*, 2012).

The period 2001-2010 (0.477°C above 1961-90 mean) was 0.217°C warmer than the 1991-2000 decade (0.270°C above the 1961-90 average). The warmest year of the entire series was 2010, with a temperature of 0.540°C above the 1961-90 mean. The value for this year, given uncertainties discussed in Morice *et al.* (2012) is not distinguishable from the years 1998 (0.523°C) and 2005 (0.534°C). The coldest year of the 21st century (2008 with a value of 0.383°C) was warmer than all years in the 20th century with the exception of 1998 and 1997 (0.390°C). The first two years of the present decade (2011 and 2012) are cooler than the average for 2001-2010, but warmer than all years before 2000 except for 1998.

This time series is compiled jointly by the Climatic Research Unit and the UK Met. Office Hadley Centre. Increased concentrations of greenhouse gases in the atmosphere due to human activities are most likely the underlying cause of warming in the 20th century. The warmth or coldness of individual years is strongly influenced by whether there was an El Niño or a La Niña event occurring in the equatorial Pacific Ocean (see [Information Sheet 12](#)).

The Inter-governmental Panel on Climate Change in its most recent report in 2007 stated:

'Warming of the climate system is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice, and rising global average sea level.'

'Most of the observed increase in globally averaged temperatures since the mid-20th century is *very likely* due to the observed increase in anthropogenic greenhouse gas

concentrations. This is an advance since the TAR's conclusion that "most of the observed warming over the last 50 years is *likely* to have been due to the increase in greenhouse gas concentrations". Discernible human influences now extend to other aspects of climate, including ocean warming, continental-average temperatures, temperature extremes and wind patterns'

Links

- [Global temperature anomaly datasets](#)
- [CET data](#)
- [IPCC: the Intergovernmental Panel on Climate Change](#)
- [Latest IPCC report from Working Group 1](#)

The key reference for this time series is:

- Morice, C.P., Kennedy, J.J., Rayner, N.A. and Jones, P.D., 2012: Quantifying uncertainties in global and regional temperature change using an ensemble of observational estimates: the HadCRUT4 dataset. *Journal of Geophysical Research*, **117**, D08101, [doi:10.1029/2011JD017187](https://doi.org/10.1029/2011JD017187)

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