

## HadCRUT3: Global surface temperatures

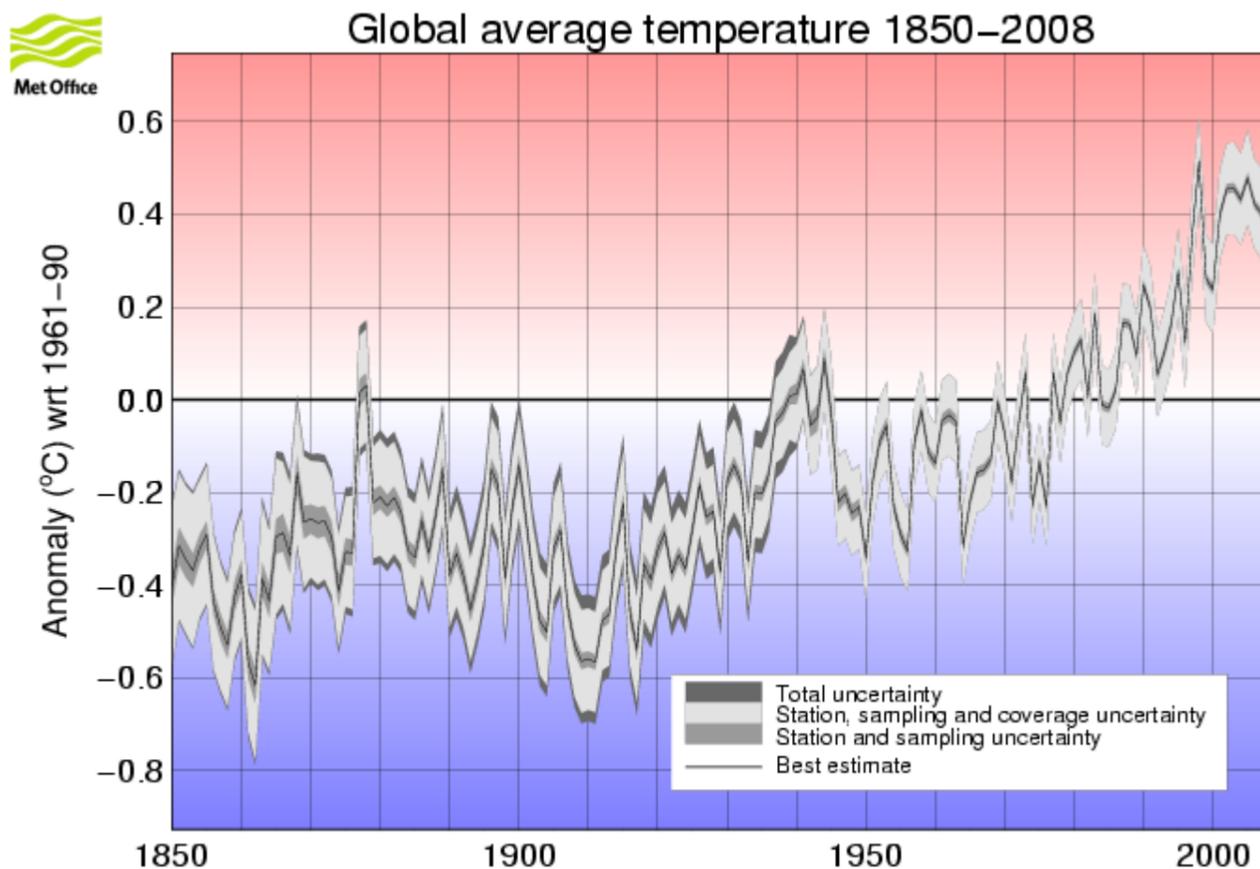
HadCRUT3 is a globally gridded product of near-surface temperatures, consisting of annual differences from 1961-90 normals. It covers the period 1850 to present and is updated monthly.

The data set is based on regular measurements of air temperature at a global network of long-term land stations and on sea-surface temperatures measured from ships and buoys. Global near-surface temperatures may also be reported as the differences from the average values at the **beginning of the 20th century**. The **global and hemispheric plots**, in a different form to that given here (which may be more suitable for certain applications), are also available.

### Annual global averages

The annual timeseries illustrates the increase since the 1850s in global mean temperatures. This increase is much larger than the known sources of error. The warming has occurred in two main phases: 1920-40 and particularly since the mid-1970s. Research at the Met Office Hadley Centre using state-of-the-art climate models has shown that this behaviour can only adequately be accounted for by a combination of natural and human factors: the latter dominate.

The **annual data** used to make this diagram are available in this **format**.



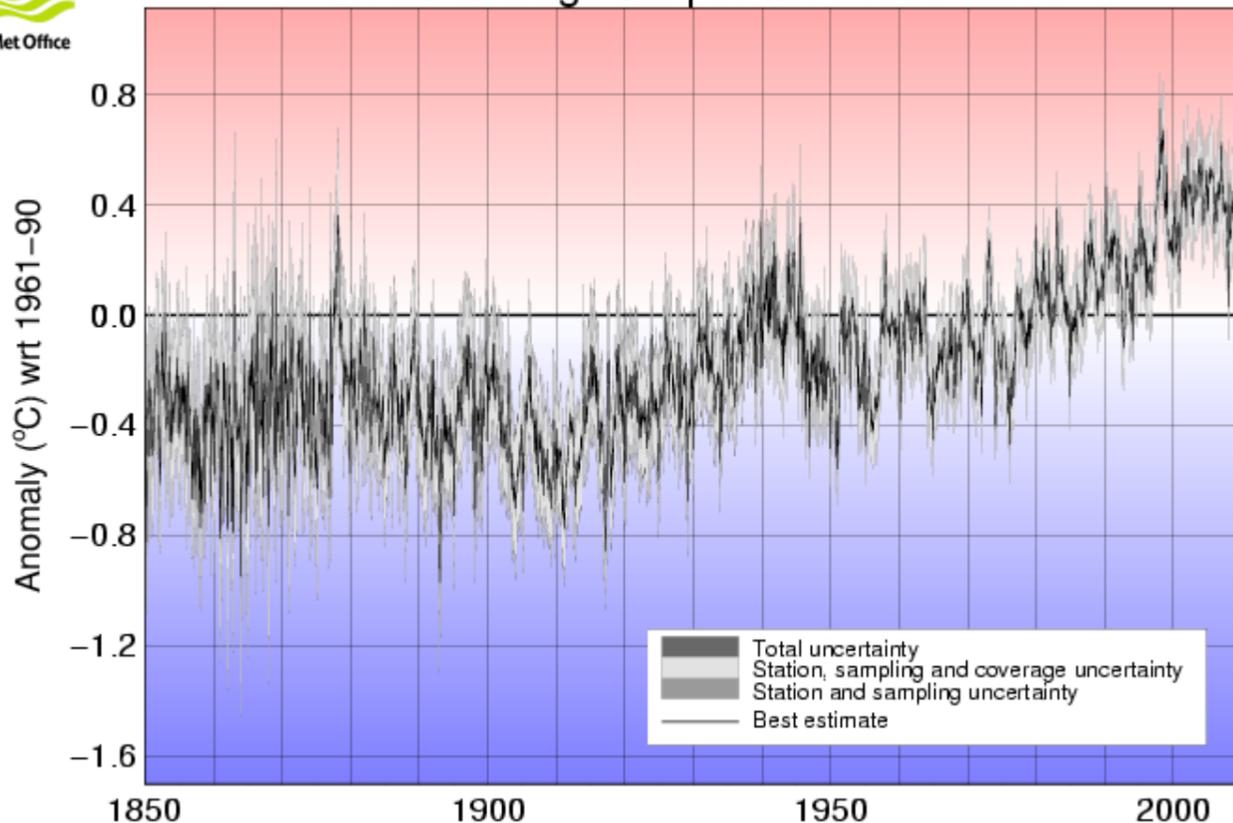
### Monthly near-surface from 1850

Month-to-month changes in global temperature are often larger than interannual changes, but estimates are also more affected by data coverage limitations.

The **monthly data** used to make this diagram are available in this **format**.



## Global average temperature 1850–2008

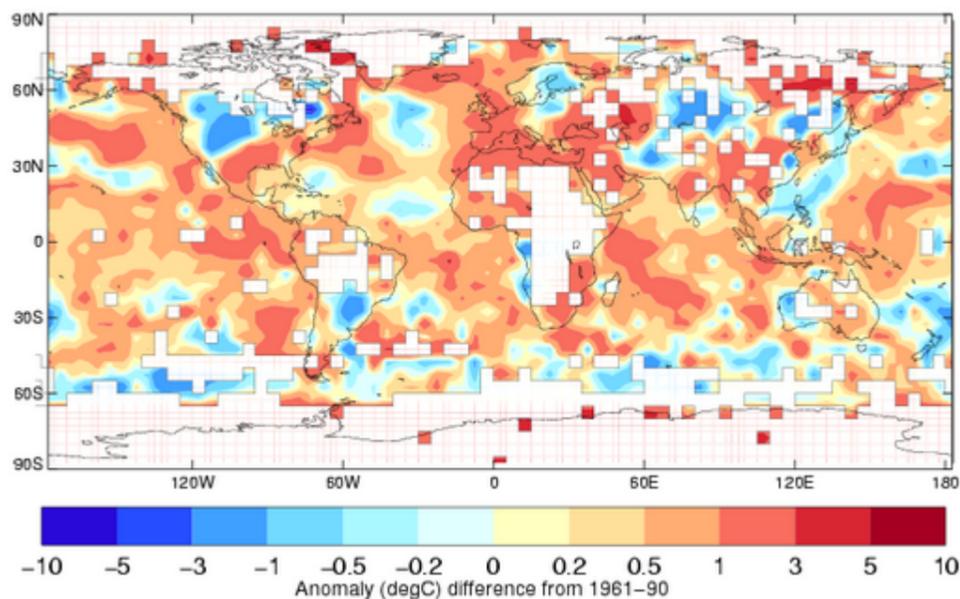


### Anomalies for the most recent month

In any typical month there will be areas of both warm and cold anomalies. Anomalies tend to be largest over land and in the winter hemisphere.



### Surface Temperature Anomalies (degC, w.r.t. 1961–90) 2009 June



We also produce **HadCRUH**, a monthly global humidity product (both absolute and relative humidity) on the same grid from the surface data. The data are available from 1973 to 2004.

### More about HadCRUT3