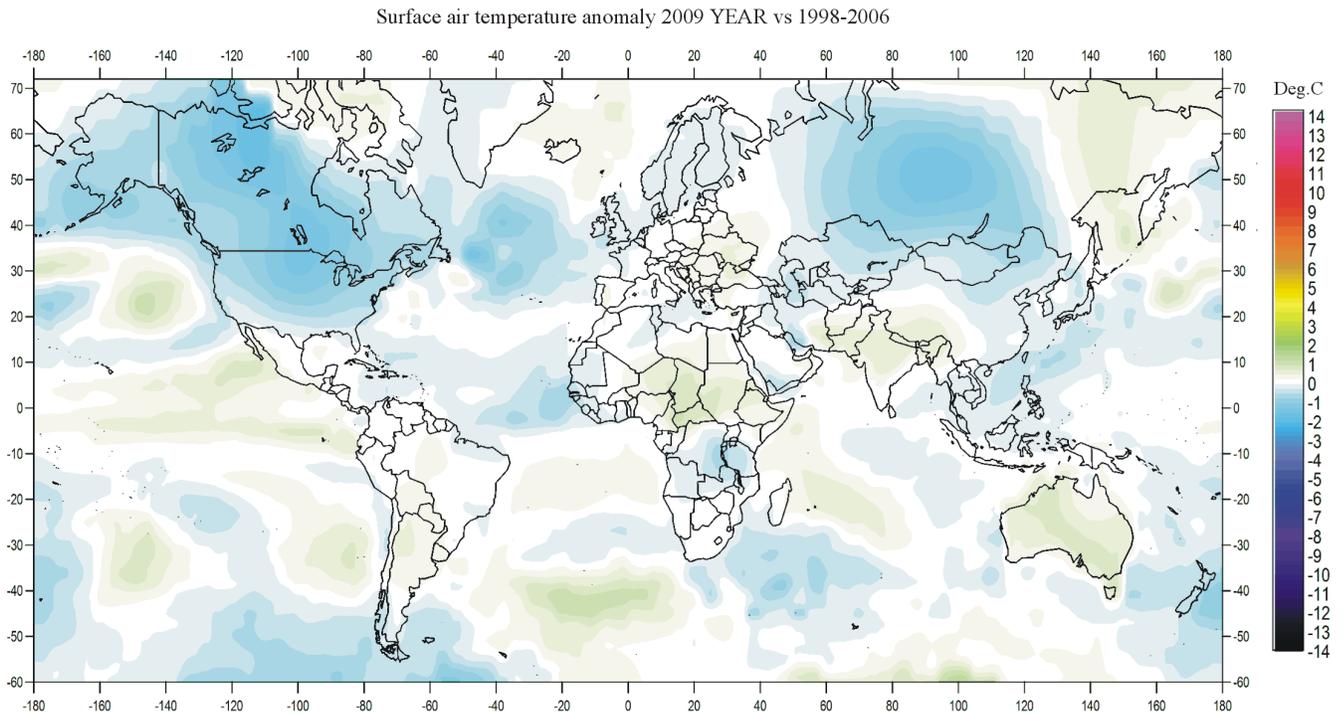


# Climate4you update Year 2009

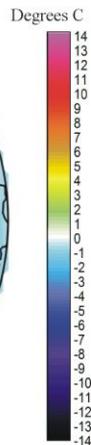
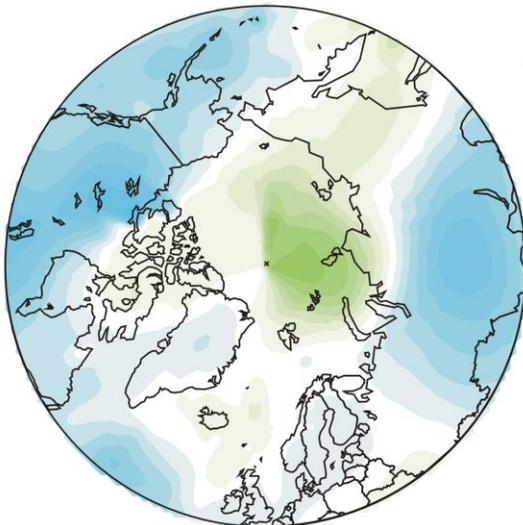
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## Year 2009 global surface air temperature overview

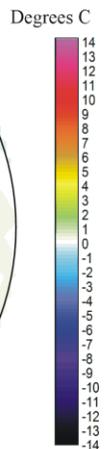
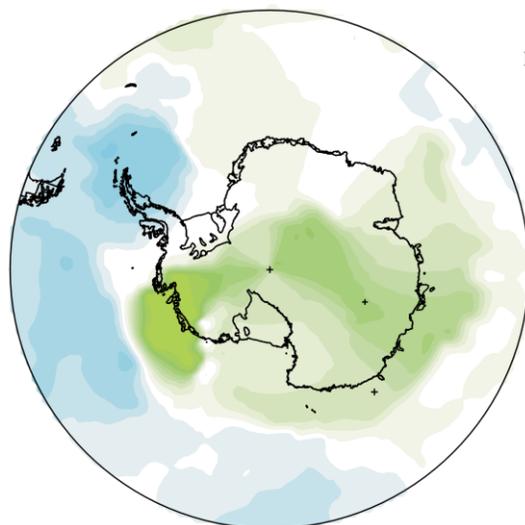


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Air temperature 2009 YEAR versus average 1998-2006



Air temperature 2009 YEAR versus average 1998-2006



Year 2009 surface air temperature compared to the average for 1998-2006. Green,yellow-red colours indicate areas with higher temperature than the 1998-2006 average, while blue colours indicate lower than average temperatures. Data source: [Goddard Institute for Space Studies](http://www.giss.nasa.gov) (GISS)

## Comments to the Year 2009 global surface air temperature overview

This newsletter contains graphs showing a selection of key meteorological variables for the year 2009. All temperatures are given in degrees Celsius.

In the above maps showing the geographical pattern of surface air temperatures, the period 1998-2006 is used as reference period. The reason for comparing with this recent period instead of the official WMO 'normal' period 1961-1990, is that the latter period is affected by the relatively cold period 1945-1980. Almost any comparison with such a low average value will therefore appear as high or warm, and it will be difficult to decide if modern surface air temperatures are increasing or decreasing. Comparing with a more recent period overcomes this problem.

In the other diagrams in this newsletter the thin line represents the monthly global average value, and the thick line indicate the simple 3 year running average.

### The average global surface air temperature for 2009.

In the Northern Hemisphere extensive, relatively low air temperatures characterized extensive areas in western Siberia-Russia-Europe and a major part of North America, while eastern Siberia and the North Atlantic north of Iceland was relatively warm on an annual basis.

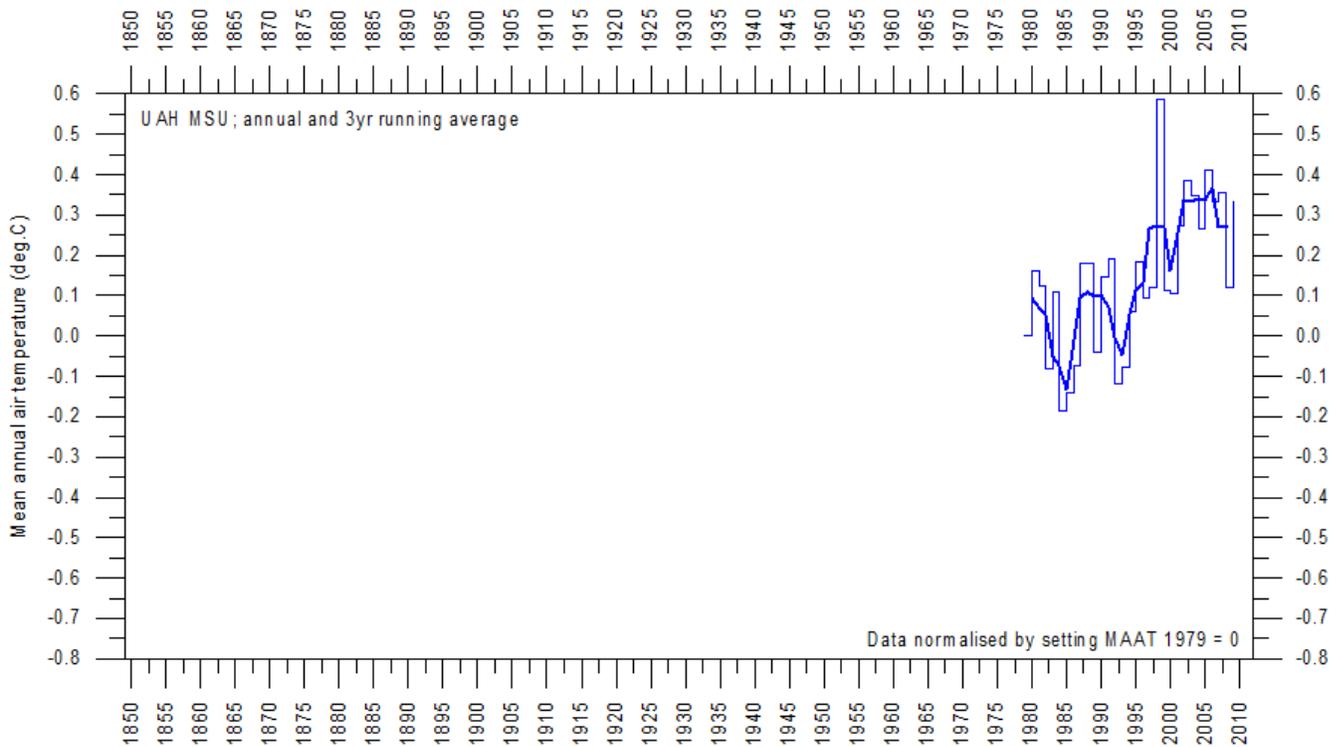
Conditions near Equator were influenced by the ongoing El Niño in the Pacific Ocean, resulting in relatively warm surface conditions in the eastern Pacific. In the western Pacific and in Equatorial Atlantic relatively cold conditions prevailed. Central Africa was slightly warmer than the average, but the remaining areas were colder.

In the Southern Hemisphere, Australia and parts of southern central South America experienced relatively warm annual conditions, while New Zealand and the southern part of South America experienced relatively cold conditions.

In the Arctic, all land areas with only few exceptions experienced relatively cold conditions. In contrast, the major part of the Arctic Ocean, and especially the eastern part, experienced relatively warm conditions.

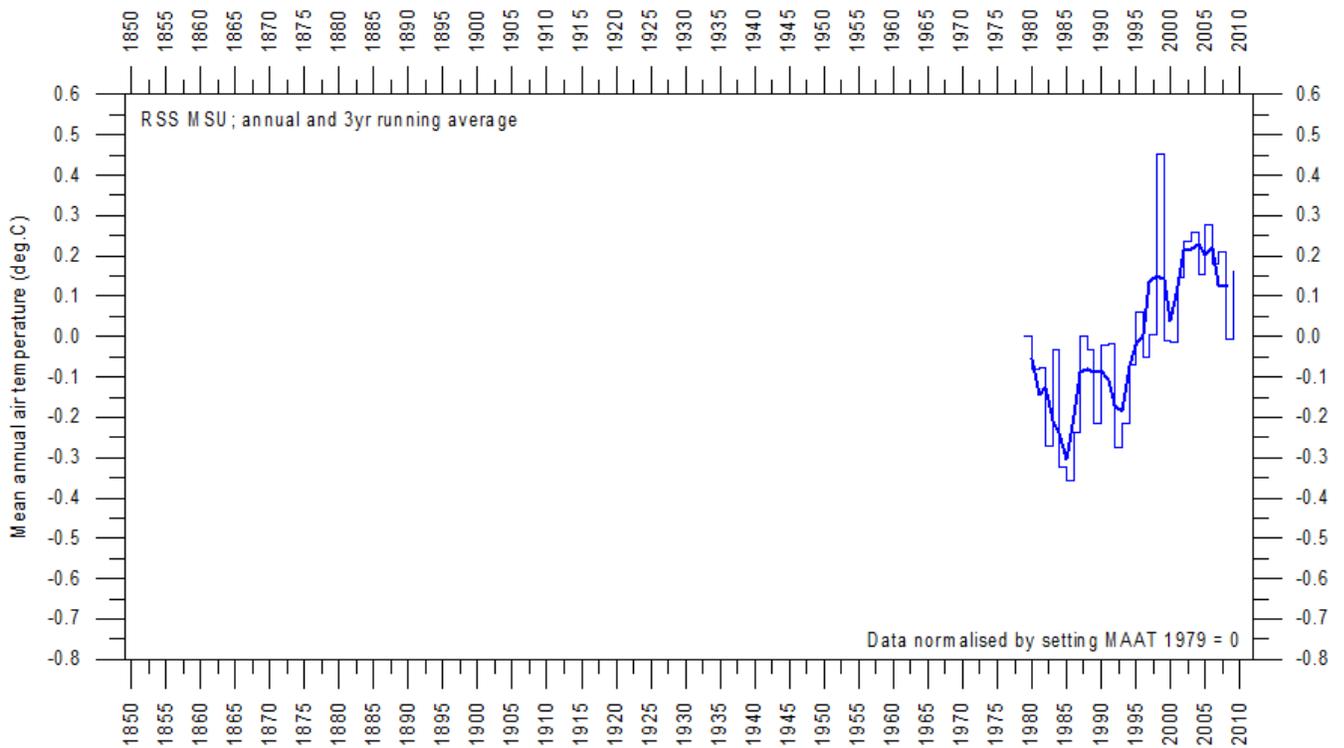
In the Antarctic, conditions were generally relatively warm. The Antarctic Peninsula, however, was colder on an annual basis.

## Lower troposphere temperature from satellites, updated to year 2009



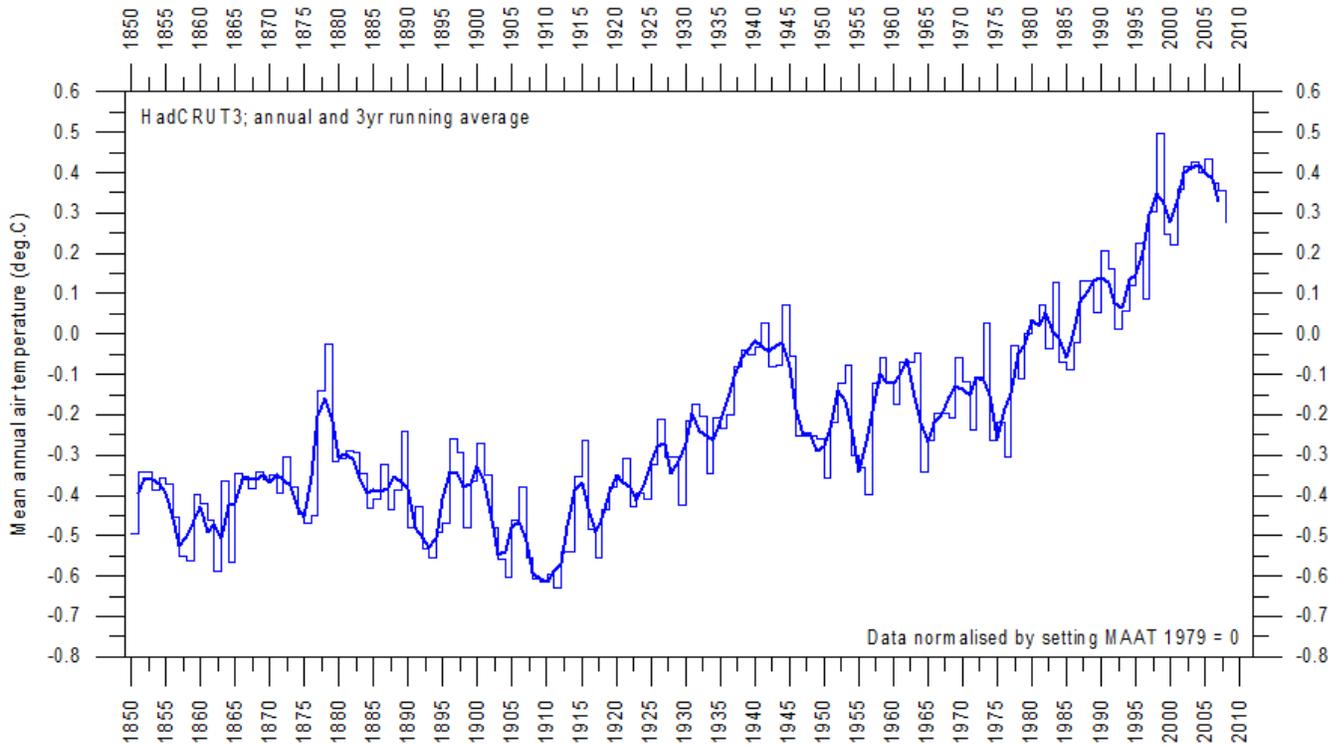
Mean annually lower troposphere temperature anomaly (thin line) since 1979 according to [University of Alabama](#) at Huntsville, USA. The thick line is the simple running 3 year average. The anomaly for 1979 has been set to zero, to make comparison with other temperature data series easy.

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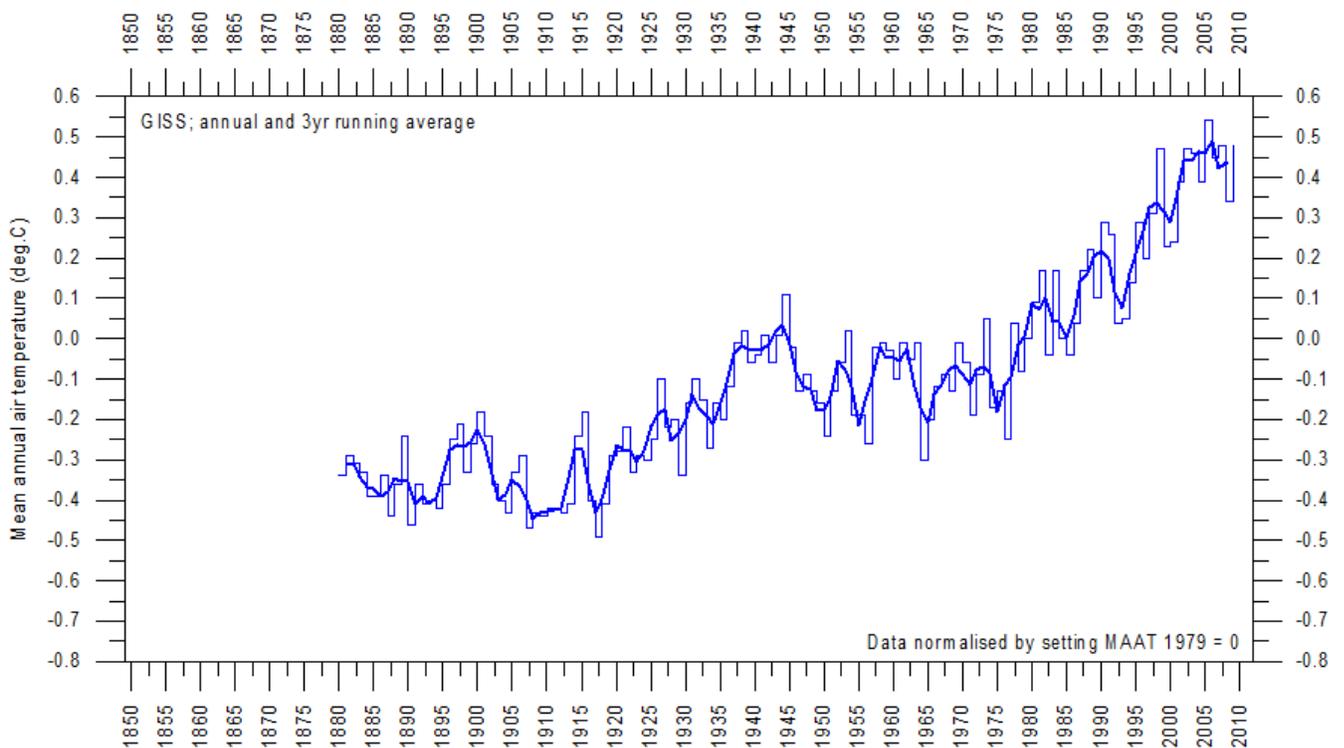
Mean annual lower troposphere temperature anomaly (thin line) since 1979 according to according to [Remote Sensing Systems](#) (RSS), USA. The thick line is the simple running 3 year average. The anomaly for 1979 has been set to zero, to make comparison with other temperature data series easy.

## Global surface air temperature, updated to year 2009

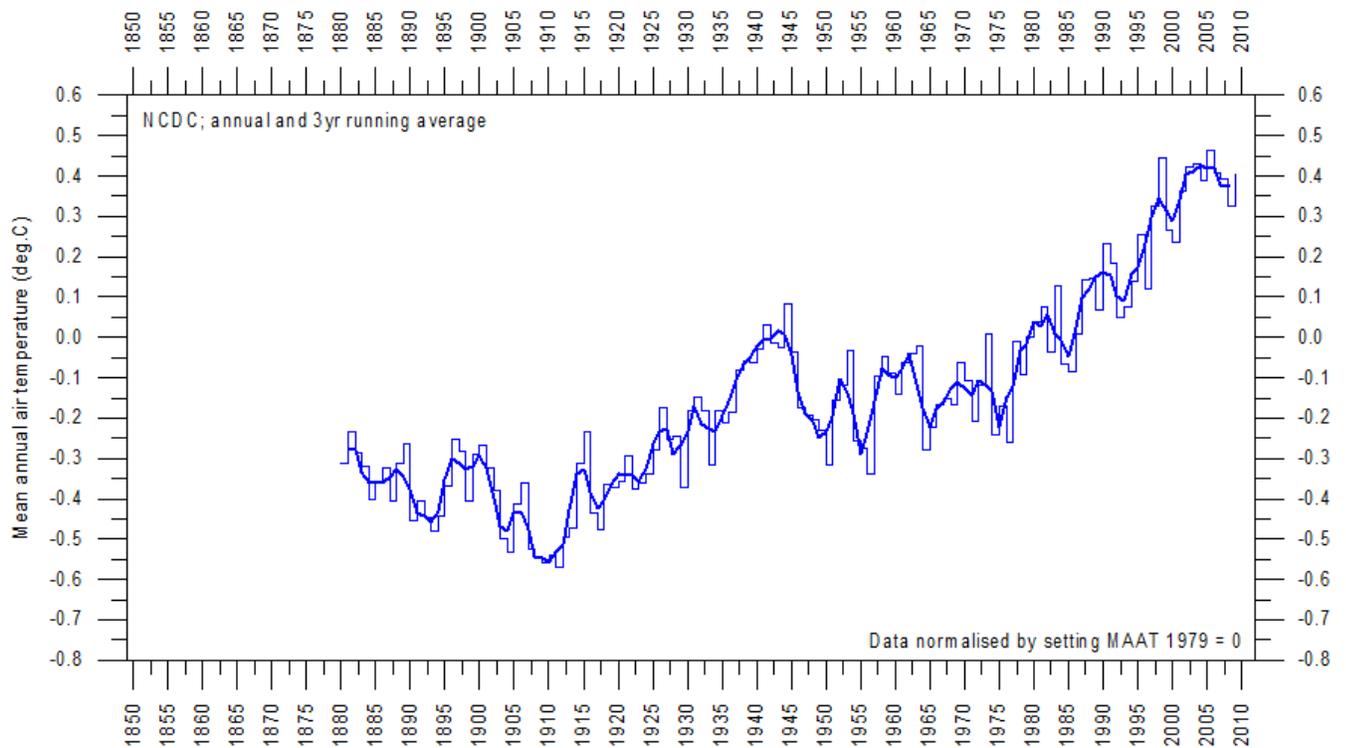


Mean annual global surface air temperature (thin line) since 1850 according to according to the Hadley Centre for Climate Prediction and Research and the University of East Anglia's [Climatic Research Unit \(CRU\)](#), UK. The thick line is the simple running 3 year average. The anomaly for 1979 has been set to zero, to make comparison with other temperature data series easy. Please note that this data series has not yet been updated beyond 2008.

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Mean annual global surface air temperature (thin line) since 1880 according to according to the [Goddard Institute for Space Studies \(GISS\)](#), at Columbia University, New York City, USA. The thick line is the simple running 3 year average. The anomaly for 1979 has been set to zero, to make comparison with other temperature data series easy.



Mean annual global surface air temperature since 1880 according to according to the [National Climatic Data Center](http://www.ncdc.noaa.gov) (NCDC), USA. The thick line is the simple running 3 year average. The anomaly for 1979 has been set to zero, to make comparison with other temperature data series easy.

All above diagrams with supplementary information (including links to data sources) are available on [www.climate4you.com](http://www.climate4you.com)

Yours sincerely, Ole Humlum (Ole.Humlum@geo.uio.no)

23 January 2010.