

The Warmest Global Surface Temperature for March in 2010

The monthly anomaly of the global average surface temperature in March 2010 (i.e., the average of the near-surface air temperature over land and the sea surface temperature (SST)) was $+0.44^{\circ}\text{C}^*$, which was the warmest record for March since 1891 (Figure 1).

* This preliminary value is calculated from monthly climate data received at JMA as of 13 April 2010. The normal is the 1971 – 2000 average. When this value is fixed in early May, the value and rank may change.

Monthly mean temperatures in land area were above normal in northern Africa, western and southern Asia, northern USA, Canada, and South America. SSTs were above normal in most of the tropics, especially in the Indian and the Atlantic Ocean (Figure 2).

On a longer time scale, global average surface temperatures of March have been rising at a rate of about 0.82°C per century.

Such high temperature can be attributed to the El Niño phenomenon continuing since last summer, as well as global warming caused by an increase in greenhouse gases such as CO_2 . In addition, fluctuations over different time scales ranging from several years to several decades are supposed to be included.

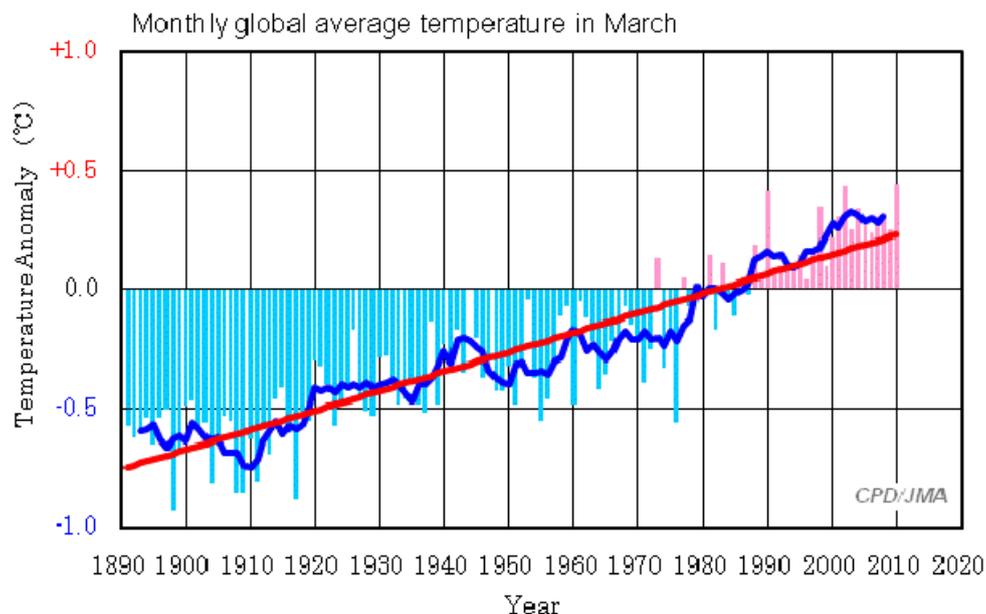


Figure 1 Long-term change in monthly mean surface temperature anomalies in March over the globe

Anomalies are deviations from the normal (1971-2000 average). The bars indicate anomalies of surface temperature in each year. The blue line indicates 5-year running mean, and the red line indicates a long-term linear trend.

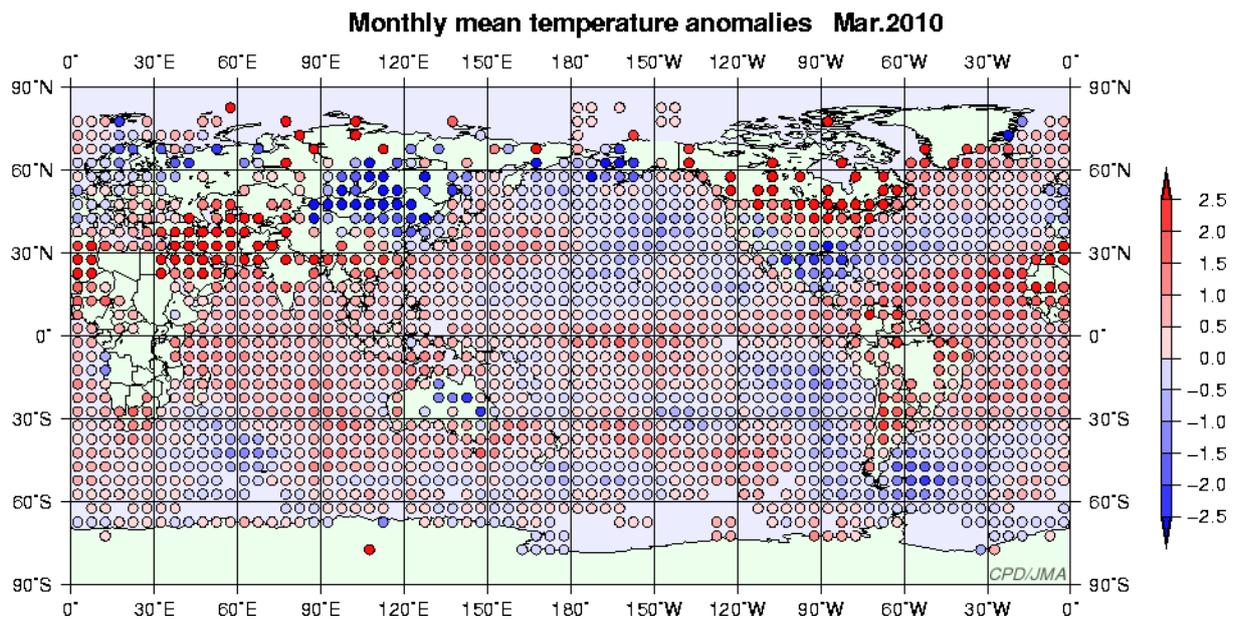


Figure 2 Monthly mean temperature anomalies in March 2010

The circles indicate temperature anomalies from the climatological normal (i.e., the 1971-2000 average) averaged in 5° x 5° grid boxes.

Those figures for each month or each year since 1891 are found on the TCC/JMA website:

http://ds.data.jma.go.jp/tcc/tcc/products/gwp/temp/map/temp_map.html

Standings of global monthly mean temperature in March

Rank	Year	Temperature Anomaly
1	2010	+0.44 (Preliminary Value)
2	2002	+0.43
3	1990	+0.41
4	1998	+0.35
5	2004	+0.34
6	2007	+0.31
	2001	+0.31
8	2008	+0.30
	2005	+0.30
10	2009	+0.25
	2003	+0.25

Annual and monthly global average temperatures are regularly updated on the TCC/JMA website:

http://ds.data.jma.go.jp/tcc/tcc/products/gwp/temp/ann_wld.html