

20 January 2011 Last updated at 09:19 ET

2010 hits global temperature high



By Richard Black Environment correspondent, BBC News



Unusually cold December weather in some places distracted attention from warmth elsewhere

2010 was the warmest year since global temperature records began in 1850 - although margins of uncertainty make it a statistical tie with 1998 and 2005.

The World Meteorological Organization (WMO) **concludes** 2010 was 0.53C warmer than the average for the period 1961-90 - a period commonly used as a baseline.

The 10 warmest years have all occurred since 1998, it notes.

The WMO analysis combines data from three leading research agencies, and is regarded as the most authoritative.

The three records are maintained by the US-based National Aeronautics and Space Administration (Nasa) and National Climatic Data Center (NCDC), and jointly in the UK by the Hadley Centre and the University of East Anglia's Climatic Research Unit (CRU).

They use broadly the same data from weather stations, ocean buoys and satellites across the world; but each analyses that data in different ways, leading to slight differences in their conclusions.

The University of Alabama at Huntsville team, which runs the satellite temperature record, has already called 2010 as the second warmest year in its 41-year series, just behind 1998.

"The 2010 data confirm the Earth's significant long-term warming trend," said WMO secretary-general Michel Jarraud.

"The 10 warmest years on record have all occurred since 1998."

Other indications of 2010 warmth flagged up by the WMO include the lowest extent of sea-ice cover in the Arctic since the satellite record began.

Regions of the world experiencing particularly warm conditions during 2010 included Africa, southern and western Asia, and the northern extremities of North America, including Greenland.

The possibility that 2010 would emerge as the warmest year on record was raised by scientists after the year began with a period of El Nino conditions - unusually warm waters in the eastern Pacific Ocean, which transfer heat from the ocean to the atmosphere.

However, a switch to the opposing La Nina conditions halfway through the year cast doubt on whether the record would be broken.

Although December was exceptionally cold in some places - the coldest for 100 years across the UK - other regions, such as Greenland and eastern Canada, saw unseasonably warm weather.

The WMO notes a number of extreme weather events occurring during 2010, including:

Agencies including the UK Met Office suggest 2011 is likely to be cooler on average than 2010, as La Nina conditions dominate.

The variation between El Nino and La Nina can alter the global temperature by half a degree or so.

But the variations it produces sit on top of a slow, steady warming trend dating back half a century, ascribed to the buildup of greenhouse gases in the atmosphere from industry, agriculture, deforestation and other human activities.