

# Prime Meridian

(21) January 31, 2014

Above: January 11, 2014 - setting afternoon Sun gleams into Saxten's & Cage's Wood, Kent, England.

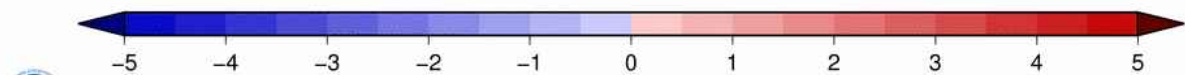
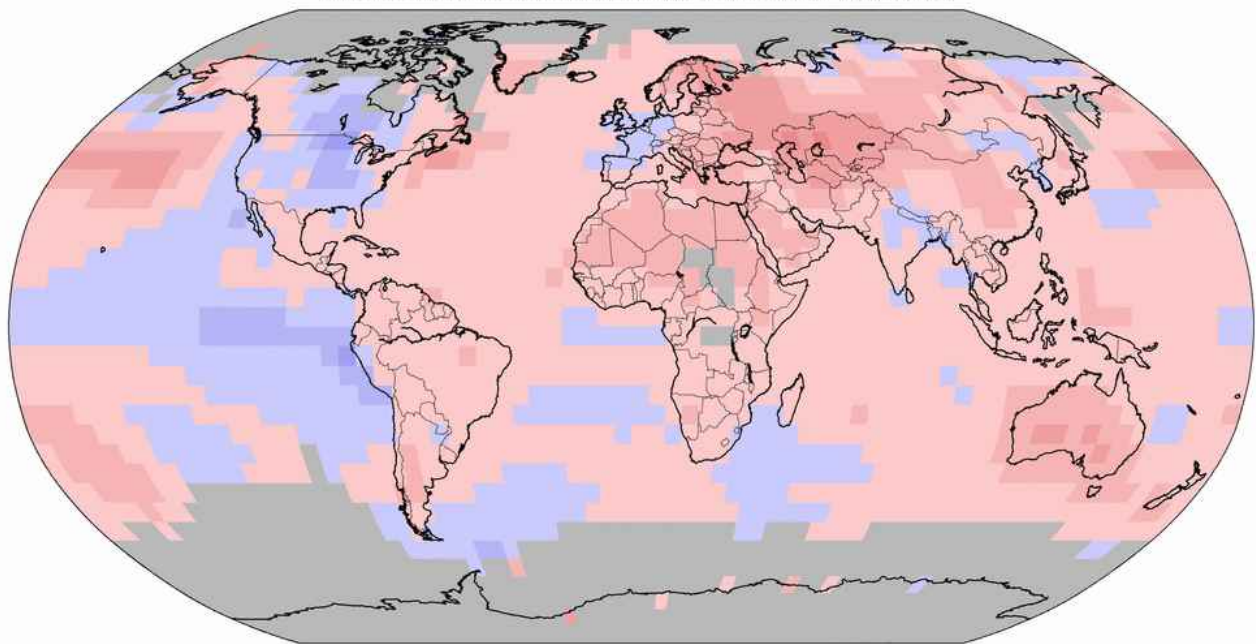
## 2013 - was the fourth warmest year on record . . . .

. . . this is the conclusion of an annual global climate report published by the U.S.A.'s National Oceanic and Atmospheric Administration. The long-term warming trend, apparent in data collected since 1880, is continuing. Globally, 2013 was 0.62°C above the 20<sup>th</sup> C mean of 13.9°C.

The report cited the warmest year of the 20<sup>th</sup> C as 1998 (0.63°C above the 20<sup>th</sup> C mean), with the warmest year on record since 1880 as 2010 (0.66°C above the mean), followed by 2005 (0.65°C above the mean). 2013 tied with 2003 as the fourth warmest. For land areas, the mean was 0.99°C above that for the 20<sup>th</sup> C, whilst for the oceans it was 0.48°C. Source: *Global Analysis - Annual 2013*. NOAA. Data may be subject to revision.

### Land & Ocean Temperature Anomalies Jan–Dec 2013 (with respect to a 1981–2010 base period)

Data Source: GHCN–M version 3.2.2 & ERSST version 3b



NOAA's National Climatic Data Center  
Thu Jan 16 11:30:37 EST 2014

Degrees Celsius

Please Note: Gray areas represent missing data  
Map Projection: Robinson



Prime Meridian is published as part the outreach programme of the Ecospheres Project - Earth Campaign.

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## Global climate - we have just seen the third warmest December on record.

According to NOAA's monthly report, the global average temperature combining both land and ocean surfaces for December 2013 was  $0.64 \pm 0.08$  above the 20<sup>th</sup> Century average of  $12.2^{\circ}\text{C}$  (3<sup>rd</sup> warmest December, with 2006 as warmest). Globally, the surface of the land was  $1.12 \pm 0.11^{\circ}\text{C}$  warmer than the average (5<sup>th</sup> warmest on record; December 2003 was warmest), and the ocean was  $0.46 \pm 0.040$  warmer (7<sup>th</sup> warmest, with December 1997 & 2009 as joint warmest). For the Northern Hemisphere the combined result for land and ocean was  $0.74 \pm 0.09$  above the 20<sup>th</sup> C norm (6<sup>th</sup> warmest after 2006). Land in the Northern Hemisphere was overall  $1.21 \pm 0.11^{\circ}\text{C}$  above the norm (7<sup>th</sup> warmest, the warmest was December, 1939), with the ocean  $0.46 \pm 0.06^{\circ}\text{C}$  above the average (8<sup>th</sup> warmest with 2009 as warmest). In the Southern Hemisphere, the combined land and ocean temperature was  $0.54 \pm 0.06^{\circ}\text{C}$  above the mean (4<sup>th</sup> warmest; 1997 was warmest). Land in the Southern Hemisphere was overall  $0.87 \pm 0.11^{\circ}\text{C}$  above the mean (2<sup>nd</sup> warmest behind 2012), with the ocean  $0.48 \pm 0.04^{\circ}\text{C}$  above the average (5<sup>th</sup> warmest; warmest 1997).

NOAA stated that: *“Record warmth was observed across much of southern and western Australia, southwestern Ethiopia, eastern Tanzania, part of central Asia around Kazakhstan and Uzbekistan, a large section of the southwestern Pacific Ocean, and small regions of the Arctic, central Pacific, and central Indian Oceans. Also noteworthy, it was much warmer than average across many other land and ocean regions all across the globe. Temperatures were cooler than average across part of the central United States, a region where record warmth prevailed in 2012, along with small sections of the eastern Pacific Ocean and the Southern Ocean off the tip of South America. No record cold regions were observed for the January-December 2013 period.”* Source: NOAA National Climatic Data Center, *State of the Climate: Global Analysis for December, 2013*, published online. Data provisional.

**Dangerously cold conditions in North America and recent news about a scientific expedition to investigate the impact of climate change on Antarctica becoming stuck in sea ice have been received by many as effective debating points against the concept of global warming. It must be stressed that climate scientists have never predicted an immediate all-seasons cessation of cold weather and that despite the ups and downs of weather, the global picture remains consistent with long-term warming.**

Below: after an unusually wet December, a field near West Kingsdown (Kent, England) lies water-logged as evening approaches on the final day of the year.





## Seasons in South East England December, 2013

Above: The Sun falls towards the horizon on the first day of December, 2013. Many of the trees had yet to drop their leaves. Belair Park, South London.



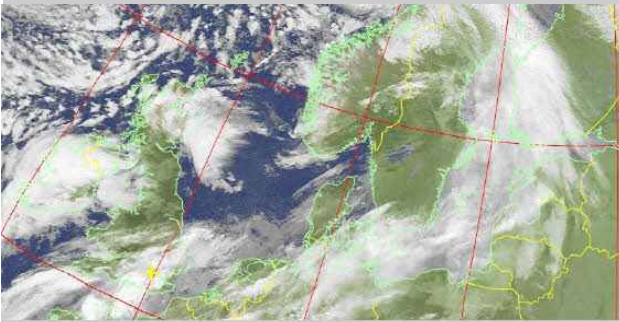
The monthly summary from the Met Office was a catalogue of chaos caused by weather. The UK received 154% of its normal rainfall. The first four days of the month saw high pressure conditions, with areas of fog and frost particularly in the SE. However, strong winds and rainfall swept across the UK on December 5, as a low pressure area passed over Scotland. The Met Office report described flooding, impacts on transport (Scotland's rail network was shut down), power cuts in thousands of homes and two deaths. Two fatalities and many thousands of homes without power. Evacuations followed coastal flooding in N. Wales. On North Sea coasts, storm surges caused by high tides and powerful winds, undermined cliffs and caused houses to fall onto the beach. Thousands of residents were evacuated. The UK's coldest temperature,  $-6.1^{\circ}\text{C}$  occurred on Dec. 7 at Dalwhinnie (Highland). Another high pressure system arrived on Dec. 9, bringing drier conditions. Dec. 10 saw the UK's maximum temperature,  $16.6^{\circ}\text{C}$ , not in the SE, but at Cassley, Sutherland. East Anglia and the SE were amongst areas experiencing wet conditions on Dec. 13. Dec. 14 and 15 saw gales and intense rain in Scotland, followed on Dec. 18 and 19 by yet more disruption in Scotland and N. Ireland. *"Another deep Atlantic low pressure system brought strong winds and heavy rain to much of the UK from 23rd to 24th December, bringing 60 to 70 mm of rain to the high ground of southern England. Flooding affected parts of Dorset and Surrey, with power cuts for over 10,000 homes continuing through the Christmas period."*



Top left: Dec. 1. Autumnal colours on a hornbeam hedge, South London. Middle left: After Dec. 5 storm surge: as cliffs collapsed, houses slid to the beach at Hemsby, Norfolk. Uploaded to wikipedia by Evelyn Simak. Lower left: Dec. 11. A cold evening saw frost patterns forming on cars parked in a South London streets.



The Sun amongst the stars at midday at the winter solstice, Dec. 21, 2013 (*Stellarium* image).



On Dec. 23, gusts of over  $96 \text{ km hr}^{-1}$  were felt over central and S England, with  $148 \text{ km hr}^{-1}$  at the Needles on the Isle of Wight. 65 mm of rain fell in the Thames Valley causing local flooding. Rains moved on, but wind speeds of over  $82 \text{ km hr}^{-1}$  were felt widely on Dec. 24, with gusts reaching  $148 \text{ km hr}^{-1}$  at the Needles. Storms and disruption continued as 2013 ended.



With the Sun sinking to its lowest altitude of the year during late December, this is a relatively gloomy month. However, despite stormy weather the UK as a whole saw enjoyed rather more sunshine than usual (108%). The UK's mean temperature was  $5.7^\circ\text{C}$ . This exceeded the 1981-2010 average by  $1.8^\circ\text{C}$ , making it, provisionally the warmest December since 1988.



SE and central S England, mean max. temp.:  $9.8^\circ\text{C}$  ( $1.9^\circ\text{C}$ ); mean min. temp.:  $2.8^\circ\text{C}$  ( $0.8^\circ\text{C}$ ). Hours of sunshine: 54.5 (107%). Rain: 165.1 mm (197%). Anomalies re. 1981-2010 norm in brackets. Source: online Met Office data.

Left, from top to bottom: Weather patterns over Britain on Dec. 21, the day of the winter solstice as seen from a NOAA satellite (courtesy, Geoff Hamilton). A grey sky hides the Sun on the afternoon of Dec. 21. Some of the trees still show autumn colours. Belair Park, South London. Dec. 24: Midnight mass on Christmas Eve, All Saints Church, West Dulwich, South London. Enthusiastic Christmas display on a house in South London.



Below: Mid-winter in the northern hemisphere is mid-summer in Antarctica. Image below is from a NOAA webcam, Amundsen-Scott South Pole Station Dec. 23, 2013.

