

# Prime Meridian

(17) September 30, 2013



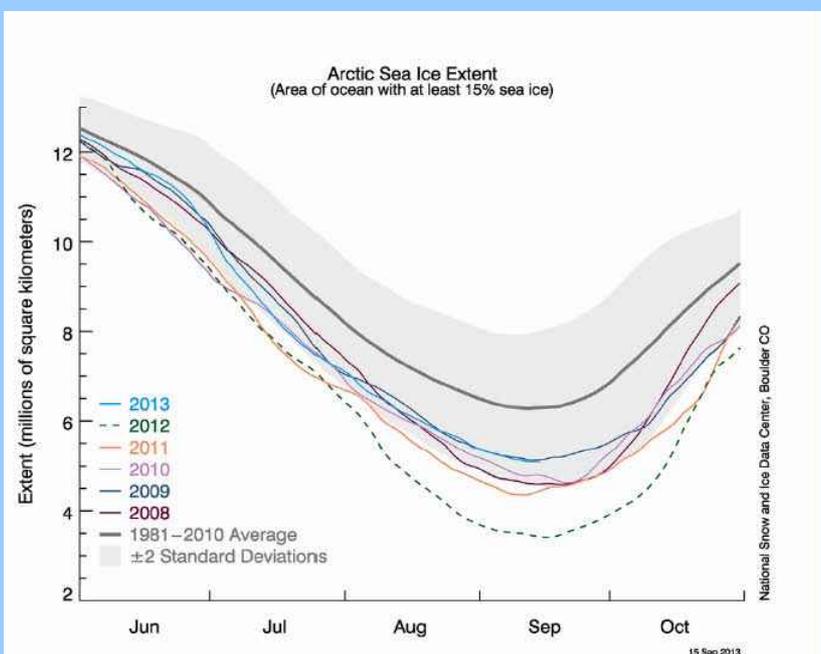
Above: A typically English patchwork of woods and fields near West Kingsdown, Kent. Sept. 16, 2013.

## Waxing and waning of Arctic sea ice becomes a political football.

On September 22, we passed through the autumnal equinox and for those of us in mid-latitudes, the days, drawing in quite noticeably for the last few weeks, finally became shorter than the nights. At the equinox, the Sun rose at the South Pole and it set at the North Pole. The Northern Hemisphere's long polar night is now underway.

On September 13, as the Sun sank ever lower over the Arctic, the sea ice ceased to shrink and it began to re-expand as the weather grew colder. Its minimum extent this year had been 5.10 million km<sup>2</sup>. 2013 had not seen a repeat of the disturbing ice-shrinkage of 2012, although there is concern that the floating sea ice is becoming generally thinner than in the past, so that it will be much more vulnerable when Arctic weather conditions next favour extensive summer melting. This year's decay and re-growth of sea ice followed closely the pattern for 2009. The years 2008, 2010, 2011 and, of course, 2012 all saw significantly smaller ice extents.

The diagram below left was published online by the USA's National Snow and Ice Data Center. In chilly contrast to the sunny, but showery weather being enjoyed by South East England on Sept. 16, an Arctic webcam showed a gloomy overcast. The webcam was floating with the sea ice, and had reached a position off the north-east tip of Greenland, at roughly 83.7° N. At this latitude, the Sun was already hugging the horizon.



At the other end of the world, the NSIDC reported that sea ice surrounding Antarctica, which has just endured its long, dark winter, had reached a record extent on September 16 of 19.45 million km<sup>2</sup>. This was 3.9% higher than the mean maximum for 1981 to 2010. The NSIDC web site discusses how weather patterns may have encouraged the masses of floating ice to cover an unprecedented area.

The political, strategic and economic implications of climate change are potentially world-changing, so it would be naïve of scientists to be surprised that the debate has become vociferously politicised. Sadly, there is left wing - right wing polarisation amongst newspapers over the issue, with the left accepting the interpretation of global warming and the right denying it as “alarmist.” Opponents of the concept of global warming have crowed about this year's less extreme Arctic sea ice minimum and have represented it as a definitive and humiliating rebuttal for those concerned about the trend for smaller minima (in 2007, the BBC reported concerns that there might be no summer ice by 2013). Unhelpfully, many readers will accept news stories of 2013 witnessing massive sea ice re-growth and global cooling at face value and will assume that the issue of the Arctic sea ice is over and done with. There appears to be an overall trend for the reduction in the extent and thickness of Arctic sea ice, but as variable weather causes year-to-year fluctuations in summer minima, there will be plentiful opportunities for political-style debating points to muddy the waters.

More humorously, the summer of 2013 saw a left wing - right wing split between UK newspapers over the question of whether there was or was not a wasp plague; the right, played the alarmist role. This, however, may have been more a case of press rivalry than an ideological clash!

### **Intergovernmental Panel on Climate Change issues September 2013 report.**

The latest report from the IPCC has concluded that human activity is almost certainly the cause of the observed long-term warming of the Earth. This emerged from the Twelfth Session of Working Group I, which was staged in Stockholm, Sweden, September 23 to 26, 2013, and whose findings comprise a contribution to the IPCC's Fifth Assessment Report (WG1 AR5). The Physical Science Basis Summary for Policymakers state (SPM-3): *“Warming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia. The atmosphere and ocean have warmed, the amounts of snow and ice have diminished, sea level has risen, and the concentrations of greenhouse gases have increased . . . The globally averaged combined land and ocean surface temperature data as calculated by a linear trend, show a warming of 0.85 [0.65 to 1.06] °C, over the period 1880-2012, when multiple independently produced datasets exist. The total increase between the average of the 1850-1900 period and the 2003-2012 period is 0.78 [0.72 to 0.85] °C, based on the single longest dataset available”.*

The IPCC has corrected a much-criticised *ad hoc* claim included in its 2007 report that Himalayan glaciers may have suffered complete melting by 2035, but the new report reinforces the main thrust of previous findings. An editorial in *Nature Geoscience* for October, 2013 (published in advance) noted progress, but remarked that: *“many of the key quantifications of change have stubbornly remained within very similar uncertainty ranges over the set of five assessment reports since 1990.”*

### **Global cooling claimed by some climate sceptics would not let us off the hook.**

The trend for overall warming has slowed insofar as 1998 has yet to be beaten as the globally warmest year. This is probably temporary, because the quantities of greenhouse gases in our atmosphere continue to increase. But were warming to actually halt and global cooling now to set in (as some sceptics anticipate), should we breath a sigh of relief? Climate models and climate monitoring systems are not perfect, but the onset of pronounced long-term cooling would mean that they were seriously flawed and unable to serve the global community by providing reliable predictions about the causes, directions and magnitudes of climate change. Some climate sceptics have accused scientists of inventing global warming to boost a research gravy train, but if climatology needed to be rebooted that would be a case for a massive research investment. Planet Earth is not obliged to operate within the cosiest possible optimum for the agricultural and economic well-being of its 7 billion inhabitants and climate science is essential to protecting our interests.

Martin Heath, Editor

Seasons in South East England  
July, 2013



According to the UK's Met Office, July 2013 was provisionally the 3<sup>rd</sup> warmest July since 1910 (1983 and 2006 were hotter). The mean UK temperature was 17.0 °C (1.9 °C above the 1981-2010 mean).

There was a sunny start to the month, with rain and showers on July 2, but high pressure and sunny conditions prevailed from July 3 to 22. According to the Met Office "*Somewhere in England exceeded 28°C every day from 6th onwards, and 30°C was exceeded for 7 successive days from 13th to 19th; Northolt (Greater London) reached 32.0 °C on 17th. There was more cloud for some areas on 20th and 21st, and consequently it was less hot. Some heavy showers edged into the far south-west later on 21st. The 22nd was again dry and hot, with the highest maximum temperatures of the year so far, 33.5°C, recorded at both Northolt and Heathrow (Greater London).*"

On July 23, thunderstorms spread from the south. The north saw heavy rain. 41 mm of rain fell at Nottingham, 36 mm in one hour alone. Showers were more scattered on July 24 and more intense rain with some thunder arrived in the SW and Lake District during the early hours of July 25. July 26 saw temperatures of 27°C in places within the SE of England. After a dry start, July 27 saw rain storms spreading northwards with flooding in certain areas. 60 mm fell in parts of the Midlands, 80 mm at Carlisle in Cumbria. On July 28, 35 mm fell at Keswick in Cumbria.

Top: July 30, 2013. A cabbage white butterfly (*Pieris brassicae*) alights on rosebay willow herb (*Chamerion angustifolium*) in a hedgerow near Ash, Kent. Numbers of this species soared by 335% relative to 2012. According to Butterfly Conservation "*Thankfully, summer 2013 provided perfect conditions for butterflies and butterfly counting. Butterfly numbers boomed in the hot, sunny weather and record-breaking numbers of people took part in big butterfly count to help us chart the upturn in fortunes of these beautiful creatures.*" Upper right: July 11. Great (hairy) willow herb (*Epilobium hirsutum*), in Belair Park, South London. Below left: Weather on July 13, 12:43 GMT (courtesy Geoff Hamilton). NOAA satellite. Below centre: July 6. Bryony (*Bryonia dioica*) in hedgerow near Ash, Kent. Below right: July 11. Chickory (*Chichorium intybus*) in wild flower meadow, Belair Park.





July 29 saw 35 mm fall at Lyneham (Wiltshire) and July 30, drier in the north, experienced rains in the south during the morning. On the last day of the month, temperatures reached 26°C in the SE. The rain continued to move north on 28<sup>th</sup> and there were scattered showers over the rest of the country. It remained warm and humid. The 29<sup>th</sup> was a day of sunshine and heavy showers, with thunder in many areas. The 30<sup>th</sup> was drier for northern parts with only some scattered showers, but some southern areas saw rain spread from the south during the morning, clearing in the afternoon. Rain spread into western areas during the morning of 31<sup>st</sup>, and with southerly winds temperatures rose to 26 °C in the south-east.

For SE and central S England, mean max. temp.: 24.6°C (2.6°C); mean min. temp.: 12.8°C (0.6°C). Hours of sunshine: 295.7 (146%). Rain: 32.4 mm (66%). Anomalies re. 1981-2010 norm in brackets.

Based on online Met Office data.

### Global climate; July 2013.

According to the NOAA, the mean global temperature for July 2013 (combining data for land and sea) was  $0.61 \pm 0.12^\circ\text{C}$  above the 20<sup>th</sup> C average of 15.8°C. This was the 6<sup>th</sup> warmest July on record (1998 was warmest). For the world as a whole, the surface of the land was  $0.61 \pm 0.12^\circ\text{C}$  warmer than the average (8<sup>th</sup> warmest on record; July 1998 was warmest), and the ocean was  $0.54 \pm 0.05^\circ\text{C}$  warmer (5<sup>th</sup> warmest; July 2009 was warmest). For the Northern Hemisphere the combined result for land and ocean was  $0.65 \pm 0.15^\circ\text{C}$  (7<sup>th</sup> warmest; warmest was July, 2010). Land in the Northern Hemisphere was overall  $0.70 \pm 0.16^\circ\text{C}$  above the average (10<sup>th</sup> warmest; warmest was July 2012), with the ocean  $0.62 \pm 0.04^\circ\text{C}$  above the average (3<sup>rd</sup> warmest; warmest 2005). In the Southern Hemisphere, the combined land and ocean temperature was  $0.57 \pm 0.08^\circ\text{C}$  above the mean (3<sup>rd</sup> warmest; July 1998 was warmest). Land in the Southern Hemisphere was overall  $0.99 \pm 0.12^\circ\text{C}$  above the average (2<sup>nd</sup> warmest; warmest was July 1998), with the ocean  $0.48 \pm 0.06^\circ\text{C}$  above the average (7<sup>th</sup> warmest; warmest 1998). Source: NOAA National Climatic Data Center, State of the Climate: Global Analysis for July, 2013. Published online. Data provisional.

Top: July 20. Hedgerow with rosebay willow herb, near Ash, Kent. Upper left: July 6. Scarlet pimpernel (*Anagalis arvensis*) growing at the edge of a field near Ash.; Lower left: July 14. Purple loosestrife (*Lythrum salicaria*) growing beside a lake. Belair Park, S. London. Images: M. J. Heath unless specified otherwise. © M. J. Heath 2013.

Prime Meridian is a newsletter following global change alongside the cycle of the seasons in Southern England. It is published as part of the outreach programme of the Ecospheres Project - Earth Campaign.

[prime-meridian01@hotmail.com](mailto:prime-meridian01@hotmail.com)

<http://www.ecospheresproject.moonfruit.com/>