

# New Study: Modern Solar Maximum - A 'Rare Or Even Unique Event In The Past 3000 Years'

CO2 Science Magazine, 6 August 2014

## A 3,000-Year Record of Solar Activity

### Reference

Usoskin, I.G., Hulot, G., Gallet, Y., Roth, R., Licht, A., Joos, F., Kovaltsov, G.A., Thebault, E. and Khokhlov, A. 2014. Evidence for distinct modes of solar activity. *Astronomy and Astrophysics* **562**: L10, doi: 10.1051/0004-6361/201423391.

### What was done

According to Usoskin *et al.* (2014), the Sun "shows strong variability in its magnetic activity, from Grand minima to Grand maxima, but the nature of the variability is not fully understood, mostly because of the insufficient length of the directly observed solar activity records and of uncertainties related to long-term reconstructions." Now, however, in an attempt to overcome such uncertainties, in a Letter to the Editor published in the journal *Astronomy and Astrophysics*, Usoskin *et al.* "present the first fully adjustment-free physical reconstruction of solar activity" covering the past 3,000 years, which record allowed them "to study different modes of solar activity at an unprecedented level of detail."

### What was learned

As illustrated in the figure below, the authors report there is "remarkable agreement" among the overlapping years of their reconstruction (solid black line) and the number of sunspots recorded from direct observations since 1610 (red line). Their reconstruction of solar activity also displays several "distinct features," including several "well-defined Grand minima of solar activity, ca. 770 BC, 350 BC, 680 AD, 1050 AD, 1310 AD, 1470 AD, and 1680 AD," as well as "the modern Grand maximum (which occurred during solar cycles 19-23, i.e., 1950-2009)," which they describe as "a rare or even unique event, in both magnitude and duration, in the past three millennia."

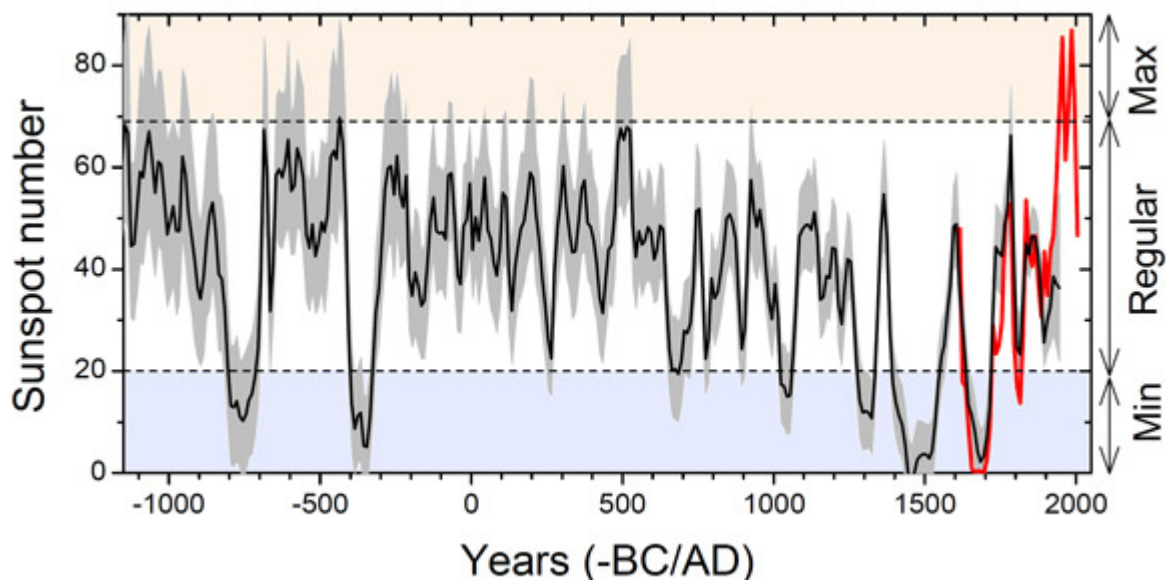


Figure 1. Reconstructed decadal average of sunspot numbers for the period 1150 BC-1950 AD (black line). The 95% confidence interval is shown by the gray shading and directly measured sunspot numbers are shown in red. The horizontal dashed lines demarcate the bounds of the three suggested modes (Grand Minimum, Regular, and Grand Maximum) as defined by Usoskin *et al.*

Further statistical analysis of their reconstruction revealed the Sun operates in three distinct modes of activity - (1) a regular mode that "corresponds to moderate activity that varies in a relatively narrow band between sunspot numbers 20 and 67," (2) a Grand minimum mode of reduced solar activity that "cannot be explained by random fluctuations of the regular mode" and which "is confirmed at a high confidence level," and (3), a possible Grand maximum mode, but they say that "the low statistic does not allow us to firmly conclude on this, yet."

### **What it means**

Usoskin *et al.* (2014) write their results "provide important constraints for both dynamo models of Sun-like stars and investigations of possible solar influence on Earth's climate." They also illustrate the importance of improving the quality of such reconstructions, in light of the fact that previous reconstructions of this nature "did not reveal any clear signature of distinct modes" in solar activity.

Unfortunately, it was beyond the scope of this paper to address the potential impact of solar activity on climate. Yet the reconstruction leaves a very big question unanswered -- What effect did the Grand maximum of solar activity that occurred between 1950 and 2009 have on Earth's climate? As a "unique" and "rare" event in terms of both magnitude and duration, one would think a lot more time and effort would be spent by the IPCC and others in answering that question. Instead, IPCC scientists have conducted relatively few studies of the Sun's influence on modern warming, assuming that the temperature influence of this rare and unique Grand maximum of solar activity, which has occurred only once in the past 3,000 years, is far inferior to the radiative power provided by the rising CO<sub>2</sub> concentration of the Earth's atmosphere.

## **Is It The Sun After All?**

[Canada Free Press, 6 August 2014](#)

Jack Dini

We may be witnessing the sun's last dying gasps before entering into a long slumber. The impact of that slumber on Earth's climate remains the subject of growing scientific speculation. (1)

In 2008 William Livingston and Matthew Penn of the National Solar Observatory in Tucson, in a controversial paper that contradicted conventional wisdom and upset global warming theorists, predicted that sunspots could more or less disappear after 2015, possibly indicating the onset of another Little Ice Age. They stated, "The occurrence of prolonged periods with no sunspots is important to climate studies, since the Maunder Minimum was shown to correspond with the reduced average global temperatures on the Earth." The Maunder Minimum lasted for approximately 70 years from about 1645 to 1715, and was marked by bitter cold, widespread crop failures, and severe human privation. (2)

There has been increasing evidence in recent years to support this supposition that global warming is linked with solar activity. In 2011, three papers suggested the Earth could be heading for a 'little ice age' as solar activity drops once again. (3) Other research also confirmed that solar effects could bring on little ice ages. Sarah Ineson and her colleagues report that changes in the Sun's emissions of ultraviolet radiation coincided with observed cold winters over southern Europe and Canada between 2008 and 2011. (4) And Katja Matthes and colleagues report that simulations with a climate model using new observations of solar vulnerability suggests a substantial influence of the Sun on the winter climate in the Northern Hemisphere. (5)

A 2014 paper by Chinese scientists reported the impact of carbon dioxide on climate change may have been overstated with solar activity giving a better explanation of changes in the Earth's temperature. The paper found 'a high correlation between solar activity and the Earth's averaged surface temperature over centuries,' suggesting that climate change is intimately linked with solar cycles rather than human activity. Indeed, the study says that the 'modern maximum' – a peak in

solar activity that lasted much of the last century corresponds very well with an increase in global temperatures. (6)

Russian scientists foresee an even more dramatic situation. They predict that a little ice age will begin in 2014. (7)

In their book, *The Neglected Sun*, authors Fritz Vahrenholt and Sebastian Luning pose that temperatures could be two-tenths of a degree lower by 2030 as a result of an anemic sun, which would mean warming getting postponed far into the future.

Note that these reports are from researchers around the world.

Nick Hallet observes, "The research shows that the current warming models of the IPCC seem to underestimate the impact of natural factors on climate change, while overstating that of human activities. Solar activity is an important ingredient of natural driving forces of climate. Therefore, it is valuable to investigate the influence of solar variability on the Earth's climate change on long time scales." (6)

Add to all this a very recent paper that says the modern Grand maximum of the sun (which occurred during solar cycles 19-23, i. e., 1950-2009) was a 'rare or even unique event in both magnitude and duration in the past 3,000 years.'(8) Unfortunately, it was beyond the scope of this paper to address the potential impact of solar activity on climate. Yet the reconstruction leaves a very big question unanswered—What effect did the Grand maximum have on Earth's climate? As a 'unique' and 'rare' event in terms of both magnitude and duration, one would think a lot more time and effort would be spent by IPCC and others in answering that question. Instead, as noted earlier, IPCC scientists have conducted relatively few studies of the Sun's influence on modern warming, assuming that the temperature influence of this rare and unique Grand maximum of solar activity, which has occurred only once in the past 3,000 years, is far inferior to the radiative power provided by the rising CO2 concentration of the Earth's atmosphere. (9)

Lawrence Solomon sums this up well, "The upshot for scientists and world leaders should be clear, particularly since other scientists in recent years have published analyses that also indicate that global cooling could be on its way. Climate can and does change toward colder periods as well as warmer ones. Over the last 20 years, some \$80 billion has been spent on research dominated by the assumption that global temperatures will rise. Very little research has investigated the consequences of the very live possibility that temperatures will plummet. Research into global cooling and its implications for the globe is long overdue." (2)

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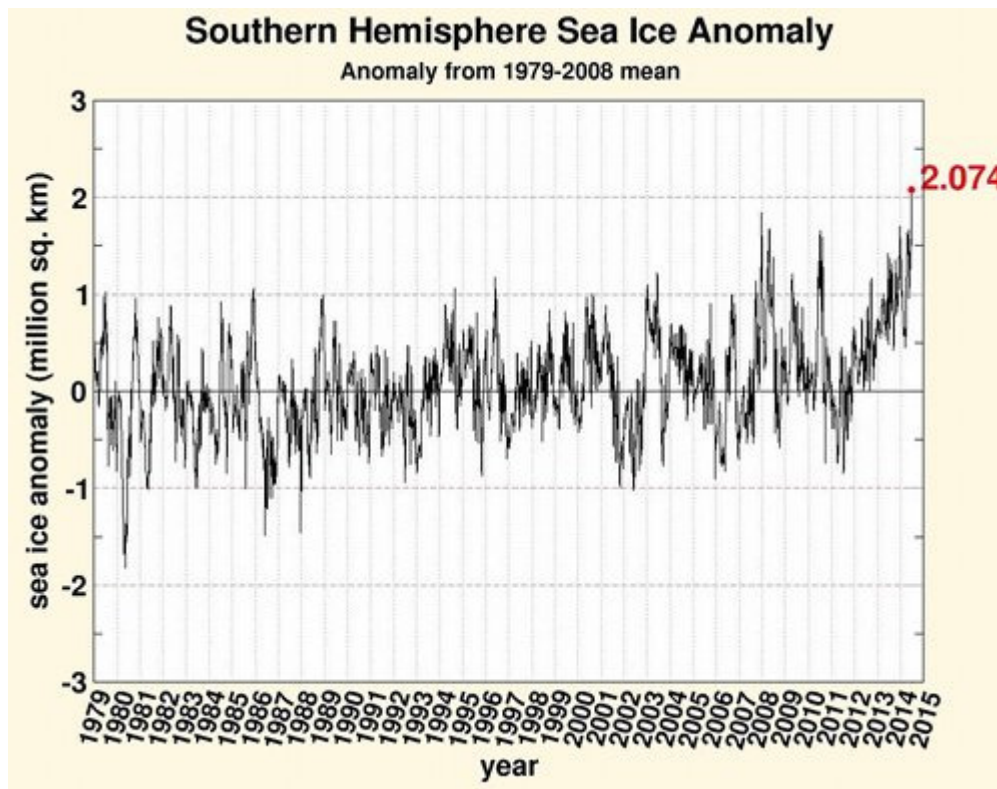
## Some More Facts to Counter What We Are Being Told

There have been a few alarmist pronouncements recently (summer 2014), stating that 2014 has given the world its hottest May and June on record.

In fact, while California has had the hottest first half of the year in its recent history, North America overall has actually been colder than normal, and Canberra, Australia, has experienced its coldest stretch in 43 years, with four consecutive mornings below  $-6^{\circ}\text{C}$  ( $21^{\circ}\text{F}$ ). Indeed, a review of NASA satellite data revealed that Earth set a new record for the coldest temperature recorded. It happened in Antarctica on August 2010 when it dropped to  $-93.2\text{C}$  ( $-135.8^{\circ}\text{F}$ ). Then, on July 31 of 2013 it came close again, registering  $-92.9\text{C}$  ( $-135.3^{\circ}\text{F}$ ). That is so cold researchers on the southernmost continent reported it hurt to breathe.

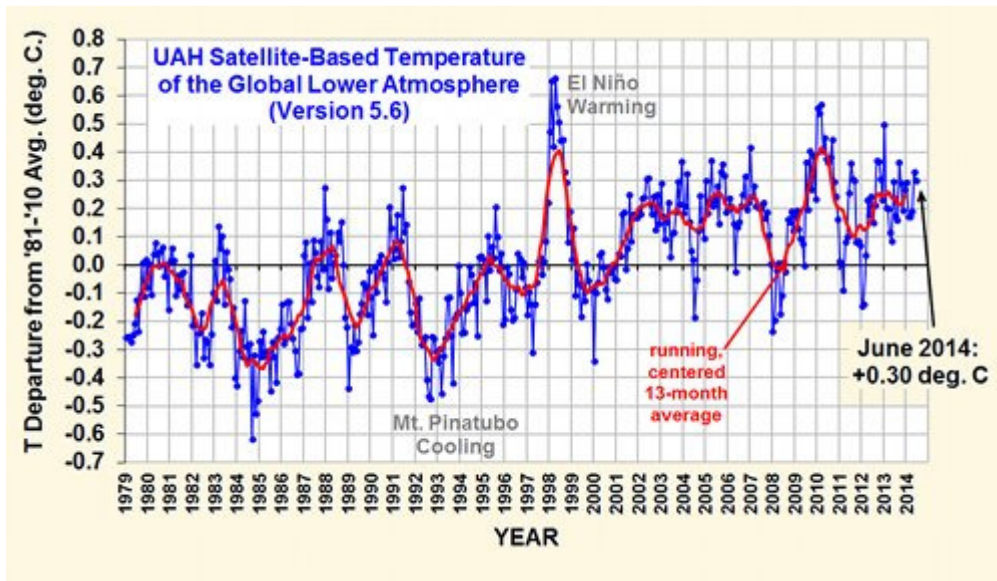
The record cold has continued this year at the south pole. A report from Meteo France reports that at the French Antarctic Dumont d'Urville Station, June this year was the coldest Antarctic June ever recorded. According to the press release, during June this year the average temperature was  $-22.4\text{c}$  ( $-8.3\text{F}$ ),  $6.6\text{c}$  ( $11.9\text{F}$ ) lower than normal. This is the coldest June ever recorded at the station, and almost the coldest monthly average ever – only September 1953 was colder, with a recorded average temperature of  $-23.5\text{c}$  ( $-10.3\text{F}$ ). Not long ago, alarmists had Antarctica losing its ice-sheet, flooding the world's oceans.

This has been accompanied by record anomaly for Southern Hemisphere sea ice. The ice encircling the southernmost continent is 2.074 million square kilometers as reported by the University of Illinois at Urbana-Champaign's The Cryosphere Today. This is shown in the graph below.

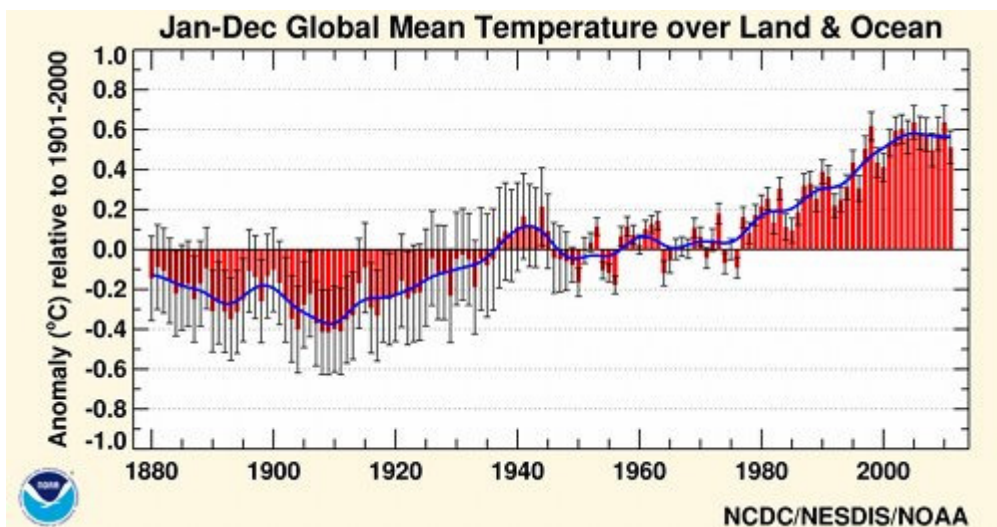


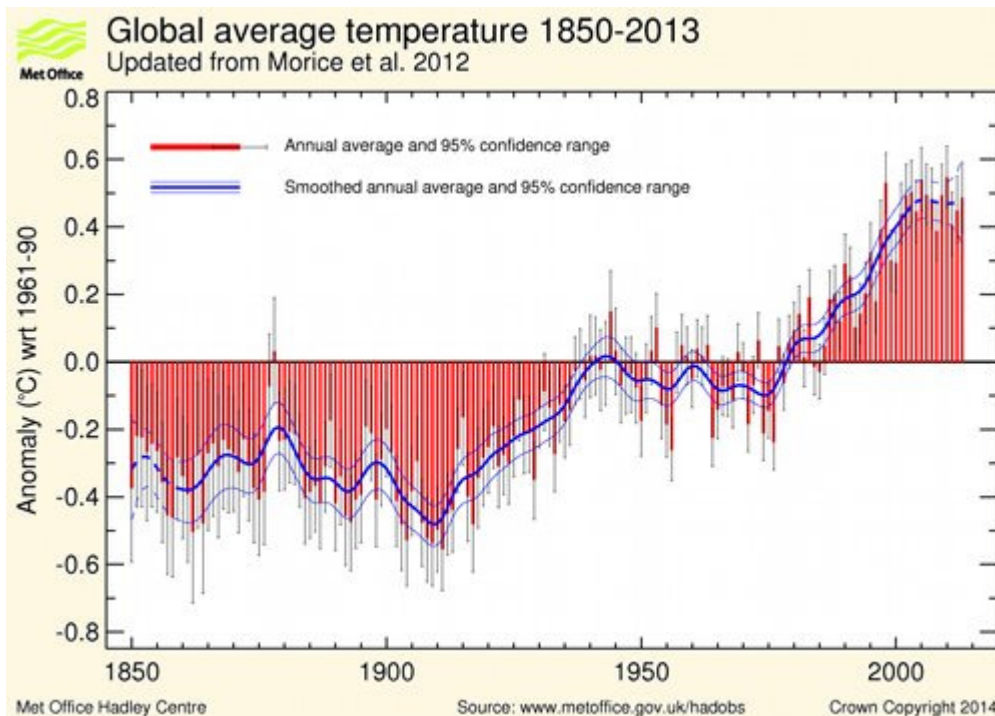
But what about those claims that 2014 had the warmest June on record? The answer is where and how you look at temperatures—surface temperature readings, atmospheric readings from balloons, satellite infrared from different atmospheric layers all give different readings and trends. One consistent set of high precision temperature data is the Global Lower Atmosphere collection, maintained at the University of Alabama Huntsville. The recent graph issued by Dr. Roy Spencer,

shown below, shows that 2014 was far from the hottest summer in the northern hemisphere on record.



Still reports keep coming from the predictably climate alarmist organizations—NASA, NOAA, IPCC, etc.—which claim the world is still warming. Interestingly, even the US's NOAA and the UK's Met Office Hadly Centre have published data that document the 17+ year "pause" that has so vexed the global warming true believers. Here is the historical global temperature record as published by the two official sources from the US and the UK.





As can clearly be seen the records are in general agreement historically. Both show a recent halt and even decline in the warming trend. So why do certain groups report otherwise? It is a matter of faith, the triumph of global warming religion over true science. The all purpose cause for any climate or weather related calamity has become climate change. This can be seen every day in any news medium—TV, print, on the Internet. For example, the number of bad weather events reported by news services has gone up tremendously over the last century, supposedly due to climate change. But is this true? Resoundingly no.

And the list of false and debunked claims is very, very extensive. In just one example Paul Kench, a geomorphologist who now heads the University of Auckland's School of Environment in New Zealand, was the first to question the dire forecasts for Kiribati and similar island nations. In 1999, the World Bank asked him to evaluate the economic costs of sea-level rise and climate change to Pacific island nations. Kench, who had been studying how atoll islands evolve over time, says he had assumed that a rising ocean would engulf the islands, which consist of sand perched on reefs. "That's what everyone thought, and nobody questioned it," he says. But when he scoured the literature, he could not find a single study to support that scenario.

Part of the blame for all these faux catastrophes rests squarely on the news media. Operating under the old adage, "if it bleeds it leads," the mindless vultures of the world's news agencies flock to report any calamity, more than happy to attribute the event to climate change. Instead of registering guns, governments should register cameras and microphones—they are truly dangerous weapons in the hands of the breathtakingly ignorant members of the fourth estate.