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<http://www.theaustralian.news.com.au/story/0,25197,23583376-5013480,00.html>

## Sorry to ruin the fun, but an ice age cometh

Phil Chapman |

**THE scariest photo I have seen on the internet is [www.spaceweather.com](http://www.spaceweather.com), where you will find a real-time image of the sun from the Solar and Heliospheric Observatory, located in deep space at the equilibrium point between solar and terrestrial gravity.**

What is scary about the picture is that there is only one tiny sunspot.

Disconcerting as it may be to true believers in global warming, the average temperature on Earth has remained steady or slowly declined during the past decade, despite the continued increase in the atmospheric concentration of carbon dioxide, and now the global temperature is falling precipitously.

All four agencies that track Earth's temperature (the Hadley Climate Research Unit in Britain, the NASA Goddard Institute for Space Studies in New York, the Christy group at the University of Alabama, and Remote Sensing Systems Inc in California) report that it cooled by about 0.7C in 2007. This is the fastest temperature change in the instrumental record and it puts us back where we were in 1930. If the temperature does not soon recover, we will have to conclude that global warming is over.

There is also plenty of anecdotal evidence that 2007 was exceptionally cold. It snowed in Baghdad for the first time in centuries, the winter in China was simply terrible and the extent of Antarctic sea ice in the austral winter was the greatest on record since James Cook discovered the place in 1770.

It is generally not possible to draw conclusions about climatic trends from events in a single year, so I would normally dismiss this cold snap as transient, pending what happens in the next few years.

This is where SOHO comes in. The sunspot number follows a cycle of somewhat variable length, averaging 11 years. The most recent minimum was in March last year. The new cycle, No.24, was supposed to start soon after that, with a gradual build-up in sunspot numbers.

It didn't happen. The first sunspot appeared in January this year and lasted only two days. A tiny spot appeared last Monday but vanished within 24 hours. Another little spot appeared this Monday. Pray that there will be many more, and soon.

The reason this matters is that there is a close correlation between variations in the sunspot cycle and Earth's climate. The previous time a cycle was delayed like this was in the Dalton Minimum, an especially cold period that lasted several decades from 1790.

Northern winters became ferocious: in particular, the rout of Napoleon's Grand Army during the retreat from Moscow in 1812 was at least partly due to the lack of sunspots.

That the rapid temperature decline in 2007 coincided with the failure of cycle No.24 to begin on schedule is not proof of a causal connection but it is cause for concern.

It is time to put aside the global warming dogma, at least to begin contingency planning about what to do if we are moving into another little ice age, similar to the one that lasted from 1100 to 1850.

There is no doubt that the next little ice age would be much worse than the previous one and much more harmful than anything warming may do. There are many more people now and we have become dependent on a few temperate agricultural areas, especially in the US and Canada. Global warming would increase agricultural output, but global cooling will decrease it.

Millions will starve if we do nothing to prepare for it (such as planning changes in agriculture to compensate), and millions more will die from cold-related diseases.

There is also another possibility, remote but much more serious. The Greenland and Antarctic ice cores and other evidence show that for the past several million years, severe glaciation has almost always afflicted our planet.

The bleak truth is that, under normal conditions, most of North America and Europe are buried under about 1.5km of ice. This bitterly frigid climate is interrupted occasionally by brief warm interglacials, typically lasting less than 10,000 years.

The interglacial we have enjoyed throughout recorded human history, called the Holocene, began 11,000 years ago, so the ice is overdue. We also know that glaciation can occur quickly: the required decline in global temperature is about 12C and it can happen in 20 years.

The next descent into an ice age is inevitable but may not happen for another 1000 years. On the other hand, it must be noted that the cooling in 2007 was even faster than in typical glacial transitions. If it continued for 20 years, the temperature would be 14C cooler in 2027.

By then, most of the advanced nations would have ceased to exist, vanishing under the ice, and the rest of the world would be faced with a catastrophe beyond imagining.

Australia may escape total annihilation but would surely be overrun by millions of refugees. Once the glaciation starts, it will last 1000 centuries, an incomprehensible stretch of time.

If the ice age is coming, there is a small chance that we could prevent or at least delay the transition, if we are prepared to take action soon enough and on a large enough scale.

For example: We could gather all the bulldozers in the world and use them to dirty the snow in Canada and Siberia in the hope of reducing the reflectance so as to absorb more warmth from the sun.

We also may be able to release enormous floods of methane (a potent greenhouse gas) from the hydrates under the Arctic permafrost and on the continental shelves, perhaps using nuclear weapons to destabilise the deposits.

We cannot really know, but my guess is that the odds are at least 50-50 that we will see significant cooling rather than warming in coming decades.

The probability that we are witnessing the onset of a real ice age is much less, perhaps one in 500, but not totally negligible.

All those urging action to curb global warming need to take off the blinkers and give some thought to what we should do if we are facing global cooling instead.

It will be difficult for people to face the truth when their reputations, careers, government grants or hopes for social change depend on global warming, but the fate of civilisation may be at stake.

In the famous words of Oliver Cromwell, "I beseech you, in the bowels of Christ, think it possible you may be mistaken."

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