

Senate Select Committee on Climate Policy

Submission by Bob Foster

regarding ‘Related Matters’

8 April 2009

NATURAL DRIVERS OF WEATHER AND CLIMATE

SUMMARY

1. No-one knows if it will be warmer or cooler within the planning horizon of governments, because no-one can foretell the future.
2. There are two plausible – and mutually-exclusive - hypotheses regarding future climate.
3. The mainstream hypothesis invokes an autonomous Earth, which enjoyed a stable and benign pre-industrial climate.
4. Our now-destabilised climate is driven primarily by people; and the principal source of the observed 20th Century warming was the burning of fossil fuels. There are no cold periods ahead – only more and more warming. That warming is dangerous.
5. The contrarian hypothesis accepts an ever-changing climate, subject to external influences at all time-scales; and the principal source of the observed 20th Century warming was a hyper-active Sun.
6. Because the direction (although not yet the magnitude) of extra-terrestrial influences on climate is now amenable to prediction, the slight cooling observed since 1998 could well continue - and accelerate. Earth may be entering another Little Ice Age cold period.
7. Cooling would reduce the growing-season within the vast croplands of the temperate Northern Hemisphere. That cooling is dangerous; because it would pose a far-greater threat to human well-being than would further warming.
8. At this stage of our knowledge, policy-makers and planners should be preparing for either cooling or warming ahead.
9. Therefore, it is here recommended that no “picking winners” by policy-makers should take place at this time of uncertainty about the direction of future climate change.
10. Instead, it is proposed that large-scale – probably futile, but inevitably costly - action to “fight climate-change” be deferred until at least 2013; because the Working Group I (scientific) volume of IPCC’s Fifth Assessment Report is due for release in that year.
11. If indeed cooling persists through 2013, we would have an observed trend of a decade-and-a-half duration – strongly suggestive that the Sun is the principal driver of climate, and the next Little Ice Age cold period (Landscheidt Minimum) is on the way.

2.

FIRST, a little background. The warming trend from the Maunder Minimum of very quiet Sun (say, 1645-1715) to the Modern Era of hyperactive Sun (say, from 1920) appears at an end. The variable impact of planetary drivers on the Sun's irregular orbit about the centre-of-mass of the solar system can be predicted; and another Little Ice Age cold period appears to be imminent. An indicator is that Solar Cycle 23 lingers on and on – Cycle 24 just won't come. In the past, an extra-long sunspot cycle (and 23 is now certainly that) is followed by an extra-weak cycle. The world has cooled slightly since the giant 1997/8 El Niño – and cooling will intensify until about 2030. This predicted event could be well-called the Landscheidt Minimum¹.

The credibility of “mainstream” (IPCC/Royal Society/NASA) dogma is at stake. IPCC's *Fourth Assessment Report* (AR4) invoked an autonomous Earth with a self-contained climate. Only “natural variability” and people are climatically significant.

The *Summary for Policymakers* of “Climate Change 2007: The Physical Science Basis” gives us the external and anthropogenic contributions to global warming (Fig. SPM-2). Human-caused CO₂ emissions provide 1.66 Watts/m² of forcing (aka ‘warming’). The only external influence is solar irradiance - with a minuscule 0.12 W/m² of increased warming since 1750. The highly-variable outflow of magnetised plasma from the Sun is ignored – as is the crucial impact of externally-driven inertial variation. Essentially – and nonsensically - IPCC has Earth travelling in an empty Universe!

But mainstream scientists are not idiots; and they have much to lose if Earth cools instead of warms - status, funding for research and travel, and above all, credibility (= political clout). Enter *damage control*.

SECOND, what about NASA? It eschews recognition of the link between solar activity and earthly climate – it only talks of “space weather”. Why? Let me go back a century – as reported here².

A Sun-Earth link had been recognised long ago; but The Lord Kelvin (aka William Thomson), President of the Royal Society, changed everything with his *Nature* article of 1 December 1892 (v. 47). Based on his own computations, he wrote:

This result, it seems to me, is absolutely conclusive against the supposition that terrestrial magnetic storms are due to magnetic action of the Sun ... [W]e may also be forced to conclude that the supposed connection between magnetic storms and sun-spots is unreal and the seeming agreement between the periods has been mere coincidence.

COMPUTATION TRUMPS OBSERVATION. The Royal Society has not yet resiled from Kelvin's implausible dogma – which penetrates to the core of mainstream scientific thinking.

1. Theodor Landscheidt 2003, “New Little Ice Age instead of global warming”, *Energy & Environment* v.14 no.2&3, pp.327-50. This ground-breaking paper can be downloaded at: <http://mitosyfraudes.8k.com/Calen/Landscheidt-1.html>

2. Willie Soon & Steven Yaskell 2003, “The Maunder Minimum and the Variable Sun-Earth connection”, *World Scientific* 278 p. (see pp.119-22).

3.

Meanwhile, back at NASA ... As long ago as 2004, it predicted that the change-over from Solar Cycle 23 to 24 would take place before the end of 2006 (these Schwabe sunspot cycles are of generally about 11 years duration). The timing of this change-over is not just of academic interest, because a long cycle is normally followed by a weak cycle – and NASA had predicted that 24 would not be weak – but strong. More information on this crucial concept can be found in this informative – and indeed, prescient – Archibald paper³.

For a time, at least, NASA looked to be on-track. NASA's "What's up in Space" for 13 February 2006, under the heading "QUIET SUN", declared:

"No sunspots, weak X-rays, low solar activity: solar minimum has arrived."

But Cycle 24 didn't come!

Its posting (11 July 2008) of David Hathaway's solar-cycle update is pugnaciously headed:

What's wrong with the Sun? (Nothing).

Beneath is a most-assertive subheading:

Stop the presses! The sun's behaving normally.

This article doggedly continues to predict that – by then, much-deferred - Cycle 24 will still have a higher peak, in sun-spot-number terms, than was the case for punctual 23. But surely, this is denial – not damage control.

Fast forward to April 2009. NASA has bitten the bullet, at last, it seems – sort of!. "Space Weather News" for 2 April has this to say:

SPOTLESS SUNS: Yesterday, NASA announced that the sun has plunged into the deepest solar minimum in nearly a century. Sunspots have all but vanished and consequently the sun has become very quiet. In 2008, the sun had no spots 73% of the time, a 95-year low. In 2009, sunspots are even more scarce, with the "spotless rate" jumping to 87%. We are currently experiencing a stretch of 25 continuous days uninterrupted by sunspots – and there's no end in sight.

This is a big event, but it is not unprecedented. Similarly deep solar minima were common in the late-19th and early-20th centuries, and each time the sun recovered with a fairly robust solar maximum. ...

Implausibly, NASA still envisages that "robust" maximum - arriving in 2012 or 2013. Hence, if NASA is correct, we do not have long to wait.

But how deep will be the impending cooling? Australia's Archibald envisages a look-alike of the Dalton Minimum (say 1800-20). However, Finland's Niroma⁴ anticipates a much deeper cooling – more akin to the fearsome Maunder.

THIRD, the *Hadley Centre for Climate Prediction and Research* (in Exeter) is the engine-room of mainstream "scorekeeping" for the consensus supporting the hypothesis of a dominantly-people-driven global climate.

3. David C. Archibald 2009, "Solar Cycle 24: expectations and implications" (see Appendix).

4. Timo Niroma 2009, "Solar behaviour, and its influence on Earth's climate" (see Appendix).

The Centre was under Sir John Houghton when he headed the UK Met Office – and he headed IPCC in 2001, when its *Third Assessment Report* was issued. Perhaps, this Hadley Centre paper of 10 August 2007 could be intended as officially-sponsored damage control, to some extent – putting inconvenient cooling since 1998 into a non-controversial context⁵. The abstract tells us: *Our system predicts that internal variability will partially offset the anthropogenic global warming signal for the next few years. However, climate will continue to warm, with at least half of the years after 2009 predicted to exceed the warmest year currently on record.* And crucially, the Hadley paper concludes: *... at least half of the years after 2009 are predicted to be warmer than 1998, the warmest year currently on record.*

Supplementary information supplied for the paper, provides the globally-averaged surface temperature of recent years in terms of their ‘anomaly’ compared to the average global temperature during the 1979-2001 interval. Unsurprisingly, the greatest such anomaly is for 1998 (the second year of the giant 97/8 El Niño event) at +0.35 °C.

The farthest-out year of Hadley’s forecast is 2013. Indeed at +0.54 °C (90% confidence range 0.32 to 0.74 °C), it appears that 2013 will be notably warmer than 1998 – which was, quite possibly, the warmest year since the Mediaeval Warm Period. Thus, the people-driven warming-trend will soon resume. That does for now! But it can’t protect climatology’s future credibility, should cooling continue until 2013. It isn’t effective damage control.

FOURTH, the scientific volume of IPCC’s *Fifth Assessment Report* is due out in 2013, with the other two volumes following in 2014. Credibility must be maintained for as long as possible – and, at the very least, through 2014. Hence, this - very ‘mainstream’ – study⁶ was published in *Nature* on 1st May 2008.

Also, in that same issue of *Nature* was a non-specialist translation of the rather-technical Keenlyside et al paper – by Richard Wood, under the heading “Climate Change” and titled “Natural ups and downs” (p. 43). In addition, an attention-getter at the front (p. xi) gave a potted summary:

... over the next decade, natural climate variations in the North Atlantic and tropical Pacific oceans will temporarily offset the projected anthropogenic warming: surface temperatures in Europe and North America may even cool a little.

On the VERY NEXT DAY this important message was repeated in *Science*. Clearly, the Scientific Establishment is being defended here, because this piece⁷ begins:

5. Doug M. Smith et al 2007, “Improved surface temperature prediction for the coming decade from a global climate model”, *Science* v. 317, pp. 796-9.

6. N.S. Keenlyside et al 2008, “Advancing decadal-scale climate prediction in the North Atlantic sector”, *Nature* v. 453 pp. 84-8.

7. Richard A. Kerr 2008, “Global Warming” and then “Mother Nature Cools the Greenhouse, But Hotter Times Still Lie Ahead”, *Science* v. 320 p. 595.

5.

As climate-change sceptics like to point out, worldwide temperatures haven't risen much in the last decade. If global warming is such hot stuff, they ask ...etc.

Kerr then introduces the *Nature* paper published the previous day:

Looking into the future, the model forecasts a slowing of heat-carrying Atlantic currents and thus cooling over the North Atlantic, North America, and western Europe in the next decade. It even predicts a slight cooling of the globe. But by 2030, forecast global temperatures bounce back up to the warming predicted with greenhouse gases alone.

Is this damage control? I can't swear to it, of course, but as E. Knatchbull Hugessen famously said:

If it looks like a duck, walks like a duck, and quacks like a duck, then it is

FIFTH, the consequences of cooling. If indeed the world cools rather than warms within the planning horizon of today's governments, there is much to be done. A recent study⁸ tells us that: *About 5 million km² of natural vegetation are found to be transformed to agriculture between AD 800 and 1700, slightly more to cropland (mainly at the expense of forested area) than to pasture (mainly at the expense of natural grasslands).*

But global agriculture has been very much further transformed since AD 1700.

At present, 30-50% of the Earth's land cover (has) been substantially modified by human land use, primarily by the expansion of agriculture. By 2003, about 15 million km² of cropland and 34 million km² of pasture have replaced natural land cover, providing much of the ecosystem goods and services humanity has become dependent on.

Since 1700 (see Pongratz et al Figure 2), global cropland area has increased dramatically, mostly in the US Midwest and over into Canada, and in Europe plus a narrow extension that reaches as far as Central Asia. This cultivated land is strikingly latitudinally-constrained – which suggests it will be very sensitive to global cooling. Furthermore, at least in the US, cropland is being alienated apace now - to produce biofuels.

But what would a really cold period be like? This evocative quote⁹ relates to the Maunder Minimum, when suffering was particularly acute in Scotland, Finland, and France:

The next year, 1709, was perhaps the most terrible that France has ever known. On 12 January the cold came down. In four days the Seine, all the rivers and the sea on the Atlantic coast were frozen solid. The frost lasted for two months, then there was a complete thaw; as soon as the snow which had hitherto afforded some protection to the land, melted away, the frost began again, as hard as ever. The winter wheat, of course, was killed, so were the fruit, olive and walnut trees and nearly all the vines: the rabbits froze in their burrows; the beasts of the field died like flies. The fate of the poor was terrible and the rich at Versailles were not to be envied.

8. J. Pongratz et al 2008, "A reconstruction of global agricultural areas and land cover for the last millennium", *Global Biogeochemical Cycles* v.22 GB3018, 16p.

9. Nancy Mitford 1966, "The Sun King", *Sphere Books*, 256 p. (see page 222).

SIXTH, looking ahead. I have chosen two contrasting pieces here (both are Australian work). One recognises external influences; and the other embraces the dominant paradigm of a self-contained climate.. The first here chosen¹⁰ deals with what has until now been an intractable problem for forecasters – mega-famine on the Indian subcontinent. (The last was in 1899-1901.)

I here quote in full Ian Wilson’s abstract – identifying an external driver:

Catastrophic multi-year failure of the Indian Monsoon has caused at least eight mega-famines in India over the last 1100 years. Historical data shows that seven out of the eight mega-famines have either started within \pm one year of the year of greatest asymmetry in the Sun’s motion about the Solar System’s centre-of-mass, or 11 years \pm one year after this event. The Sun is currently experiencing a maximum in the asymmetry of its motion about the centre-of-mass. Evidence is presented to show that there is almost a 1-in-4 chance that there will be another Indian mega-famine in 2018-20. While the chance of such a catastrophic event occurring is small, it is large enough that the governments on the Indian sub-continent should take precautionary measures to confront this potentially devastating threat.

Now for an average annual temperature increase of 9 °C by 2030 at Rutherglen. The quote is from “**briefs**” in *Winestate* v. 33 issue 7, (December) 2008, page 9:

ADAPTING TO A HOTTER FUTURE

WINEMAKERS in Victoria’s North East are preparing for a long, hot future, with predictions of average annual temperature rising by 9C by 2030. Average annual rainfall is expected to drop by around three percent and increases in potential evaporation and reductions in relative humidity are expected to contribute to much drier conditions. The projections, based on a medium emissions scenario assessment by the CSIRO and the Australian Bureau of Meteorology, were recently tabled at a Rutherglen Winemakers’ seminar on climate change. The challenge for winemakers, according to Rutherglen Winemakers chair Mandy Jones, is to look for grape varieties that will be suited to a warmer, drier future. Some varieties put forward in a tasting were the red primitivo (aka zinfandel) and white fiano (Italy). albarino (Spain), carignan (France) and asyrtico, a white grape with naturally high acidity from Greece.

But we know that the two Australian authorities involved (CSIRO and Met Bureau) ignore the crucial fact that a large part of the observed warming in Australia after 1910 was associated¹¹ with the Great Pacific Climate Shift of the late 1970s. This was when the Pacific Decadal Oscillation switched from cool-phase to warm-phase, because of a large and abrupt reduction in the upwelling-quantity of cold (deep) water in the equatorial eastern Pacific. (This inertial event may be related to influences external to our planet.)

Quirk’s abstract tells us:

Australian temperatures for the twentieth century show a three stage progression with a moderate temperature increase before and after a significant temperature step in the period 1976 to 1979.

10. I.R.G. Wilson 2009, “Can we predict the next Indian mega-famine?” (see Appendix).

11. Tom Quirk 2009, “The Australian temperature anomaly 1910-2000” (see Appendix).

Can CSIRO and Met Bureau be relied on to predict 2030 climate - based on people as driver - when the natural cause of Australia's largest 20th century warming-step had been overlooked? Therefore, should not the winemakers of Rutherglen defer grubbing out their cool-climate vines?

SEVENTH, building on the past. Dickman¹² (unknowingly) revisited, and has now brought to Earth and substantially extended, the post-WW2 work on “radio weather” by RCA Communications engineer John H Nelson. Circumstantial evidence suggests that the Sun is maintained in a state of incipient resonance tied to the perihelion of the eccentric 88-day orbit of Mercury, and that small inner planets which orbit the Sun (also Venus, Earth, Mars) – as well as larger outer planets which (like the Sun) orbit the centre of mass of the solar system – are capable of triggering Earth-influencing responses. The four points of sensitivity on the solar equatorial plane comprise the “Dickman Cross”.

Mackey¹³ has looked at a very much broader canvas – following (knowingly) in the footsteps of mid-century Australian polymath Rhodes Fairbridge. Surely, no other current paper covers external influences on our planet's weather and climate in such comprehensive fashion.

FINALLY, I append the contents page of *Energy & Environment*, v.20 no.1&2, the first (double) issue for 2009 – only just published. I am guest editor for this 200-page issue; which contains a number of thought-provoking papers calling into serious question the mainstream hypothesis of a primarily people-driven climate. I have only been able to flag some of them..

CONCLUSIONS

Understanding climate-change is a work-in-progress; because the science is still very far from settled.

However, Mazzarella¹⁴ makes a compelling case that it IS already sufficiently settled.

It is too early – and the likely penalty (in terms of needless human misery) for error is too grave – for policymakers and planners to yet choose between a self-contained and primarily people-driven climate, and its natural antithesis.

As the flow of satellite observations becomes a flood, the evidential support for a naturally-driven climate grows apace. The main underlying drivers of climate appear to be externally-linked in some way. Earth does not travel in an empty Universe.

12. Kenneth W. Dickman 2006, “Short and longer-term planetary effects on Sun and Earth”, *Energy & Environment* v.17 no.1, pp.63-73.

13. Richard Mackey 2009, “The Sun's role in regulating the Earth's climate dynamics” (see Appendix).

14. Antonio Mazzarella 2009, “Sun-climate linkage now confirmed” (see Appendix).

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SPECIAL ISSUE: Natural drivers of weather and climate

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