

## Senate Economics Committee – Exposure Draft of CPRS bill

### Submission by Dr Robert Carter

#### Introduction

This submission addresses the title of the bill and the first four paragraphs of the “*Rationale for the Carbon Pollution Reduction Scheme*”, which is the first part of the “*General Outline*” of the “*Commentary*” that accompanies the draft CPRS bill.

*Inter alia*, this written material contains the following statements.

1. Title: “*Carbon Pollution Reduction Scheme*”.
2. Climate change is the greatest social, economic and environmental challenge of our time.
3. As a consequence [of increasing human greenhouse gas emission], the earth’s average temperature is rising and weather patterns are changing.
4. The climate is already changing, with more frequent and severe droughts, rising sea levels and more extreme weather events.
5. Thirteen of the 14 warmest years since records began occurred between 1995 and 2008, and Australia has experienced warmer than average mean annual temperatures for 17 of the past 19 years.
6. The latest report from the Intergovernmental Panel on Climate Change (IPCC), the 2007 Fourth Assessment Report, concludes that Australia has significant vulnerability to the changes in temperature and rainfall projected over the coming decades.
7. The Garnaut Climate Change Review Final Report paints a bleak picture of Australia at the end of this century should greenhouse gas emissions continue unchecked.
  - (a) There would be major declines in agricultural production across much of the country.
  - (b) The Great Barrier Reef and other reef systems, such as Ningaloo, would be effectively destroyed, with serious ramifications for tourism industries and biodiversity.
  - (c) Coastal infrastructure would be at risk of damage from storm surges and flooding.

The statements listed 1-7 above are individually either incorrect, or are so ambiguous, lacking in context or otherwise incompetent, as to be meaningless.

I conclude that no scientific rationale has been provided to parliament that justifies taxation of carbon dioxide with the intent of (“beneficially”) reducing its emission.

Economic analyses and taxation instruments that - like those recommended by Professor Garnaut - are erected upon fallacious concerns underpinned only by speculative computer models serve no useful purpose. Indeed, far from being beneficial, passage of the CPRS bill will cause profound economic and social damage within Australian society.

### **1. A “Carbon Pollution Reduction Scheme”**

The matter of atmospheric greenhouse gases and their effect on climate is one of science. Meaningful science communication is only possible by using precise language. The language of the title of this bill is worse than imprecise, it is wrong; it represents a dishonest advertising slogan more than it does an accurate description of the content of the bill.

First, the topic under discussion is not “carbon”, but human carbon dioxide emissions and their potential effect on climate. It makes no more sense for this problem to be analysed in terms of the “carbon” in the atmosphere than it would for, say, Sydney’s water supply to be discussed in terms of “hydrogen”.

Use of the term carbon in this way is a deliberate gambit favoured by those who wish to confuse the public by lumping together particulate carbon pollutants and the beneficial, plant-nourishing gas that carbon dioxide represents. This usage not only causes deliberate confusion, but at the same time conveys the subliminal message that coal is a “dirty” energy resource.

Second, carbon dioxide is not a pollutant but a naturally occurring, beneficial trace gas in the atmosphere, currently at a level of c. 380 parts per million (ppm). For the past few million years, the Earth has existed in a state of relative carbon dioxide starvation compared with earlier periods when the atmosphere contained up to ten times today’s concentration or more (Boucot et al., 2004; Chumakov, 2004; Lowenstein & Demicco, 2006).

There is no empirical evidence that carbon dioxide levels double or even treble those of today will be harmful to the planet, climatically or otherwise. Indeed, a trebled level is roughly what commercial greenhouse tomato growers aim for to enhance growth. As a vital element in plant photosynthesis, carbon dioxide is the basis of the planetary food chain—literally the staff of life. Its increase in the atmosphere leads mainly to the greening of the planet (Wittwer, 1992; Saxe et al., 1998). To label carbon dioxide a “pollutant” is an abuse of language, logic and science.

*Conclusion. The title of the CPRS bill is grossly misleading, to a degree that casts doubt on the bill’s intentions and on the motivation of those who coined it.*

## **2. Climate change is the greatest social, economic and environmental challenge of our time**

The term “climate change” does not appear in the Glossary of the Commentary. From the first sentence, and throughout the Commentary, the Bill and associated papers, it is evident that the authors either do not understand, or are deliberately obfuscating, the meaning of this term. The meaning not only of every sentence that contains the phrase, but also of the entire CPRS bill, is therefore profoundly ambiguous, and turns upon the meaning assigned to “climate change”.

In public discussion, “climate change” has come to be used with at least two, contradictory meanings.

*A. Scientific.* Climate change is used as a descriptive term with no connotations of causation, and thus encompasses both natural and human-caused change. This is the usage preferred both by IPCC (2001, 2007) scientists and by most of the greater number of independent, non-IPCC scientists.

*B. Causatory.* Climate change is used in a restricted way, and implies a human causation without specification of the magnitude of any human effect with respect to the dominant natural change. This is the usage of the UN Framework Convention on Climate Change (FCCC), to which the IPCC reports, of non-governmental environmental organisations and of most media commentators and therefore the general public.

Scientists who provide dispassionate reviews of global warming alarmism are often accosted with questions like: “*Don’t you believe in climate change, then?*” In reality, this question is sloppy code for “*Don’t you believe that dangerous global warming is being produced by human carbon dioxide emissions?*”.

Far from being idle, the distinction between these two meanings is mission critical for logical analysis. A primary reason for the existing public confusion about global warming is that the two main meanings of “climate change” given above, and the surrogacy of the first for “human-caused global warming”, are used by global warming alarmists to advance the debate towards their own particular cause. Ways in which this occurs are described in the attached review of the politico-sociology of the global warming debate (Attachment 1).

In the light of this discussion, is Statement 2 true, or not? There are three answers, namely:

(i) if by “climate change” is meant “dangerous global warming caused by human greenhouse gas emissions”, then Statement 2 is profoundly untrue for scientific reasons that are discussed in more detail in Attachment 2;

(ii) if by “climate change” is meant “natural climate change”, then Statement 2 would at least be worthy of consideration; the likely result of that consideration would be the conclusion that natural climate change is a real hazard that requires formulation of national policy to address it (Attachment 3); however, though it is

a significant problem, it is unlikely that natural climate change would be seen as the greatest problem of our time; and lastly

(iii) if by “climate change” is meant “all climate change, including both natural and possibly human-caused”, then the same comments apply as in (ii) above, with the following additional comment; a national climate policy that adequately addresses natural change will, by its very nature, deal also with any human-caused warming that might or might not manifest itself in future (Attachment 3).

*Conclusion. The key issue that faces policymakers prior to formulating policy is how to distinguish between definite NATURAL and hypothetical HUMAN-CAUSED global climate change. That issue has been ignored in the tabled CPRS bill.*

### **3. As a consequence [of increasing human greenhouse gas emission], the earth’s average temperature is rising and weather patterns are changing**

This statement is untrue. First because the earth’s average temperature has not risen for the last ten years, since 1998. Second, because there is no sound empirical evidence that global temperature changes and weather patterns are changing in a way that lies outside the bounds of natural change, nor that the changes that we do observe have a human causation.

Natural climate change occurs on a range of time scales from millions of years down through millennial and centennial scales to the 11 year sunspot cycle and the several year El Nino-La Nina oscillation.

With respect to these climate changes, extensive geological databases (including lake, ocean and ice-cap cores) and meteorological records show that:

A. Over the recent geological past, the global average temperature on the planet has varied between 2-3 deg. C warmer and 6-8 deg. C cooler than today (Fig. 1). Changes between colder (glacial) and warmer (interglacial) climatic states have often taken place rapidly.

B. Neither the rate nor the magnitude of warming during the late 20<sup>th</sup> century, nor the cooling since 1998, are in any way exceptional; both fall well within the normal bounds of natural climate change.

C. The best available meteorological records show that there has been no significant net global warming at all since 1958 (Fig. 2; the start of the weather balloon radiosonde record), nor since 1979 apart from a small step across the 1998 El Nino event (Fig. 3; the start of the satellite MSU record), and that stasis and gentle cooling has occurred since 1998.

D. Since 1958 there has been an increase in atmospheric carbon dioxide, partly due to human emissions, of more than 20%. That there has been no concomitant increase in global temperature invalidates the IPCC hypothesis of dangerous global warming being caused by carbon dioxide emissions.

A detailed substantiation of these statements, with references to the relevant refereed scientific publications, is contained in the review paper provided as Attachment 2.

Since 1990, the IPCC has presented four major assessment reports. In the meantime, thousands of scientists have spent more than US\$50 billion in climate-related research in unsuccessful attempts to measure a signal of human-caused warming.

Humans have a demonstrable (i.e., measurable) effect on local climate, which is sometimes warming (the urban heat island effect) and sometimes cooling (land clearing and cropping). Adding these effects all over the globe, therefore, must result in a global human climate signal. However, the magnitude (and even the sign) of this global signal remains unknown.

*Conclusion. Statement 3 is incorrect. Despite the expenditure of large amounts of time, money and research effort, no global human climate signal has ever been isolated or measured. Its magnitude is therefore small, and it must lie obscured within the noise and variation of natural climate change.*

#### **4. The climate is already changing, with more frequent and severe droughts, rising sea levels and more extreme weather events**

This is an astonishing mis-statement.

First, of course the climate is “already” changing, for change is what climate always does. No evidence exists that the rate or direction of climate change today is in any way unnatural (see previous discussion under Statement 3).

Second, of course global sea-level has been rising over the recent decadal time scale, as a continuation of a natural trend that has lasted at least as long as we have had tide gauges to measure it (about 1700; IPCC, 2001). No evidence exists that the rate of global sea-level rise accelerated in the late 20<sup>th</sup> century, or that sea-level rise bears any relationship to the intensity of human greenhouse gas emissions. Finally, over the short term, global sea-level now appears to have been falling since about 2003 (Willis et al., 2008; cf. Loehle, 2009).

Even more to the point is the fact that global (termed eustatic) sea-level changes - projections for which are what the IPCC provides, and which are presumably what are referred to in Statement 4 - have little relevance to coastal management in specific locations. The persons who wrote and approved of Statement 4 are apparently unaware that around Australia the local sea-level is falling at some places and rising in others, and that the shoreline is a dynamic feature the position of which changes (naturally) through time in response to the local balance of eustatic sea-level change, substrate subsidence or uplift, and sediment supply. *What counts for coastal management purposes is not speculative projections of future eustatic sea-level rise, but actual measurements of the real rate of local relative sea-level change at specific sites. Such considerations are not discussed at all in the supporting material for the draft CPRS bill.*

Third, there is an extensive literature on the frequency and severity of storms and droughts, much of it comprising statistically contrived argument. But even were it to

be demonstrable that storms and droughts are becoming increasingly frequent (which it isn't), that does not *ipso facto* mean that human activity has anything to do with it. Change is what climate does, and one consequence is that over any reasonable period of time ALL natural weather phenomena vary in their frequency and intensity, sometimes increasing and sometimes decreasing, in accordance with the turbulent dynamics of earth's ocean-atmosphere system.

It is the case, nonetheless, that recent publications indicate that global tropical storm activity is currently at its lowest level since accurate records are available (Maue, 2009); that since 1850 there has been a decrease in the number of forest fires, and by inference droughts, at least in eastern north America (Girardin et al., 2006); and that Australia's greatest known drought, affecting the large Burdekin catchment in Queensland, occurred over almost seven decades between 1802 and 1869 (McCulloch et al., 2003).

*Conclusion. Statement 4 is grossly erroneous in every way.*

**5. Thirteen of the 14 warmest years since records began occurred between 1995 and 2008, and Australia has experienced warmer than average mean annual temperatures for 17 of the past 19 years.**

These statements betray either a lack of understanding of the context of climate change, or alternatively belie a propaganda intent. For it is no more significant that 13 of the last 14 years are the warmest since instrumental records began than it is that the hottest days of each year cluster around and shortly after the midsummer's day.

Like weather, climate changes rhythmically and often cyclically. It is simply absurd to pick a period around the end of the 20<sup>th</sup> century that lies near the top of a known climate cycle (a millennial solar one; Avery & Singer, 2008), compare it with a short record of observations (about 150 years; which represents just 5 climate data points), and then draw a portentous inference about climate change.

The context for climate change is data that stretches over at least tens of thousands of years. That the entire instrumental record is only 150 years long makes it imperative that geological datasets are used when making comparative statements about modern climate change. There is little sign in Professor Garnaut's report, nor in any of the documents associated with the draft CPRS, that the speculative modern climate change being legislated for has been considered in its proper natural and geological context.

As covered in the discussion of Statement 3, temperatures at the end of the 20<sup>th</sup> century were in no way unusually warm. For example, they were about a degree cooler than obtained during the Holocene climatic optimum (several thousand years ago), about 2 degrees cooler than obtained during the last interglacial period (125 thousand years ago), and about 3-4 degrees cooler than obtained during the Pliocene (6-3 million years ago) (cf. Fig. 1).

*Conclusion. Statement 5 is scientifically trivial; it also appears to be deliberately intended to mislead.*

**6. The latest report from the Intergovernmental Panel on Climate Change (IPCC), the 2007 Fourth Assessment Report, concludes that Australia has significant vulnerability to the changes in temperature and rainfall projected over the coming decades.**

The IPCC is a political and not a scientific organisation. Many persons have detailed the inadequacies of the IPCC's procedures, including in particular their flawed scientific review processes (e.g., Courtenay, 2001; Wasdell, 2007; McLean, 2007a, b; 2008).

The Select Committee on Economic Affairs of the U.K. House of Lords concluded in 2005 that:

*'We can see no justification for an IPCC procedure which strikes us as opening the way for climate science and economics to be determined, at least in part, by political requirements rather than by evidence. Sound science cannot emerge from an unsound process'.*

In addition, the computer models used by the IPCC in projecting future Australian climates are unvalidated, and the outputs are therefore selected from amongst a large number of equally probably virtual reality futures, i.e. they do not comprise predictions of future climate (e.g., Trenberth, 2007).

This is confirmed by the disclaimer that CSIRO attaches to all its public reports on climate change that use GCM modelling (Walsh et al., 2002):

*"This report relates to climate change scenarios based on computer modelling. Models involve simplifications of the real processes that are not fully understood. Accordingly, no responsibility will be accepted by CSIRO or the QLD government for the accuracy of forecasts or predictions inferred from this report or for any person's interpretations, deductions, conclusions or actions in reliance on this report."*

*Conclusion. The IPCC, as an arm of the United Nations, is a political organisation. The statements it makes about future Australian climate are not founded in empirical science but in speculative computer modelling, and represent selected future climate outcomes out of millions of equally probable alternatives.*

**7. The Garnaut Climate Change Review Final Report paints a bleak picture of Australia at the end of this century should greenhouse gas emissions continue unchecked.**

Professor Garnaut is an economist. His report has no competence in science, and merely repeats parrot fashion the advice of the IPCC and its advisory agencies (such as CSIRO).

In preparing his report, Professor Garnaut appears to have paid no attention to the advice and assessments that he received from qualified scientists who are independent of the IPCC process.

*Conclusion. The Australian government has failed to conduct a competent, independent, due diligence review of the much-disputed scientific evidence that is claimed to support the hypothesis of dangerous human-caused global warming.*

**8. Professor Garnaut’s report says that under human-caused global warming:**

- (a) There would be major declines in agricultural production across much of the country.**
- (b) The Great Barrier Reef and other reef systems, such as Ningaloo, would be effectively destroyed, with serious ramifications for tourism industries and biodiversity.**
- (c) Coastal infrastructure would be at risk of damage from storm surges and flooding.**

These assertions are the outcome of the same unvalidated computer models referred to in the discussion of Statement 6, above. They represent speculation, some of it wild, and as such are completely out of place in documents tabled in parliament in support of the legislative process.

*Conclusion. The assertions in Statement 8 have no basis in empirical science, and their inclusion in the preamble to a parliamentary bill is astonishing.*

**9. The need for a proper national climate policy**

The discussion of Statements 1-8 demonstrates that the draft CPRS is without scientific foundation, not least because the human-caused global warming that the bill is intended to combat has yet to be measured or otherwise convincingly demonstrated.

However, that there is no basis for alarmism about human-caused change does not serve as a justification for ignoring the all-too-real threats posed by natural climate change. I conclude my submission, therefore, by making a brief assessment of natural climate threat in the context of the national climate policy that is needed to counter it.

*Mitigation or adaptation?*

Before a process can be mitigated, it has to be accurately identified and specified. As no human global climate signal has yet been unequivocally measured, the potential signal can only be mitigated on a precautionary basis.

But, equally, you can only take precautions against a known phenomenon. Global temperature has not increased since 1958 (radiosonde record), and the slight warming that occurred between 1979 and 1998 has been followed by stasis and, since 2002, by cooling. Application of a precautionary approach must then now require taking precautions against cooling rather than warming.

The main thing that is known about future climate change is that it will continue. Coolings, warmings, abrupt changes and severe weather events are all certain to



occur, and are unpredictable in detail. No known policy option can mitigate all these different processes; adaptation is therefore the only feasible option.

*But isn't human-emitted carbon dioxide a greenhouse gas?*

That increases in emission of carbon dioxide have failed to produce measurable warming does not invalidate the fact that carbon dioxide is a greenhouse gas. Rather, it shows that at recent past, present and near future concentrations, the temperature sensitivity of carbon dioxide increases is very small. This is in accord with empirical evidence of the logarithmic relationship between increasing carbon dioxide and increasing temperature (IPCC, 2001), and with calculations that doubling carbon dioxide from pre-industrial levels will result in warming of less than 1 degree (Lindzen, 1997; cf. Schwartz, 2008).

Given the very low climate sensitivity of increasing carbon dioxide over the likely range of atmospheric concentrations of c. 280-600 ppm, making cuts to human emissions, or even stopping them altogether, will make no measurable difference to future global temperature. In other words, mitigation of even theoretical global warming by reducing carbon dioxide emissions is not a feasible policy option.

*How much cooling will cuts in Australian emissions achieve?*

Astonishingly, this question is not addressed in either the Garnaut Report nor in the papers related to the draft CPRS bill.

It should be noted, however, that the argument is not that a reduction in Australian carbon dioxide emissions will prevent warming in Australia, but that a reduction of GLOBAL emissions (including an Australian component) will cause measurable moderation of GLOBAL warming. This argument is theoretical, unproven, and conflicts with the empirically-based information discussed earlier.

Nonetheless, comparison with DICE modelling of the U.K.'s emission scenarios (Lomborg, 2008) suggests that sharp cuts in Australian emissions might lead to the prevention, or deferral for a few days, of global warming of less than 1/1000 of a degree. In practice, changes this small cannot be measured meaningfully, and anyway any such putative local cooling might be counteracted or even reversed by other local climate feedbacks.

The precise effects of cuts in Australian emissions on future Australian climate will always be unknown, but are so small as to be effectively irrelevant.

*A real national climate policy is a matter of risk appraisal*

As discussed earlier, a choice between mitigation or adaptation cannot be made until the question has been addressed: *“What particular change in climate, if any, should Australian legislation be designed to counter?”* Do policymakers wish to address the current but real global climate trend (which is cooling; Fig. 4), or the hypothetical future human-caused warming trend predicted by unvalidated GCM computer modelling (Fig. 5), or the hypothetical natural cooling trend predicted by several statistical computer models (Fig. 6)?

The matter of future climate change is, in reality, one of risk appraisal. In this context it is certain - i.e., there is a 100% probability - that natural climate change will continue, and that the changes will from time to time wreak human and environmental damage. Natural changes will include cooling trends, warming trends and sudden step-events.

Extreme weather events (and their consequences) are natural disasters of similar nature to earthquakes, tsunami and volcanic eruptions, in that they can neither be predicted far ahead nor prevented once they are underway. The existence of such real natural hazards is the prime reason that civil defense agencies exist. It is therefore the case that all countries, including Australia, need to develop national climate strategies that are suited to their own particular local climate hazards (i.e., one IPCC size will not fit all), and the circumstances require that such strategies be adaptive in nature.

Our neighbour New Zealand has already developed its own national agency to deal with these hazards, termed GeoNet (GeoNet, 2006; Attachment 4), which is linked to a parallel hazard compensation agency called the Earthquake Commission. The major storms and floods that are already covered by GeoNet represent the short, “weather” end of the spectrum of climate processes. Their effects are not, however, different in kind to longer term climatic changes, which can easily and cost-effectively be incorporated into the charter of a national hazard agency.

#### *The need for both effectiveness and prudence*

Notwithstanding the points just made, and however small the probability may be of human-induced global climate change, prudence requires that a mechanism be identified that can cope with dangerous human-caused warming should it emerge.

The need is for a policy that deals with real climate change as it unfolds, whatever the causation. Implementing an adaptive climate policy by creating a national hazard management agency that advises on and manages all weather and climate risks is the prudent action that is required.

### **Conclusions**

- Climate always changes.
- Natural climate change encompasses many dangerous hazards, including those caused by cooling and warming trends, abrupt changes and damaging weather events. Climate hazards thus form a spectrum from “instantaneous” (weather) events at one extreme to longer term trends (e.g. development of a major drought) at the other.
- The draft CPRS bill is an ineffectual attempt to address speculative, long-term global warming only. It does not consider natural change, and is neither an adequate national climate policy on its own nor even a desirable part of one.
- Western societies, including Australia, already manage the risk of short-term climatic events using conventional, responsive, adaptive hazard management.

This is also the most prudent and cost-effective way of dealing with longer-term climate change, including any of human origin should it emerge, through the establishment of an appropriate natural hazard management agency.

Adaptation to climate change as it happens is a win-win policy that addresses real rather than hypothetical problems, and which would cost but a fraction of the money involved in introducing a carbon dioxide taxation system such as is represented by the draft CPRS bill.

Dr. R.M. Carter  
March 28, 2009

## References

- Avery, D.T. & Singer, S.F., 2008 (2<sup>nd</sup> Ed.). *Unstoppable Global Warming: Every 1,500 Years*. Lanham, MD: Rowman & Littlefield Publishers.
- Boucot, A J, Xu, C & Scotese, C R, 2004. Phanerozoic climate zones and paleogeography with consideration of atmospheric CO<sub>2</sub> levels. *Paleontologicheskij Zhurnal* 2, 3-11.
- Chumakov, N M, 2004. Trends in global climate changes inferred from geological data. *Stratigraphy & Geological Correlation* 12, 117-138.
- Courtenay, R.S., 2001. Crystal balls, virtual realities and ‘storylines’. *Energy & Environment*, 12: 4.
- Garnaut, R., 2008. *The Garnaut Climate Change Review: Final report*.
- GeoNet, 2006. The GeoNet Project. Monitoring geological hazards in New Zealand [online]. Available from: <http://www.geonet.org.nz/>
- Girardin, M. P., Tardif, J. 7 Flannigan, M.D., 2006. Temporal variability in area burned for the province of Ontario, Canada, during the past 2000 years inferred from tree rings. *Journal of Geophysical Research* 111: 10.1029/2005JD006815.
- House of Lords, 2005. *The Economics of Climate Change*. Select Committee on Economic Affairs, 2nd Report of Session 2005-06, volume 1: Report (Paper 12-I).
- IPCC, 2001. *Climate Change 2001: The Scientific Basis*. Intergovernmental Panel on Climate Change, Working Group 1, third assessment report. Cambridge: Cambridge University Press.
- IPCC, 2007. *Climate Change 2007: The Scientific Basis*. Intergovernmental Panel on Climate Change, Working Group 1, fourth assessment report. Cambridge: Cambridge University Press.
- Klyashtorin, L.B. & Lyubushin, A.A., 2003. On the coherence between dynamics of the world fuel consumption and global temperature anomaly. *Energy & Environment* 14, 733-782.
- Liljegren, L., 2008. IPCC Projections Overpredict Recent Warming. The Blackboard. <http://rankexploits.com/musings/2008/ipcc-projections-overpredict-recent-warming/>
- Lindzen, R.S., 1997. Can increasing carbon dioxide cause climate change? *National Academy of Science, USA, Proceedings* 94, 8335–8342.
- Loehle, C., 2009. Cooling of the global ocean since 2003. *Energy & Environment* 20, 101-104.
- Lomborg, B., 2008. Global warming: why cut one 3,000th of a degree? *The Times*, September 30, 2008: [http://www.timesonline.co.uk/tol/comment/columnists/guest\\_contributors/article4849167.ece](http://www.timesonline.co.uk/tol/comment/columnists/guest_contributors/article4849167.ece)
- Lowenstein, T. K. & Demicco, R. V., 2006. Elevated Eocene atmospheric CO<sub>2</sub> and its subsequent decline. *Science* 313, 1928.
- Maue, R.N., 2009. Northern Hemisphere tropical cyclone activity. *Geophysical Research Letters* 36, L05805, doi:10.1029/2008GL035946.
- McCulloch, M., Fallon, S., Wyndham, T., Hendy, E., Lough, J. & Barnes, D., 2003. Coral record of increased sediment flux to the inner Great Barrier Reef since European settlement. *Nature* 421, 727-730.
- McLean, J., 2007a. Peer review, what peer review? *Science and Public Policy Report*, Sept. 10, 2007.

<http://scienceandpublicpolicy.org/press/ipccprocessillusion.html>.

McLean, J., 2007b. The IPCC under the microscope – a list of articles that seriously question the credibility and integrity of the IPCC's activities and claims. <http://mclean.ch/climate/IPCC.htm>.

McLean, J., 2008. An analysis of the review of the IPCC 4AR WG I Report (1st edition, August 2007, as revised 24 October 2007). [http://mclean.ch/climate/IPCC\\_review\\_updated\\_analysis.pdf](http://mclean.ch/climate/IPCC_review_updated_analysis.pdf).

Mix, A.C., Pisias, N.G., Rugh, W., Wilson, J., Morey, A. & Hagelberg, T., 1995. Benthic foraminiferal stable isotope record from Site 849, 0-5 Ma: Local and global climate changes. In: Pisias, N.G., Mayer, L., Janecek, T., Palmer-Julson, A. & van Andel, T.H. (eds.), *Proc. ODP, Scientific Results 138, College Station, TX (Ocean Drilling Program)*, 371-412.

Mix, A.C., Le, J. & Shackleton, N.J., 1995. Benthic foraminifer stable isotope stratigraphy of Site 846: 0-1.8 Ma. In: Pisias, N.G., Mayer, L., Janecek, T., Palmer-Julson, A. & van Andel, T.H. (eds.), *Proc. ODP, Scientific Results 138, College Station, TX (Ocean Drilling Program)*, 839-856.

Saxe, H., Ellsworth, D.S. & Heath, J., 1998. Tree and forest functioning in an enriched CO<sub>2</sub> atmosphere. *New Phytologist* 139, 395-436.

Schwartz, S. E., 2008. Reply to comments by G. Foster et al., R. Knutti et al., and N. Scafetta on “Heat capacity, time constant, and sensitivity of Earth's climate system”, *Journal of Geophysical Research* 113, D15105, doi:10.1029/2008JD009872.

Thorne, P.W., Parker, D.E., Tett, S.F.B., Jones, P.D., McCarthy, M., Coleman, H. & Brohan, P., 2005. Revisiting radiosonde upper air temperatures from 1958 to 2002, *Journal of Geophysical Research*. 110: D18105, doi:10.1029/2004JD005753.

Trenberth, K.E., 2007. Predictions of climate. *Nature – Climate Feedback Blog*, June 4, 2007. [http://blogs.nature.com/climatefeedback/2007/06/predictions\\_of\\_climate.html](http://blogs.nature.com/climatefeedback/2007/06/predictions_of_climate.html).

Walsh, K. et al., 2002. *Climate Change in Queensland under Enhanced Greenhouse Conditions*. CSIRO Atmospheric Research Division, Final Report 1997-2002, 84 pp.

Waddell, D., 2007. Political corruption of the IPCC Report? [online]. Available from: <http://www.meridian.org.uk/Resources/Global%20Dynamics/IPCC/index.htm>

Willis, J.K., Chambers, D.P. & Nerem, R.S., 2008. Assessing the globally averaged sea level budget on seasonal to interannual timescales. *Journal of Geophysical Research* 113, C06015, doi:10.1029/2007JC004517, 2008.

Wittwer, S.H., 1992. Rising carbon dioxide is great for plants. *Policy Review*. Fall issue: <http://www.purgit.com/co2ok.html>

## Attachments

*Attachment 1.* Carter, R.M., 2008a. The futile quest for climate control. *Quadrant No. 451 (vol. LII, Number 11, p. 10-18), Nov. 2008.*

*Attachment 2.* Carter, R.M., 2008b. “Knock, knock” where is the evidence for dangerous human-caused global warming. *Economic Analysis and Policy* 32(2), 107-202 (September, 2008).

*Attachment 3.* Carter, R.M., 2009. The problem is NATURAL climate change, stupid! *International Conference on Climate Change, New York, March 10, 2009: 2 pp.*

*Attachment 4.* Harris, J., 2008. Hazard Watch - To better prepare Civil Defence and the public for when disaster strikes, the nation-wide GeoNet service monitors earthquakes, volcanic unrest, land instability and tsunamis. In: Graham, I. (ed.), *A Continent on the Move*, Geological Society of New Zealand (distributed by Craig Potton Publishing), pp. 182-183.

**Figures**

Figure 1. Composite deep ocean temperature curve from DSDP Sites 86 and 849, North Pacific, over the last 6 million years (proxy: oxygen isotope ratios in marine core; diagram courtesy Alan Mix, after Mix et al. 1995a, b).

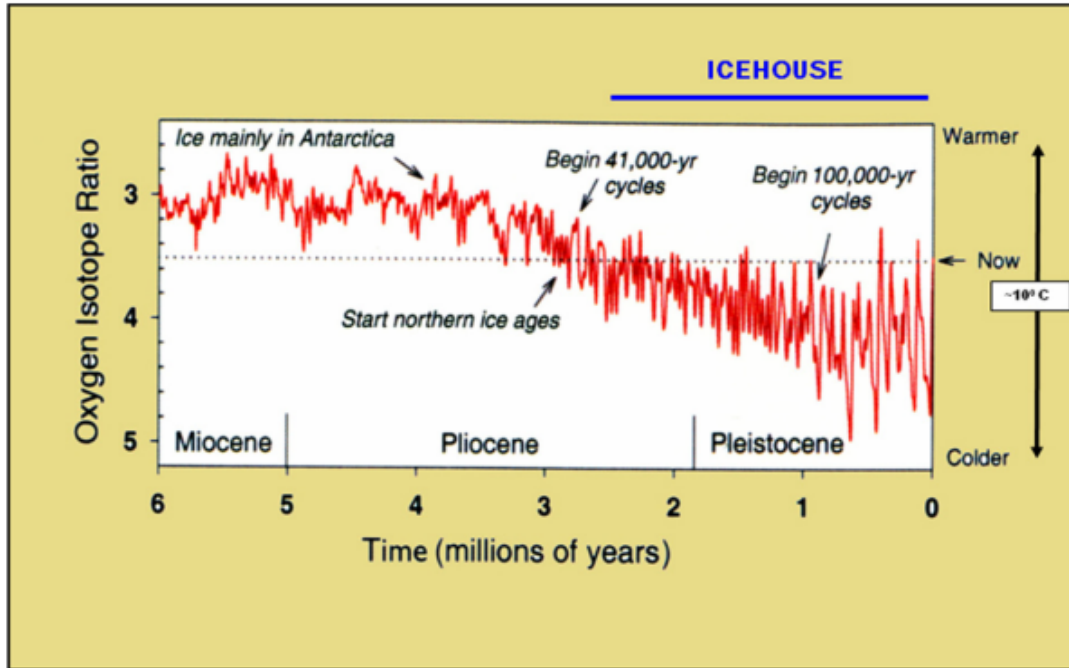


Fig. 2. Estimated lower troposphere global temperature record over the last 50 years (averaged worldwide radiosonde measurements from weather balloons (Thorne et al. 2005).

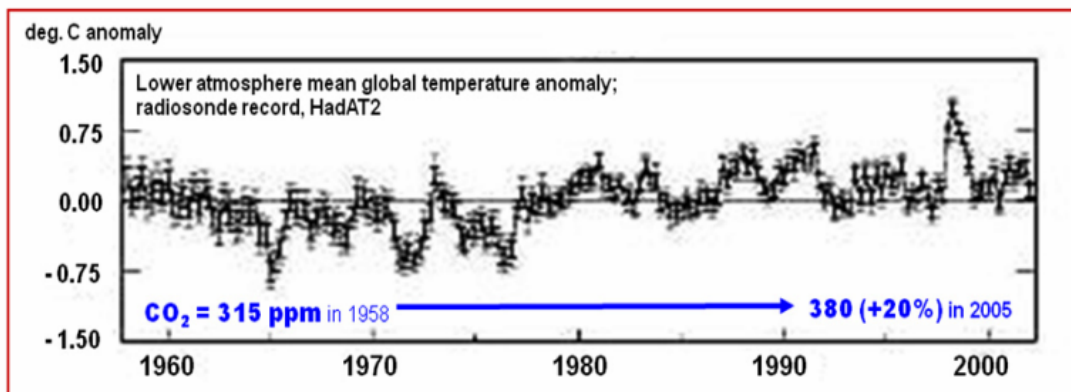


Fig. 3. Estimated lower troposphere global temperature record over the last 29 years (averaged worldwide microwave sensing unit (MSU) measurements from satellites; Christy and Spencer, University of Alabama, Huntsville – blue line; Remote Sensing Systems – blue line).

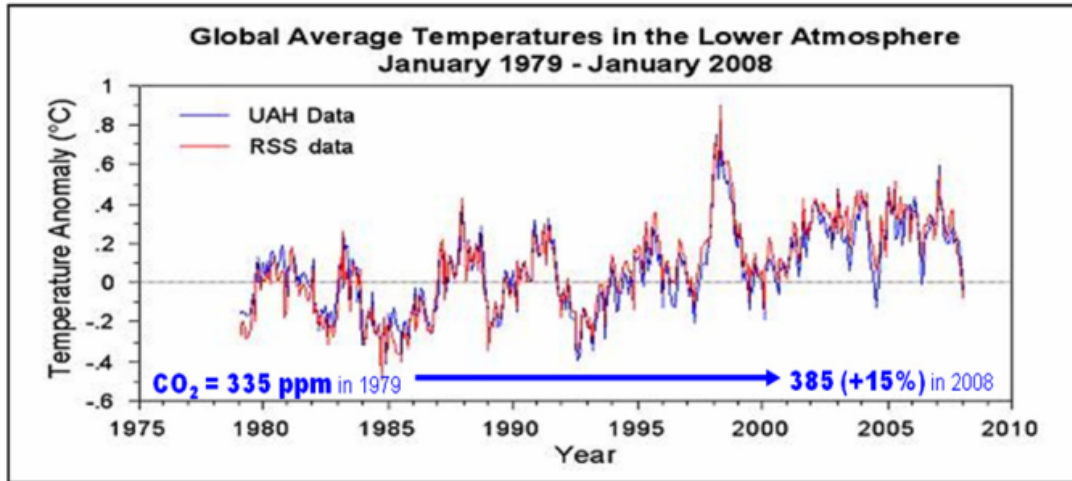


Fig. 4. Estimated global lower troposphere (blue plot; MSU measurements) and ground surface (purple plot; Hadley CRU) temperature records over the last 6 years, with fitted cooling trendlines.

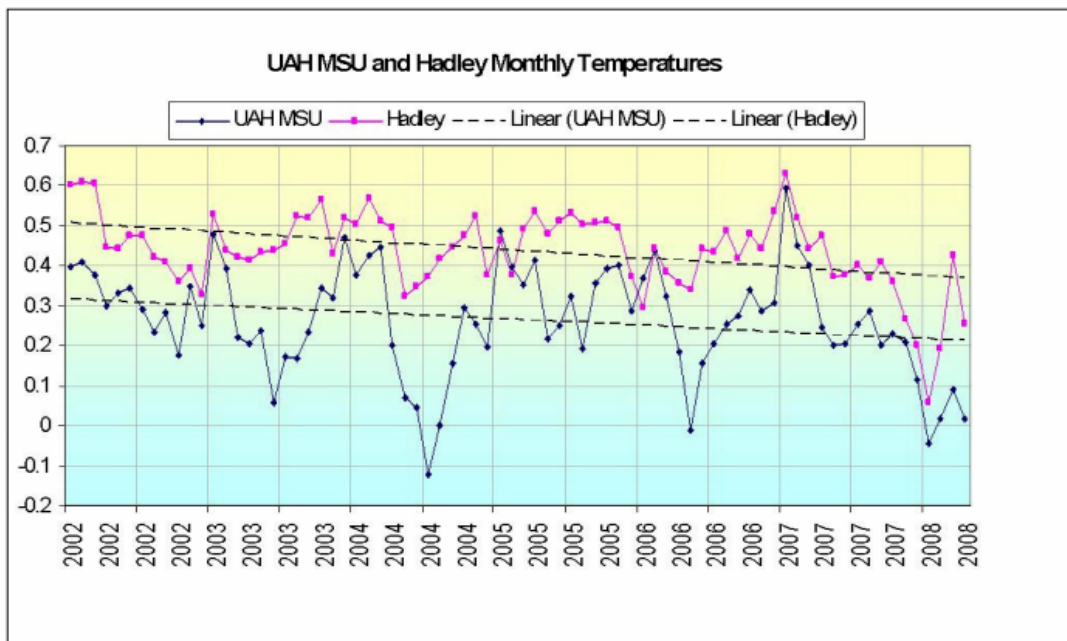


Fig. 5. Measured surface temperature to 2000 (black line) followed by IPCC model projections of future temperature (red line plus scatter of estimates represented by purple envelope) and projection of the 2001-2008 cooling trend (Liljegren 2008). Note that all IPCC projections now fall outside the error bounds of the trend based on the elapsed temperature record.

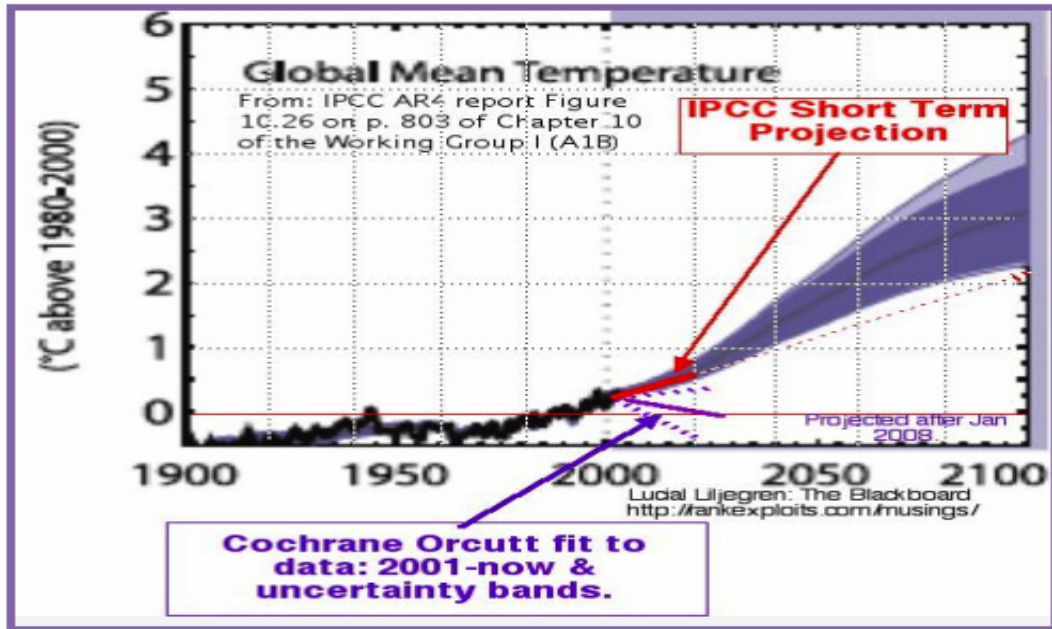


Fig. 6. Global thermometer ground temperature record between 1860 and 2000 with fitted cyclic modelled trend and its projection out to 2025. Note that the model extrapolation is consistent with measured temperatures between 2000 and 2008 (cf. Fig. 4).

