

The "Climate Change Australia" report of 2007 - an assertion-laden sales brochure

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The report, "Climate Change in Australia: technical report 2007", by the CSIRO and Bureau of Meteorology (BoM) was released on 2 October 2007 and predicted a dire climatic future. The contents of the report (see footnote 1 for source, and henceforth "CCA report") have been widely accepted by politicians, the media and the public with hardly a murmur.

That's a rather disturbing acceptance of a document that is loaded with vested interests, ignores various temperature factors, unjustifiably minimises influence of a major climate force and lacks substantiation for its most important claims.

In short it is little more than a sales brochure for the unproven claim that man-made emissions of carbon dioxide are the cause of climate changes.

1. It contains a prior assumption that carbon dioxide has caused warming

From the very start of chapter one the report makes it clear that greenhouse gases will be the key focus, and of course prime suspect, if such can be said of kangaroo courts.

In that chapter we are being softened up for a barrage of assertions and sure enough chapter 3 presents those assertions by claiming that almost every climate variation in Australia over the last 50 years was caused by anthropogenic emissions of carbon dioxide.

The CSIRO presents no evidence for this claim and the weight of its argument is based only on the repetition of words. Readers are clearly expected to accept this at face value but a wide reading of relevant literature shows plenty of reason to question it.

Delve a little deeper and the CCA report is largely based on the report of the Intergovernmental Panel on Climate Change (IPCC). Explore the IPCC's claims and the evidence there is also remarkably weak. First we have an assumption that temperature data is accurate and that a loose but delayed correlation between the increases in temperature and carbon dioxide is somehow evidence that carbon dioxide drives temperature. Second is the assumption that climate models are accurate, which is difficult to believe when even the IPCC admits that many climate factors are poorly understood.

In other words this CCA report is focused exclusively on an already-questionable premise and provides no justification for doing so or evidence to support the premise.

2. It ignores relevant climate factors

Chapter 2 of the report discusses historical variations in Australia's climate but ignores at least two important temperature forces, namely cloud cover and the influence of wind speed and direction. The impact of cloud cover on temperatures gets a mentioned later in chapter 5 when discussing minimum temperatures so its omission from chapter 2 is even more puzzling.

Variations in cloud cover can greatly influence the monthly mean temperature because of that temperature is calculated as the average of the monthly average minimum temperature and the monthly average maximum temperature. A brief period without cloud on an otherwise cloudy day or night can have a big impact on the daily extreme figures from which those averages are determined.

At Coldstream, just outside Melbourne's eastern extremity, 12 May 2007 was cool and cloudy with a brief spell of sunshine in the mid afternoon. Across the midnight-to-midnight period the calculated average of the minimum and maximum temperatures (5.4°C and 22.0°C respectively) was 13.7°C but the average of the recordings made at 30-minute intervals by the automatic weather station was just 10.1°C. The huge difference is entirely due to that short spell of sunshine.

Another significant influence on temperature is wind direction. Chapter 2 only mentions wind speed but most places in Australia have cool winds from some directions and warm winds from others.

The observation station at Laverton, on Melbourne's south-western outskirts provides a good example of this influence, and incidentally is part of the network of high-quality stations from which the Bureau of Meteorology determine national average temperatures. Hot northerly winds are a key aspect of Victoria's summer temperatures so a simple filter was created to reject the temperature data for all days where at least two of (9am windspeed > 20km/hr, 3pm windspeed > 20km/hr and maximum wind gust > 40km/hr) applied and where the wind directions matching those criteria were from the northern quadrant (i.e. NE-NW).

When this filter was applied to last summer's data (Dec 2006 - Feb 2007) the average maximum summer temperature fell from 26.7°C to 25.5°C, the average minimum from 14.5°C to 14.0°C and the number of days with maximum temperature above 35°C fell from 11 to just 3. The mean summer temperature fell 0.85°C, which by chance is comparable to the increase in Australia's mean temperature since 1950.

If wind patterns have shifted in the last 50 years, and it is highly likely that they have, then some impact on Australia's temperatures is to be expected, but the CSIRO report seems oblivious to the notion.

3. It changes its mind about the influence of the El Nino – Southern Oscillation (ENSO)

Chapter 2 of the report frequently mentions that the El Nino-Southern Oscillation (ENSO) influences various climatic conditions. We are even told very explicitly:

"The El Niño – Southern Oscillation (ENSO) is strongly related to major Australian anomalies in rainfall, temperature and tropical cyclones." (pg 26)

and elsewhere in that chapter we are told of a link to ocean currents.

By chapter 3 this strong relationship apparently evaporates and rates only a brief mention in one sentence on page 6 of this 7-page chapter, under a heading of "Other modes of Variability".

It's not difficult to understand why ENSO is re-assigned to an "other" category when the CCA report is so intent on claiming, with no evidence whatsoever, that anthropogenic greenhouse gas emissions are the principal cause of those historic climate variations. Suggesting that natural causes may have even slightly contributed to climate change is very obviously not on the agenda of the CSIRO and BoM.

Throughout chapter 2 are numerous references to changes that have occurred since the 1970s. The report fails to pay any attention to those changes but they can be attributed to the Great Pacific Climate Shift of 1976, an event well known to climatologists but apparently not the authors of the report.

This abrupt change moved the Pacific Ocean towards El Nino conditions, as shown by the Southern Oscillation Index, which averaged +1.97 for the 25 years before 1976 and -2.88 for the 25 years after the change.

The CCA report discusses the trend in the Southern Oscillation from 1876, one hundred years earlier, up to the present day but ignores that the trend is dominated by low values since 1976. The overall trend from 1876 to 2006 is a decrease of 1.85/century but the trend from 1876 to 1975 is an increase, not a decrease, of 2.59/century. Not surprisingly there is a steep downward trend from 1975 to 2006 of 3.52/century, and therein lies the key to the changes mentioned in chapter 2 to temperature, rainfall, cyclones and ocean currents. No wonder conditions have changed in the last 30 years.

The analysis of temperature changes can be taken even further. In my paper "*Australian Temperature Variations - an Alternative View*" [footnote 3] I show that temperatures before and after the climate shift have varied about their average values in a statistically similar manner and it appears that the Great Pacific Climate Shift forced Australia's temperature to increase by about 0.5 degrees but since that change it's been business as usual.

4. It relies on unproven climate models

The majority of the CCA report relies on the use of climate models (i.e. computer models of climate) to firstly indicate what changes, according to the models, might be due to anthropogenic greenhouse gas emissions and secondly to make forecasts over the next 60 years.

The report doesn't call the latter forecasts but only projections based on certain scenarios, but the news media and the general public certainly perceive them as forecasts. Let's use the popular interpretation in much the same way that "climate change" is now widely regarded as "man-made climate change".

The entire forecasting exercise is based on the optimistic but misguided belief that the models are sufficiently complete and accurate to have credibility. That's highly unlikely given that the IPCC indicated in its Third Assessment Report in 2001 that most climate factors were poorly understood. The more recent 2007 report was devoid of any similar mention of the state of knowledge of all climate factors but indicated low levels of scientific understanding of several factors involved with radiation.

According to experts in these matters, including some who believe strongly in man-made warming, the current climate models omit many factors and grossly generalise others. Even what appear to be simple climate factors are still poorly understood. Scientists still argue about the climatic influence of low cloud in different situations, and if there is no agreement then the action can't be described in climate models.

Climate models as they are today make too many generalisations and unsupported assumptions about the climate system, and they omit many possible climate factors that are still being investigated. There is simply no way that they should be regarded as accurate and comprehensive simulations of the climate system.

This has never stopped the CSIRO though. In previous climate reports the CSIRO used many climate models that were unable to produce output that accurately matched historical data from observations. (See my published paper "*A Critical Review of Some Recent Australian Regional Climate Reports*" [footnote 2]).

This time around there is no comparison between the output of models and historical climate data and the reader is clearly expected to assume that the models are accurate and credible.

We are even instructed to ignore natural climate variability and rely on models:

"Accurate estimation of natural variability based on observations is difficult. It is instructive to consider the variability simulated by the CSIRO Mark 3.5 climate model, in an 1100-year simulation for steady, pre-industrial conditions." (pg 56)

With breath-taking arrogance the variation in real-world observations is dismissed and we are asked to regard the models as an accurate reproduction of conditions that are not properly understood. It's a case of the virtual reality of computer models taking over from the reality of observations.

Are the report's authors trying to hide the inaccuracies or does it believe that readers are gullible enough to believe anything they are told?

The 2007 climate report says:

"... the work presented here assumes that an ensemble of global climate model results gives a representation of the expected change of the real world to a specific [greenhouse gas] emission scenario" (pg 51).

This is not an assumption but a fact; an ensemble of the results of models will always give a representation. The real assumption is that taking the average result of a collection of inaccurate models will somehow produce the correct answer.

The report provides an insight into the variation in output of the different climate models:

"While the mean annual change in precipitation is mostly negative, there are some models that simulate an increase. This is seen in Figure 5.15, which shows the percentage of models projecting an increase in the (percentage) trends. In the north, half the models have an increase in the annual case, and in summer. Nearly all models produce a decrease in the south-west and along the south coast in winter." (pg 66)

Despite the variations that this passage describes the CCA report relies on a consensus of models - almost a show of hands - and talks about the percentage of models predicting an increase in rainfall over certain periods.

The other problem with this approach is that all climate models are different so if we take the most optimistic outlook and consider that one model is correct then its results will be mixed with the results of the incorrect models.

Perhaps a prediction from the accurate model is very different to the consensus of the other models or perhaps it is close to the average. Quite likely the degree similarity will be different for different aspects of climate. It is simply impossible with the current level of scientific knowledge to determine which model might be accurate, if any of them. The one thing we can be confident about is that the "consensus of models" approach used by CCA report is dominated by results from inaccurate models.

In passing I note that the models are used to predict the number of days of extreme temperature. Earlier in this document it was shown that the number of such days is probably very dependent on the wind speed and direction. Are we expected to believe that these factors can now be determined for more than 22 years in the future (i.e. for 2030), let alone 62 years in the future?

5. Questions of underlying credibility

Forget any notion that this report is impartial. Over the last 10 years the CSIRO has developed a market niche for its climate reports that claim that human activities have had significant influence on the climate. Given that the CSIRO is a co-author of the CCA report the chances are slim that this report would even slightly concede otherwise.

As with previous reports, the time-frames are set so far in the future that verification of the accuracy of the forecasts will be extremely difficult, and of course the authors be retired and avoid any responsibility for inaccuracies. Why not produce a report for just five years in the future so that credibility of these reports can be properly judged?

This report cites over 280 references and 37 of the report's 46 authors are also authors or co-authors of those works, 6 of them each being responsible for more than 10 references each.. Many of those references, both external and from the report's authors, are dominated by the theme of man-made warming.

Almost one-third of all cited references are to material that does not appear to be peer-reviewed and possibly not even reviewed in-house. Among these are papers submitted to journals but not yet reviewed, various reports, books, chapters of books, symposium presentations and even web pages.

If we add to that the influence that the claim of man-made warming may have had to funding/income, to research and to reputations the picture is not at all encouraging.

Conclusion

If the 2007 CCA report makes any claims to be an impartial, thorough and accurate assessment of the recent and future Australian climate then it does so under false pretences.

It is overwhelmingly biased towards greenhouse gases being the major cause of climate change since 1950 and yet produces absolutely no evidence for this assertion. Some natural forces are ignored and another that is first highlighted as being linked to historical climate variations is subsequently dismissed as being minor or irrelevant.

There is only one notion that matters to this report - that man-made emissions of carbon dioxide have a major impact on climate. Come hell or high water, this report tries to ram that unproven notion into its readers at every turn. Create climate models based on that assumption, never verify their accuracy and then wave a consensus of results as if it was proof, that's the process behind this report.

The report is, by and large, nothing more than a marketing document, one written by people with vested interests, never subjected to any independent review and gravely biased towards a particular claim.

We would never accept without independent and impartial review an evaluation of a drug written by it's own researchers or an invitation to invest in shares that was written only by a company's sales department so why should we accept this CCA report without similar review?

It is an exceptionally sad reflection on Australian politicians, news media and the public that the report has been so readily accepted as credible and the predictions treated as near-certainties.

Footnotes:

- 1 Download from <http://www.climatechangeinaustralia.gov.au/resources.php>
- 2 McLean, J.D. (2006) "A Critical Review of Some Recent Australian Regional Climate Reports", Energy and Environment, vol. 17, no 1 (March 2006). (Available online via http://www.mclean.ch/climate/global_warming.htm)
- 3 McLean, J.D (2007) "Australian Temperature Variations - an Alternative View", released on the Internet and available via http://www.mclean.ch/climate/global_warming.htm. (This paper has not been peer-reviewed but then the CCA report was not peer-reviewed either and it seems that "science by press release" has become the norm for climatology. Why should I not follow suit?)