

Those who have knowledge, don't predict. Those who predict, don't have knowledge" – Lao Tzu, 6th Century BC Chinese Poet

Why No Dangerous Rise in Temperatures Threatens

Address to Savage Club Forum, 22 March 2010

By Des Moore

Summary Points

- The Copenhagen “flop” suggests no binding global agreement to reduce emissions;
- Climategate has exposed numerous errors/faulty analyses in IPCC reports, including likely defects in temperature measurements;
- However, the widespread “lock-in” to the supposed “scientific consensus” has led to retention of government emission reduction policies and continued media acceptance;
- There is also a counter-attack claiming the basic science is OK. A joint CSIRO-BOM report reflecting that is very thin;
- Recent US polling shows much diminished public acceptance there of the dangerous warming thesis;
- There is no scientific consensus that urgent government action is needed to reduce greenhouse gas emissions to prevent dangerous increases in temperature arising from increasing use by humans of fossil fuels. Well over 30,000 scientists are sceptics or dissenters. Former influential CRU head (Jones) has told the BBC last month that the “vast majority” of scientists do not think the debate on climate change is over;
- Analyses by Ross Garnaut for all Australian Governments have many defects;
- Although agreeing there are **large** uncertainties in the science, Garnaut has wrongly accepted it and the application of the precautionary principle. Great uncertainties also about the possible timing/extent of temperature increases themselves rule that out;
- Analysis by Treasury/Garnaut of minimal adverse economic effects from mitigatory action to stabilise CO2 concentration levels at 550ppm by 2050 contrast with other analyses suggesting large adverse effects;
- Garnaut’s conclusion that Australian real GDP would be 700% higher in 2100 even if no mitigatory action is taken suggests the priority should be private sector adaptation rather than government action to handle temperature changes. New commercial technologies will become available to supply non-emission producing requirements;
- That conclusion also supports the view that, even if temperatures resume increases, no need exists for urgent emissions reduction action;
- The IPCC undertakes no scientific research and appears to have been written mainly by those sympathetic to the warmist view. Its main advisers are of the same ilk. Peer reviews by members of the “club” are meaningless;
- Many individual scientists and groups of scientists, including contributors to IPCC reports, have in fact expressed scepticism of or dissent from the IPCC view. These include Australian scientists who (inter alia) audited responses to Climate Change Minister Wong’s answers to Senator Fielding and concluded no warming since 1997;

no strong evidence that CO2 emissions are causing global warming; and no scientific consensus exists;

- The IPCC (and advisers) portray temperature changes by using decadal averages. These show warming trends which do not appear when annual averages are used and they “hide” the increase of 0.6 of a degree in the mid 1970s (equal to 75% of the total increase over the past century) due to the Great Pacific Climate Shift. That event had no connection to fossil fuel emissions;
- An examination of annual changes in temperature and in concentration levels of CO2 over the past century shows no statistical relationship but includes two periods of steady temperatures when quite strong increases in concentration levels occurred;
- Jones acknowledged that no statistical evidence of warming for last 15 years;
- An examination of changes to Darwin temperatures by the Bureau of Meteorology suggest “adjustments” that have created a warming trend that did not occur;
- Claims that existing temperatures are at the highest level recorded or higher than in the past fail to take account of both the non-emissions caused rise from the Great Pacific Climate Shift and the strong (indirect) evidence that temperatures were higher in the Medieval and Roman periods;
- Analyses of ice cores show that a long history of past temperatures increases *before* CO2 concentration level increases;
- Analyses of changes in sea levels and in the extent of ice coverage in the Arctic and Antarctic suggest no potential substantive threats from abnormal floodings or increased meltings. Warnings that large numbers of houses are exposed to flooding are grossly exaggerated;
- The Great Barrier Reef has recovered from large bleachings that seemingly occur during El Ninos (which are not connected to emissions);
- Even if temperatures increase there is no sound basis for the modelling by Garnaut of adverse rainfall projections for the Murray Darling Basin or for expecting the Murray Darling Basin to cease agricultural production;
- The IPCC summary of various warming and cooling influences has such a wide range of possibilities that its selection of an average increase in radiation of 1.6 watts per square metre appears arbitrary and wide open to challenge;
- IPCC estimates of the greenhouse effect coming from the radiation back to earth from CO2 concentration levels fail to allow for the accepted research showing no linear relationship between temperatures and CO2 concentrations and that even a doubling of concentration levels would increase temperatures by only a very small proportion;
- IPCC modelling of temperature projections significantly understate the temperature reducing effects of evaporation from oceans (70% of the earth) that offset the initial temperature rising effect from the “greenhouse” radiation back from the concentrations in the atmosphere.
- The fundamental faults in IPCC analysis lead to the conclusion that the best policy is one based on adaptation by the private sector to temperature increases as and when they occur.

I should start by indicating that I have no belief in the thesis promulgated by the Intergovernmental Panel on Climate Change that unless government action is taken to reduce emissions of greenhouse gases there will be a continuing increase in temperatures that will reach dangerous levels for humans. I propose to examine the main arguments adduced to support this thesis and to show that there is no substantive basis to them. I say this despite the acceptance of the thesis by just about all major political parties in the Western world and despite persistent claims that there is a scientific consensus on the issue.

This may sound like a brave even foolhardy position from which to start. And when I first began to present my views on global warming in public two or three years ago I was indeed widely regarded as being an extremist and ignoring what some regarded as the greatest threat faced by mankind. But this was not the first time I had tackled a similar supposedly irrefutable argument. Back in 1972 when I attended the Royal College of Defence Studies in London I wrote a paper examining the thesis, current at that time, that government action was needed to prevent the development of a shortage of resources to meet the needs of growing populations. Then as now the thesis was strongly supported by respected scientists and others. In that year, for example, a paper entitled "A Blueprint for Survival" received support from a large number of eminent scientists in the UK, including many fellows of the Royal Society and science professors. My counter argument was that the scientists had not only failed to understand the way economic systems function to overcome actual or potential shortages but had overlooked the almost certain development of scientific innovations that would themselves ensure growing living standards in those countries which allowed their economic systems to work.

Although it did not disappear, and every now and again still rears its head, this 1972 Malthusian thesis faded away as world economic growth allowed increasing living standards and the identified supply of resources also continued to grow. Today, with the global warming scare we have probably just passed through the equivalent of the 1972 situation and are starting to recognise the problems with the dangerous global warming thesis. This is reflected in the fiasco in Copenhagen which confirmed what anyone who has been involved in international negotiations should have known, namely that it is almost impossible to obtain meaningful international agreements that have major adverse effects on living standards in national economies. Just as important as the Copenhagen flop has been the exposure of exchanges of emails between scientists which has indicated that the experts who are part of the supposed scientific consensus are in reality much less than 90 per cent certain that the dangerous warming thesis is correct, as IPCC reports claim. This exposure has also revealed that the scientists involved are not above manipulating data and using dodgy analyses to produce results that fit the theory. There is now considerable doubt about the accuracy of actual surface temperature measurements and the extent of increases.

The most publicised error in the IPCC 2007 report is the claim that Himalayan glaciers are in danger of melting by 2035, which if correct would have serious adverse implications for water supplies in major countries. It turns out that, contrary to IPCC claims that everything has been peer-reviewed, this one was not and the Indian head of IPCC, Rajendra Pachauri, who initially said the denial was voodoo science, had to admit an error. But this was not the only case where IPCC alarmism and/or failure to peer review had been used to scare people into believing the thesis. Others include incorrect claims that 40% of the Amazon rain forest is at risk of destruction; that African agricultural production is likely to be cut in half; that coral reef degradation will be extensive; that glacier melt will occur in the Andes and Alps; that extreme weather related events are causing rising costs; and that the Netherlands is 55%

below sea levels when in fact it is only 26% and has shown itself well able to handle relevant problems.

These errors and alarmist analyses have recently led to the announcement of “independent reviews” into the IPCC and the Climate Research Unit at East Anglia University, a unit headed by Dr Phil Jones which has been a major, if not the major, supplier of data and analyses to the IPCC, which itself undertakes no scientific research. One early casualty has been the resignation of Yvo de Boer, Head of UN’s Framework Convention on Climate Change. Jones, who has been suspended from his position pending the outcome of the inquiry, has also let the cat out of the bag in an interview with the BBC environment reporter in which he admitted that surface temperature data probably cannot be verified or replicated, that the medieval warming period may have been as warm as today; that no statistically global warming has occurred for the last 15 years; and that the science is not settled.

Despite such revelations, and the Copenhagen fiasco, it is highly unlikely the reviews will be truly independent. The UN’s review, for example, is only of IPCC procedures and will draw on those in the science “club” viz the Inter-Academy Council representing 15 leading science academies. The unfortunate reality is that so many politicians, scientists, public servants and even economists have locked themselves into the supposed scientific consensus that it is likely to take some considerable time, and changes of governments, before government policies designed to reduce greenhouse gas emissions are either abandoned or allowed to wither on the vine.

With one or two exceptions, the media has also locked itself in. This was vividly illustrated during the record snow falls in eastern US in February, when Time and the New York Times claimed that the record snow falls actually reflected global warming because the warmer world creates more moisture and that can produce more snow. This claim of course conveniently overlooked that the creation of snow depends on the air being cold enough. But it reflects a wider attempt to explain “unfavourable” *specific* climate events by using a “weather is not climate” approach.

Here in Australia the Rudd Government retains its policy of reducing emissions by 5%, which the Opposition also supports although by direct action not via a complex cap and trade system. The Fairfax press remains firmly locked in and even The Australian, which publishes sceptical views, has stuck to an editorial position that there is a warming problem. Its focus has been on publishing sceptics who argue for much less aggressive ways of “saving the planet” and on opposing the adoption by Australia of an emissions reduction policy regardless of what others do.

More generally, the believers in the dangerous warming thesis have mounted a strong counter-attack by claiming that the errors do not affect the basic *science* in the 987 page report of Working Group 1 of the IPCC’s 2007 report and that led to the 90% certainty claim for the dangerous warming thesis in the more urbane “Summary for Policy Makers”. This claim is made even though the words “uncertain” or “uncertainty” appear more than 1,300 times in the Working Group 1 report, and include 54 “key uncertainties” that acknowledge limits to capacity to predict climate change. Climate campaigners have also adopted a strategy of questioning the credibility of sceptics, with Greenpeace claiming it needs to access emails/documents from university based sceptics and requesting they submit to polygraph examinations. Ad hominem-type attacks have included claims by former chief UK scientist David King that foreign intelligence services were working with US industry

lobbyists to hack emails within the Climate Research Unit; claims by Harvard's Jeffrey Sachs comparing sceptics to tobacco scientists; and by US Senator Sanders, who compared sceptics with appeasers of Hitler in the 1930s.

The Australian counter-attack includes the joint *State of Climate* report on 15 March by the CSIRO and Bureau of Meteorology, "sourced from peer-reviewed data" and claiming Australia will be hotter and drier in coming decades and that it is "very likely that human activities have caused most of the global warming since 1950". I discuss this very thin and misleading contribution later. At about the same time the veteran of the ABC Science Show, Robyn Williams, felt safe enough to criticise publicly the speech by his Chairman, Maurice Newman, who had suggested unbalanced media reporting on climate change. Williams referred to four interviews he had had with sceptical scientists, explained that he does not interview people who are "plainly from a lobby group" and using totally irrelevant examples referred to those who say "HIV doesn't cause AIDS [or] petrol sniffing is good for kids or smoking doesn't cause cancer". Economist John Quiggin, a firmly entrenched columnist in the Australian Financial Review, claimed "critics of science are using lies in their attack and are easily finding favour in some media" and proceeded to selectively quote phrases in articles by sceptics whose leaning favours a reduced role for government. Yours truly got a mention on the basis that I said there has been no warming in the last 15 years when what I really did was to quote Jones' statement in his BBC interview!

These counter-attacks by warmists have not so far effected any reversal in the public polling showing a diminishing interest in and acceptance of the dangerous warming thesis. In the latest Gallup Poll in the United States, for example, out of eight environmental problems global warming ranked last and only 28 per cent "worried a great deal" about it, down from 33 per cent last year. Their biggest "worry" was pollution of drinking water. Pew polling showed that those who believe that global warming is due to human activity have fallen from 47% in October last year to 36%, the same (as Gallup shows) as the proportion who believe houses are haunted! Unfortunately, in Australia where the dangerous global warming thesis has been less exposed to public criticism and debate only limited attention has been given to polling on this issue.

Along with the Climategate exposure and Copenhagen, this polling has contributed to some backtracking by some warmists about the views of sceptics. The new British Chief Scientist, for example, acknowledged that "there is fundamental uncertainty about climate change prediction that can't be changed" ("The Times", 27 Jan 10) and Australia's Chief Scientist made similar remarks. However, that is about as far as the backtracking has gone. For example, an attempt by John Christy (an IPCC lead author) to have an alternative view included in IPCC reports has received no response from 140 authors of the Working Group 1 report. Proposals by four respected Australian scientists for an independent inquiry into the science have fallen on deaf ears. Nor has there been any recognition of the well over 30,000 scientists around the world who have expressed sceptical or dissenting views on the dangerous warming thesis (on the 7.30 report on 29/9 Pachauri was allowed to get away with a comment that "*the number of sceptics is going down rapidly*").

Nor has there been any examination of the past record of scientists which shows, as I have already pointed out, that they have been far from gods in their past analyses and predictions. In his book *Scared to Death*, Christopher Booker identifies many occasions just in recent history in which scientists have wrongly predicted disastrous consequences if governments failed to intervene to control human activity. Booker has recently published another book,

The Real Global Warming Disaster, solely on global warming and suggesting “a small group of ‘global warming zealots’... have repeatedly rigged the evidence to support their theory”. Nor has analysis by Australia’s professionally respected Productivity Commission been recognised. It has pointed out that “uncertainty continues to pervade the science and geopolitics and, notwithstanding the Stern Report, the economics”. It added that “independent action by Australia to substantially reduce GHG emissions, in itself, would deliver barely discernible climate benefits, but could be nationally very costly”. It also describes the Stern report “as much an exercise in advocacy as it is an economic analysis of climate”.

Australian Governments have employed a relatively sober chief adviser on climate matters. Economist Ross Garnaut has produced a major report and made many statements in support of government action to reduce emissions, but he has dodged any attempt to assess the science. Although agreeing there are **large** uncertainties in the science, he asserts that “the outsider to climate science has no rational choice but to accept that, on the balance of probabilities, the mainstream science is right in pointing to high risks from unmitigated climate change” (Final Report on Climate Change Review, September 2008). On this incorrect basis he has accepted that an externality exists requiring government intervention consistent with global action to stabilise CO₂ concentrations to avoid further “dangerous” increases in temperatures. It is astonishing that he even supports the policy that both major political parties now espouse of Australia acting to reduce emissions without any binding global agreement – or any realistic prospect of such an agreement.

Let me just make it clear here that I am not a scientist. But my nearly 50 years experience as an economic analyst both in Treasury and outside provides a basis for assessing the credibility of data used to justify the dangerous warming thesis and for examining alternative explanations by sceptical scientists. Contrary to Garnaut’s assertion, qualified “outsiders” **must** pass judgement on science-based proposals –if they did not there would be a much bigger hole in government budgets!

The uncertainties about mainstream science and the extent of dissent are so large that any attempt to apply the so-called precautionary principle would defy common sense. Moreover, even if it were accepted that temperatures will increase, the enormous uncertainties about the timing of any such increases and about whether comprehensive mitigating action is required suggests no case has been established for governments to **start** an emissions reduction program. Some say it’s no different to insuring your home. But not all of the population does that and home insurance does not normally cover damage from certain irregular catastrophic events. There is a strong case for arguing that individuals should have the responsibility for dealing with most problems that may arise if temperatures happened to increase as the IPCC has projected.

Before turning to the economic justifications for government actions to reduce emissions I draw your attention now to Figures 1 and 2 in the circulated graphs, which have been compiled by an Australian expert on climate science, Bill Kininmonth, and Australian physicist, Dr Tom Quirk. I will argue later that a proper interpretation of these graphs suggests that the official versions published by the CRU and our BOM have been manipulated to portray a warming trend that does not in fact occur. Figure 4 is also important because it has comparisons of changes in temperature and in concentration levels of CO₂ in the atmosphere from which there is radiation back to the earth’s surface.

Analysis of Economic Effects

Although Garnaut's Final Report of September 2008 acknowledges that a meaningful emissions reduction program would involve "a major change in the structure of our economy", like many other "expert" economic analyses it concludes that, over time, the net effect of mitigatory action will be beneficial. This conclusion is based on a view that, in addition to preventing damage from higher temperatures, Australian and other major economies have adaptive capacities that allow the transfer to low-emissions energy with relatively small initial adverse economic effects. However, in a remarkable selling point (sic) for today's voters, I'm sure you will all be pleased to know that "the main costs ... and therefore the main benefits of mitigation, accrue in the 22nd and 23rd centuries and beyond"! (P249).

The Garnaut report takes the 550 ppm stabilisation of CO₂ concentrations objective by 2050 as a given and assumes that if no mitigatory action is taken temperatures will increase to 5 degrees by 2100, which is more than the upper end of the 2007 IPCC projection. However, the report reaches a quite remarkable conclusion that "Australian material living standards are likely to grow strongly through the 21st century, **with or without** mitigation" (p565, my emphasis). The modelling finds "mitigation cutting the growth rate over the next half century, lifting it somewhat in the last decades" and a GDP at the end of the century "higher with 550 mitigation than without" (p 245). The graphical presentation of the mitigated outcome shows GDP about 5 per cent higher than otherwise in 2100, without any error range (p 267).

So, the scenario offered by the Garnaut modelling is that, under a mitigatory policy, the present generation would have lower growth for the next 40 or so years so that the next (and later) generations could (supposedly) benefit. But the most remarkable aspect of this scenario is that even if we do nothing to reduce the supposed damage from higher temperatures, there will be very little adverse effect on GDP in 2100. In fact the modelling suggests that a do nothing policy would still mean a GDP 700 per cent larger in real terms than today.

In a separate document, released in 2008 by Treasurer Swan and Climate Change Minister Wong ("Australia's Low Pollution Future: The Economics of Climate Change Mitigation", 30 Oct 08) Treasury arrived at virtually the same conclusion. After examining various global scenarios it concluded that mitigatory action to achieve CO₂ concentration levels of 550 ppm by 2050 would reduce real GDP per capita growth by only 0.1-0.2 % pa. Looking at this from the other side, the experts' view is that damage from global warming between now and 2100 would be miniscule.

I do not propose any detailed assessment of the Treasury/Garnaut modelling except to suggest that, like any modelling, it has the potential for substantive error given that normal adaptive behaviour is assumed despite the acknowledged major structural changes, and that no allowance is made for possible "shock" effects. It seems to be accepted by Garnaut and Treasury that there would be no adverse effects from operating with less efficient capital and energy or from the major increase in government intervention in economic decision-making that would likely inhibit entrepreneurial activity outside the financial sector. In comparison, climate economist Richard Tol estimates that the cost of mitigatory action by 2100 will be about 40 times greater than the benefits (see "Climate folly before failure", Alan Wood, The Australian, 1 Oct 09). The reality is that even mitigatory action between now and 2020 to achieve 20% lower emissions could have significantly greater adverse initial economic effects than implied by the modelling. In their pamphlet "Back to the 19th Century" some

colleagues have, with former Finance Minister Peter Walsh, outlined the extensive potential for adverse influences.

The Garnaut report raises three questions.

First, given that the Garnaut report effectively assumes that Australian living standards would increase progressively to ever higher levels even if there is also a large increase in temperatures, doesn't this suggest that a private sector that is getting wealthier and wealthier should be directly responsible for alleviating or suffering the main costs? That should mean a policy based mainly on adaptation rather than mitigatory action enforced by government.

Second, given the wide range already available of technological alternatives to fossil fuels, and the considerable research assistance already provided by governments, is it not very likely that over the next 25 years one of those technologies will become economically viable? Even if this doesn't eventuate, is there any substantive reason why nuclear power could not start to be used in Australia, perhaps initially on a subsidised basis, and then extended progressively if temperature increases resume? It is surely contrary to the national interest to start now **forcing** reductions in CO2 emissions, let alone mandating resort to alternatives to supply 20 per cent of electricity by 2020.

It is relevant that one parameter in the Treasury modelling is that "carbon capture and storage technology combined with coal and gas electricity generation is assumed to be available on a **commercial** scale from 2020 in both Australia and the world" (emphasis added). Did the Government accept this assumption and, if so, why is it proceeding with an emissions reduction policy?

My third question is why is it necessary to "do a Stern" and look at what might happen beyond 2050 when temperatures are projected to reach an additional two degrees tipping point beyond which feedback will supposedly make it impossible to stop further increases? Even if existing alternative energy technologies do not become economically usable by then, history tells us that science would very likely have produced a new, but now unknown viable solution. It is nonsensical to argue for government intervention now to "save the planet" because no economically viable solution is currently available.

My assessment of the published economic modelling, and the potential availability of alternative technology, is that no substantive basis exists for urgent action to reduce greenhouse gas emissions. But, as Garnaut rightly says "Climate change policy must begin with the science", (Garnaut Climate Change Review Interim Report, February 2008, p8) and we should assess the data used to justify the scientific basis.

Assessing the Science

Although the IPCC's key public document ("Summary for Policy Makers") derives from submissions by scientists, the drafters have mainly been people sympathetic to the dangerous global warming view. Claims that peer reviews ensure accuracy are meaningless when reviewers are in the same club (and some important conclusions now appear not to have been peer reviewed). Also many scientists who made submissions have subsequently rejected or qualified analyses in IPCC reports and, following the absence of any warming for a decade, some have suggested there will likely be one or even two decades during which temperatures cool.

Here in Australia in July last year four expert Australian scientists advised Senator Fielding on responses by Climate Change Minister Wong to Fielding's questioning of her. They published an audit that concluded there has been no warming since 1998, there is no strong evidence that CO2 emissions are causing global warming, and that no scientific consensus exists (see "Independent Due Diligence Report" at http://www.stevefielding.com.au/climate_change).

In India the Government has created its own IPCC because, it said, it cannot rely on the existing one and, even though the Indian PM has subsequently praised the existing IPCC, this is widely thought to be no more than a political gesture.

In the United States, although the passage of ETS legislation by the House of Representatives was secured by what amounted to bribery through the last minute use of special grants to Congressmen who otherwise would not have voted for it, it now seems unlikely that the Senate will pass the legislation. An announcement by President Obama early last month suggests he may abandon his proposal for an emissions trading scheme and concentrate on direct action to reduce emission.

Chapter 9 of the Fourth Assessment report of the IPCC sets out that body's basic science conclusion that "it is very likely that anthropogenic greenhouse gas increases caused most of the observed increase in global average temperatures since the mid-20th century" and its report portrays graphs of rising global and regional temperatures over the last 100 years. The IPCC's conclusion is that, as human activity and use of fossil fuels will continue to increase emissions of carbon dioxide, this will add to concentrations of CO2 in the atmosphere and hence temperatures. However, while some of the emissions do stay in the atmosphere in a concentrated form and do reflect back to earth some of the heat radiated from the earth's surface, the IPCC's conclusion needs testing against relevant data and science.

The CSIRO/BOM report of 15 March also claims "there is greater than 90% certainty that increases in greenhouse gas emissions have caused most of the global warming since the mid 20th century" but the only support provided for this statement is a one sentence reference to "evidence of human influence ... detected in ocean warming, sea-level rise, continental-average temperatures, temperature extremes and wind patterns". Clearly, that report relies entirely on the detailed IPCC analysis.

Temperatures and CO2 Concentrations

I have already mentioned the very recent analysis by two Australian scientists of the portrayal of temperatures by the IPCC and its advisers. This analysis is shown in Figure 1 and in Figure 4 where changes in the annual average of global temperatures are compared with changes in concentration levels of CO2. The analysis also extends to the portrayal of Darwin temperatures by the Australian Bureau of Meteorology and that is shown in Figure 2. Solid lines, indicating annual increases, are linear least squares fits for Chow break tests.

Looking first at Figure 1, it can be seen that the decadal averages for the globe and Australia, which are the ones published in IPCC reports (see, for example, "IPCC Climate Change 2007: The Physical Science Basis Summary for Policy Makers", p6, Figure SPM-3) present a picture of an upward trend in temperatures whereas the annual averages show considerable

variation and clear evidence of extensive periods when there was no change or even a slight downward trend. Note that, of the increase in temperatures of about 0.8 of a degree over the 100 years (slightly higher in Australia), about 0.6 or 75% reflects the Great Pacific Climate Shift in the mid 1970s. There is no dispute that this event had no connection with fossil fuel emissions.

This leads us to Figure 4, with the table at the bottom summarising the changes in different periods of both temperatures and CO₂ concentration levels. What the table shows is that there were two periods, one from 1939 to 1977 and one from 1997 to the present, during which temperatures were relatively stable but CO₂ concentration levels increased quite strongly, particularly in the most recent period. It also shows that in the period when both temperatures and CO₂ concentration level increased (1977 to 1997) the increase in temperatures had nothing to do with emissions. In only the pre-World War II period might there be said to have been a close connection, although in that period usage of fossil fuels would have been relatively low. My assessment is that, on the basis of this analysis, there is absolutely no statistical relationship between changes in temperatures and changes in CO₂ concentration levels. I say this even without any questioning of the accuracy of the temperatures used by the IPCC and the Bureau of Meteorology.

Now, if we turn to Figure 2 we see reason to question the BOM's adjustments to temperatures for Darwin. Briefly, if we compare the two bottom graphs – c and d – we can see there is a marked difference between them for the period up to 1940. In both these graphs temperatures collected at Darwin post office have been adjusted downwards to allow for the fact that in two overlapping years temperatures at the Darwin Airport, which took over collection of data after 1942, were higher. But guess what? Graph d, which has been constructed by Dr Tom Quirk, was adjusted downward by 0.8 of a degree to accord with the overlapping difference and shows little if any change in temperatures over the whole period from 1910 to 2010. But Graph c, which shows a very clear upward trend, was adjusted downward by 1.4 degrees by the BOM and is now part of what it describes as “high quality” data. And this extensive adjustment was made in concert with an Australian lead author of IPCC reports. There is reason to believe that similar downwards adjustments to some other early temperatures have been made by the BOM and comparisons between satellite and BOM temperature changes shown in Figure 3 suggests that there is even a small sign of BOM bias there.

However let us assume for a moment that the published temperature data is correct. One often-made claim is that temperatures are higher now than they were a century ago and that the last decade shows the highest temperatures “on record”. The Government's Green paper of July 2008 even asserts that 12 of the last 13 years have been Australia's warmest and doesn't even add the qualification about “on record”. The IPCC has claimed that global temperatures in the last 50 years are likely to have been the highest in at least the last 1300 years. These claims have been made despite the publication in the IPCC's 1990 report of a graph showing temperatures for the Medieval Warming Period (800 -1,100) higher than for the 20th century, a publication it did not repeat in subsequent reports but did not explain why. However, it is now widely acknowledged that there is strong evidence that temperatures were higher then and in the Greco-Roman warm period (600 BC - 200 AD). Moreover, it is not surprising that some warming has been experienced since the end of the Little Ice Age, which occurred around 1800 well before CO₂ emissions became significant.

The IPCC adopted the same tactic of refusing to acknowledge a mistake after its publication of the so-called hockey stick analysis was shown to be flawed in a report commissioned by the US Congress from an expert statistician. This hockey stick thesis, based on analysis of tree rings, was that the only temperature rises have been since industrialisation.

Another test of the alleged link between increases in temperatures and CO₂ concentration levels can be done by examining analyses of ice cores going back 130,000 years. This shows temperatures increased several hundred years before CO₂ concentrations did (see Figure 7).

It seems difficult to avoid the conclusion that there is no policy significance in claims that we have temperatures that are the highest for some centuries. Once account is taken of rises over the past century due to the Great Pacific Climate Shift and likely manipulations of temperature data nor is there any policy significance in the claim that they are the highest ever recorded.

In summary, the temperature data as presented by the IPCC, by associated international research organisations, by departments of environment and by various Australian authorities do not provide a basis for the alarmist conclusions that have been reached by governments. All these portrayals of temperature, along with other similar alarmist claims, require at the very least a major independent inquiry before any government action is taken to reduce emissions of CO₂. Even some contributors to IPCC reports are recognising that natural influences, such as ocean upwellings or variations in the earth's orbit around the sun or in sunspot activity may cause variations in temperatures. But if natural influences cause such variations from time to time, at the very least there is much less urgency to start reducing emissions. I conclude that the statistics analysis used by the IPCC and others to suggest a connection between temperature increases in the past century or so and increases in CO₂ concentrations is seriously defective and does not form any sound basis for the projection of an increase in temperatures to 2100 ranging from 2-4 degrees.

But what about other evidence?

Greenland, Antarctic and Arctic Ice Sheets -and the Reef

If large ice sheets and glaciers started to melt, sea levels rose and low-lying land became more susceptible to flooding that could be evidence of warming.

The last IPCC report predicted an increase in average global sea levels to 2100 ranging between 18 and 59 cms (about 2 feet). However, a dispute amongst "experts" led the IPCC to announce it was not making any prediction, another indication of doubts about the analytical consensus of the supposed experts. As to the CSIRO/BOM report of 15 March, it suggests that the rate of global sea level rise increased in the 20th century, and the accompanying published graph shows an increase of about 15 cms, or about 1.5 cms per decade. A continuation of that rate would suggest an increase to 2100 close to the lower end of the IPCC's predicted range.

Satellite measurements of sea levels from 1994 also show an average rate of increase close to the lower end of the IPCC's initial predicted range, but with a lower rate of increase in the last 5 years (See figure 12). Last year the Dutch Meteorological Institute stated that sea levels have risen 20 centimetres (about 8 inches) in the past century and there is "no evidence for accelerated sea-level rise". Suggestions (including by Prime Minister Rudd and the Federal

Department of Climate Change) that IPCC analysis reveals potential threats to large numbers of houses close to the ocean are wrong and alarmist. Owners of such properties who are being stopped from development by such alarmism may be able to take legal action to reverse such measures.

As to the Arctic, while meltings did sharply reduce the extent of sea ice in 2007, that occurred when global temperatures were falling and during a period of cloudlessness in the area. Since 2007 the sea ice extent has returned to what it was in 2005. Although a downward trend remains (See Figure 13), more extensive Arctic meltings have occurred in the past when CO2 emissions were very much lower and such meltings have no effect on sea levels because the ice is already in the sea.

As to the Antarctic, the total ice area has been increasing and has recently reached record levels (see Figure 13). Break offs of sections of the Antarctic ice sheet do occur but are normal and recent imaginative claims of a small increase in temperatures (from 50 degrees below) were based on data from the one or two weather stations that cover the vast area. Satellite data covering the past thirty years show a distinct cooling of the Antarctic region.

Turning to the Great Barrier Reef, which is high on the Government's list of reasons for an emissions reduction scheme and has a Foundation that is concerned about possible bleaching caused by global warming, any action by Australia to reduce emissions would not help unless there is an effective agreement by major emitters. It should also be noted that most of the reef has recovered from the bleachings of 1998 and 2002, which probably resulted from the temporary warming of sea water that occurs during the light winds that occur at the time of El Ninos and that limit the flow of cooler water across the reef. The Reef may have a stronger capacity to continue than is thought by some.

Droughts and Rainfall

Although the Government's Green paper of July 2008 acknowledges that since the 1950s the NE of Australia has become wetter (it actually appears more to be in the NW), much attention has been given to below average rainfalls in other areas, particularly in the Murray-Darling Basin since 2000. Drawing on advice from the CSIRO and the BOM, Garnaut's modelling assumes that the projected higher temperatures will be accompanied by lower rainfall and, in the case of the MDB, "by mid-century it would lose half of its annual irrigated agricultural output ... and by the end of the century ... would no longer be a home to agriculture" (Final Report, p258). However, the joint CSIRO/BOM report of 15 March acknowledges that over the past 50 years "total rainfall in the Australian continent has been relatively stable" and provides no evidence that would support the Garnaut conclusion.

There is in fact no sound basis for such modelled projections. The variations in MDB annual rainfall clearly show no connection with levels or variations in Australia's average temperature (see Figures 10 and 11 and accompanying note). Indeed, there is no statistically significant change in MDB rainfall since 1900 and the above average temperatures in the 1980-2000 period, reflecting the Great Pacific Climate Shift, were accompanied by above average rainfall.

Past Australian droughts occurred when global temperatures were lower than now and wetter years occurred when such temperatures were rising. There is no reason to expect that to change.

The Science of Emission Concentrations

The IPCC's 2001 report acknowledged that the climate is a "complex, non-linear, chaotic object" and that long-term prediction of climate states is "impossible". All such analytical qualifications have since disappeared seemingly because climate science has become politicised. Figures 8 and 9 from the 2007 report provide an example of how one possible interpretation of influences on temperatures has been turned into some kind of definitive warming outcome consistent with that politicisation. Figure 8 provides a summary of the various warming or cooling influences identified by the IPCC as producing radiative forcings, with an **average** increase of 1.6 watts per square metre. But the range around the average is enormous - from 0.6 to 2.4 square metres - and that in turn reflects the enormous ranges of radiative forcings for the various individual influences. My advice from scientific acquaintances is that the extent of *estimation* involved, as distinct from measurement, is also enormous.

This brushing aside of uncertainties has occurred despite the acceptance in IPCC reports of research that shows a progressive diminution in the temperature-increase effects from increases in CO₂ concentration levels (see Figures 5 and 6). This research shows a greenhouse effect coming from the radiation back to earth from CO₂ concentrations in the atmosphere. **But** it also shows this initial warming does not increase in line with the increase in CO₂ concentration levels.

Figures 5 and 6 are difficult for a non-scientist to explain. Figure 5 shows that, if CO₂ concentrations were to double from 400ppm to 800ppm, that would only increase radiation at the earth's surface from about 29 watts per square metre to about 32 watts, or about 10%. Figure 6 shows that such an increase in radiation (shown on the bottom axis) would only increase temperatures by 0.3 of a degree. This analysis comes from an online calculator of energy in the atmosphere (MODTRANS) and is an international and IPCC accepted standard for atmospheric calculation. The IPCC's failure to recognise in its conclusions that there is no linear relationship between temperatures and CO₂ concentrations is yet another deception – and a major one.

There is also very considerable doubt about the accuracy of the modelling used by the IPCC to project temperature increases. These models incorporate the positive feedbacks from water vapour that increase the radiation effects back to earth and oceans from increased CO₂ concentrations (and hence cause some initial rise in temperatures).

However, the IPCC models fail to reflect all the temperature **reducing** effects from the negative feedback coming from the strong increase in evaporation from the ocean (which constitutes 70% of the earth's surface) that also occurs as surface temperatures rise. This means that the IPCC models significantly **understate** the temperature reducing effects that offset the initial increases. The modelled outcomes of larger CO₂ concentrations by the IPCC thus produce a much larger increase in surface temperature than would actually occur.

Conclusion

My view is that there are fundamental faults in the science used to justify comprehensive mitigatory action by governments; that claims of a consensus on the IPCC science have no credibility and that account is not taken of the long history of faulty analyses by scientists;

that examination of the temperature and CO₂ concentrations data indicates no causal connection between changes in the two; that there is no substantive evidence of threats from rising sea levels or meltings of sea ice in the Arctic or Antarctic; and that there is no evidence that droughts occur when temperatures increase. In conclusion, I submit that a policy based on adaptation by the private sector is the appropriate response to alarmist analyses proposing comprehensive mitigatory action to prevent supposed dangerous global warming.

An Almanac of the Atmosphere

being

A random walk through observation, calculation and estimation of changes to the climate.

Compiled 20 March 2010

Positive Proof of Global Warming



HEALTHY POLAR BEARS TOO!

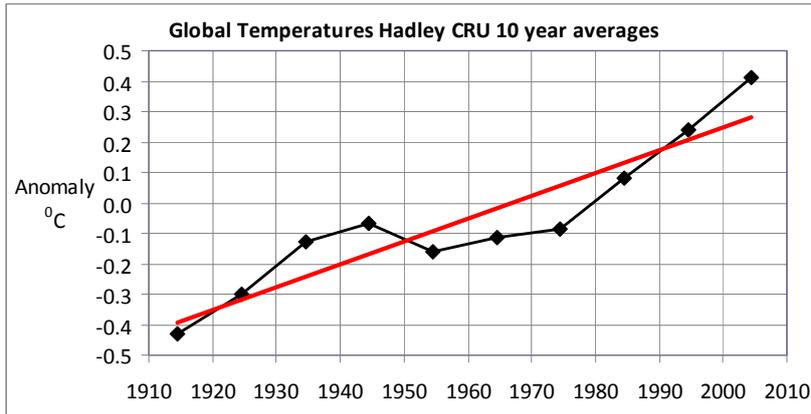


A splendid example of a member of an expanding population of polar bears. Polar bears in Norway's remote Svalbard archipelago photographed by Steve Kaslowski.

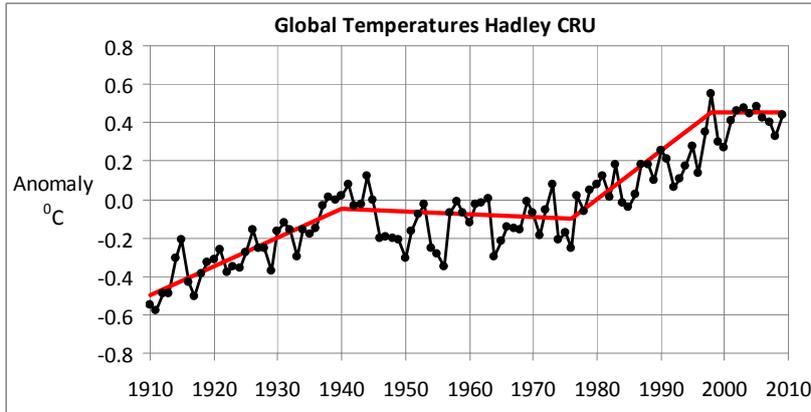


Canadians rallying against global warming.

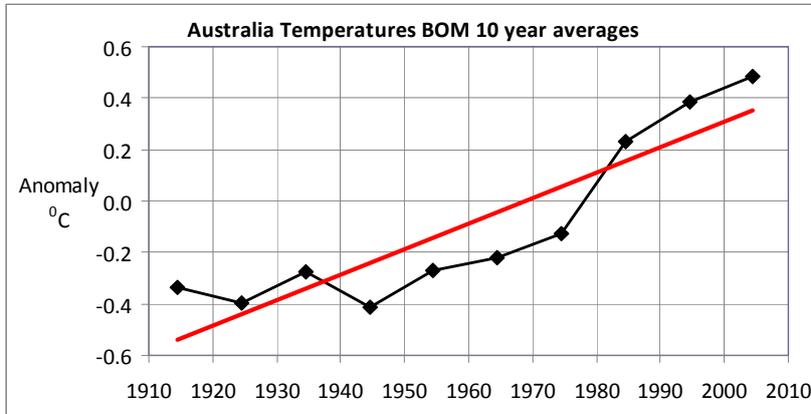
HOW THE IPCC PRESENTS GLOBAL TEMPERATURES (supplied by Hadley CRU)



How the global annual temperatures really vary.



How the IPCC presents Australian temperature data (supplied by BOM via CRU)



How the Australian annual temperatures really vary

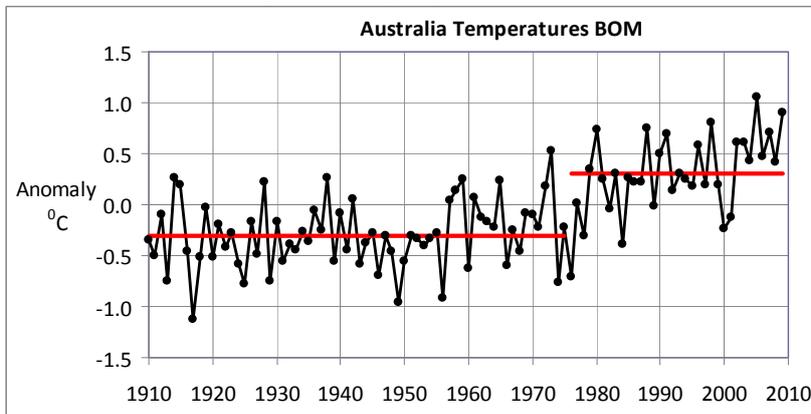


Figure 1 A strong feature of the annual data is the presence of the Great Pacific Climate Shift that occurred around 1976. In the Australian data the gap in the solid lines, a 0.6°C step, is at the time of the Great Pacific Climate Shift of 1976. This has no connection with fossil fuel emissions.

TEMPERATURE MEASUREMENTS AND ADJUSTMENTS - DARWIN

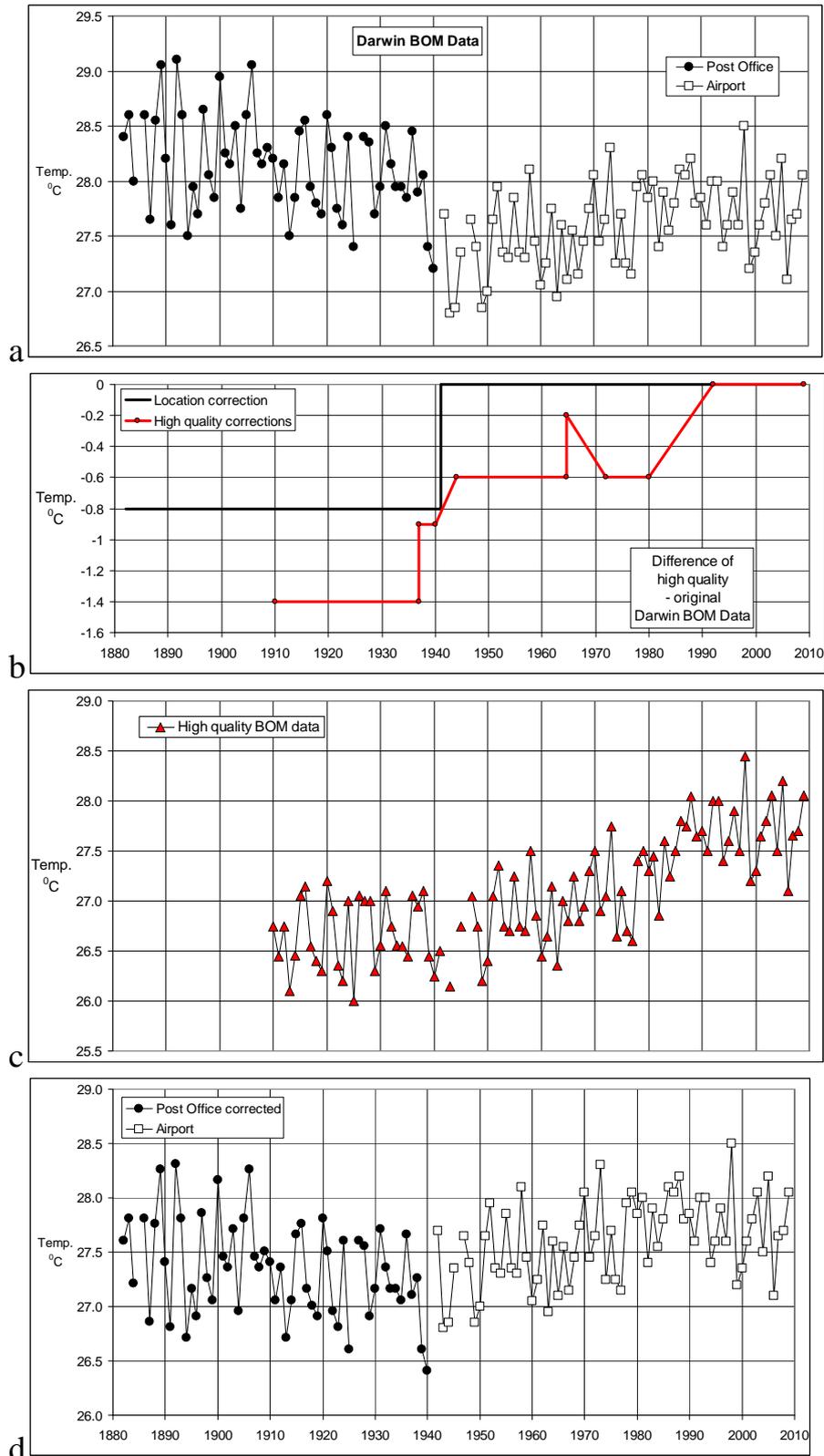


Figure 2 Bureau of Meteorology (BOM) measurements at Darwin. **a)** Initially the station was at the Post Office. In 1941 a second station was opened at the airport and the Post Office was bombed in 1942 so measurements ceased. **b)** Temperature adjustments. A one year overlap showed the temperature to be 0.8 °C cooler at the airport giving rise to simple correction (solid line). The BOM made further adjustments based on other considerations. **c)** shows the **now published** result of the BOM “high quality” adjustments while **d)** shows the simple adjustment for change of location. **This should be the preferred series unless faced with compelling evidence of the need for further adjustments.** The international temperature databases (CRU, NCDC and GISS) use the raw uncorrected data shown in **a**.

AUSTRALIA LAND BASED AND SATELLITE MEASUREMENTS

Measurements supplied by John Christy of the University of Alabama at Huntsville (UAH)

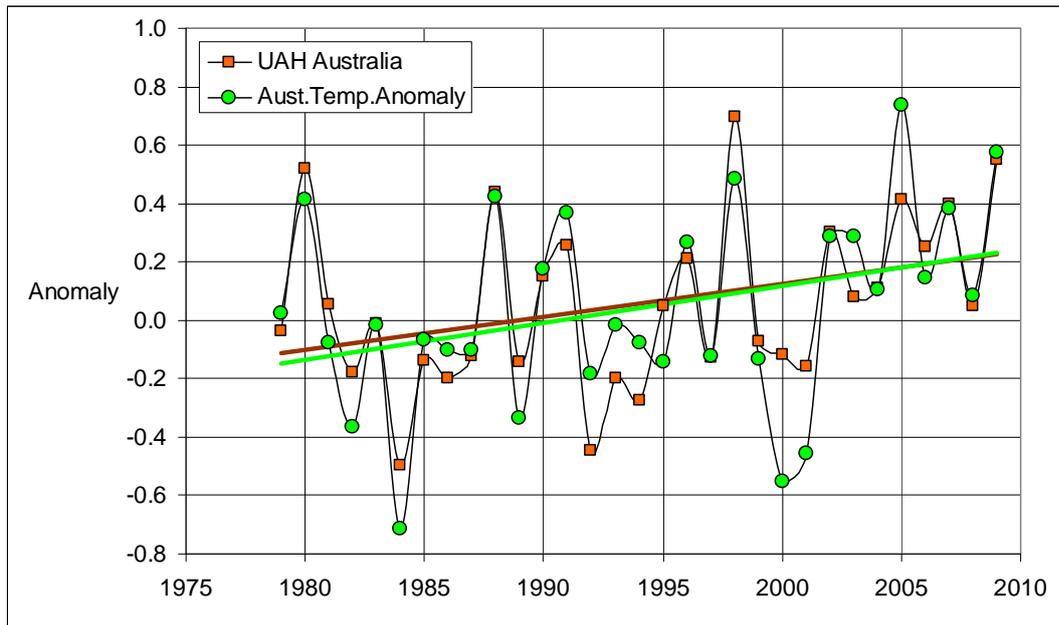


Figure 3 The BOM Australian temperature anomaly and the UAH Australian lower troposphere anomaly with straight line fits to the yearly values. The correlation coefficient of satellite to land based Australian data of 0.88 is better than the correlations of 0.63 to 0.73 found for similar analyses for global temperatures. This is a measure of the quality of the land based analysis where the density of land based sites is clearly important.

Straight line fits to the yearly data show that the satellite and ground based temperatures have a consistent trend with

**0.11 ± 0.06 °C per 10 years for the satellite Australian measurements and
 0.13 ± 0.07 °C per 10 years for the BOM temperature series for Australia.**

A fit to the difference shows that the BOM measurements have a **larger** increase for 1979 to 2009.

0.02 ± 0.03 °C per 10 years.

This difference may be a reflection of systematic differences introduced by the BOM treatment of ground based measurement referred to in Figure 2.

100 YEARS OF ATMOSPHERIC MEASUREMENTS – 1910 TO 2010

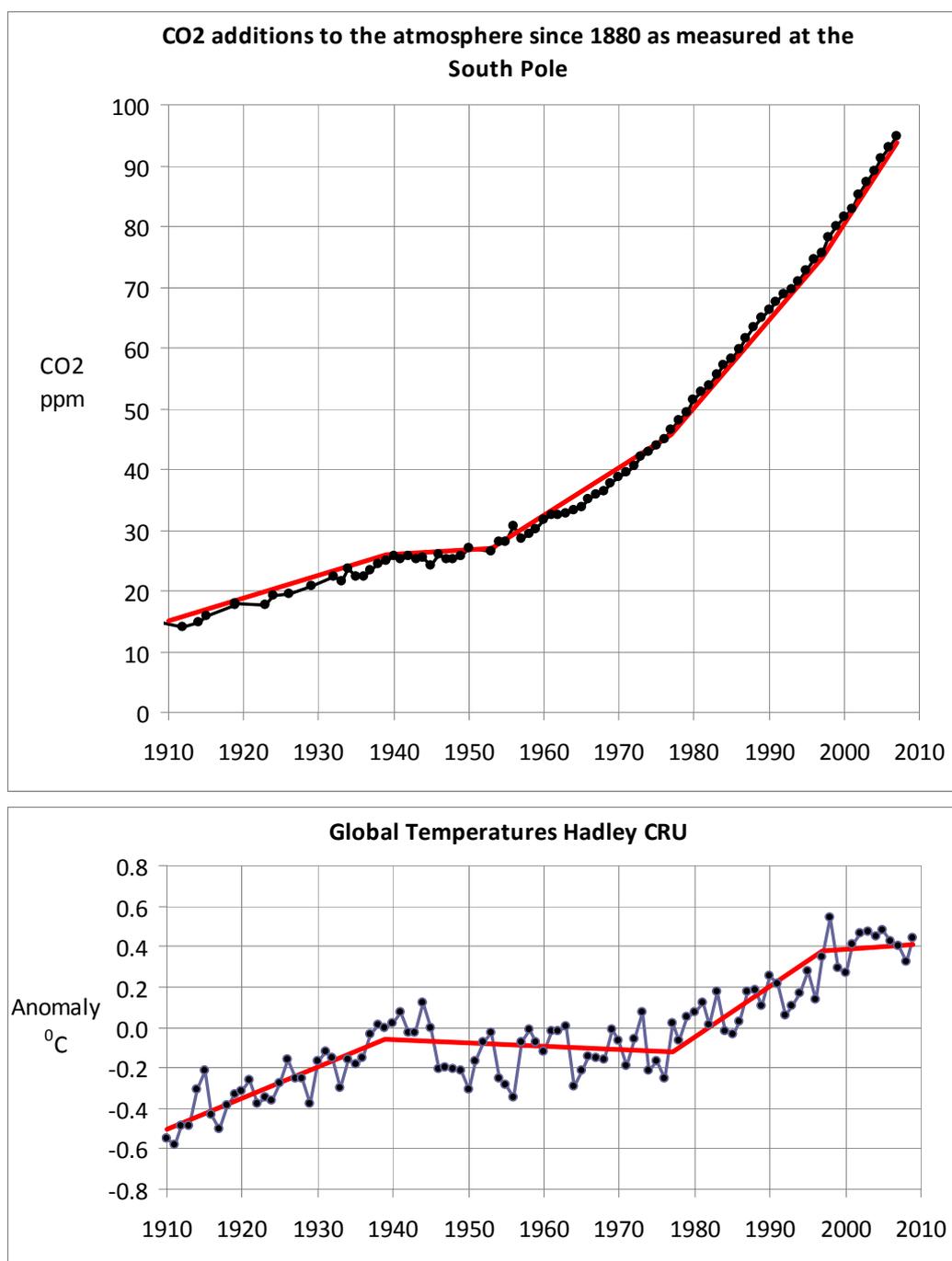


Figure 4: *Top* – Ice core and atmospheric measurements of CO₂ concentration levels in Antarctica and at the South Pole. The increase is measured against the ice core value of 286ppm for 1800 to 1880. In the 1940s and early 1950s there was no increase in CO₂. Solid lines indicate annual increases. *Bottom* – Global temperatures estimated by the Hadley Centre of the UK Met Office. Solid lines indicate warming and cooling

<i>Period</i>	<i>CO2 at the South Pole Annual increase in ppm</i>	<i>Period</i>	<i>Global Temperature °C Increase per 10 years</i>
1910 - 1939	0.38 +/- 0.03	1910 - 1939	0.15 +/- 0.02
1939 - 1953	0.08 +/- 0.05	1939 - 1977	-0.02 +/- 0.03
1953 - 1977	0.77 +/- 0.03		
1977 - 1997	1.46 +/- 0.02	1977 - 1997	0.25 +/- 0.05
1997 - 2007	1.89 +/- 0.03	1997 - 2009	0.03 +/- 0.06

Temperature does not appear to have a strong relationship with CO₂ levels in the atmosphere.

SURFACE ENERGY CHANGES FROM CO₂ IN THE ATMOSPHERE

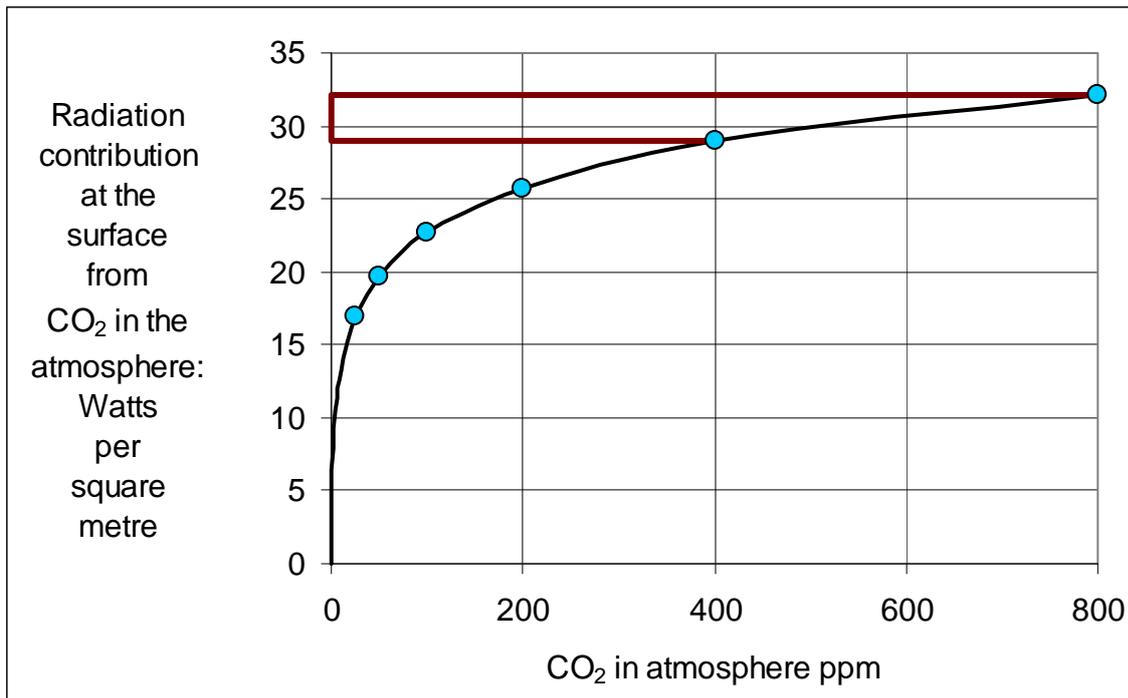


Figure 5 As the concentration of CO₂ increases, there is increased radiation back to the surface of the earth (the greenhouse effect). This is measured in Watts per square metre (left axis). However the relationship is not linear. In fact doubling the concentration of CO₂ from 400 ppm to 800 ppm only increases the radiation from CO₂ at the surface by some 10% or 3.2 Watts per square metre. (Results derived for US standard atmosphere and cloudless sky from MODTRANS, a University of Chicago on-line calculator of energy in the atmosphere. MODTRANS is an international and IPCC accepted standard for atmospheric calculations).

TEMPERATURE CHANGES AT THE SURFACE FROM CHANGES IN CO₂ CONCENTRATIONS

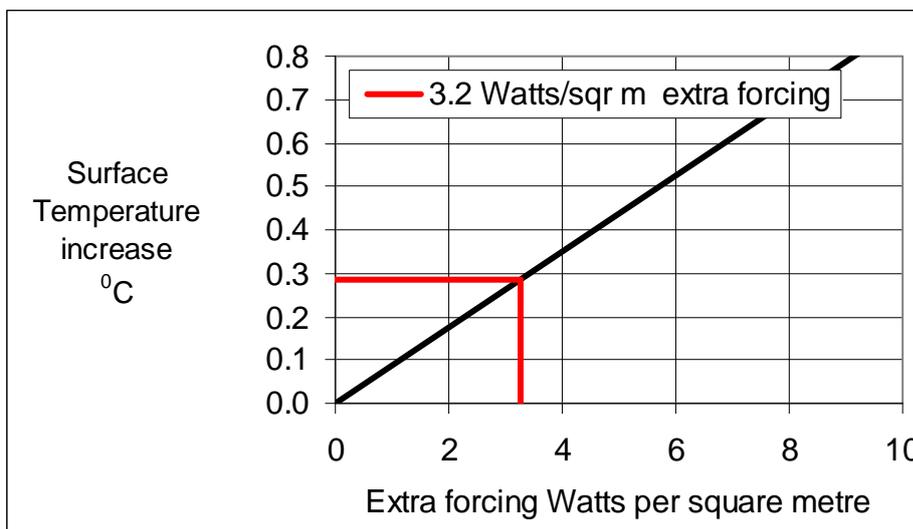


Figure 6 Increased radiation forcing results in an increased surface temperature. However with 70% of the earth's surface as ocean, evaporation reduces the temperature increase by approximately a factor of two. Doubling the CO₂ concentration to 800 ppm with a 3.2 Watts per square metre radiation increase, gives a surface temperature increase of 0.3 °C. IPCC modelling suggests that this level of CO₂ will be reached in 2100 with their "business-as-usual" projection.

TEMPERATURES RISE BEFORE CO₂ CONCENTRATIONS AT THE END OF ICE AGES

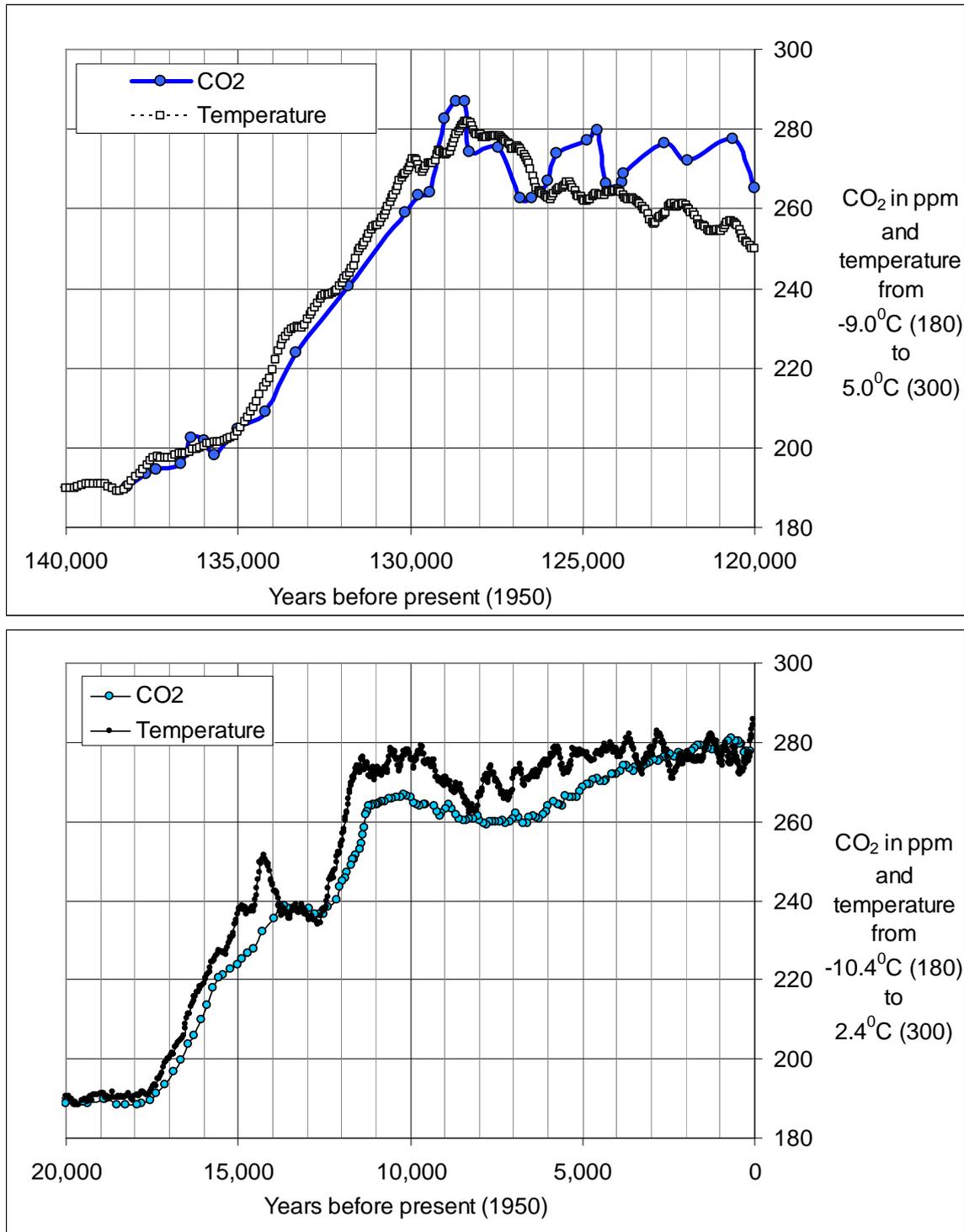


Figure 7 Ice Core measurements at Vostok and EPICA in Antarctica. CO₂ measurements from air bubbles trapped in the ice. Temperatures estimated from changes in the oxygen and hydrogen isotope composition of the ice. **Temperature rises lead CO₂ increases by several hundred years.** **Top:** - End of the ice age 130,000 years before the present. Temperature increases by 6°C. Note that temperature and CO₂ do not follow the same track after the end of the ice age. Temperature is likely to vary more with local conditions than CO₂. CO₂ levels come from a general sampling of the atmosphere. (Vostok measurements) **Bottom:** - End of the last ice age around 15,000 years before the present. Temperature increases by 8.5°C. (EPICA measurements)

GLOBAL MEAN RADIATIVE FORCING

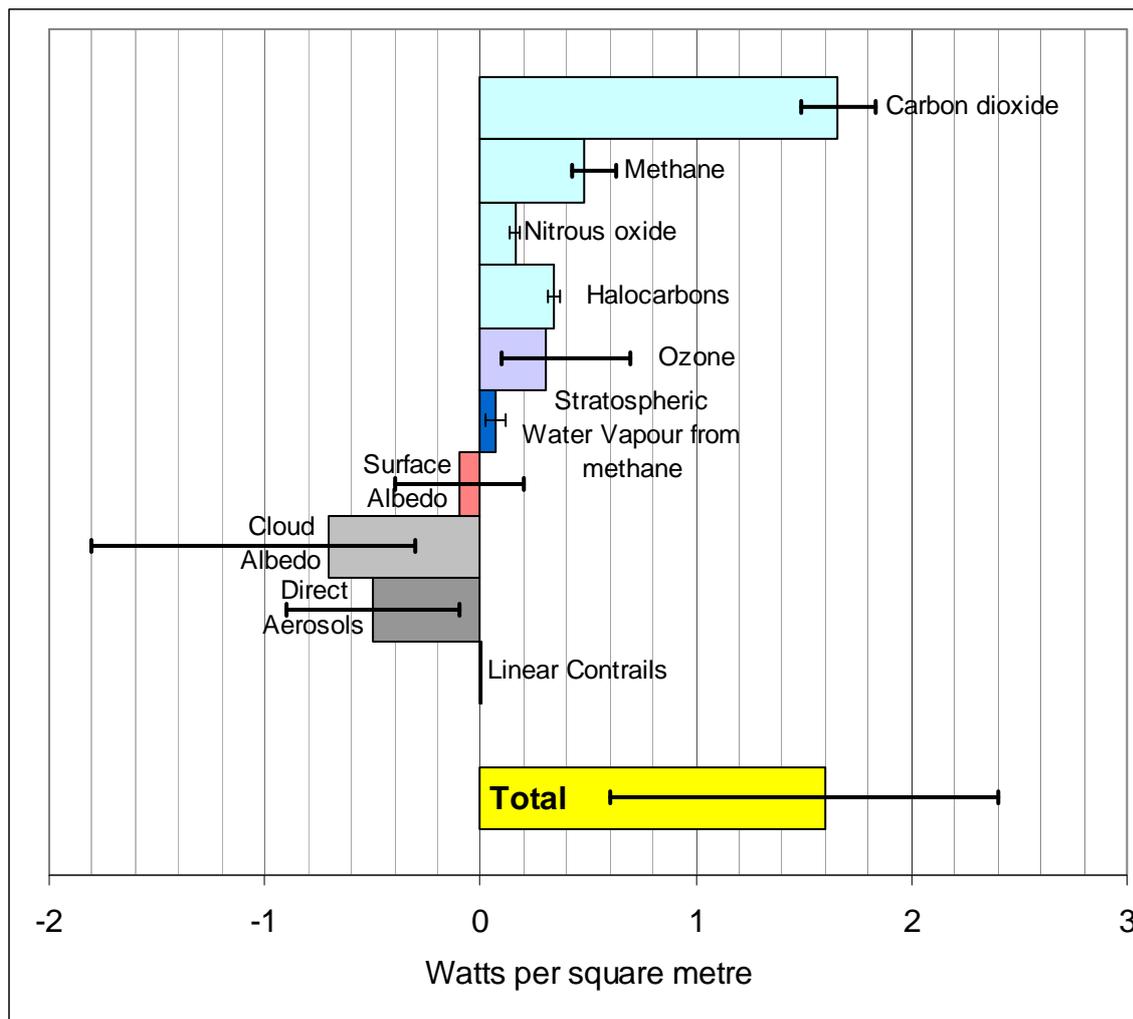


Figure 8: Radiative forcings from various anthropogenic sources. This is the IPCC summary of the contributions from components of the atmosphere “the global average net effect of human activities since 1750 has been one of warming, with a radiative forcing of +1.6 [+0.6 to +2.4] W m⁻² (see Figure SPM.2)”. [IPCC-AR4 2007 WG1 Fig SPM.2]. Note the large uncertainties for aerosol and albedo forcing, exceeding the values of greenhouse gas forcing. Some components have over 100% uncertainty and are most likely from expert opinion rather than measurements of uncertainty.

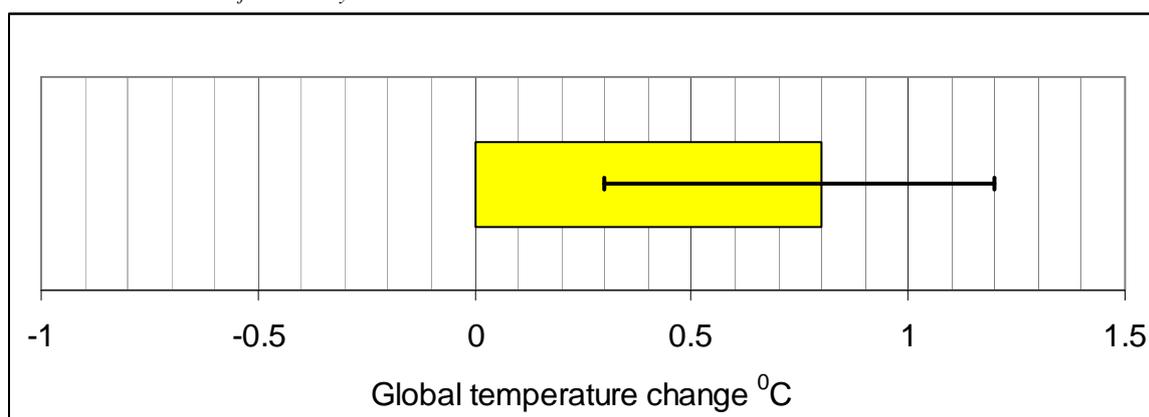


Figure 9: IPCC inferred temperature increase of 0.8°C since 1750. The temperature increase is the result of the 1.6 Watts per square metre estimated warming. Note the error bars that reflect the uncertainty in the temperature estimate are the compounded uncertainties of the radiation forcing where some components have over 100% uncertainty and are most likely from expert opinion rather than measurements of uncertainty.

MURRAY-DARLING BASIN YEARLY RAINFALL 1900 TO 2008

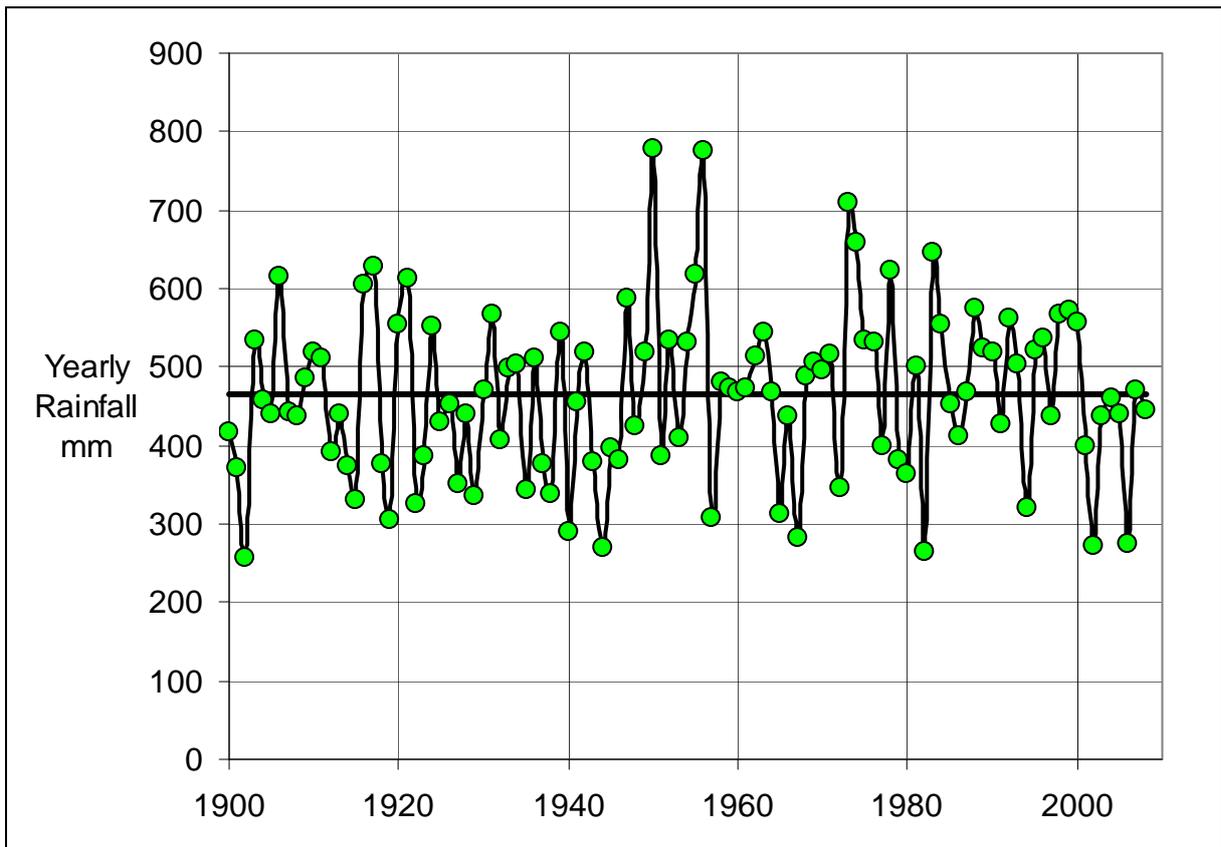


Figure 10: Yearly rainfall in the Murray-Darling Basin. Mean value of 465 mm (solid line) and median 468 mm. There is no significant trend in rainfall through this period but with large variability- standard deviation of 106 mm with rainfall extremes of a minimum 257 mm and a maximum of 777 mm. It is therefore difficult to relate this to any temperature changes as shown in Figure 11.

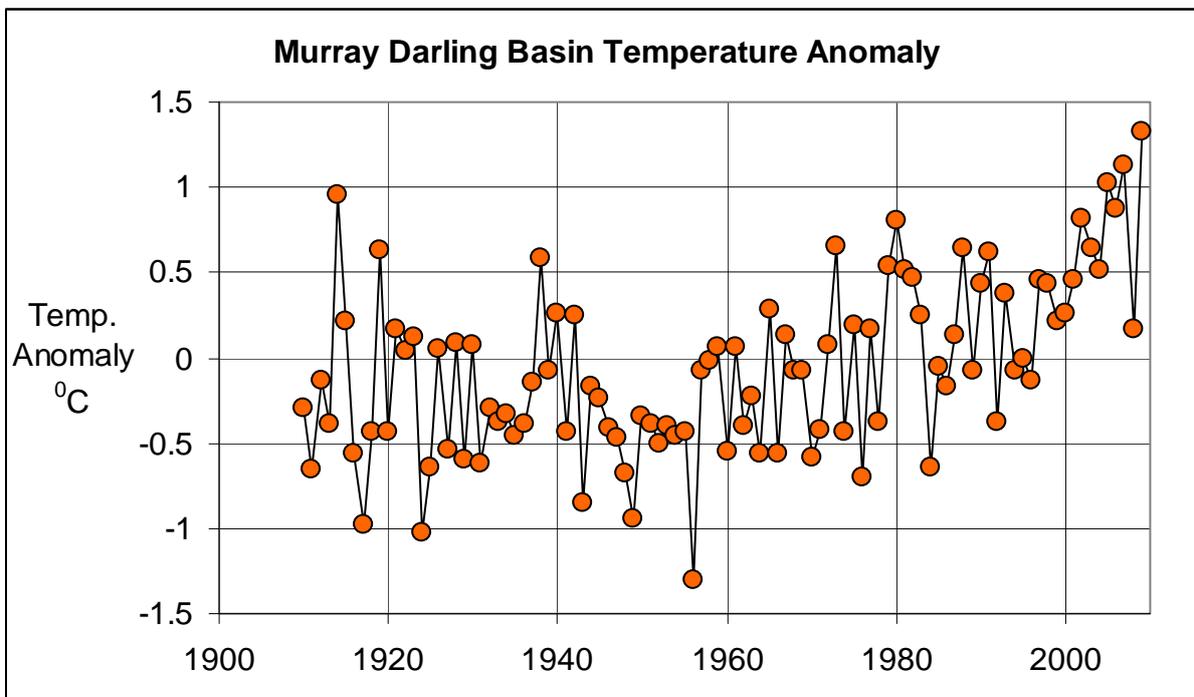


Figure 11- Murray Darling Basin temperature anomaly estimated by the Bureau of Meteorology. As in Figure 1 the break to increasing temperatures starts at the time of the Great Pacific Climate Shift of 1976.

Extract from the Garnaut Climate Change Review Interim Report February 2008

The Australian climate has changed notably over the past 50 years. **There is no evidence for this- see below**

Annual mean temperature in Australia has increased by up to 0.7°C since 1950. According to the IPCC, there is a greater than 90 per cent probability that the warming observed since the 1950s is due to human activities (IPCC, 2007c).

The assignment of a probability has been made from a set of measurements and estimates that in part depend on expert opinion. That does not lend itself to an analysis of probability. A simple alternative explanation for Australia is most, that is 0.6°C, of the temperature increase occurred at the time of the Great Pacific Climate Shift in 1976.

There has been a striking change in precipitation trends in Australia since the 1950s.

There has been an average increase of 40 +/-14 mm in rainfall since 1950 with 470 mm average annual rainfall.

There is no statistically significant difference in the trend for rainfall over Australia for fifty years before and after 1950. The difference in trend is 11 +/- 9 mm per decade. So the claimed change must refer to a redistribution of rainfall within Australia.

North-west Australia has seen an increase in annual rainfall of more than 30mm per decade, while decreases along parts of the east coast have exceeded 50mm.

Two intense periods of activity in 1974-1976 and 1999-2001 have skewed the northern region rainfall record, With these years excluded there is an average increase of 29+/-17 mm and the trend in rainfall has increased by 16 +/-11 mm per decade with annual rainfall of 500mm. For eastern Australia the difference is 21+/-20 mm and the trend difference has been an 18 +/-12 mm per decade decline from before to after 1950, hardly a striking change with annual rainfall of 600 mm. The Murray-Darling Basin shows no statistically significant change over this time with an average increase of 30+/-20 mm and a trend difference of -9 +/-13 mm per decade on annual rainfall of 460 mm.

While it is not yet possible to attribute all the rainfall changes to anthropogenic climate change, some of the changes are likely to be at least partly due to increases in greenhouse gases (CSIRO and BOM, 2007).

It is also possible that firstly there have been no significant changes in rainfall and second that the temperature increase is a symptom of ocean temperature changes.

References

- 1 Quirk, Tom, (2009) The Australian temperature anomaly, 1910 – 2000, Energy & Environment 20, pp 97-100
- 2 Time series on the Bureau of Meteorology website:
<http://www.bom.gov.au/cgi-bin/climate/change/timeseries.cgi>

GLOBAL SEA LEVEL CHANGES

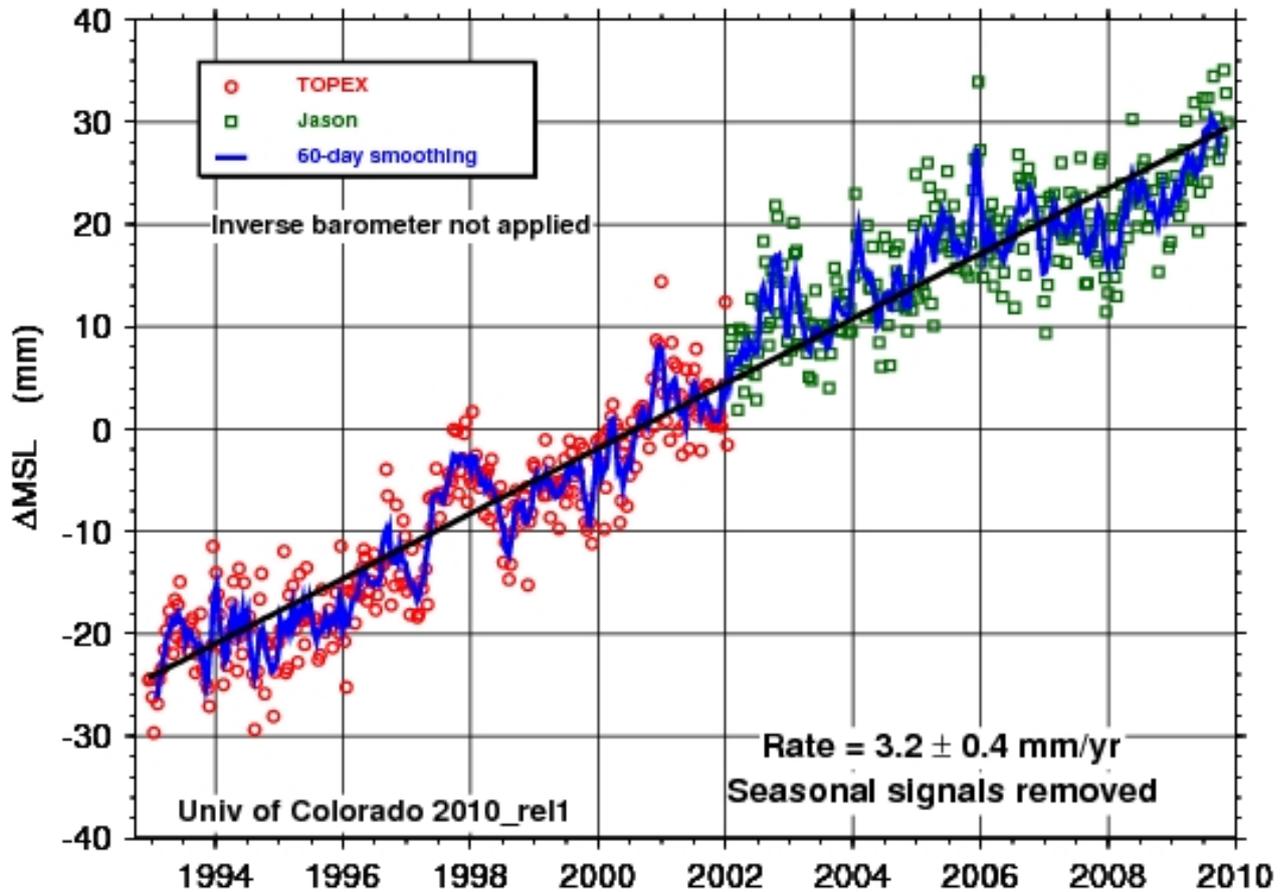


Figure 12 The global mean sea level graph was made using satellite altimetry and processed by the University of Colorado at Boulder. Note that the rate of increase is 3.2 ± 0.4 mm/year for 1992 to 2009 but falls to 2.3 ± 0.3 mm/year for 2002-2009. These values are compatible with IPCC predictions to 2100 of 18-59cms in 2007 report.

Long-term mean sea level change is a variable of considerable interest in the studies of [global climate change](#). The measurement of long-term changes in global mean sea level can provide an important corroboration of predictions by climate models of global warming. Long term sea level variations are primarily determined with two different methods. Over the last century, global sea level change has typically been estimated from [tide gauge](#) measurements by long-term averaging. Alternatively, [satellite altimeter](#) measurements can be combined with precisely known spacecraft orbits to provide an improved measurement of global sea level change.

Since August 1992 the satellite altimeters have been measuring sea level on a global basis with unprecedented accuracy. The TOPEX/POSEIDON (T/P) satellite mission provided observations of sea level change from 1992 until 2005. Jason-1, launched in late 2001 as the successor to T/P, continues this record by providing an estimate of global mean sea level every 10 days with an uncertainty of 3-4 mm. The latest [mean sea level time series](#) and [maps of regional sea level change](#) can be found on this site. Concurrent [tide gauge calibrations](#) are used to estimate altimeter drift. Sea level measurements for specific locations can be obtained from our [Interactive Wizard](#). Details on how these results are computed can be found in the [documentation](#) and the [bibliography](#). Please [contact](#) for further information

CHANGES IN SOUTHERN AND NORTHERN ICECAPS

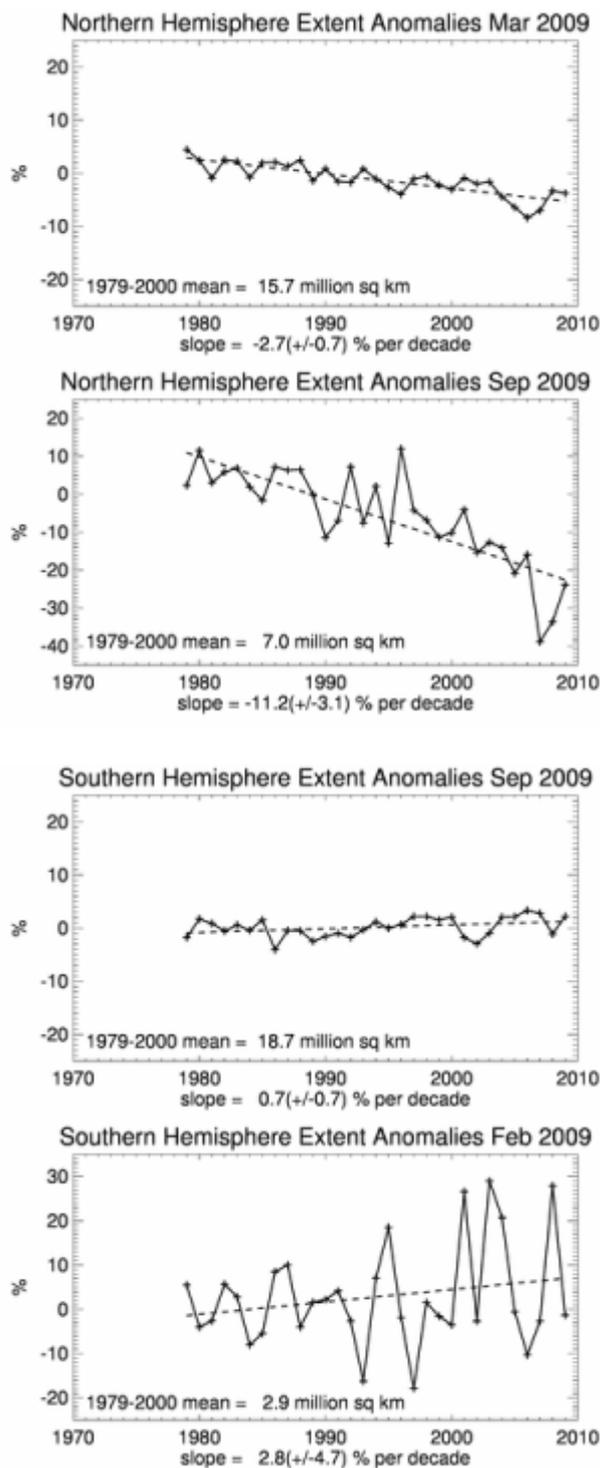


Figure 13 Arctic and Antarctica ice extent. The maximum extent occurs in March in the Northern Hemisphere and in September in the Southern Hemisphere; summer minima occur in September and February. The Northern Hemisphere ice extent is decreasing with reducing maximum and minimum extent. Note that the slopes for the fitted straight lines give the change per decade.

Data from National Snow and Ice Data Center: http://nsidc.org/data/seoice_index/

