Submission No. 2

Submission to House Standing Committee on Industry, Science and Innovation Inquiry into long-term meteorological forecasting in Australia

By Mr Des Moore, Director, Institute for Private Enterprise Victoria, Australia.

Background

Mr Moore served for 28 years in the Australian Treasury, the last five as Deputy Secretary. While in the Treasury he worked in all major areas and was sent to London in 1972 to undertake a course at the Royal College of Defence Studies where he wrote a major paper on "Limits to the Supply of Resources" criticising the Club of Rome thesis that the world would run out of resources unless governments took action to reduce economic and population growth. This false scare created by scientists has parallels with the current false scare on anthropogenic global warming.

Since resigning from the Treasury in 1987, Mr Moore has worked in economic think-tanks. He was first employed as Senior Fellow, Economic in the Institute of Public Affairs and since 1996 has operated his own think tank the Institute for Private Enterprise. This has involved him in analysis and public commentary on a wide range of public policy issues. Details can be supplied on request.

Purpose and Main Conclusions of Submission

The main object of this submission is to respond to the inquiry into long-term meteorological forecasting with particular reference to the efficacy of current climate modelling and long-term meteorological systems. In brief the analysis in this submission is that the current modelling is based on the false assumption that there is a linear relationship between increases in emissions of CO2 and other greenhouse gases and global temperatures leading to an alleged dangerous rise in such temperatures. As explained below, this assumption is not correct and is even acknowledged in the body of IPCC reports as not correct. Moreover, as further explained below, the modelling significantly understates the temperature reducing effects of evaporation, which results in models showing a much larger increase in surface temperatures than actually occurs. In short, current modelling starts from wrong bases and any attempt to make useful long-term meteorological predictions would need to effect a complete change in the bases.

In brief:

- The belief that increasing emissions of CO2 threaten dangerously higher temperatures is based on claims that are being increasingly exposed as false or grossly exaggerated.

- There are many examples of such false claims, starting with the one that recent high temperatures and bushfires in Melbourne and Victoria are evidence of more frequent extreme climatic events.

- Other examples include the supposed direct link between increases in CO2 emissions and global temperature. This latter can longer be sustained given that the world has now experienced three periods covering 56 out of the last 128 years during which temperatures have fallen or not increased despite consistent increases in CO2 emissions; that *natural* fluctuations in weather are now being acknowledged as influences even by global warming believers; that recent research shows published "official" temperature data for recent years have a large warming bias because they include urban heating effects; that observed recent falls in global temperatures contradict claims the temperature outlook has worsened since the last IPCC report in 2007; and that global temperatures were higher over periods in the distant past than in recent years despite no fossil fuel use then.

- In similar vein, scares about dangerously rising sea levels are also incorrect. Satellite measurements of sea levels show a (non-threatening) rate of increase from 1994-2005 and falls since then; widely publicised meltings in the Arctic in 2007 (reflecting increased cloudlessness) have now reversed; with the sea ice area in the Southern Hemisphere reaching record levels in 2008, recently reported guesstimates of Antarctic warming are clearly wrong; and the official Dutch meteorological agency stated recently there is "no evidence for accelerated sea-level rise".

- Nor is there any correlation between global temperatures and rainfall in Australia. As the NE of Australia has become wetter since the 1950s, this indicates no *global* temperature increase effect; similar droughts to the current one occurred in the past when emissions were much lower; and rainfall was lower in the Murray-Darling basin in the late 1930s-40s than in the last decade.

- The exposure of these and other false claims reflects the seriously defective science used by the IPCC to justify its recommendations. Although its reports recognise research showing that temperatures do not increase in line with CO2 emissions, the IPCC proposal for urgent action effectively ignores the reality that any possible warming from increased concentrations would be much less than its predictions to 2100.

- Indeed, IPCC models used to project temperature increases produce much larger increases in surface temperatures than could actually occur because they fail to take adequate account of cooling from evaporation.

- There is a long history of wrong doom and gloom predictions by scientists and the global warming scare is now exposed as one of many identifiable false scares. In these circumstances it would be highly irresponsible for the Australian Government to adopt emission reduction policies.

- In the light of the foregoing it is regrettable that neither the Government nor Parliament has instituted an independent inquiry into the basis of the science used by the IPCC and other agencies to justify the argument that increased human activity will "very likely" lead to a dangerous increase in temperatures.

> There is no sound basis for reaching such a conclusion: to the contrary it is "very unlikely" that such an increase in temperatures would occur.

Accordingly, the Inquiry should resolve that there be a complete and independent review of current climate modelling and the science on which it is based. Further observations on the situation, including on the implications for natural disasters, are set out below.

Main Submission

Some say we live in "interesting times": my feeling is they are fearful rather than interesting because of the danger that major governments could act on **another** scare started by some scientists who have persuaded ministers on both sides of politics that their doom-laden analysis is correct. I say "another" because a long record already exists of scientists starting false scares and persuading politicians to intervene. But more of that record shortly.

Of course, it does not seem a good time to question the scare by some scientists that the world faces highly damaging temperature levels unless governments take action to reduce the emissions of carbon dioxide. We are already scared enough by Melbourne's temperature reaching a high of 46.4 degrees since temperatures started to be officially recorded and by Victoria experiencing life-destroying and very damaging bushfires. Predictably, the believers in global warming dangers have been quick to assert that the high reflects an upward trend in the frequency of heat waves and is an example of what might be expected in the future in the absence of an emissions reductions policy. But this reflects the automatic reflex that has developed according to which almost any out-of-the-ordinary climatic development is attributed to global warming.

At the same time we are also scared by the global financial and economic crisis. Each of these scares requires, we are told, governments not to be the scaredy cats but to come to the rescue. But does the evidence justify such action or will governments and their advisers end up with egg on their face?

I start here by addressing the temperature scare and leave the economic issue for another day. Let us start with Melbourne's highest temperature.

The recorded high needs to be assessed against the background that, first, large parts of northern Australia were experiencing at the same time lower than average temperatures and high seasonal rainfall. Second, the recorded high for Melbourne was reached during a period of very cold weather in the northern hemisphere. In fact global average temperatures – and it is global temperatures which are supposed to be affected by increasing CO2 emissions – have fallen by about 0.15C of a degree since 2005. Third, we need to recognise that there have been many past experiences in southern Australia with high temperatures and damaging bushfires. Respected historian Geoffrey Blainey wrote recently that in our recorded history there has been no bushfire as spectacular as the one in February 1851 when half of the state seemed to be on fire and when the density of the smoke that crossed Bass Strait caused people in a small town in Tasmania

to think the end of the world had come. In fact, the temperature published by the Argus newspaper for Melbourne's temperature on 6 February 1851 was 47.2 degrees, slightly higher than the recent recorded one, and NSW, South Australia and Victoria each had their highest state average temperatures in what might be described as a pre-global warming period, with Victoria's average at 50.7 degrees recorded 103 years ago. I personally vividly remember as a child being scared by the 1939 bushfires. The fires on Black Friday of that year killed fewer people but burned more hectares than those burned on Black Saturday.

Contrary to the views of the chief officer of Victoria's Country Fire Authority and those of various notables, no evidence has been produced to confirm we are suffering extreme climatic events more frequently. Notwithstanding the record temperature and high death levels, nor is there any basis at all for suggesting that the bushfires reflect increased warming on a global basis. What can be said is that governments which have increasingly accepted the global warming thesis have failed for many years to take action that would have markedly reduced the fire damage risk. They succumbed to the extreme preservation of nature thesis propounded by some environmentalists and failed to act responsibly because they were scared of losing votes.

Putting aside the abysmal failure to take bushfire preventative measures, my major scare comes from the extent of acceptance of the thesis that increasing emissions of CO2 resulting from increasing economic activity by humans will cause temperatures to rise unless governments adopt emission reduction policies. I am scared because I believe the back-up evidence put forward by some scientists does not stand up to critical examination and because attempts to stop emissions would lead to an enormous increase in the powers of governments to intervene in our lives but with very little likelihood of bringing about a reduction in temperatures. The evidence showing the "proof" of global warming is about as scanty as that shown in **Graph 1.**

I want now to outline some of the reasons for questioning key aspects of the evidence that supposedly backs the thesis. In doing so we need to keep in mind what that thesis is. On the surface it is relatively simple. It postulates that, as over the last 100 years both global temperatures and concentrations of CO2 in the atmosphere have increased, that will continue in the future because increasing human activity involves the use of more and more fossil fuels and hence increased emissions of carbon dioxide. Some of these emissions do not simply disappear into space but stay in the atmosphere in a concentrated form that reflects back to earth some of the heat radiated from the earth's surface. Hence (the story goes), as the concentrations also increase so too do temperatures.

My response to all this is, firstly, there is insufficient evidence to conclude that there is a sustained upward trend in temperatures; second, that there is no sound basis to the science claiming a direct link between increases in CO2 emissions and significant increases in temperatures; third, there is a large group of scientists which rejects the thesis of dangerous anthropegenic global warming; and fourth, there is a long history of scientists' warnings of scares which turned out to be harmless.

Temperatures and CO2 Concentrations

Graph 2 shows what has happened since 1959 to CO2 concentrations and global temperatures. As would be expected in a period of strong economic growth, CO2 concentrations show a consistent strong increase. But between 1959 and 1975 and again since 1998 not only did temperatures not increase in line with concentrations – they actually fell slightly. How do global warmers explain these vital aberrations? It appears that the main explanation currently used is that, while from time to time natural fluctuations occur in the weather, there is still an underlying upward trend in temperature.

But such explanations surely mean serious qualifications must be made to the supposed connection between CO2 concentrations and temperatures. If natural fluctuations upset the relationship from time to time, how long are the fluctuations likely to last and doesn't this mean that there is much less urgency to start reducing emissions than global warmers say? Having regard also to the global financial and economic crisis, and taking account of the continued recent cooling in temperatures, doesn't this mean there is a strong case for at the very least postponing the commencement of any Australian emissions trading scheme until economic recovery is established?

Also isn't it difficult to justify claims by some scientists involved in IPCC reports, as well as Prime Minister Kevin Rudd and his fellow Ministers, that the situation has worsened since the last IPCC report in 2007? The most recent claim, enunciated last month by a lead author of the IPCC report, appears mainly to be based on a faster growth in CO2 emissions from 2000 to 2007 than had been assumed by the IPCC in making its temperature projections. Yet this period is one in which temperatures have not increased. So, one might say that there has been an **inconsistent** response to the *faster* growth in emissions!

How, then, about the question of whether recent temperatures are higher than in the distant past? The IPCC has claimed, for example, that global temperatures in the last 50 years are ***likely*** to have been the highest in at least the last 1300 years and both the CSIRO and the Government's Green paper assert that 12 of the last 13 years have been Australia's warmest.

Yet well-known features of history indicate that temperatures in periods when no official records were kept in the past have almost certainly been higher than recently – and without having adverse effects on societies.

Examples from the Medieval Warm Period (roughly, 800-1,100 AD) reveal the growth of crops and the grazing of cattle in Greenland in circumstances where there was much less ice than today (some settlements and burial sites from the period remain frozen). The IPCC gave the game away by publishing in its 1990 report a graph showing for that period temperatures higher than for the 20th century, but then ceasing to publish the graph in subsequent reports. The implication is that, if the evidence doesn't fit the theory, don't use it.

A similar warm period occurred in the earlier Greco-Roman warm period (from 600 BC to 200 AD) when Hannibal took his army, including elephants, through

the Alps in winter and grapes were planted and wine produced in northern England during the Romans occupation. (About 50 BC, Julius Caesar built a bridge and took his legions across the Rhine River to subdue the Germanic tribes. He returned to Gaul and dismantled the bridge such that the Rhine remained a barrier to the barbarians to the north. However, during the collapse of the Roman Empire in early 400s AD the Vandals walked across the frozen Rhine River in winter and marched southward.)

IPCC and some other scientists appear conveniently to have brushed aside these periods in history that are likely to have had higher temperatures before any extensive human use of fossil fuels.

This is not to deny that the official **published** average global surface temperatures were in 2005 about 0.74C higher than they were over 100 years before that year. The temperature increase over that period is the one used by the IPCC as the basis for the continued assertion by global warming believers that there is an underlying upward trend.

However, whatever period is selected for historical comparison, it seems quite likely the increase will be smaller than the published figure. This conclusion is based on independent research showing that, for the last 30 or so years, there is considerable doubt about the accuracy of the measurement of the published surface temperatures shown in **Graph 3** for both the northern and southern hemispheres. An expert statistical analyst concluded in an article published in December 2007 that “the IPCC's global surface - temperature data is exaggerated, with a **large** warming bias”.

This major doubt about accuracy is a direct rebuttal of IPCC claims that urban heating effects are small. This analyst is not someone who can be brushed aside. He is the same person who exposed major errors in the hockey stick analysis that purported to show a sharp rise in temperatures from the commencement of industrialisation and a downward trend before that. His revelation of major statistical errors in this hockey stick analysis was confirmed in a report commissioned by the US Congress from an expert statistician and it forced the IPCC to abandon its use. That raises the question - given that the IPCC has implicitly admitted that it made such a major error, how much reliance should be placed on the rest of its analyses?

Also relevant to questioning the published data is the fact that long local records of temperatures at local stations not affected by urban heating, such as Adelaide airport and on the Northern Ireland coast, show little or no warming.

Another false claim by the IPCC is that “new analyses of balloon/satellite lower and mid-tropospheric” temperatures show warming rates that are generally consistent with surface temperatures. In fact **Graph 4** shows that, for the 1979–2005 period, temperatures in the lower troposphere as measured by satellite increased in the Northern Hemisphere but not in the Southern. A comparison of the two graphs shows there are in fact marked differences between the satellite and published surface measurements, with the satellite measurements being lower. In short, yet another error by the IPCC.

I have already referred to the two periods since the 1950s in which temperatures declined even though CO2 emissions were increasing. In fact **Graph 3** shows that a decline in temperatures occurred in the 1880-1910 period as well as over the 1940–75 and 1998 -2008 periods. **Graphs 5 and 6** provide more detailed perspectives of temperatures in the period since 1998 and, assuming this published data is not inaccurate, these two graphs show that since 2001 there has been a slight reduction in temperatures.

While few would claim that this a long enough period to establish a trend, some of the global warming believers have felt it necessary to start building defences of their position. Some have, for example, been at pains to point out that 2008 was still Australia's 14th hottest year in the 99 years of monitoring. Some have even accepted that there has been some natural variability affecting climate. And in an article last year in an "accepted" science journal (before the 2008 figure was available), it was even suggested that the world may be in for a cool period over the next decade. This article led the chairman of the IPCC panel to acknowledge the need for a re-evaluation of "climate sensitivity". In short, some believers are looking for possible explanations that would allow them to justify continued support for global warming even if the cool period continues for some time.

However, the foregoing analysis of temperatures makes it difficult to avoid the conclusion that the IPCC analysis of what has happened to global temperatures in both the distant and recent pasts is seriously defective and does not form a satisfactory starting point for assessing possible future temperature trends. Even if it were accepted that there is an upward trend in temperatures, a case could be made that the temperature increase over the last 50 years would provide a guide to the future.

Using Graph 2 (which indicates an increase of about half a degree over the past 50 years), this would imply an increase of only about one degree during the current century. Yet that possibility is not even included in the range of 2-4 degrees predicted by the IPCC for the period to 2100. One reason why this higher prediction is adopted may be that it becomes more difficult to dismiss any idea that the normal operations of market economies should be able to handle most problems that might emerge without government intervention. Yet humans are already able to live comfortably in widely different average temperatures: for example, Singaporeans live with an average temperature of about 27 degrees while Helsinki residents experience an average below 10.

The increasing difficulty facing global warming believers in explaining temperature movements may be behind the increased emphasis they have been putting on the threat from rising sea levels from meltings of the large ice formations of Greenland, Antarctic and the Arctic. Let us consider this question.

Greenland, Antarctic and Arctic Ice Sheets

Obviously, an extended period of increasing *temperatures* would cause large ice sheets and glaciers to melt, sea levels to rise and low-lying land to become more flooded.

Let us first note what the latest report by the IPCC itself said on this subject. First, for the relatively warm period from 1961 to 2003 it estimated an increase in average sea levels of 7 centimetres (about 3 inches). This is actually a **lower** rate of increase than has previously occurred since the end of the last Ice Age in the early 19th century and that increase caused few problems. Second, the initial IPCC prediction to 2100 was for an increase ranging between 18 and 59 cms, the latter being about 2 feet. However, because of the wide dispute amongst "experts" the IPCC subsequently withdrew any prediction at all. This in itself raises an important question – if experts who believe in global warming but can't agree on what will happen to sea levels, how seriously should we take their supposed consensus reports?

One independent sea-level expert argues that there is no reason why the sea should increase by more this century than last (when it rose about 8 inches). **Graph 7** shows satellite measurements of sea levels since 1994 and a rate of increase from that year to 2005 close to the **lower** end of the range published in the IPCC fourth assessment report, with no increase at all in the last 3 years. In short, contrary to the regular alarmist statements by leaders of island states, there is no recent evidence of any threatening increase in sea levels.

Melting did sharply reduce the extent of sea ice in the Arctic in 2007. However that occurred at a time when global temperatures were falling and when there was a prolonged period of cloudlessness in the area. In 2008 Arctic sea ice was back above levels in the previous years and various attempts to "visit" the Arctic area, made with a view of highlighting the lack of ice, ran into problems – too much ice! Melting of sea ice in the Arctic has **no effect on sea levels** because it is already in the sea and there are benefits from opening the North-West passage to transport. It is pertinent to recall that this passage has opened in the past when CO2 emissions were of course much lower.

As to the Antarctic, even though the total Antarctic ice area had been increasing and reached record levels in 2008 (see **Graph 8**), until fairly recently the media had been reporting break offs of sections of the Antarctic ice sheet as evidence of warming. Then early this year the reporting shifted to a study purporting to show that since 1957 the annual temperature for the entire Antarctic, although still 50 degrees below, had warmed by about one degree Fahrenheit. However this study (one of the authors of which is the author of the hockey stick analysis) is based solely on estimates of temperatures in large areas where there are no weather stations and is inconsistent with evidence of cooling off the coast of Antarctica.

The best "scare" the Government's Green paper can produce is to suggest "increasing concern about the stability of the Greenland and West Antarctic ice sheets". True, the Federal Department of Climate Change was reported in The Age (17 October) as having warned that 700,000 Australian homes are "vulnerable" to rising sea levels. However, it appears to have made this Al Gore type scare on the extraordinary basis that those homes are less than 6 *metres* above sea levels. Meantime, Al Gore's recent purchase of a condominium just feet from the ocean in San Francisco suggests he must regard himself as invulnerable to his own warnings!

In short, it is difficult to justify urgent action to reduce emissions on the basis that serious problems are likely to emerge from melting ice and possible increased sea

levels. Similar problems have been well-handled over time by the Dutch and, in response to scares about increasing sea levels, the Royal Netherlands Meteorological Institute stated late last year that sea levels have risen 20 centimetres (about 8 inches) in the past century and there is "no evidence for accelerated sea-level rise".

Other Alleged Warming Problems

Many other responses can be made at a scientific level to alleged global warming scares, such as those that accompany the current drought. Although the Green paper acknowledges that the north-east of Australia has become wetter since the 1950s, global warming believers are highlighting the current experience of much of the rest of Australia, involving a long period of below average rainfall and above average temperatures. However, the ten year running average rainfall for the Murray-Darling Basin was in fact lower in the late 1930s-1940s than it has been in the last decade (see **Graph 9**) and, even though recent temperatures have reached very high levels, it is pertinent to repeat that temperatures reached slightly higher levels in earlier periods when CO2 emissions were much smaller.

The Hanrahan perception that increased temperatures accompany "rooness" droughts is not borne out. Australian droughts have occurred in the past when global temperatures were lower than now and wetter years have occurred when such temperatures were rising. Moreover, the projections of rainfall derived from computer models have been shown to significantly underestimate the extent to which rainfall *increases* with temperature.

Other misleading scares are mentioned in papers on global warming on my web site – www.ipe.net.au I turn now to the science itself.

The Science of Emission Concentrations

Although 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", that body has since moved to a position in which it concludes much more firmly that temperatures will continue to rise unless there is a halt to CO2 emission increases. It does this despite research that has been accepted by a wide range of scientists and is published in IPCC reports without reservation. That research shows that temperatures do not increase at the same rate as CO2 emissions and that in fact the warming effects from emissions of CO2 diminish progressively as atmospheric concentration levels of CO2 increase. **Graph 10** illustrates the analysis by showing that each doubling of CO2 concentrations (on the x axis) produces only a small, unchanging radiation effect after the initial one (on the y axis), the clear conclusion being that the radiation back to earth is also small and unchanging.

Using this analysis it can be calculated that, even if CO2 concentrations doubled between now and 2100, temperatures would increase by no more than 0.5 of a degree. Expert meteorologist Professor Richard Lindzen of MIT has even suggested the amount of carbon dioxide in the atmosphere may already have reached a level at which it is ceasing to have any significant warming effect.

So why has the IPCC failed to take this into account in framing its conclusions that major action is urgently needed in response to global warming? Given that the recognition of the analysis is tucked well away in the body of IPCC reports, the clear implication is that those conclusions are politically not scientifically motivated. There is now considerable published material indicating that the political views of some scientist believers are used to try to discredit dissenters. Those interested in the heavy political involvement of believer scientists should read the article by Professor Bob Carter in the November 2008 edition of Quadrant.

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 from increased CO2 concentrations (and hence cause some initial rise in temperatures). However, the models fail to take full account of the temperature **reducing** effects from the *negative* feedback coming from the strong increase in surface evaporation that also occurs as surface temperatures rise. This means that the IPCC models significantly understate the temperature reducing effects and the modelled outcome of larger CO2 concentrations is a much larger increase in surface temperature than actually occurs.

If the CO2 concentration model does not explain increased temperatures, what does? The short answer is that nobody can provide a definitive answer. However, a number of leading scientists do present a convincing case that changes in the sun's activity levels, including particularly variations in sunspot activity, are closely co-related with variations in temperature, that the sun seems to have been much more active in recent years, but that this activity may now be ending and cooler periods may likely develop.

These analyses of the role of the sun arguably provide more defensible explanations of temperature changes than the IPCC ones.

A Little History and Philosophy

I have already suggested that political views influence attitudes of scientists to the IPCC thesis. It is worth adding that scientists have a long history of doom and gloom predictions about the likely course of human activity. Most relevant for present purposes is the "Blueprint for Survival" signed in 1972 by 21 eminent scientists and described as a "major contribution to the current debate" in a letter to The Times signed by another 150 scientists, including nine fellows of the Royal Society and 20 more university science professors. The then very popular thesis was that, if the world did not reduce economic activity and population, a shortage of resources would quickly develop. This thesis re-emerged recently when, for a short period, the price of oil shot up even though the ratio of oil reserves to production is higher than in the early 1980s. Forecasts of major shortages generally fail to take into account that adjustments to prices and other policies caused by temporary shortages tend to lead either to new discoveries or to the development of alternative resources to replace existing ones.

So why is it that gloomy and totally erroneous predictions emerge from time to time? There is a long history of apocalyptic statements and writings foretelling death or disasters and these may derive from the religious notion that there is a day of final judgment. When things go bad humans have an inbuilt tendency to include in their thinking what might be the worst possible outcome. All too often the supposed expert

views of scientists have been accepted as justifying intervention by governments to deal with scares of one sort or another – “just in case”.

A recent book by Christopher Booker and Richard North, appropriately titled “Scared to Death”, reveals many examples of governments acting on expert views of scientists which have proved mistaken and which have had serious adverse consequences. In those examples the views of scientific dissenters were ignored or over-ruled even though there was scant evidence to support the action.

On present indications that seems likely to happen with the global warming scare even though there are many highly qualified analysts who dissent from the need for major action by governments to reduce CO2 emissions. I won’t detail those here except to point to the no less than 31,000 US scientists who have signed a petition declaring “there is no convincing scientific evidence that human release of carbon dioxide, methane, or other greenhouse gases is causing or will, in the foreseeable future, cause catastrophic heating of the Earth's atmosphere and disruption of the Earth's climate".

In Australia there are also numerous dissenting scientists and our professionally respected Productivity Commission has pointed out that “uncertainty continues to pervade the science and geopolitics and, notwithstanding the Stern Report, the economics”. It adds 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”. Further details of sceptics/ dissenters are set out in the attachment.

The extent of dissent, and the absence of any thorough analysis of the science, certainly rules out any application of the precautionary principle. It also justifies characterising as irresponsible the Government’s announcement in December of starting in 2010 a policy of reducing emissions by 5 per cent by 2020 regardless of what action other major emitting countries take. A reduction of 5 per cent does not sound much but it would require a large per head reduction of emissions of 34 per cent that would involve major structural changes in the Australian economy. Yet no economic analysis has been undertaken of the implications of a policy of Australia proceeding on its own (or with the EU only) as the Treasury’s economic modelling of mitigation of 30 October assumes some form of effective global agreement. It also appears to assume that coal will remain usable because carbon capture and storage will become “commercial” and be generally deployed by 2020.

The call for urgent action warrants questioning given that it is generally accepted that, even if no emission reducing action is taken, those living between now and 2100 would become very much richer than today. If higher temperatures do occur between now and 2100 those living in the latter part of the century will be much more able to afford to take counter-action to cope.

Conclusion

In summary, I argue the current modelling, used in and derived from IPCC reports, should be rejected because:

- First, there are at least three important faults or omissions in the science used to reach IPCC conclusions, that is, the failure to give

recognition to the accepted fact that the warming effects from increased concentrations of CO2 **diminish progressively** as concentration levels grow; the serious failure to take adequate account of cooling from evaporation in the models used by the IPCC to project temperature increases; and the failure to take adequate account of scientific analysis suggesting variations in the sun's activity may be closely correlated to variations in temperatures;

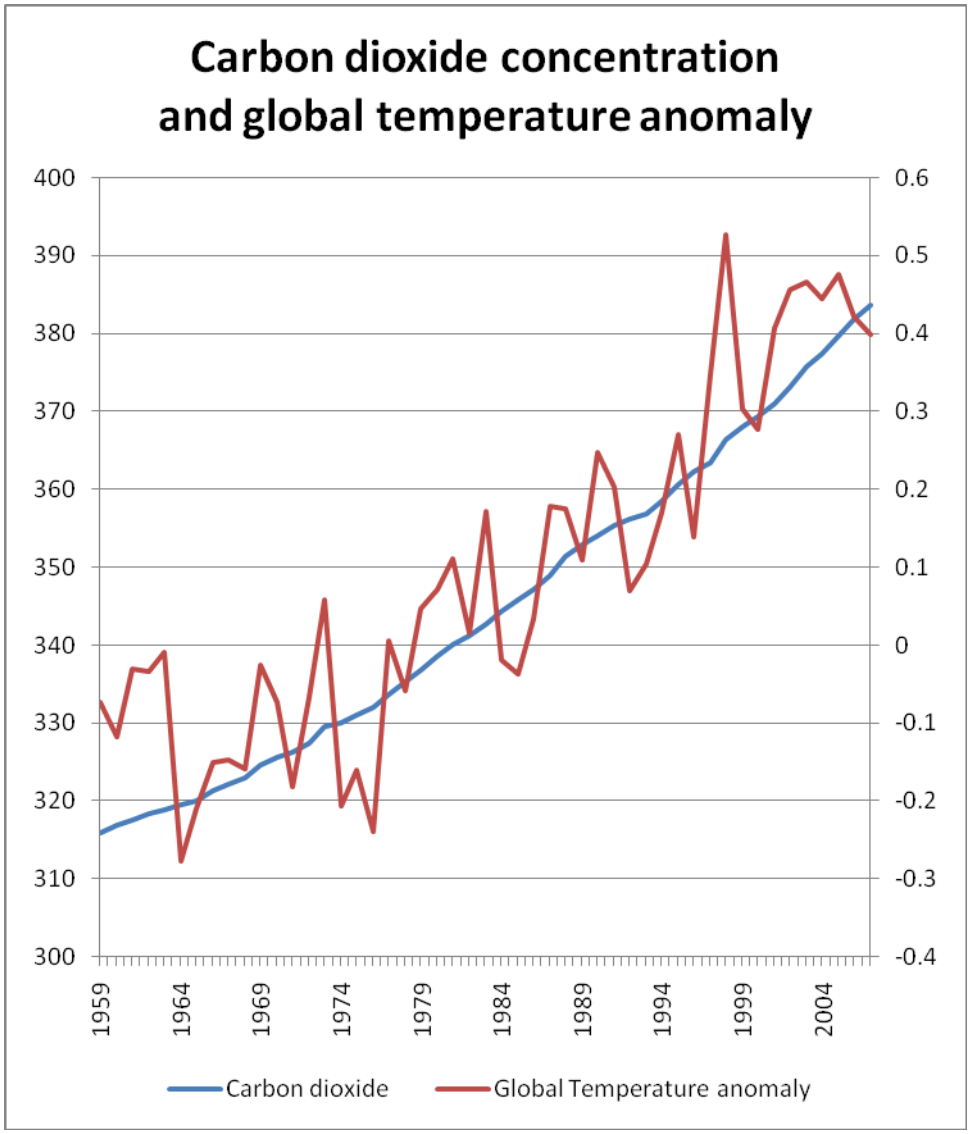
- Second, the claims of a consensus on the IPCC science have no credibility given the very extensive list of qualified dissenters. Even the argument that 2,500 scientists support the IPCC view does not compare favourably with the 31,000 plus who don't. Account should also be taken of the long history of wrong analyses/predictions by scientists;
- Third, in interpreting the increase in surface temperatures of 0.74 degrees over the last 100 years inadequate account has been taken of the lengthy period of falling temperatures when CO2 emissions were increasing rapidly, of the period since 2001 of falling temperatures and similarly strong emission increases, and of the authoritative analysis of the data for recent temperature increases suggesting a large warming bias. Historical evidence also suggests two lengthy distant past periods with higher temperatures but virtually no CO2 emissions from fossil fuel use;
- Fourth, the lack of any substantive evidence of threats of flooding from higher global sea levels (which have risen only slightly since 1961 and have recently fallen) **or** from meltings in the Arctic, which have no effect on sea levels and have now reversed **or** from the sea ice area in the Southern Hemisphere, which is now one million square kms higher than the average for 1979-2000;
- Fifth, while the current drought constitutes a serious problem, similar severe droughts have occurred in the past when CO2 emissions were much lower and those past periods of low rainfall have not always coincided with periods of high temperature.

The case for extensive government intervention to reduce emissions of CO2 is importantly dependent on the end-of-civilisation type argument. Although this argument has been wrongly advanced by scientists (and others) on many past occasions, driven by political and philosophical beliefs it seems to have an underlying propensity to re-emerge and, like many “scares”, to be difficult to counter. However, past experience with unjustified scares indicates that they eventually fade. It is to be hoped that this will occur before too much government intervention occurs into our freedoms.

GLOBAL TEMPERATURES, CO2 CONCENTRATIONS, SEA LEVELS and RAINFALL

1. Positive Proof of Global Warming

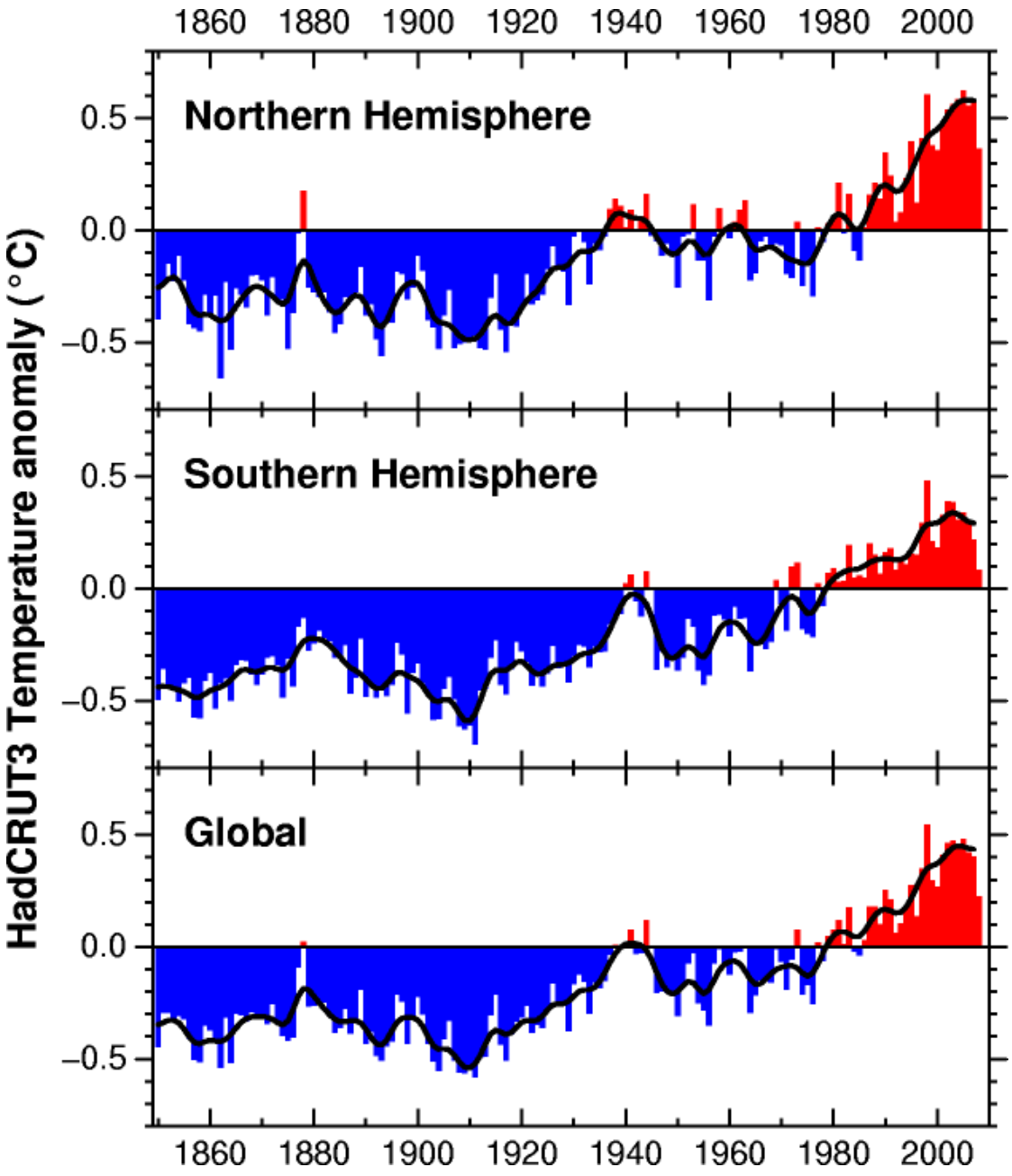
2. Carbon Dioxide Concentration & Global Temperature Anomaly 1959-2004



Annual average global temperature anomaly (departures from the 1961-1990 mean) based on published data from the UK Hadley Centre. Annual average CO2 concentration based on published data from Mauna Loa.

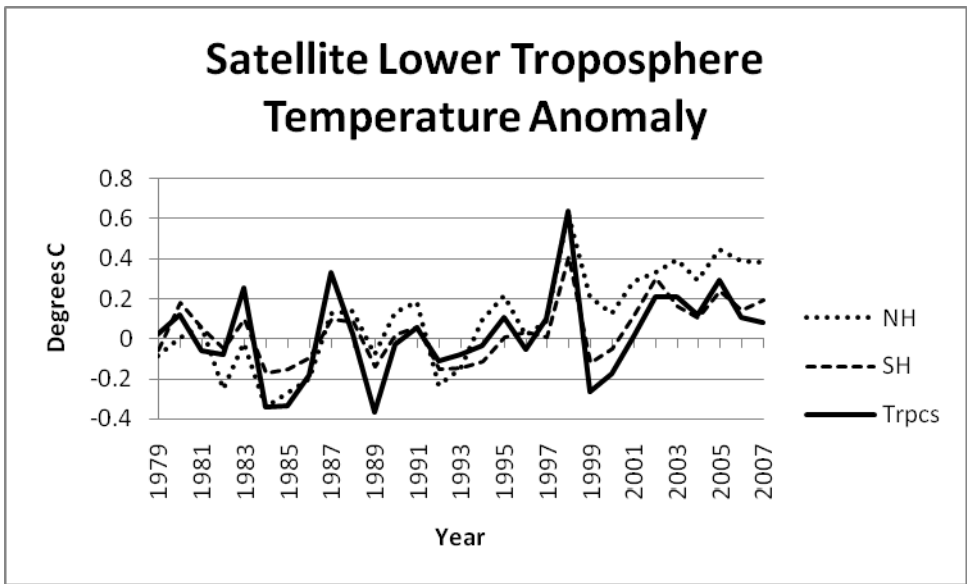
Global temperature remained relatively constant until the middle 1970s and then increased steadily until the late 1990s. Temperature has been nearly constant over the last decade.

3. Temperatures 1850-2007
Northern and Southern Hemispheres



Annual average global near-surface temperature record (combined land and sea); black line is a smoothing filter (UK Hadley Centre based on Jones et al at the University of East Anglia). There are two major periods of warming: from 1910 through 1940 and from 1975 through near 2000. The magnitude of recent warming has been greater in the Northern Hemisphere than in the Southern Hemisphere, possibly reflecting the greater percentage of land area in the Northern Hemisphere but greater ocean surface in the Southern Hemisphere.

4. Satellite Lower Troposphere Temperature Anomaly

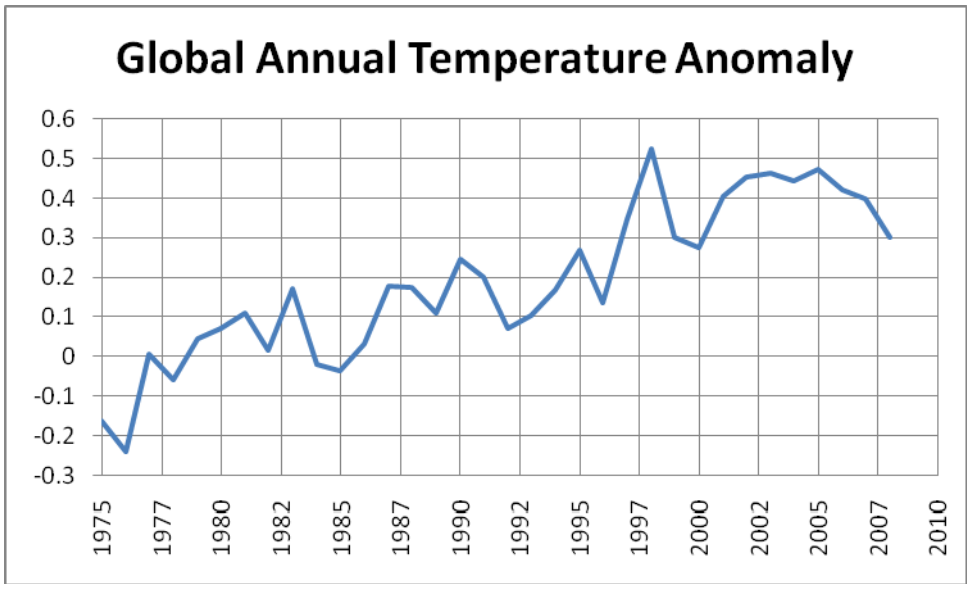


Satellite derived Lower Troposphere Temperature Anomalies (departures from the 1979-1995 mean) for the northern hemisphere (NH), southern hemisphere (SH) and the tropics (Trpcs) based on published data from the University of Alabama, Huntsville (Spencer and Christy). The temperature trend in the lower troposphere is significantly less than that of the surface.

There is a very strong correlation between the tropical troposphere temperature anomaly and El Nino and La Nina events in the Pacific Ocean. El Nino events (warm sea surface temperatures) coincide with warm tropospheric temperature anomalies. The reverse is the case for La Nina events. This tropical forcing is reflected in troposphere temperature anomalies of both the Northern and Southern Hemispheres.

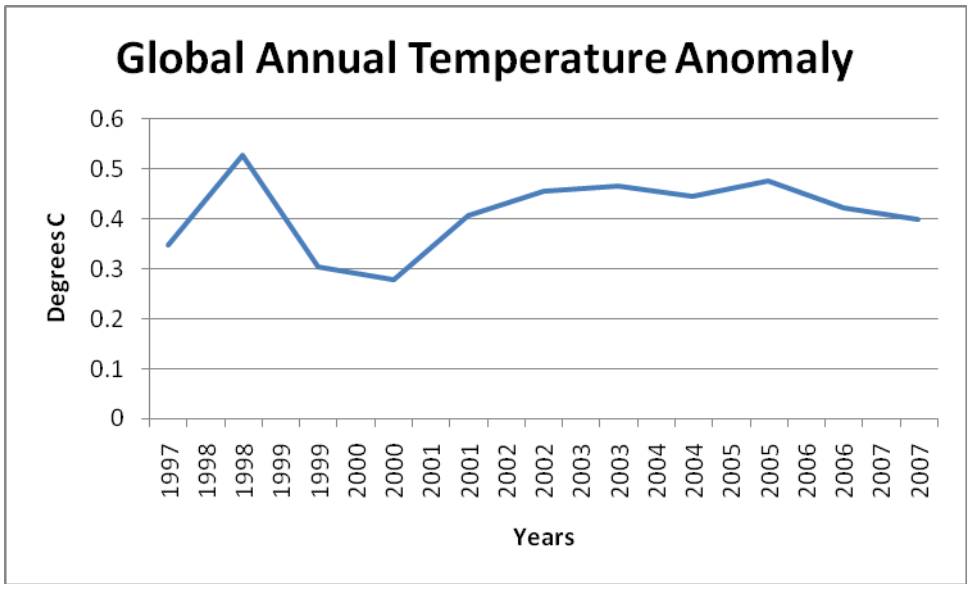
Why are there disparities between surface and satellite temperature measurements over the middle and higher latitudes (where there are the large land masses of Europe, Asia and North America) - but hardly any in regard to the tropics? One reason is that surface temperatures are influenced (increased) by urban heat island effects from those land masses. Although climatologists are not in agreement as to the processes that have given rise to the surface temperature pattern, one thing is clear - it is not the ‘fingerprint’ of anthropogenic global warming. The models suggest atmospheric warming should result in equal warming of the two hemispheres.

5. Global Annual Temperature Anomaly 1975-2010

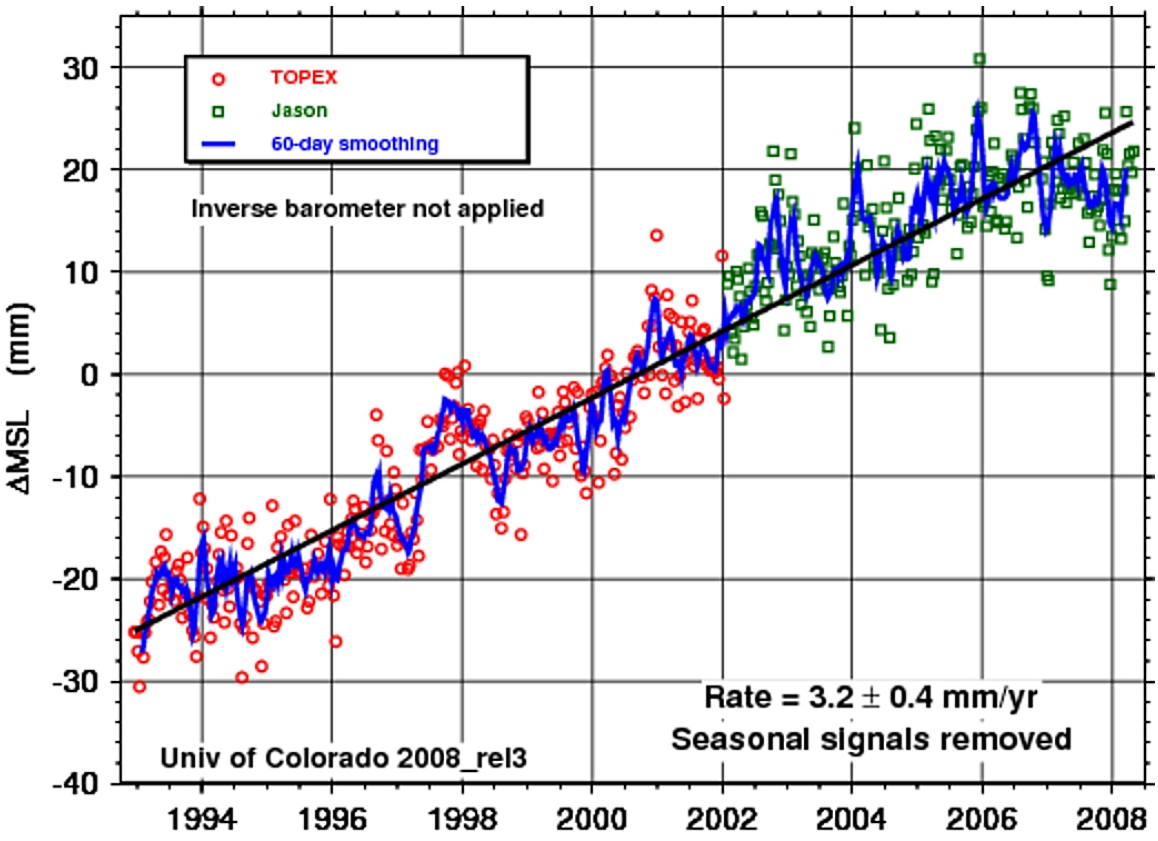


Annual average global temperature anomaly (departures from the 1961-1990 mean) based on published data from the UK Hadley Centre.

6. Global Annual Temperature Anomaly 1997-2007



7. Global Sea Level



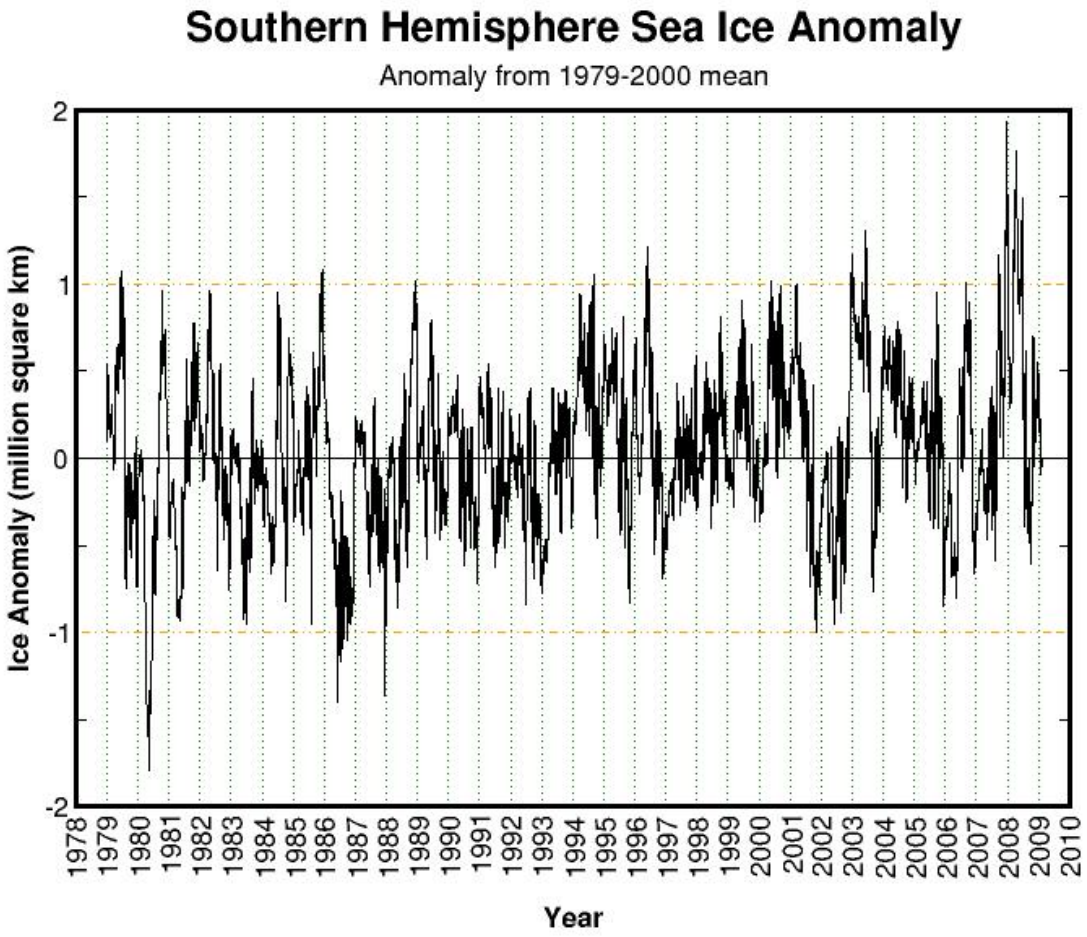
The global mean sea level graph was made using satellite altimetry and processed by the University of Colorado at Boulder.

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 us for further information.

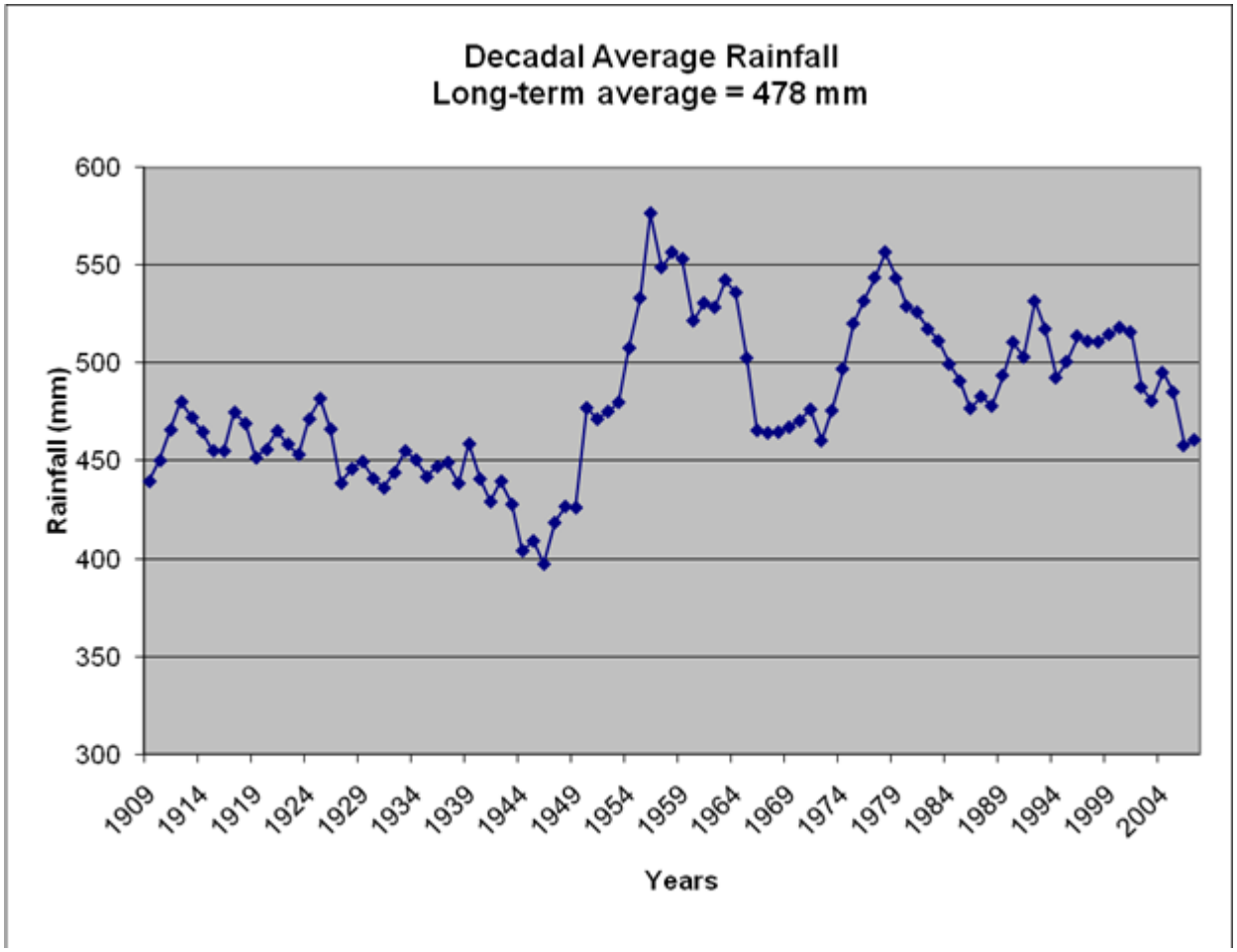
8. Southern Hemisphere Sea Ice Anomaly

Anomaly from 1979 2-00 mean

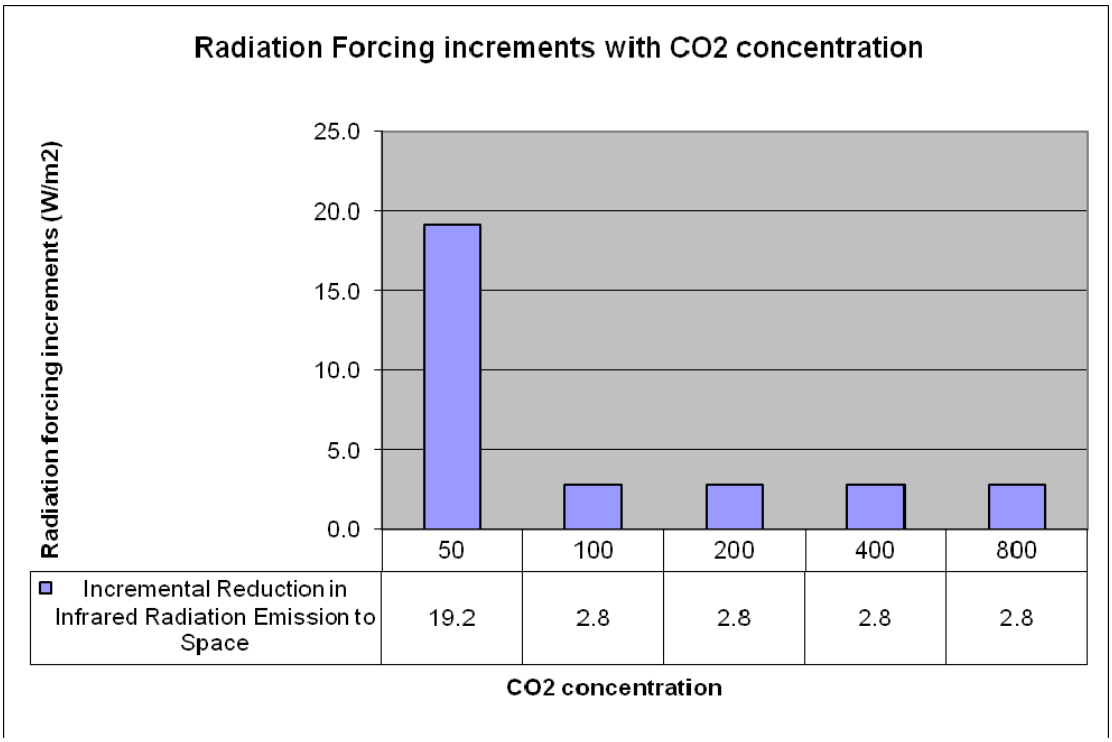


9. Murray-Darling Basin
Decadal Average Rainfall

Long term average = 478 mm



10. Radiation Forcing Increments with CO_2 Concentrations



The bottom section of the graph shows the reduction in radiation emission to *space* as CO2 concentration levels double while the y axis shows the corresponding radiation forcing increases to the *earth's* surface. (The reduction in emission to space - IPCC's definition of radiation forcing - occurs because the radiation emission emanates from a higher and colder layer. The increase in the back IR at the surface occurs because the emission emanates from a lower colder layer of the atmosphere).

The implications of increased levels of CO2 concentration on *surface* temperatures may be summarised as follows:

While this results in radiation back to earth, the amount of that radiation diminishes progressively as levels of CO2 concentration increase. The main 'radiation forcing' of carbon dioxide is by the initial small concentration, with the first 50 ppm of concentration dominating the forcing *(Calculated using MODTRANS for cloudless skies and US Standard Atmosphere)*

While the *initial* effect of that radiation is to increase surface temperatures (by increasing the accumulation of energy at the surface), this effect is partially offset by increased radiation from the surface *and* by the increased evaporation of latent energy from the surface (which is the dominant factor in damping any tendency for surface temperature to rise);

The net effect is only a small increase in surface temperatures.

We can evaluate the rate of increase of surface energy loss by infrared emission (the Stefan-Boltzmann Law) and evaporation (Claussius-Clapeyron Relationship). These are 5.4 and 6.0 W/m2 per degree C temperature rise respectively, or a combined 11.4 W/m2 energy loss for each degree C surface temperature rise. The radiation forcing from a doubling of carbon dioxide concentration can only sustain a surface temperature rise of about 0.3C.

ATTACHMENT – Critiques by Major Groups or Individuals

US Senate Environment and Public Works Committee Report (Minority), 20 December, 2007, endorsed by over 400 prominent scientists (many being current or former participants in the IPCC), including Australian Professor Ian Plimer, and voicing "significant objections to major aspects of the so-called "consensus" on man-made global warming";

Oregon Institute of Science and Medicine, Petition Project, started in 1998 after the signing of the Kyoto Treaty by many countries. The Petition, which is now signed by over 31,000 scientists in the US (and continues to attract signatories), was endorsed originally by the former head of the US National Academy of Science, Dr Fred Seitz. The Petition declares "there is no convincing scientific evidence that human release of carbon dioxide, methane, or other greenhouse gases is causing or will, in the foreseeable future, cause catastrophic heating of the Earth's atmosphere and disruption of the Earth's climate";

Science and Environmental Policy Project by S.Fred Singer, research professor at George Mason University and professor emeritus of environmental sciences at the University of Virginia. With Dennis Avery (a senior fellow of the Hudson Institute) he has co-authored a book "Unstoppable Global Warming Every 1,500 years" (2007) dedicated to "those thousands of highly qualified research scientists who have documented physical evidence of the1500-year climate cycle from over the entire globe" and to three scientists who led the discovery of the cycle for which they received the Tyler Prize, described as the "environmental Nobel". Singer is an active critic of the human-caused thesis and publishes a weekly newsletter;

Letter of 10 January 2007 to the Canadian Prime Minister, Stephen Harper, signed by 61 prominent international scientists (including Australian Mr William Kininmonth) and calling on the Prime Minister to hold public consultation-sessions to "examine the scientific foundations of the federal government's climate-change plans";

Fraser Institute (Canada) Independent Summary for Policy Makers (of the) IPCC Fourth Assessment report, February 2007, signed by 10 expert scientists/economists, including Australian Mr William Kininmonth, and concluding "there is no compelling evidence that dangerous or unprecedented changes are underway";

The Lavoisier Society Group – Submission to Garnaut Climate Change Review, January 2008, by President Peter Walsh (former Finance Minister in the Hawke Labor Government); The Lavoisier Society Groups' submission to the Garnaut Review, January 2008; Nine Facts about Climate Change by Secretary Ray Evans, February 2008. The Society's web site contains scientific papers critical of the IPCC thesis;

Book by Czech President, Vaclav Klaus on "Blue Planet in Green Shackles What is Endangered: Climate or Freedom?", 2007. Published by the Competitive Enterprise Institute in Washington DC.

Two articles written by Professor David Henderson (former head of Economics Division of the OECD) and Mr Ian Castles (former Commonwealth Statistician) in 2003 and published in *Energy & Environment*, exposing errors in the economic and statistical analysis used by the IPCC;

Report by House of Lords Select Committee on Economic Affairs (2005), *The Economics of Climate Change* and evidence presented by Professor David Henderson;

Article in World Economics, Vol 7, No.4, October-December 2006 on *The Stern Review: A Dual Critique*, concluding that the Review is deeply flawed and does not provide a basis for informed and responsible policies. The Critique was originated by Professor David Henderson and authored by him and 14 other prominent scientists and economists, including Australian Professor Bob Carter (a palaeontologist who has published considerable research on climate change and is Adjunct Professor at James Cook university in Townsville), Professor Chris de Freitas (a climate scientist at the University of Auckland), and Richard Lindzen, Professor of Atmospheric Sciences at MIT (see below) and Mr Ian Castles.

National Post newspaper, Canada, has published numerous articles criticising the scientific consensus and outlining the views of individual scientists who dispute the consensus;

Three articles by Mr John Stone, former head Australian Treasury, published in National Observer on "Michael Crichton on "Global Warming"', No. 64, Autumn 2005; ""Global Warming" Scare-mongering", No. 71, Summer 2006/07; ""Global Warming" Scare-Mongering Revisited", No.72, Autumn 2007; and "Kyoto the Fraud: How Australians are being Conned", Address to National Conference of the National Civic Council, 2 February 2008;

Book by Michael Crichton on "State of Fear", published by HarperCollins, New York, 2004;

Articles written by Professors Stephen McIntyre and Ross McKitrick in *Energy & Environment* in 2003 and 2005, and Geophysical Research Letters in 2005, that inter alia exposed errors in the historical temperature reconstruction of the past 2,000 years by the IPCC (the so-called hockey stick presentation, subsequently abandoned by that body);

The Great Global Warming Swindle film, March 2007, portraying the views of many expert scientists criticising the IPCC analysis and including environmentalist Patrick Moore, a founding member of Greenpeace;

Book by Mr William Kininmonth, former head of the Australian Bureau of Meteorology's National Climate Centre, on "Climate Change: A Natural Hazard", 2004;

Professor Richard Lindzen, Alfred Sloan Professor of Atmospheric Sciences at the Massachusetts Institute of Technology, publisher of over 200 books and scientific papers, is a major critic of the IPCC's analysis;

Lord Nigel Lawson, former UK Chancellor of the Exchequer, “A Cool Look at Global Warming”, the 2007 Trotter Lecture, published by the New Zealand Business Roundtable.

July 2008