GLOBAL WARMING – IS IT REALLY A THREAT?

5 November 2008
Des Moore

Below is my presentation on this subject to Marcus Oldham College staff and students. It responds to the presentation in August by Mark Howden of CSIRO and argues that IPCC reports do not justify any emissions reduction policy because:

1. Three substantive defects exist in the science used to reach IPCC conclusions:
    - non-recognition of the accepted fact that the warming effects from increased concentrations of CO2 diminish progressively as concentration levels grow;
    - the serious under-estimation of the cooling effects 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 are closely correlated to variations in temperatures;

2. No consensus can exist on IPCC science given the extensive list of qualified dissenters: 31,000 plus scientists do not support the IPCC view and only 2,500 have contributed to IPCC reports (some of whom do not support its conclusions). The Productivity Commission says “uncertainty continues to pervade the science”: Garnaut acknowledges “large’ uncertainties.

3. There is a long history of wrong analyses/predictions by scientists;

4. The increase in surface temperatures of 0.74 degrees over the 100 years to 2005 includes 3 periods of falling temperatures when CO2 emissions were increasing:
    - the early part of the 20th century (continuing from about1880);
    - from about 1945 to 1975; and
    - the period since 2001.

5. Authoritative analyses of the data for recent years’ temperature increases indicate a large warming bias not taken into account by the IPCC;

6. Historical evidence suggests two lengthy distant past periods with higher temperatures (but virtually no CO2 emissions from fossil fuel use) not recognised by IPCC. The Green paper wrongly claims 12 of last 13 years as the “hottest in history”;

7. There is no substantive evidence of threats of flooding from increasing global sea levels: if anything the opposite is the case:

- Global levels have risen only slightly since 1961 and have recently fallen;
- Meltings in the Arctic (which have no effect on sea levels) have now reversed;
- In the Southern Hemisphere the sea ice area is now one million square kms higher than the average for 1979-2000;

8. Similarly severe droughts to the present one in much of Australia 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.

Past experience reveals unjustified scares similar to this one. They eventually fade away as common sense returns.

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

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MAIN POINTS

- Starting an emission reduction policy (ERP) regardless of whether other major emitting countries do seems unbelievably naive as Australian leadership will not itself cause them to start their own ERP: nor will it save the Gt Barrier Reef;
- Treasury's economic modelling assumes some form of effective global agreement will be reached and carbon capture/storage will become "commercial". The first seems unrealistic and the second ill-defines commercial. If no global agreement occurs the cost of an ERP could be large;
- Worryingly, no **independent** public examination has been made of the IPCC science: that is simply accepted as gospel despite widespread critiques;
- Claims of scientific consensus are contradicted by extensive, qualified dissenters (attached). Some "science", accepted initially by IPCC, has been dropped;
- Claims that 2,500 scientists support the IPCC view compare unfavourably with the 31,000 plus who don't. Anyhow, the IPCC Secretariat has denied that the 2,500 do endorse its reports and has refused journalistic access to their names;
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- Assessments of the precautionary principle by the Productivity Commission and the UK House of Commons Science and Technology Committee make it unsuitable to apply to analyses predicting "damaging" temperature increases;
- The case for an **urgent** ERP is undermined by uncertainty about the science, Garnaut's acknowledgement of only a miniscule "loss" of GDP in 2100 if no action is taken, and the cessation of temperature increases since 1998;
- There is a long history of wrong doom and gloom predictions by scientists and the global warming scare may simply reflect a new age of Apocalypticism;
- The science of climatology is a new one dealing with very complicated relationships about which definitive conclusions are premature;
- The increase of 0.74 degrees in temperatures over the last 100 years ago includes a lengthy period of falling temperatures when CO2 emissions increased rapidly and data for recent years that an authoritative independent analyst claims has a ***large*** warming bias;
- Despite increasing CO2 emissions, temperatures have not risen since 1998 and have fallen since 2001. The IPCC chair acknowledges a need for re-assessment;
- The IPCC claim that global temperatures in the last 50 years are **"likely"** the highest in 1300 years, and the Government's Green paper claim that Australia has experienced 12 of the hottest years **"in history"** in the last 13 years, are almost certainly wrong. Historical evidence shows at least two lengthy past periods had higher temperatures with virtually no CO2 emissions from fossil fuel use and with advances in civilisation. IPCC scientists seem unaware of history;
- Measurements of upper air temperatures show they produce results inconsistent with models based on greenhouse theory and contradict IPCC claims of consistency between such temperatures and surface temperatures;
- Historical analysis of ice cores suggest that increases in CO2 emissions have occurred **after** temperature increases: they also suggest no fossil fuel effect;
- The IPCC's fourth assessment report estimated an increase in average sea levels of 7 centimetres (about 3 inches) during a mostly warm period between 1961 and 2003. This caused few problems. Possible future changes in sea levels are widely disputed: the projected increase of 18-59 cm to 2100 in the IPCC report was dropped in the associated "synthesis" report but recent data, which shows a fall, provides no basis for reaching more than the low estimate;
- Recent melting in the Arctic, now reversed, occurred during a period of **falling** global temperatures. Such meltings have virtually no effect on sea levels;
- The Government's Green paper claims "concerns" exist about the "stability" of Greenland and West Antarctic ice sheets. But the sea ice area in the Southern Hemisphere is now one million square kms higher than the average for 1979-2000; India's climate change policy says there is no accepted rationale for meltings of some glaciers in the Himalayan chain;
- There is no correlation between global temperatures and rainfall in Australia: the Green paper's acknowledgement that the N East of Australia became wetter since the 1950s suggests no *global* temperature increase effect: similar droughts to the current one occurred in the past when emissions were much lower;
- Polar bear numbers have increased in recent years;

- Malaria occurs in cold as well as warm areas and warmer temperatures would not themselves cause a higher incidence;
- If temperatures warm, the incidence of storms and hurricanes may decrease;
- All IPCC reports acknowledge that the warming effects from increased concentrations of CO2 **diminish progressively** as concentration levels grow. But this established fact is not taken into account in IPCC conclusions that urgent action is needed to reduce CO2 emissions. This suggests its conclusions are politically not scientifically motivated;
- IPCC models used to project temperature increases have a major fault in failing to take adequate account of cooling from evaporation. This causes models to produce much larger increases in surface temperatures than could actually occur;
- Considerable scientific analysis suggests variations in the sun's activity are correlated to variations in temperatures: recent declines in activity suggest a cooling period ahead;
- Humans are able to adapt to differences in temperatures and already live good lives in places with widely different average temperatures;
- Australia's highly respected Productivity Commission has concluded that uncertainty pervades the science, geopolitics and economics of global warming and that action to substantially reduce CO2 emissions could be "very costly".

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This is a complex subject involving issues that extend into religion, philosophy and economics as well as science. I can only touch on aspects of each.

We are living in a time of economic and financial crisis that could continue for several years. As a Treasury economist I had extensive experience in analysing radical proposals for government action to deal with crises both in the 1970s and 1980s. I mention just one that started me on the path of scepticism about the capacity of governments to handle crises and the need for caution about proposals to do so. That was a brief period as adviser to Treasurer Jim Cairns, who sought to solve the inflation problem by printing more money but whose time was mostly taken up with mooching with Morosi! Recall however that Dr Cairns was taken seriously and he lost by only one vote his challenge to Whitlam for Labor party leadership and Prime Ministership.

During my 28 years in Treasury, and since, I formed the view that politicians and bureaucrats have a natural instinct to expand their roles by intervening in the operation of the economy and society generally. Many justify this because they believe it will improve the public good. But many also have their own interests in mind, even if only subliminally. We citizens should beware of problem-solving proposals by governments.

This is particularly relevant to the global warming issue because the alleged problem of continually rising temperatures is said to be a matter for governments. There is perceived

to be a “market failure”, meaning that individual businesses or persons are judged as lacking the necessary incentive or the resources to remedy the perceived problem by acting on their own behalf.

This perception is reinforced by the explosion of dire warnings from supposed experts if rising temperatures are allowed to continue, first from Al Gore’s film “An Inconvenient Truth”, then from the Stern Review of the Economics of Climate Change, followed by four major reports from the United Nations Intergovernmental Panel on Climate Change, endorsement by the Royal Society of London and now in Australia from the CSIRO and economist Ross Garnaut. Moreover, all major political parties in developed countries have accepted the need for action to reduce emissions of greenhouse gases.

The Rudd Government’s Green paper of July 2008 asserts “the IPCC makes an unequivocal case to begin to address climate change”, although Rudd subsequently told the National Press Club (on 15 October) that “anyone who grew up on the land knows that you can’t control the weather”. The Green paper foreshadows a policy of reducing CO2 emissions, commencing in 2010 with the eventual aim of a 60% reduction by 2050 but a likelihood that the European model of a 20% reduction by 2020 will be adopted.

The adoption of such a policy from 2010 regardless of whether other countries also do so seems unbelievably naïve as “leadership” by Australia will not itself cause major emitters to start their own emission reduction programs (ERPs). Moreover, unless major emitters do take action, there would be no prospect of “saving” any of our environmental icons (such as the Great Barrier Reef).

The economic problem for Australia if it proceeds on its own, or with the EU only, is not addressed by the Treasury in its economic modelling of mitigation of 30 October. That modelling assumes some form of effective global agreement and, in its Summary of Assumptions and Data Sources of 3 October, it also appears to assume that, with a carbon price of $45 per tonne, carbon capture and storage will become “commercial” and generally deployed by 2020. But the conclusion of a global agreement between major emitters seems unlikely in the foreseeable future and even the achievement of usable carbon capture technology on the assumed subsidised basis must also be dubious. Even if a global agreement were to be reached, that would still mean a relative lowering of living standards because it would require the use of less efficient methods of production.

Also worrisome is the failure to undertake any independent public examination of the IPCC case involving independent scientists: the IPCC advice is simply accepted as gospel despite the widespread scientifically-based critiques. Contrary to claims of a scientific consensus that human activity is the principal temperature driver, there are now many published reports and papers strongly disputing the IPCC analysis, including several by eminent Australian scientists. My assessment is that the case for major government intervention to “keep us cool” has not been made and that, even if further increases in average temperature were to occur, the response should be left principally to the private sector to handle. In the printed version of this address I attach some of those who dissent but the list is by no means comprehensive.

If any substantive qualification were to be made to IPCC science, this would clearly require a different policy response. For example, if it came to be accepted that any further temperature increase from increased CO2 emissions is likely to be small and relatively gradual, such an increase would be capable of being handled mainly by adaptation by the private sector. But global warming believers are showing no signs of conceding any significant modification to the science adopted by the IPCC.

Their attitude is simply to brush aside dissenters ranging from over 15 individual distinguished scientists interviewed in the Great Global Warming Swindle film to a group of 500 endorsing a minority US Senate Environment report, to a report by a small expert group formed by US Professor Fred Singer to constitute a Nongovernmental Panel on Climate Change (NIPCC), to a group of 103 highly qualified persons who wrote to the UN Secretary-General last December, to more than 1100 who signed the Manhattan Declaration at a climate conference in New York this March, and finally to 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".

We now have, therefore, many qualified individuals or groups who strongly reject IPCC theories and who can justifiably challenge claims that IPPC science is right because 2,500 scientists contributed to IPCC reports and those reports are supported by a range of scientific academies. Those scientists who support IPCC conclusions appear to be fewer than the dissenters and the 2,500 refers only to scientists who either submitted papers or whose papers were referenced by the IPCC, some of whom have subsequently disassociated themselves from IPCC conclusions. The Secretariat of the IPCC has in fact denied that the 2,500 endorsed the reports and has refused to divulge their names to a senior Canadian journalist seeking interviews. In reality, IPCC reports have been compiled by a very small group of government-appointed scientists, with only 51 contributing to the IPCC's 2007 Summary for Policy Makers.

Note also that the IPCC conclusion is not unequivocal: its assertion is limited to "**most** of the observed increase in global average temperatures since the mid-20th century" and to the conclusion that this "is ***very likely*** due to the observed increase in anthropogenic greenhouse gas concentrations". Once account is also taken of the dissent, any notion that this justifies major precautionary actions is eliminated because the extent of such dissent reveals the enormous uncertainty about the costs and benefits of such action. As a recent Productivity Commission Staff paper points out, the multitude of definitions of the precautionary principle leaves open what it means for decision-making. This explains why, after exhaustive examination in 2006, the UK House of Commons Science and Technology Committee concluded that "the term 'precautionary principle' should not be used … and [should]cease to be included in policy guidance", adding that it has been "devalued and [is] of little practical help, particularly in public debate".

But in any event advocates of major government action destroy their own case. For example, while Professor Garnaut's draft (second) report estimated that GDP in 2100

would be only 4.8% lower if no action was taken, it also estimated that GDP would then be seven times what it is today. Nobody could seriously believe that the much richer people living in 2100 would be unable to cope with such a miniscule small loss of income or unable to take counter-action to cope with the higher temperatures if they did occur. This must surely mean that no case exists for proceeding with ERPs that would involve major structural changes to the economy and a huge increase in government controls and intervention.

Let me now consider some specific aspects of this global warming scare, starting with some history and philosophy.

A Little History and Philosophy

I want first to recall the long history of doom and gloom predictions about the likely course of human activity. Way back in 1798, for example, Thomas Malthus postulated in his "Essay on the Principle of Population" an "inevitable" tendency for population to outrun available subsistence. Jumping ahead 170 odd years, four scientists from the Club of Rome got much publicity in 1972 when they argued in "The Limits to Growth" that a developing shortage of resources required population to be "stabilized" and in his 1971 "The Population Bomb" biologist Professor Ehrlich predicted early serious shortages of food unless population growth was reduced to zero. A similar theme was advanced in "A 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 more fellows of the Royal Society and 20 more university science professors.

Recent increases in world prices of oil and some basic foods might appear to provide some support for such theses. However, the food price increases appear mostly to be due to bad government policies, such as bio-fuel subsidisation for environmental reasons and price controls that deter production, while the ratio of oil reserves to production has not fallen and is higher than it was in the early 1980s.

When I did my own research at the Royal College of Defence Studies in London in the early 1970s on the predicted running out of resources thesis, I was astonished to discover that the scientist doom and gloom analysts had made only limited allowance for new technological developments, let alone for new discoveries to supplement existing resources. A popular theme at the time was that the exhaustion of oil supplies would itself soon cause a major reduction in economic growth. But such propositions took insufficient account of the likelihood that the natural operations of markets, particularly through the price mechanism, would lead either to new discoveries or to the development of alternative fuel sources to replace oil.

So why is it that gloomy and totally erroneous predictions emerge from time to time? This is not easy to answer but some see the current global warming scare as part of a new age of Apocalypticism. The long history of apocalyptic statements and writings foretelling death or disasters, even the end of the world, in certain circumstances 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, reflected in the verse that poet John O'Brien put in his 1921 poem

"If we don't get three inches … to break this drought, we'll all be rooned … before the year is out, said Hanrahan".

Today we look to scientists rather than poets or preachers to make predictions and to propose what might be done to prevent roon. But although that should provide a more rational approach, all too often scientists themselves downgrade the potential for technological and other scientific advances to overcome or at least alleviate perceived and actual problems faced by mankind. 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. But, as shown by Christopher Booker and Richard North in their recently published book "Scared to Death", there are many examples of governments acting on expert views of scientists that have proved mistaken and that have had serious adverse consequences.

Once experts form a view there is a tendency to push it regardless of critiques. This was illustrated in interviews on ABC Lateline on 24 October with three Australian scientists who were closely involved in preparing the IPCC's fourth assessment report and with the Chairman of the IPCC Panel, Rajendra Pachauri. The three Australian scientists asserted that the situation had deteriorated since the report but were not asked by the interviewer how that could be justified. However Pachauri appeared *not* to accept this view although he did agree that sceptics who deny what he described as the "overwhelming weight of scientific evidence" are "flat-earthers".

The presentation here in August by Mark Howden from CSIRO also used the IPCC's fourth assessment report to show a "link" between carbon dioxide and temperatures and to identify the warmest 12 years as being those since 1994. However, as to the link between CO2 and temperatures, **Graph 1** shows the relationship back for thousands of years. This analysis of ice cores indicates that over the past half-a-million years temperatures increased on average 800 years **before** carbon concentrations increased, making it impossible for major climate cycling to be caused by CO2 variation. This of course reveals one of the fundamental errors promulgated by Al Gore in his film.

Graph 2 shows more recent analysis of what has happened since 1959 to the relationship between CO2 concentrations and temperatures. As would be expected in a period of strong economic growth, CO2 concentrations have also increased strongly. But within this period temperatures showed no increase up to 1975 and since 1998. Global warming believers respond to this latest "cool" period by pointing out that temperatures are still higher than pre-1975 and claiming an "underlying" warming trend remains. But even that dubious statistical analysis does not explain why temperatures have stopped rising in circumstances where CO2 emissions have been increasing strongly. Nor does it justify claims that the situation has worsened since the last IPCC report and that there is an urgent need to start reducing CO2 emissions. Indeed the opposite is the case.

Historical experience also contradicts claims that the world and Australia have been experiencing a uniquely warm period. 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 Mr Howden's presentation showed 12 of the last 13 years as having been Australia's warmest, which is similar to the assertion in the Government's Green paper that they were "the 12 hottest years in history". However, well-known features of history indicate that temperatures in periods 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 must have been much less ice than today. It is interesting, to say the least, that after its 1990 report the IPCC stopped showing a graph of estimated temperatures in the MWP. The warm climate in that period helps explain the increased economic, cultural and warlike activity that occurred, as it did 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. IPCC and some other scientists appear to have "forgotten" history and the marked historical changes in climate, which included cold periods that resulted in lives of misery for most and declines in populations.

The recent warnings of dire consequences from further temperature increases have emerged from a science of climatology that is only a new one dealing with extremely complicated relationships. Based on my own observations, and examining those of well-qualified analysts with whom I have discussed the matter, it is difficult to avoid the conclusion that there has been a gross overstatement by many scientists of the seriousness of threats. Those who are dissenters do not completely rule out the possibility of damaging changes but they do not put them in the IPCC category of being "very likely" and many are much more fearful of the effects of cooling than warming.

Let me turn now to discuss some specifics, first to temperatures.

Temperatures

Graph 3 shows surface temperatures since 1850 for the northern and southern hemispheres, and for the global average, put together by the centre that proselytises global warming. Using this data the IPCC has used the increase in average global surface temperatures of 0.74C over the 100 years to 2005 as a basic starting point for its analysis.

However, the accuracy of this data is suspect, particularly as to whether the data for recent years takes sufficient account of urban heating effects. One expert statistical analyst, whose exposure of major errors in the hockey stick analysis forced the IPCC to abandon its use, concluded in an article published in December last year that "the IPCC's global surface-temperature data is exaggerated, with a **large** warming bias. Claims about the amount of surface warming since 1980, and its attribution to anthropogenic greenhouse-gas emissions, should be reassessed using uncontaminated data. And

governments that rely on the IPCC for advice should begin asking why it was allowed to suppress earlier evidence of this problem".

This is a major direct rebuttal of IPCC claims that urban heating effects are small. Long local records of temperatures for some specific places showing little or no warming also raise a question as to the accuracy of global surface temperature measurements and the method used for calculating the global average.

Graph 4 also reveals that, despite claims in the IPCC report that "new analyses of balloon/satellite lower and mid-tropospheric" temperatures show warming rates that are generally consistent with surface temperatures for the 1979–2005 period (which Mr Howden appeared to endorse), lower tropospheric temperatures measured by satellite increased in the Northern Hemisphere but not in the Southern. This is obviously inconsistent with surface measurements. Moreover, even though greenhouse theory postulates that the upper troposphere should have a tropical "hot spot", relevant measurements (from radio-sonde weather balloons, satellites and ground thermometers) show no increase in rate of temperature with height in the troposphere in tropical latitudes.

As can be seen from **Graph 3**, the global surface temperature data used by the IPCC shows two lengthy periods, from 1940–75 and 1880-1910, of declining temperatures even though CO2 emissions were increasing. **Graphs 5 and 6** show that since 1998 another shorter but significant period has developed showing no increase in the global average temperature and a fall since 2001. A recent article in an "accepted" science journal has even suggested that over the next decade "natural" climate variations will "temporarily offset the projected anthropogenic warming: surface temperatures in Europe and North America may even cool a little during this period". This led the chairman of the IPCC panel to acknowledge the need for a re-evaluation of "climate sensitivity".

It is difficult to avoid the conclusion that the IPCC analysis of what has happened to global temperatures in both the distant and recent pasts raises serious questions and does not form a satisfactory basis for assessing what might happen to future temperature trends. Even if increases in temperature were to continue at about the same rate as in the past century, the normal operations of market economies should be able to handle most problems that might emerge. Moreover, the next generation will be much richer and have a much greater capacity to provide the resources needed to deal with such problems. The scare-mongering reports have seriously underestimated the capacity of humans to both innovate and adapt to change as they have done over the past century in company with the relatively small increase in temperature that has occurred. The wide differences in average temperatures that already exist between different parts of the world show the extent to which humans can readily adapt themselves to different climates: Singaporeans live with an average temperature of about 27 degrees while Helsinki residents experience an average below 10.

But do the same queries and doubts arise in relation to the large ice formations of Greenland, Antarctic and the Arctic?

Greenland, Antarctic and Arctic Ice Sheets

If an extended period of increasing temperatures were to occur, large ice sheets and glaciers would obviously melt, sea levels would rise and low-lying land would be flooded. The group of 42 Australian scientists who called on 21 October for urgent action to start reducing CO2 emissions put considerable emphasis on the risk of rising sea levels - "on the scale of metres per century"- if CO2 equivalent concentration levels reach 450 ppm.

The IPCC's fourth assessment report estimated an increase in average sea levels of 7 centimetres (about 3 inches) during what was mostly a warm period between 1961 and 2003. 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 it caused few problems. Possible **future** changes in sea levels are widely disputed even amongst "experts" who are believers in global warming. The projection in that IPCC's fourth assessment report of an increase of 18-59 cm (ie up to about 2 feet) was dropped in the associated "synthesis" report, which provides no estimate. 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.

Melting did sharply reduce the extent of sea ice in the Arctic last year. However that occurred at a time when global temperatures were falling and when there was a prolonged period of cloudlessness in the area. So far in 2008 Arctic sea ice is back above last year's levels and various attempts to "visit" the Arctic area, made with a view of highlighting the lack of ice, have run into problems – too much ice! Meltings of sea ice in the Arctic have **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 has happened in the past when CO2 emissions were of course much lower.

As to the Antarctic, although the media has been reporting break offs of sections of the Antarctic ice sheet, the total Antarctic ice area is currently about one million square kilometres larger than the 1979-2000 average.

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 warning on the extraordinary basis that they 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!

As to glaciers (of which there are an estimated 160,000), the recent Indian government climate change action plan, which was endorsed by IPCC chairman Pachauri despite its denial of the human-caused warming thesis, states that melting in glaciers is not consistent across the Himalayan chain and it is too early to "establish long-term trends or their causation, in respect of which there are several hypotheses". There is evidence that glaciers have been receding since about 1880, **but** with no acceleration in the rate of recession in the period of highest CO2 emissions. As Professor Ian Plimer recently pointed out, when millions of years ago atmospheric CO2 was much greater than it is now – between 2000-4000 ppm – so too was the extent of glaciation.

In short, it is difficult to justify urgent action to reduce emissions on the basis that serious problems are likely to emerge from melting glaciers or from possible increased sea levels. Similar problems have been well-handled over time by the Dutch.

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 of a long period involving below average rainfall and above average temperatures. However, the ten year running average rainfall for the Murray-Darling Basin was in fact significantly lower in the late 1930s-1940s than it has been in the last decade and, as I well recall as a seven year old, all-time record maximum temperatures for Adelaide, Melbourne and Sydney occurred during the heatwave of Jan 1939.

The Hanrahan perception that increased temperatures accompany "rooness" droughts is not borne out. In the past Australian droughts have occurred 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 might be mentioned. For example, polar bears are not dying off because of melting ice problems but, helped by protective measures, have been increasing; higher temperatures would not increase malaria in former cooler areas as those areas have already experienced high incidences of malaria; warmer temperatures would not lead to an increased incidence of hurricanes and storms but possibly the opposite (over the past 30 years there has in fact been a downward trend in the frequency of tropical cyclones and severe typhoons) .

In summary, almost all the scares "supposed" already to be occurring have either no substantive scientific backing or are highly disputed by eminent scientists. The same conclusion arises when we turn 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, consequently, that long-term prediction of climate states is "impossible", it and its successor reports still conclude that temperatures will continue to rise unless there is a halt to CO2 emission increases. Put very simply, the CO2 concentrations in the atmosphere radiate back to earth the heat reflected from the earth and, hence (the story goes), the greater the concentrations the greater the temperatures. The problem is that all the IPCC reports also acknowledge that it is widely accepted amongst scientists that, as **Graph 8** shows, the warming effects from emissions of CO2 diminish progressively as atmospheric concentration levels of CO2 increase.

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. Amongst others, meteorologist Professor Richard Lindzen of MIT has also drawn attention to this point and 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. It is astonishing that this aspect of the science has not been publicly examined and reported on *before* governments accepted that policy action is needed to reduce emissions.

There is also very considerable doubt about the accuracy of the modelling used by the IPCC used 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 adequate 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. As the IPCC models understate the temperature reducing effects, 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 is now ending and cooler periods are likely to develop.

These analyses of the role of the sun arguably provide more defensible explanations of temperature changes than the IPCC ones put together by government-appointed scientists who say they are "90 per cent certain" that human activity has been the main cause of temperature increases.

CONCLUSION

By contrast with the Garnaut report and the Green paper, Australia's 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 change".

My main uncertainty reasons for rejecting the IPCC reports as a basis for policy are as follows:

- First, there are at least three important faults or omissions in the science used to reach IPCC conclusions, viz 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 models to project temperature increases; and the failure to take adequate account of scientific analysis suggesting variations in the sun's activity are 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 account should be 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 authoritative analyses 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.

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 dated 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 many 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;

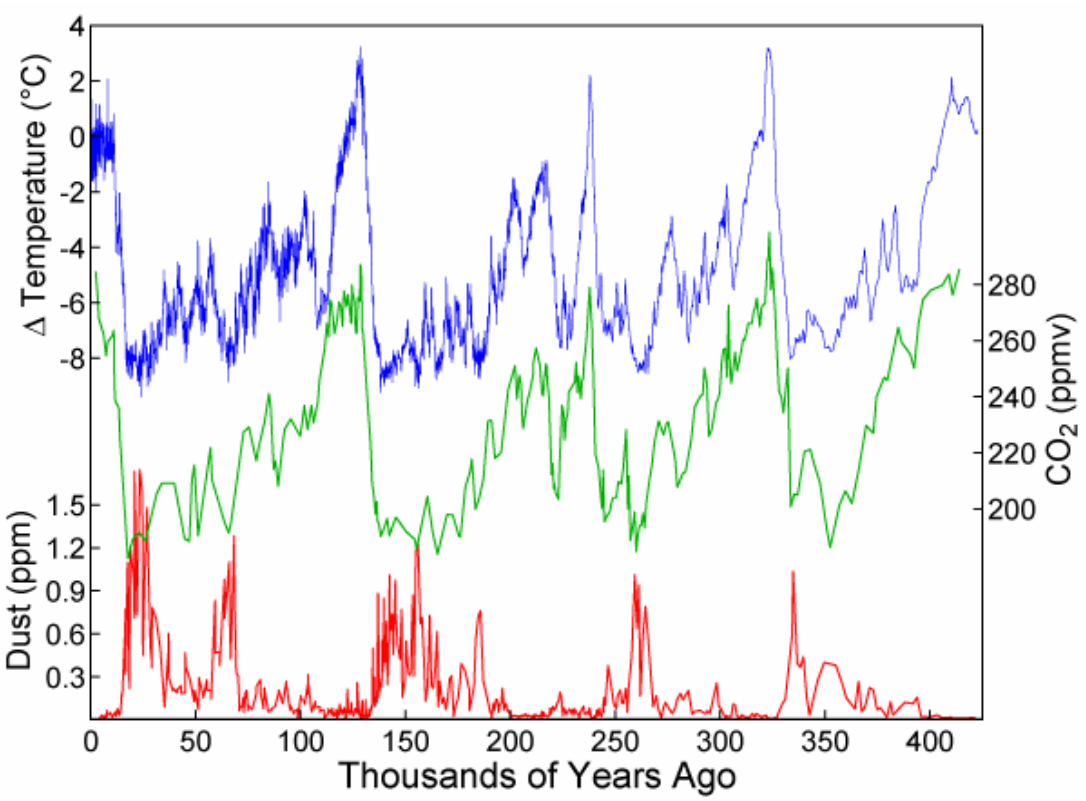
Professor Richard Lindzen, Alfred Sloan Professor of Atmospheric Sciences at the Massachusetts Institute of Technology, publisher of over 200 books and scientific papers, is a major critic of the IPCC's analysis;

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

GLOBAL TEMPERATURES, CO2 CONCENTRATIONS AND SEA LEVELS.

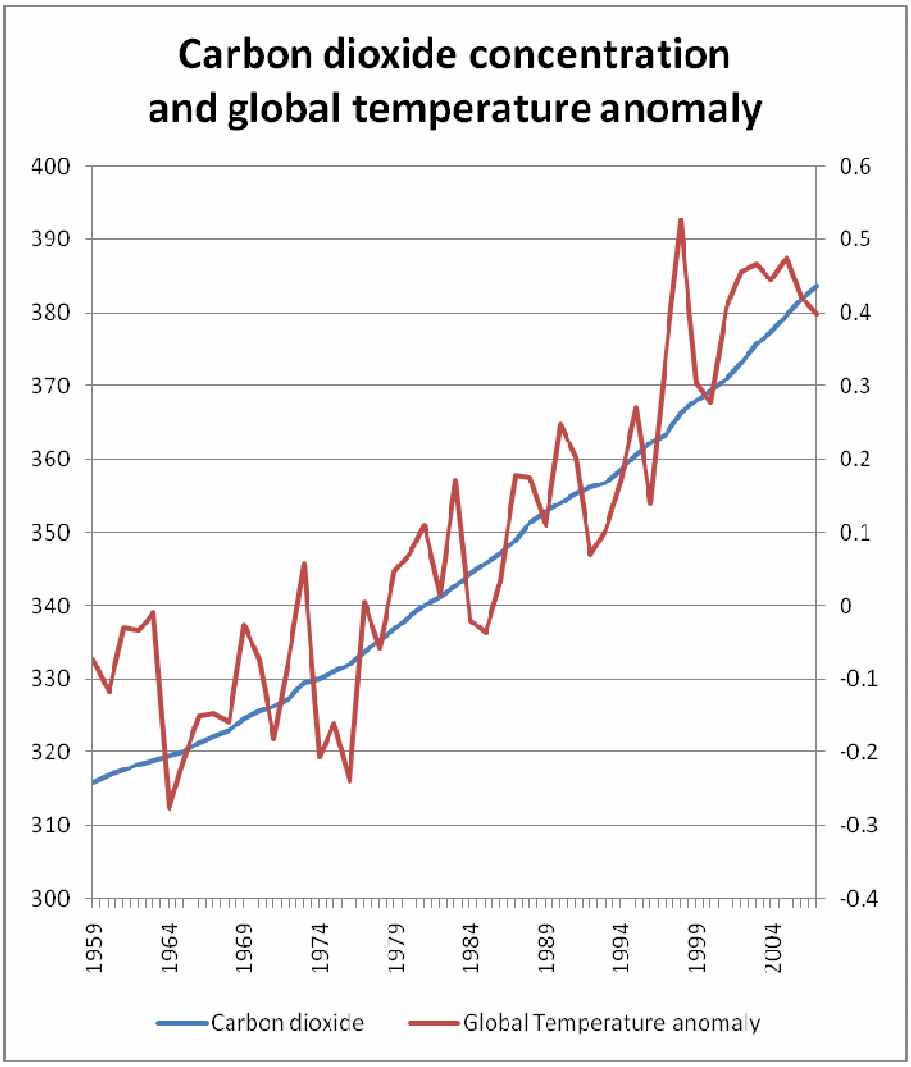
1. Ice Core Records of CO2, Temperatures & Dust



Graph of CO_2 (**Green graph**), temperature (**Blue graph**), and dust concentration (**Red graph**) measured from the **Vostok, Antarctica ice core** as reported by Petit et al., 1999. Higher dust levels are believed to be caused by cold, dry periods.

The tropical sea surface temperatures were about 3C cooler at the maximum of the glacial periods. Evaporation varies about 7 percent with each 1C temperature change, therefore global evaporation and precipitation would have been reduced by more than 20 percent at the time of the glacial maximum. This was when the great inland sand dunes formed, not during the warmer interglacials.

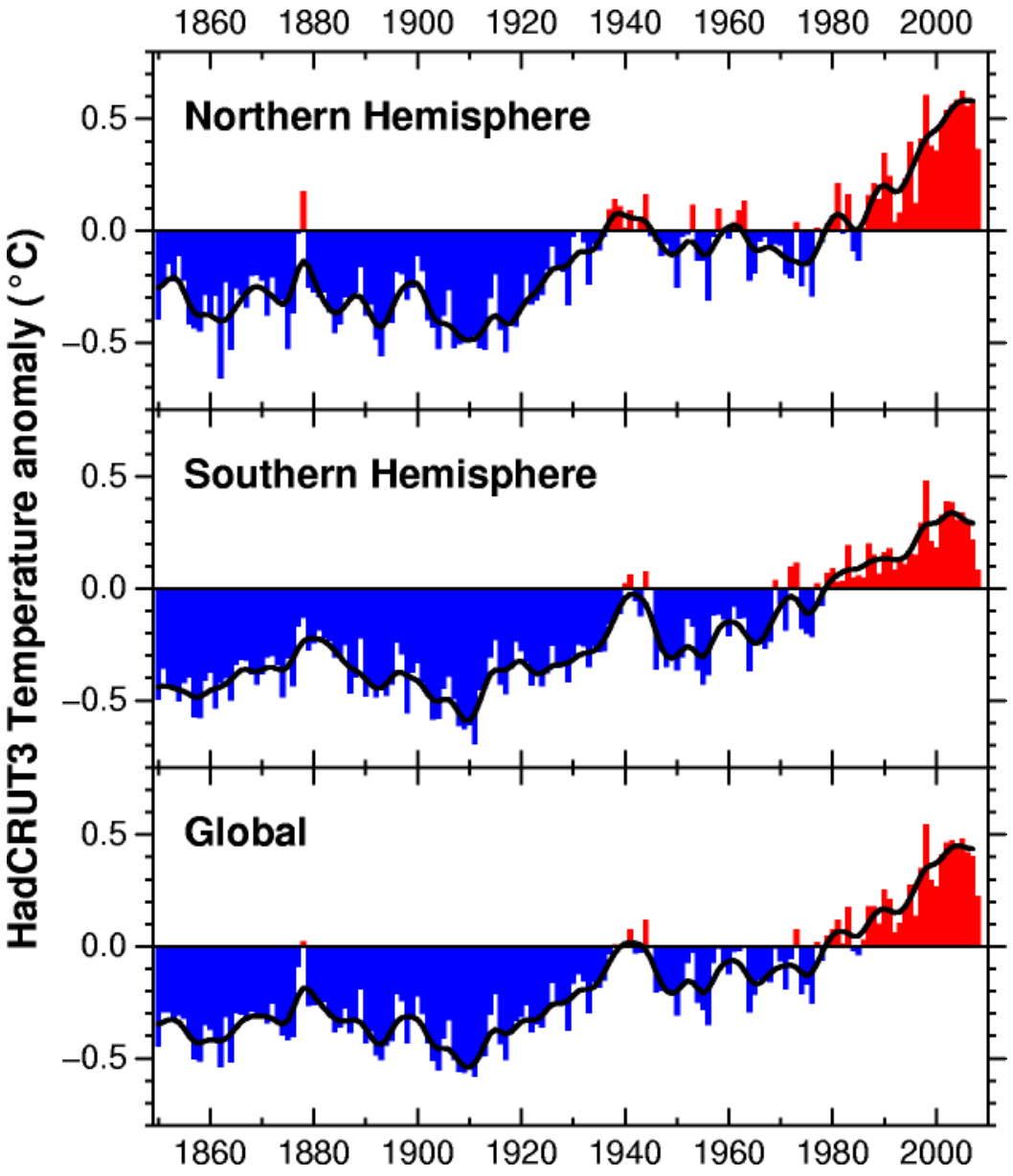
2. Carbon Dioxide Concentration & Global Temperature Anomaly 1959-2004



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.

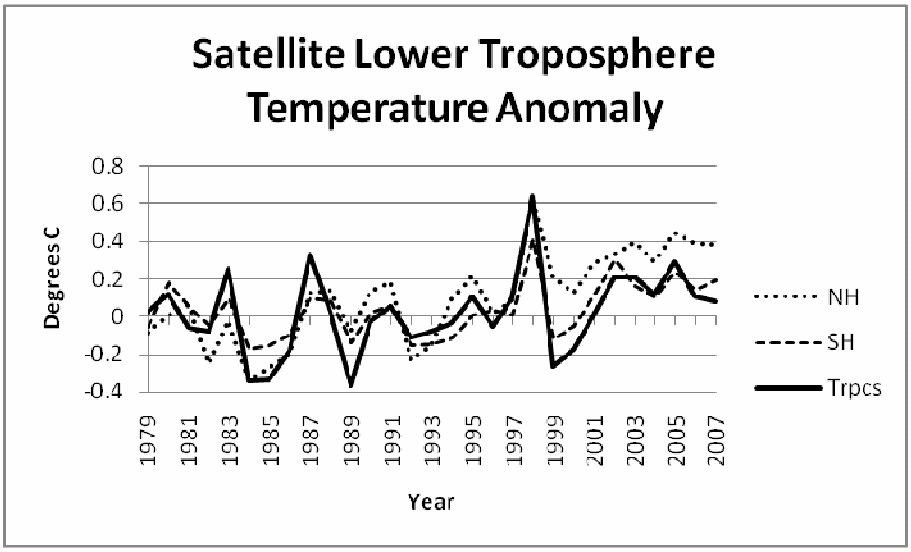
Global temperature remained relatively constant until the middle 1970s and then increased steadily until the late 1990s. Temperature has been nearly constant over the last decade.

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

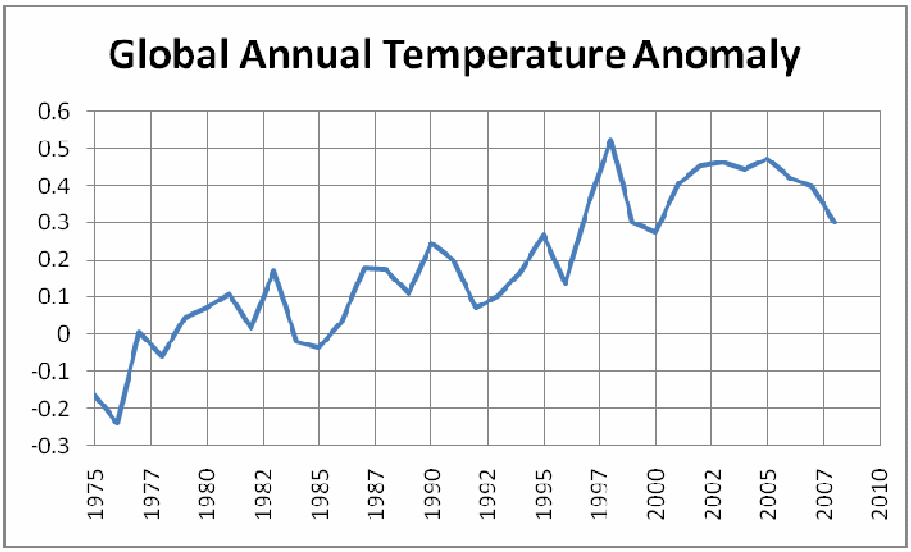


Satellite derived Lower Troposphere Temperature Anomalies (departures from the 1979-1995 mean) for the northern hemisphere (NH), southern hemisphere (SH) and the tropics (Trpcs) based on published data from the University of Alabama, Huntsville (Spencer and Christy). The temperature trend in the lower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

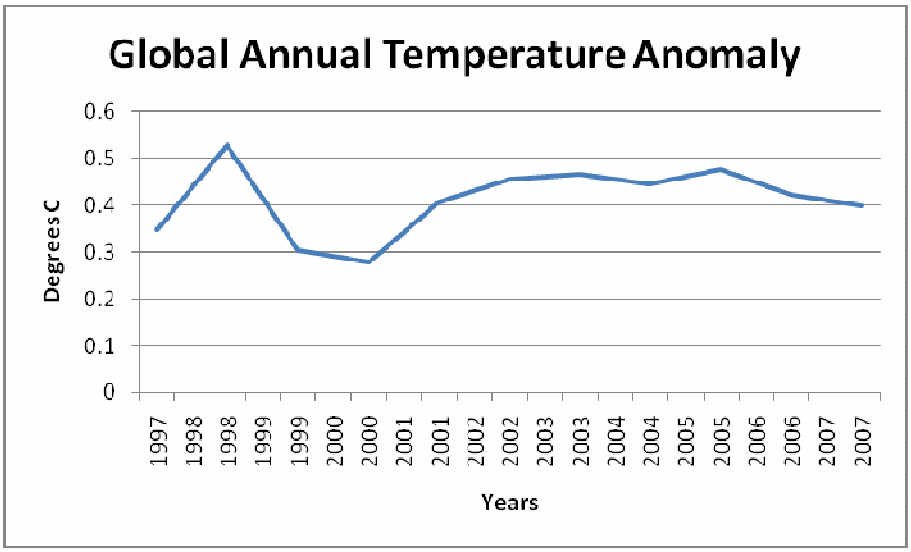
Why are there disparities between surface and satellite temperature measurements over the middle and higher latitudes (where there are the large land masses of Europe, Asia and North America) - but hardly any in regard to the tropics? One reason is that surface temperatures are influenced (increased) 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

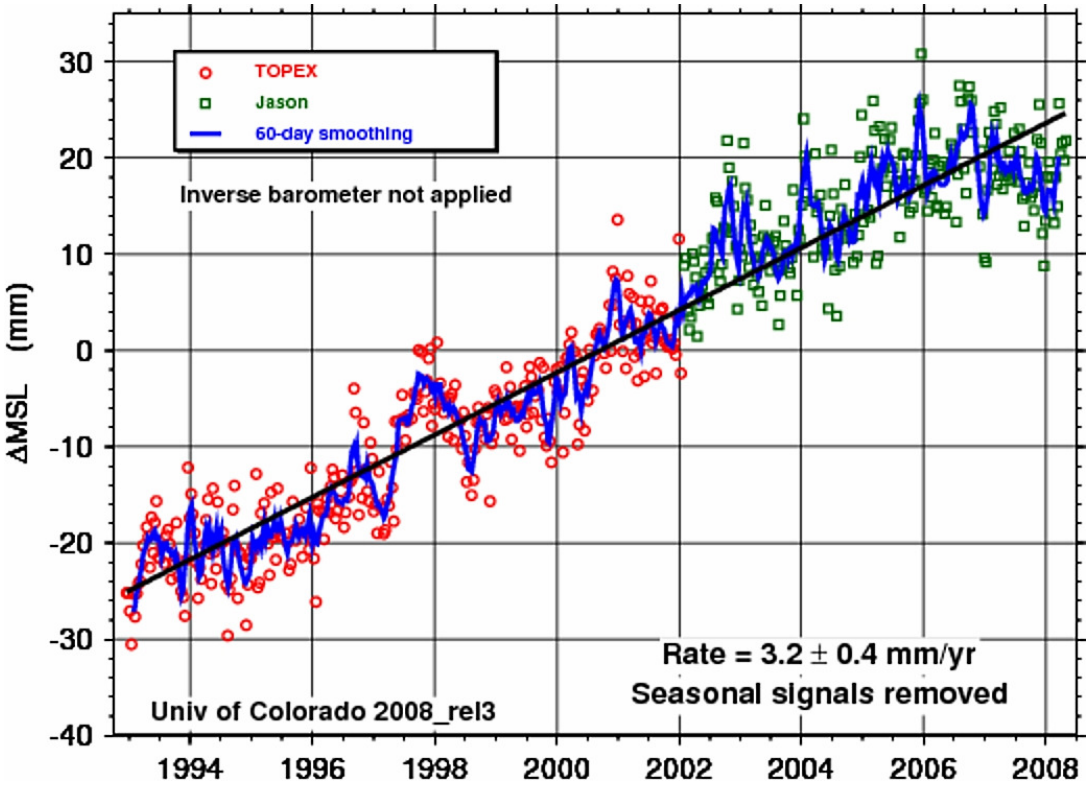


Annual average global temperature anomaly (departures from the 1961-1990 mean) based on published data from the UK Hadley Centre.

6. Global Annual Temperature Anomaly 1997-2007



7. Global Sea Level

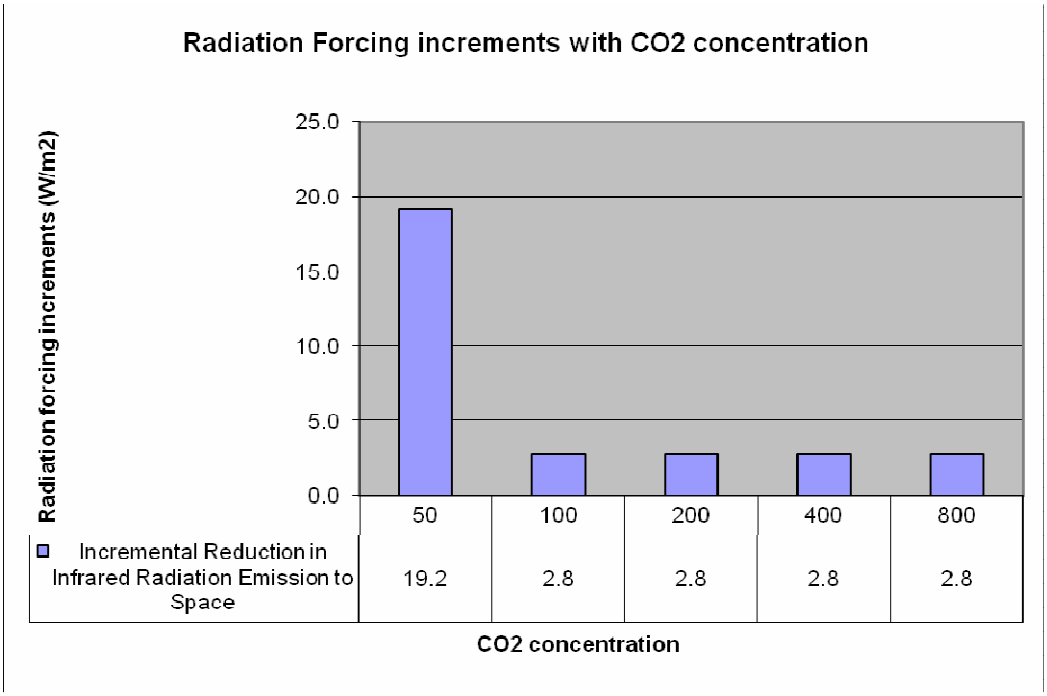


The global mean sea level graph was made using satellite altimetry and processed by the University of Colorado at Boulder.

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. 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 MODTANS 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.