

21 July 2000

Mr David Buckingham
Executive Director
Business Council of Australia
GPO Box 1472 N
MELBOURNE 3001

Dear David,

By Fax: 03 9610 4223

Ian Webber, having left for warmer climes in tropical Australia, asked me to write to you regarding your conversation with him at the ABB dinner on 17 July last.

You will recall that Ian was discussing with you the recent research into temperature data sets from around the world which suggests that the oft-quoted IPCC comment about the “balance of evidence” has no basis in fact, and that properly selected surface temperature data sets are in accord with the satellite data, which shows no significant warming since 1979.

Your response to him was “tell that to the people at Cape Grim”. Intrigued by your comment Ian commissioned some research into Cape Grim to determine what we can learn from the temperature records there.

The Cape Grim temperature data set is quite unsatisfactory. They began collecting data in 1985, but there are two gaps in the record; between December 1986 and May of 1990, and then again from May of 1994 until March of 1996.

These two gaps mean that the Cape Grim record, on its own, is of little value. However, thirty-three km south of Cape Grim, at Marrawah we have a remote station with a continuous temperature record from 1985 to 1999. Where the two sets of data overlap there is an excellent correlation, so we can readily assume that the Marrawah data can serve as an excellent proxy for Cape Grim.

For the period in question, Marrawah shows a slight cooling, but not a statistically significant one.

Across on the other side of Bass Strait, 220 km NNW from Cape Grim, is Cape Otway, where temperature records go back to the 1860s. The long term trend from Cape Otway is a cooling of one degree Celsius from the 1860s to the present. In this century we have never experienced anything like the hot, dry conditions of the 1890s. The Cape Otway trend since 1970 is a warming of 0.01 degree Celsius, not statistically significant. A cool year next year would turn that into a cooling trend.

I attach these temperature records for your interest.

The Cape Grim record, therefore, is anything but helpful to your arguments in favour of carbon withdrawal. On the contrary, they support the global warming sceptics, not the protagonists.

As the research into these matters proceeds it seems to me that those who are advocating a carbon withdrawal regime, with all the economic upheavals that will accompany such a policy, are going to end up with egg on their face. The science necessary to justify such an upheaval is going to have to be pretty tight, and once it becomes clear that the data isn't there to support the claims which have been made, for example, by the IPCC, then the hunt for scapegoats will soon get under way.

Yours sincerely

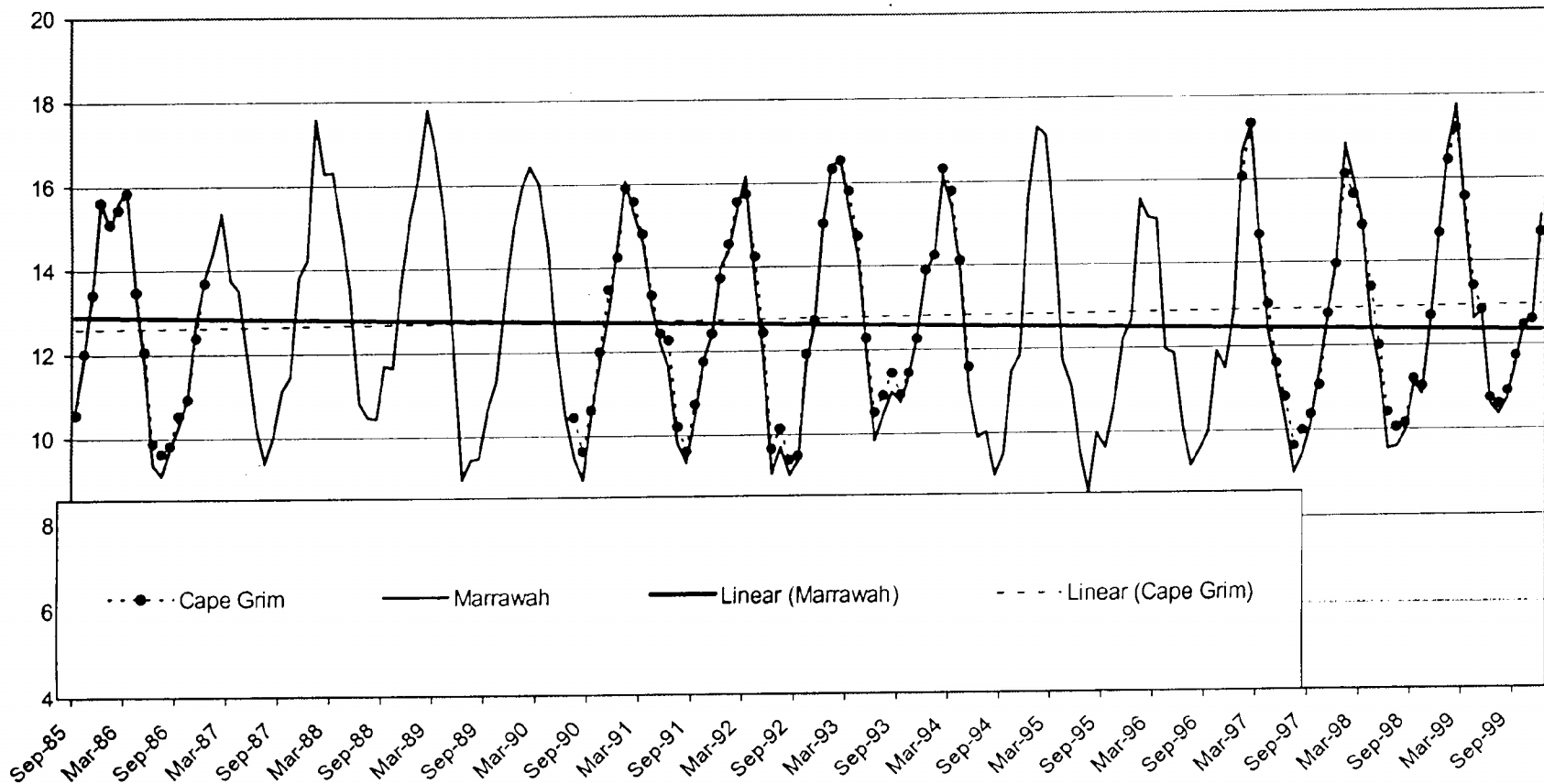
RAY EVANS

Secretary

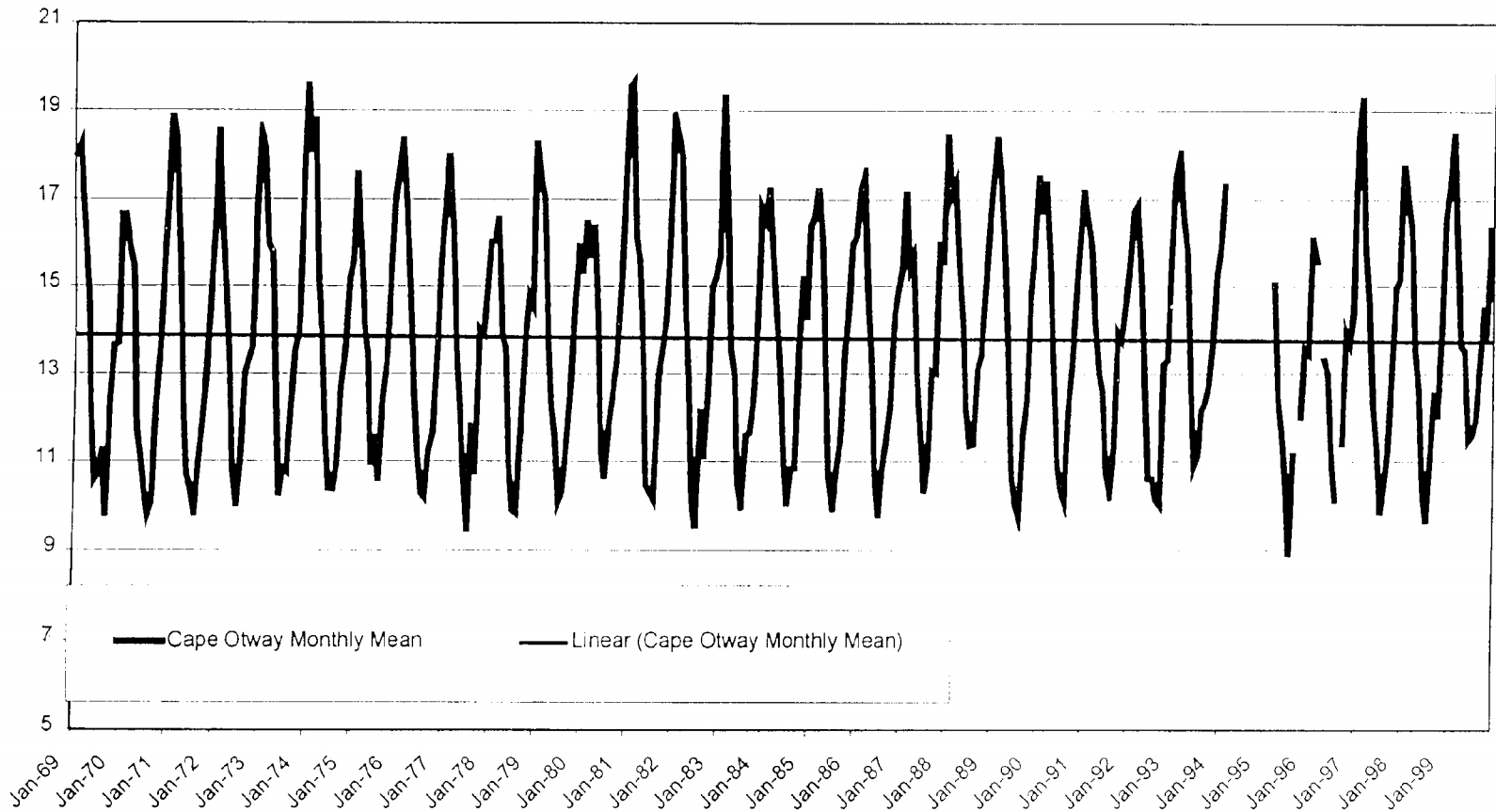
c.c. Mr Ian Webber

c.c. Mr Campbell Anderson

Cape Grim and Marrawah Monthly Mean Temperatures, September 1985 to December 1999



Cape Otway Monthly Mean Temperature January 1969 to December 1999



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To : **Mr Ray Evans**

Cc: **Mr David Buckingham**

Fax Number :

From: **Karen Grady**

Phone: **03 9610 4222**

Fax: **03 9610 4223**

Date: **25 July 2000**

Number of Pages **4**

Greenhouse science

Dear Ray

I refer to your recent letter to David Buckingham and commentary on the Cape Grim and Gape Otway temperature records. Not having the expertise to assess the material provided, we asked Dr Graeme Pearman (Chief of Division, CSIRO Atmospheric Research) to provide us with a quick response on the analysis. I attach for your information a copy of Dr Pearman's response, which as he notes is just that, not a detailed scientific assessment.

Given the relevance of this exchange on one specific aspect of the greenhouse agenda, I wonder whether you would mind if both documents were copied to the BCA's Climate Change Group: Dr Pearman has no objection.

I look forward to your response. Please call me direct if you wish to discuss further.

Regards

Karen Grady
GENERAL MANAGER

Karen Grady
Business Council of Australia
379 Collins Street
Melbourne 3000

Fax: 9610 4228

July 24, 2000

Dear Karen

Lavoisier Group-Cape Grim Record

Many thanks for sending me the letter to David from Ray Evans concerning the Cape Grim temperature record.

This is a quick reply. A more reasoned discussion could be given if you or David feel that this is necessary.

The comparison between the Cape Otway, Marrawak and Cape Grim temperature records are invalid for the purpose intended here, and should never be used in a scientific study of climate change in such a way. The reasons are as follows:

1. The measurement of temperatures at Cape Grim have been made in support of the atmosphere composition studies at the station which are the prime purpose of the station. The observations were not initially intended to be part of the national set of climatological stations. Thus this record would not conform to the standards required of a station before the data are used for the analysis of trends. This includes, knowledge of and correction for any instrumentation changes that have occurred during the occupation of the site. Allowance, if possible, for any site changes such as surrounding buildings, vegetation, etc, which might otherwise affect the airflow and exposure of the instruments. The application of data quality controls such as time series variability and discontinuity checks.
2. It is dangerous to make a comparison of any time series in which there are periodicities (seasonal variations or inter-annual variations), where one or other of the series being compared is incomplete. There is substantial danger in the respective trends illustrating nothing more than the two data sets have differently sampled the variability (aliasing). In this case, for example, it will be clear that if data from Marrawah for 1998-1999 (two relatively warm years) are included in that data set, but not for Cape Grim, then one will obtain trend lines that are clearly not comparable. Scientists analysing such data sets would go to a great deal of effort to ensure that such problems do not lead to spurious effects.

3. As the letter points out, there is no significance to the differences between the trend lines, simply because they represent a small change in otherwise variable records. Similarly, it is equally probably that the trends of both data sets differ from the real trend (positive or negative), because of the way the instruments actively sampled the atmosphere, or the site actually sampled air flowing from regions north and south of the station with the vagaries of the atmospheric circulation.
4. Any comparison between what is observed at a single site and what is happening globally is of little value. This is because the variable and changing nature of both atmospheric and oceanic circulation means that whilst the globe may experience a general warming, the patterns of change in a particular region will reflect the relatively regional response of the climate system to those changes. For example, should global warming lead to a general slowing of the gulf stream in Europe, then in northern Europe, it would be expected that global warming would bring about regional cooling. This is the reason why scientists have examined this issue by bringing together the best long-term sets of observational data, spread across the face of the earth.
5. Global warming, as referred to by the international scientific community, is based on climatological records such as those used here, but with proper quality control. But in addition is supported by surface and deep ocean measurements, observation of sea ice distribution and thickness, bore-hole temperatures, upper atmospheric pressures, ice-core isotopic composition, tree-rings growth, sedimentation rates, and so on. The evidence is both comprehensive and extensive. The evidence for such change is a different question of the attribution of that change to greenhouse gases.

In summary:

- the Cape Grim temperature record used in this inter-comparison was never collected for this purpose,
- the data sets are too fragmentary to make reasonable comparisons,
- none of the data sets, themselves are sufficient to say anything about global warming.
- the temperature record at Cape Grim at no time has been designed to be used or actually used to assess whether there is global warming.

It is a shame that Ian Webber did not contact us before he "commissioned" research into the Cape Grim record. First we could have provided him with a full record of the data from the station from 1976. Second, we could have provided him with details of what instruments and instrument changes had been made over the full period of the record. Third we could have advised him, before the work was started, that the Cape Grim record, for the purpose envisaged in this "commissioned" work, "is of little value". Fourth, we could have directed him to the best people in the Bureau of Meteorology for an assessment of the similarly important issues relating to the other two sites compared. In many such cases, they are very aware of siting and instrumental changes that either invalidate the data for such purposes, or make correction necessary before comparison of this kind are reasonable.

I am sure that David's comment concerning telling the "people at Cape Grim", had to do with their overall studies of the climate change issue, particularly the changing levels of greenhouse gases, and not to the use of the Cape Grim temperature record in any argument about planetary warming. The latter has never occurred.

The issue of comparison between the satellite record and surface-based temperature records has been debated at length elsewhere. We are preparing an update of that debate for publication on our web site. In the meanwhile, I attach a copy of a very recent article published this month in the international journal *Science*, which deals with these issues.

David will know that my own position on the issue of greenhouse and the policy developments that might follow from the scientific evidence, is as follows. There should be a very open and comprehensive debate about what to do and how to respond. No one wishes to bring down the economy, threaten jobs and livelihoods, destroy Australia's competitiveness, and so on. What we all want is a reasoned, and balance response to a seriously posed potential threat. One that shows a degree of caution in the light of what still are unknown consequents of global warming. The emphasis should be on having this balanced and rational debate which takes into consideration the potential benefits and dis-benefits for all Australians. What is of very little benefit is the amateurish, if not deceitful attempt to discredit the efforts of hundreds of scientist around the world using half-baked and poorly informed assessment of the underpinning science.

We have become increasingly aware and alarmed by the efforts to do just this. Perhaps the Business Council might wish to assist its members make their own assessments of the science. We would be very pleased to offer a seminar at which time we could attempt to provide an update of the science that is likely to form the basis of the reporting of the Third Assessment Report of the IPCC next year. This might be timely, given the distractions about such issues in the lead up to the Sixth conference to the Parties of the UNFCCC later this year. If David wishes to discuss some kind of forum, perhaps sponsored by the BCA, then I would be delighted to see what we could do.

Regards

Yours sincerely



Graeme Pearman
Chief of Division

2 August 2000

Ms Karen Grady
General Manager
Business Council of Australia
GPO Box 1572N
MELBOURNE 3001

Dear Karen

Thanks for your note of 25 July and for the copy of Graeme Pearman's letter dated 24 July. I have commented on his letter at some length in the attached memorandum and I would be more than happy for you to circulate the two letters, together with the memorandum and attachments, to whomsoever you wish.

Warm regards

RAY EVANS
Secretary

MEMORANDUM

TO: Karen Grady, BCA

FROM: Ray Evans

DATE: 1 August 2000

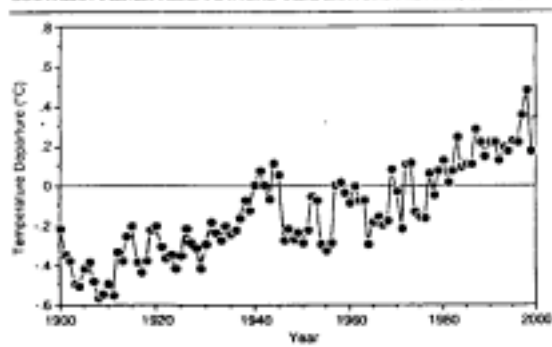
c.c. The Hon Peter Walsh AO

c.c. Mr Ian Webber AO

Re: Letter from Graeme Pearman to Karen Grady

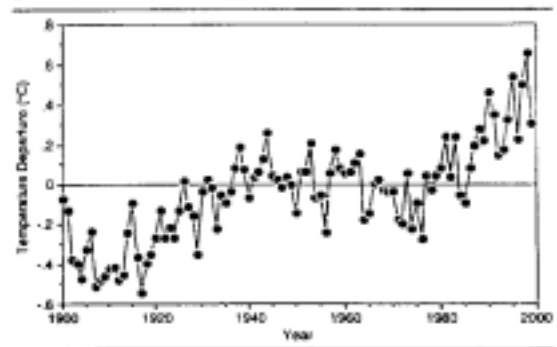
In interpreting this letter it is important to keep the context in mind. The context is the debate about the validity, or otherwise, of the IPCC view of the world; a view characterised by the two time-temperature curves shown. If we take the period 1975 - 2000 and read off these curves we see an approximate 0.8 degree warming in the northern hemisphere, and an 0.5 degree warming in the southern hemisphere, over this 25 year period.

SOUTHERN HEMISPHERE ANNUAL TEMPERATURE HISTORY, 1900-1999



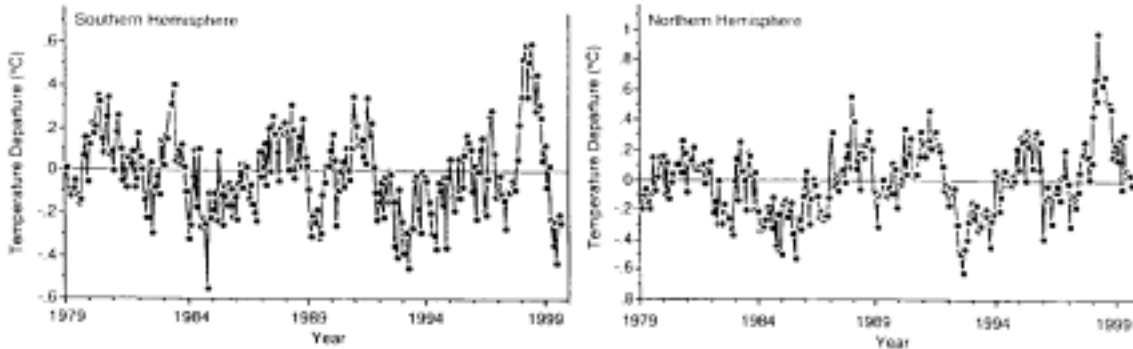
SOURCE: IPCC, 1995 and updates.

NORTHERN HEMISPHERE ANNUAL TEMPERATURE HISTORY, 1900-1999



SOURCE: IPCC, 1995 and updates.

Contrariwise, the satellite temperature data, from 1979 to the present, shows only the slightest warming in the northern hemisphere, and an insignificant cooling in the southern hemisphere.ⁱ



The reason why we (as citizens and as representatives of Australian businesses) have an interest in this matter (which might otherwise be of concern only to climate specialists) is that the IPCC's alleged warming is attributed by many people to be the consequence of increasing atmospheric concentrations (due to human activity) of CO₂ and other greenhouse gases. An important example of such attribution is the oft-quoted 1996 IPCC statement from the accompanying Policy Makers' Summary:-

“the balance of evidence suggests a discernible human impact on global climate”.

The next step in the chain of argument is that rising global temperatures will bring harm to mankind, and that a regime of mandatory carbon withdrawal is necessary to forestall such harm, “a seriously posed potential threat” to quote Dr Pearman.

It has to be said again that it is the IPCC which has put forward the connection between alleged increasing global temperatures and increasing CO₂ concentrations, and I note in passing that eminent climatologists such as Dr Reid Bryson and Dr Richard Lindzen reject the attempt to mono-causally connect changes in CO₂ concentrations with either rising global temperatures, or falling global temperatures, or global temperatures that do not change at all, as simply indefensible. They point out that the earth's climate is much, much more complex than to be at the mercy of small changes in one very small constituent of the earth's atmosphere.

Dr Philip Stott, Professor of Biogeography at the University of London, put the same argument more dramatically in these words:-

The terrible experience of the Kyoto Summit on ‘greenhouse warming’ was surely warning enough. As I watched the debate unfold, I increasingly felt like Heracleitus himself, observing the folly of the Ephesians from his hermit-home high in the mountains. To hear ecologists talking about ‘halting’ or ‘curbing’ climate change was deeply disturbing, but for them to try to make the world believe that this ‘stability’ might be achieved through manipulating just a few variables out of the millions of interlinked and dynamic factors which govern the world’s climate is frankly sinister.ⁱⁱ

But putting climate complexity to one side, it is the advocates of carbon-withdrawal (most notably President Clinton) who have based their case on alleged rising global temperatures, and if it should prove that the satellite data provides us with a much more accurate representation of what has been happening to global temperatures since 1979 than the IPCC surface temperature record, then the carbon-withdrawal advocates, having staked so much on rising global temperatures post-1975, will suffer a serious blow to their credibility.

The IPCC's claim of increasing surface temperatures since 1975 has been widely accepted, although there have been many arguments about the extent of the increase. For example, Michaels and Balling (two of America's leading global warming sceptics) write in their recent book :-

“Plotting the IPCC temperatures leaves little doubt that the earth's mean surface temperature has warmed during this century”ⁱⁱⁱ

and then go on to discuss the impact of urban heating and other distortions to the surface temperature record.

It is in Australia that detailed investigations into the temperature records which provide the raw data for the Goddard Institute of Space Studies and the CRU East Anglia aggregations (which together form the basis for the IPCC results) have taken place, and this research has now yielded some important conclusions, and has put the researchers into international prominence. One can summarise this work by noting that if the temperature records from rural or remote stations in developed countries (notably the US), or from polar stations run by developed countries, eg Australia's Antarctic base at Mawson, are compared to the satellite data for the particular region, one finds good correlation between the surface temperatures and the satellite temperatures. There are probably a hundred or so such surface temperature records extant, and if it should turn out that the correlation between the data records of these undeniably credible temperature-recording stations, and the satellite data, is high, then those who have argued for carbon withdrawal on the grounds of rising temperatures since 1975 will have to reconsider their position.

As far as Cape Grim is concerned, it was David Buckingham who cited it as an example of global warming in the context of a discussion he had with Ian Webber about temperature records. The temperature record for Cape Grim is available on the CD Rom published by the Bureau of Meteorology. Dr Pearman seems to be arguing that this particular temperature record should not be used to consider temperature trends. If the Cape Grim data cannot be used as evidence for no temperature change, then it cannot be used to defend the global warming case, a point which Dr Pearman concedes. But he does not explain why Cape Grim should have any bearing on the debate at all. It is noteworthy that Dr Pearman did not contest the credibility of the Marrawah data set, and this particular temperature record supports the no-change case.

Dr Pearman's comments about the utility of the temperature record from any one particular weather station are obviously relevant. But what is now under consideration is the record from a hundred or so weather stations, selected first because of their remoteness from possible urban heating effects; second, because they have been maintained for some decades by credible institutions (government or non-government); and third, because of their geographical spread.

One data set can be dismissed as an aberration. One hundred or so such data sets cannot be so dismissed, and it is this multiplicity of data which may force the IPCC to resile from its present position on global temperature change. The IPCC has, as is well known, resiled from previous predictions on global warming, and will no doubt, as the evidence is brought forward, be able to readjust its position on the surface temperature record.

All of these temperature records are in the public domain, and so the truth will come out sooner or later. What is distasteful in Dr Pearman's letter is his intemperate language, eg "deceitful", "half-baked", "amateurish", concerning people who are sceptical of the current IPCC stance, and his attempt to maintain a duopoly position (with the BoM) in climate advice in Australia. He is prepared to engage in conversation about the economic consequences for Australia of carbon withdrawal. But he is clearly not prepared to engage in debate about the science.

This is not the first time Dr Pearman has refused to engage in such debate. On 15 July, 1992, Dr Pearman took part in a discussion about global warming, hosted by the Tasman Institute, which was held at the Shell Theatre in Melbourne. Also on the platform was Dr Michael Manton of the Bureau of Meteorology and Dr Richard Lindzen, Alfred P Sloan Professor of Meteorology at MIT. Dr Lindzen is pre-eminent in his field.

Dr Lindzen spoke at some length. The main target of his remarks was the credibility of the GCMs (General Circulation Models), and the assumptions which were built into them.^{iv} The GCMs were predicting significant temperature increases, particularly in the polar regions, and it was these predictions which provided, at that time, the main arguments of the global warming advocates who were seeking a commitment on carbon withdrawal from the nations then soon to meet at the Rio Earth Summit.

What was most significant to those who were present was the complete refusal by either Drs Pearman or Manton to engage with Lindzen in real debate. They did speak but their contribution was all about process and machinery. They did not take up any of the serious critical points which Lindzen made. Not one. But Dr Pearman's silence did not last very long. On the night before Dr Lindzen left Australia to return to Boston, (16 July 1992) a CSIRO press release was issued in Canberra. I quote from that document

"CSIRO researcher Dr Graeme Pearman, one of Australia's foremost experts on the greenhouse effect, will be available today to comment on Professor Lindzen's views.

"Professor Lindzen is in Australia at CSIRO's invitation. CSIRO issued the invitation because researchers believe Professor Lindzen has some new and interesting scientific ideas to contribute to climate change research.

"CSIRO scientists will evaluate Professor Lindzen's ideas as part of their continuing research program. Skepticism is a cornerstone of science, ultimately, however, Professor Lindzen's ideas must be judged according to normal scientific peer review.

“CSIRO’s position on greenhouse effect has not changed. The science shows unequivocally that greenhouse gases are increasing, and that these increases will effect the Earth’s (sic) climate. CSIRO’s research aims to better define the timing, magnitude and nature of the changes - especially for Australia.

“To date the best scientific models from around the world show there is likely to be a warming of one degree Celsius over the next 40 years, accompanied by a sea level rise of about 20 centimetres.

“Further changes are likely to continue beyond this date. In any case any change depends on the current and future release of greenhouse gases by human activity.

“Overleaf is a list of common greenhouse myths.”

This press release is carefully worded. It is extraordinarily condescending in its tone, and it implies that Professor Lindzen is some sort of eccentric in his views. Dr Pearman was quite correctly emphasising the importance of scepticism in scientific debate but, through the use of the authority implied in the acronym CSIRO, he implied that scepticism should flow in only one direction.

Another, more recent, example of Dr Pearman’s unwillingness to engage in real debate took place at a Symposium conducted by the Royal Society of Victoria entitled “Climate Variability and Change - Science and Industry” on 21 October 1997. Dr Pearman presented a paper and, when asked about the impact of the satellite data on his arguments, he replied that since the satellites “did not measure temperature”, that data was irrelevant.

In his letter Dr Pearman complains that Ian Webber did not seek his (Pearman’s) advice on Cape Grim rather than going elsewhere for research into the temperature record there and at Marawah and Cape Otway. It is obvious from this letter that Ian Webber was well advised to go elsewhere. A duopoly position in climate advice, particularly in our contemporary situation, where the prospect of very large sums of money is now drawing out an abundance of rent-seekers, is something which Australians, who have much at stake in the outcome of this debate, must avoid at all costs. Ian Webber, in seeking advice elsewhere, has generated an engagement about what is true and what is in error, and this is a real step forward.

Finally, Dr Pearman suggests that the BCA might wish to offer a platform from which Dr Pearman and others can brief the public on the forthcoming UN FCCC Conference of Parties to take place at The Hague immediately after the US Presidential election.

It is to be hoped that such a briefing will be of higher quality than the submission under Dr Pearman’s name which went to the Senate References Committee for the Environment, Communications, Information Technology and the Arts last March. The Lavoisier Group was fortunate in having Dr Richard Lindzen critique this submission, which was subsequently

submitted to the Senate Committee. This document is attached to this memorandum. Additional copies are available if required.

The understanding that the economic costs to Australia of implementation of the Kyoto targets, whether through unilateral action or through international ratification, will be very high, is slowly permeating through the body politic. A careful understatement of this problem is given by Jon Stanford in a recent paper:-

Analysis in this report of emissions from the stationary energy and transport sectors suggests that on a business-as-usual basis, they will be over 50 per cent higher in the Kyoto commitment period than in 1990. These two sectors accounted for around 70 per cent of emissions in 1990. Emissions from other sectors are growing more moderately, but some of this moderation is due to the prolonged downturn in the agricultural sector, which hopefully will not be sustained indefinitely.

Additional policy measures will therefore be required if Australia is to meet its Kyoto commitment.^v

In his paper Stanford considers three different mixes of policy measures which are designed to achieve the degree of carbon-withdrawal required to meet the Kyoto objectives. The effects of any such measure can be summarised in the equivalent CO₂ emission tax which is the consequence of the particular policy measure. Under the three different policy proposals considered in the paper, the CO₂ emissions taxes turn out to be \$44 per tonne, \$42 per tonne, and \$148 per tonne.

As the various energy intensive industries feed this data into their cost structures, the implications of massive wealth and income transfers become apparent. Immediately, then, the question arises - why do we have to accept such economic upheaval? The answer, ultimately, is found in the IPCC temperature data given above and so there can, therefore, be no escape from the most intense scrutiny of that data and the processes which led to the publication of those time-temperature curves. This scrutiny will be driven by very powerful economic and political incentives. Any attempt to use ex cathedra authority, pace Dr Pearman, to prevent scrutiny or criticism, will be swept aside.

The global warming debate has now entered a phase in which governments have to consider measures which will destroy wealth and jobs, and on a substantial scale. Members of Parliament now have to think about how they are going to explain to their constituents why it is that their industries, in their electorates, have to be shut down, perhaps to relocate to other countries, in order to uphold our Kyoto obligations. At that point the authority and integrity of the IPCC and those who have upheld it are going to be put to the test.

ⁱ www/weather.msfc.nasa.gov/temperature/

ii. *Biogeography and ecology in crisis: the urgent need for a new metalanguage*. Journal of Biogeography (1998), 25, 1-2

iii. Patrick J Michaels and Robert C Balling Jr, *The Satanic Gases: Clearing the Air about Global Warming*, 2000, Cato Institute, Washington DC, p 78 et seq

iv A copy of Dr Lindzen's paper is available on request

v. Jon Stanford, Director, Allen Consulting Group, Address to the 3rd Annual Emissions Trading Forum, *Impact on the Australian Economy*, 13 June 2000.