THE FAIR FARMING GROUP

C/- R. M. Morgan AM
Level 27, 101 Collins Street
Melbourne, Vic. 3000

17 February 2011

SENATE INQUIRY INTO CARBON TAX PRICING MECHANISMS

By
THE FAIR FARMING GROUP

The proposed carbon tax has as its purpose the reduction of carbon dioxide emissions. In turn, it is assumed that increasing carbon dioxide levels will have a dangerous impact on climate and reducing carbon dioxide emissions would justify the burden of a new tax.

The Fair Farming Group is particularly concerned about the impost of higher input costs including electricity caused by this new tax. Our concern is not only for primary industry, but also for the community and consumers generally.

It would seem fundamental to the inquiry that there must be a sound scientific basis for a tax aimed at reducing carbon dioxide emissions, in other words is the tax justified. The Fair Farming Group wishes to bring to the attention of the Senate inquiry new information regarding climate science which demonstrates policy makers have been misled by authorities they could reasonably have expected to be reliable. This includes the CSIRO and Bureau of Meteorology and the IPCC. Our paper "New Information on Climate" with Appendices 1 and 11 provides relevant information. Also included is an illustration of how the use of decadel averages conceals details of temperature increases and decreases.

We maintain our view no robust scientific evidence exists that human activity could have a dangerous impact on climate. Of particular concern to us, misinformation about methane trends unfairly damages the public perception of the grazing industry. Our research shows that policy makers have been misled by authorities they could reasonably have expected to be reliable. Accordingly, there is no sound scientific basis for a carbon tax or any other measure which adversely affects the economy to reduce carbon emissions. It is now time for fundamental review of this proposition.

In the meantime, it would be sensible to pursue policies which encourage more efficient use of energy. This would result in a reduction of carbon dioxide, which the Government claims is desirable, and Australian farmers would not suffer the impost of higher input costs, including the cost of electricity, as a result of a carbon tax. Nor would the Australian community.

R M Morgan AM
Convenor
For The Fair Farming Group

The Fair Farming Group advocates fair and reasonable treatment of Australian farmers based on sound science. Formed in 2009 its members have extensive agricultural experience and business and academic backgrounds.

Directors of The Fair Farming Group comprise:

John Chambers BCom, MBA, CA, FAICD;
Andrew Miller BBus;
Richard Morgan AM BAgSc, BCom, FAIAST;
Bob Officer BAgSc, MAgEc (UNE), MBA, PhD (Chicago), FASSA, FSIA;
Mark Rayner BSc (Hons), ChemEng (UNSW), FTSE, FAusIMM, FIEA, FAICD; Consultant to the Group, Australian physicist -
Dr. Tom Quirk MSc, MA, DPhil (Oxon), SMP (Harv).

CLEARING THE AIR ON CLIMATE

by

John Chambers, Andrew Miller, Richard Morgan, Bob Officer,
Mark Rayner and Tom Quirk (Australia)

Reprinted from

ENERGY &
ENVIRONMENT

VOLUME 21 No. 6 2010

MULTI-SCIENCE PUBLISHING CO. LTD.
5 Wates Way, Brentwood, Essex CM15 9TB, United Kingdom

CLEARING THE AIR ON CLIMATE.

John Chambers, Andrew Miller, Richard Morgan, Bob Officer, Mark Rayner, and Tom Quirk

ABSTRACT

In March 2010 the Australian Commonwealth Scientific and Industrial Research Organization and the Australian Bureau of Meteorology published a paper entitled 'State of the Climate', an analysis of Australia's climate and the factors that influence it. The document was given a wide circulation and received extensive media coverage. An examination of the scientific evidence raises questions about the certainty of the conclusions reached.

INTRODUCTION

In March 2010 the Australian Commonwealth Scientific and Industrial Research Organization (CSIRO) and the Australian Bureau of Meteorology (BOM) published a paper[1] entitled 'State of the Climate' (CSIRO/BOM). This was a six page report summarizing the observations and analysis of Australia's climate and the factors that influence it. The document was given a wide circulation and received extensive media coverage.

The CSIRO is Australia's largest research organization and it has a substantial climate research program. The conclusions drawn from the climate research may have a critical influence on government policy development so it is the conclusions that need careful questioning.

Information and analysis from the CSIRO has been used by the advocates of the dangers of Global Warming within Australia. The CSIRO has been responsible for a first class set of measurements in the atmosphere and from ice cores and its regional computer modelling has been accepted and used in the Garnaut Review[2], the equivalent of the Stern Report in the United Kingdom. The modelling forecast a grim future for at least one of the major agricultural regions, the Murray-Darling Basin.

CSIRO/BOM concludes:

> 'Australia will be hotter in coming decades';
> 'Much of Australia will be drier in coming decades';
> 'Carbon dioxide generated by humans makes the ocean become more acidic';
> 'It is very likely that human activities have caused most of the global warming observed since 1950.'

An examination of the scientific evidence raises questions about the certainty of the conclusions in CSIRO/BOM. Regrettably it fails to assist industries, business and individuals to make an informed judgement on the development of public policy.

COMMENTARY

Climate Change

To begin with, the statement that "climate change is real" only reflects that climate is always changing, and avoids the real question: can carbon dioxide generated by human activity cause dangerous global warming?

Ocean "Acidity"

It is claimed that the oceans will become "more acidic" with higher carbon dioxide levels. In fact the oceans are alkaline and contain minerals which buffer the ocean from becoming significantly less alkaline let alone turning acidic due to carbon dioxide[3].

Global Warming

The claim of greater than 90 percent certainty that man-made carbon dioxide threatens to increase global temperatures to dangerous levels is not supported by analysis.

As Richard Lindzen noted[4] "there is no known statistical basis for this claim; it's purely subjective."

If all known resources of fossil fuels were burnt, carbon dioxide in the atmosphere would about double and this would only cause a small direct enhancement to the greenhouse effect with global temperatures rising by 0.7^0C to 1^0C. This conclusion is based on well known and agreed principles and illustrated in Figure 1. The claims of significantly greater temperature increases rely on computer models with amplification by disputed feedback processes. It should be noted that carbon dioxide levels of eight or more times the present level have not caused dangerous global warming in the past.

The CSIRO/BOM assertion that the 0.7^0C mean temperature increase for Australia from 1960 to 2010 is associated with the carbon dioxide increase is misleading. An estimated 0.4^0C, or about half of this increase, reflects the Great Pacific Climate Shift[6] of 1977 to 1979. This phenomenon, recognized in IPCC reports[7], was not caused by man-made carbon dioxide emissions. Taken over a longer and more significant period, temperatures only increased during the last century by 0.3^0C after excluding the effect of the Great Pacific Climate Shift.

Importantly there has been no warming since 1998, a point ignored by CSIRO/BOM.

Methane

The 1,000 year chart in CSIRO/BOM, highlighting the rise in methane during the Twentieth Century, omits the detail of the last 10 years. The paper states "methane, which is another greenhouse gas, has shown similar increases [to carbon dioxide]." However, methane concentrations plateaued in the late 1990s and have subsequently varied with El Ninos.

A recent analysis[8] shows the increase in methane levels during the Twentieth Century was associated with massive leakage from gas pipelines, particularly in Russia. Methane emissions from this source have now been greatly reduced with better maintenance and management of the distribution system.

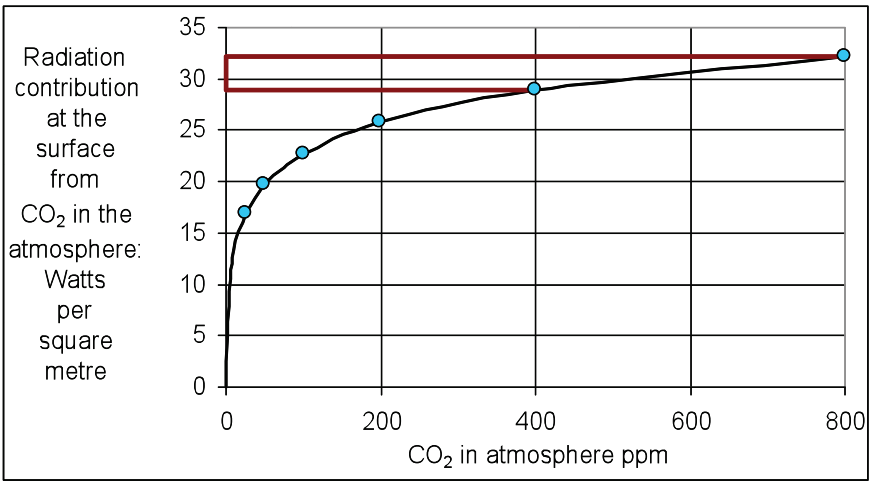

Figure 1. This graph shows the warming radiation caused by carbon dioxide declines with concentration. As the concentration of CO_2 increases, there is increased radiation back to the surface of the earth (the basis of the greenhouse effect). However the relationship is not linear. In fact doubling the concentration of CO_2 from 400 ppm to 800 ppm only increases the radiation at the surface by some 10% or 3.2 Watts per square metre. (Results derived for US standard atmosphere and cloudless sky from MODTRANS[5], an international and IPCC accepted standard for atmospheric calculations).

The inference from the graph in CSIRO/BOM - that methane levels are rising and will contribute to future global warming - is questionable and misleading. This was pointed out in an article in 'Quadrant Online'[9] on 19 May 2010.

Subsequently and without comment, the CSIRO made a correction to the chart shown on their website to include the missing last 10 years. However, the scale of the graph still conceals the reality of the methane trend.

Records of carbon dioxide and methane from CSIRO measurements are readily available[10]. Surprisingly, only the carbon dioxide concentration trend over recent years was shown on the 35 year graph in CSIRO/BOM. The methane data was omitted. However this is shown in Figure 2 and supports the leveling of the methane concentration that has been ignored by the CSIRO.

CSIRO/BOM failed to acknowledge the reference by the IPCC[11] to the behaviour of methane. The IPCC reported, "..The reasons for the decrease in atmospheric methane growth rate and the implications for future changes in its atmospheric burden are not understood..."

Measurements of methane and trends in its concentration in the atmosphere are critical to the global warming debate because methane is a much more potent greenhouse gas. The gaseous emissions from ruminant animals are predominantly methane, leading to claims that agriculture is a major contributor to global warming.

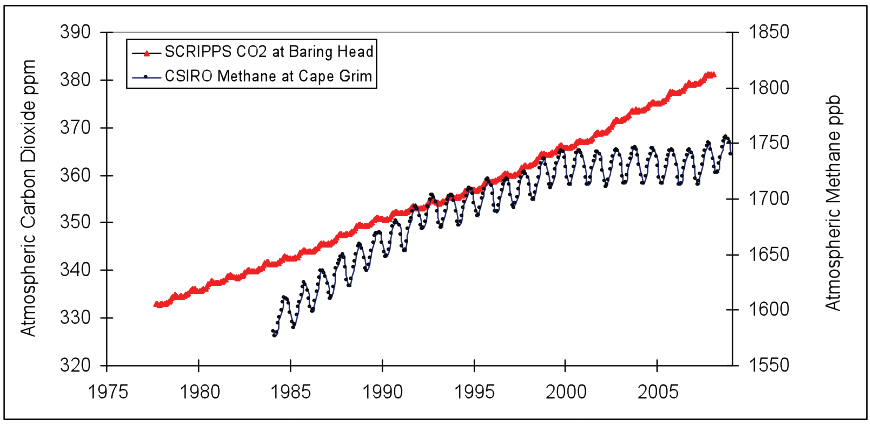

Figure 2. Carbon Dioxide concentrations measured at Baring Head New Zealand (Latitude 41^0 S) and methane concentration measured at Cape Grim, Tasmania (Latitude 40^0 S). Source: Carbon Dioxide Information Analysis Center, US.

A similar claim is made of fugitive emissions of methane during coal mining. These are two of Australia's most successful export industries and hence a clear understanding of trends in methane levels is critical for consideration of public policy affecting them. The trends demonstrated in Figure 2 strongly suggest it is not accurate to blame ruminant animals or coal mining emissions for any significant impact on global warming, contrary to popular belief.

Temperature Records

There is reason to doubt the BOM's temperature records. For example, temperatures reported for Darwin are after raw data adjustments by BOM staff in 1996, which are not supported by available documented evidence[12]. Nevertheless, the adjusted records are now described by the BOM as "high quality" and the effect of these adjustments is shown by comparing the following Figures 3 and 4.

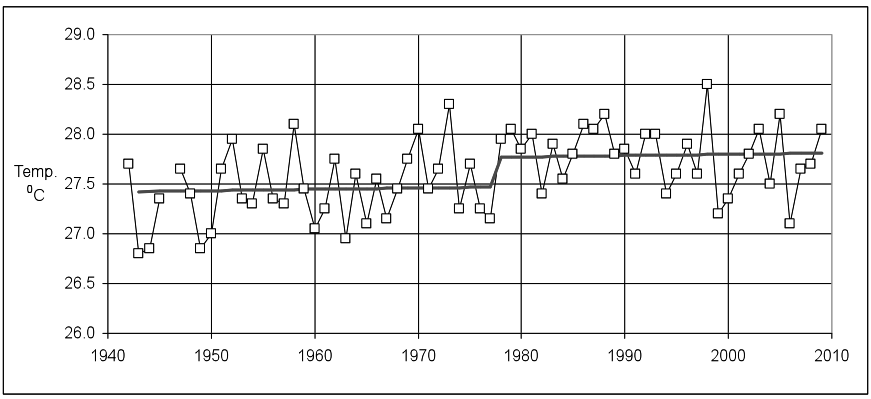

Figure 3. Bureau of Meteorology raw data for Darwin Airport.

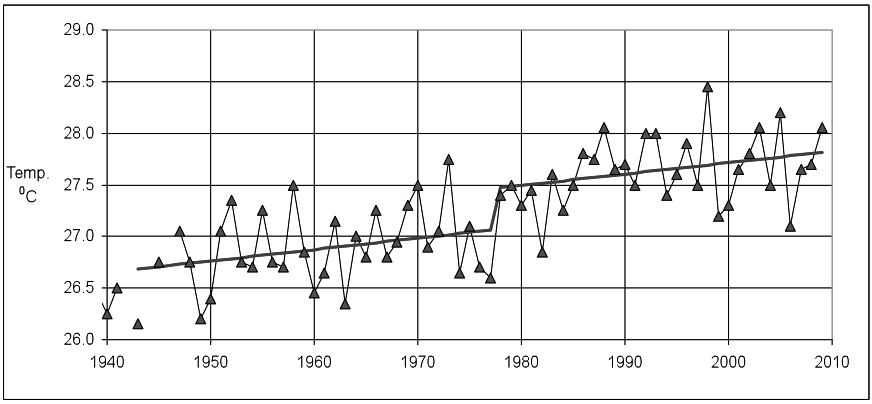

Figure 4. Bureau of Meteorology "high quality" data for Darwin after adjustment of raw Darwin Airport data by BOM staff.

The BOM raw data for Darwin is shown in Figure 3 in the period between 1940 and 2009 which includes the Great Pacific Climate Shift (1977 - 1979). Figure 4 shows the BOM's "high quality" temperature data where there is a significantly sharper temperature increase with the reduced temperatures of the early years.

Raw data from the BOM is used by groups who compile global temperature series. This includes Hadley-CRU and the Goddard Institute for Space Studies (GISS).

However the BOM's Australian temperature record uses "high quality" data from nationwide stations with adjustments as in the example above. When the Great Pacific Climate Shift temperature increase of 1977 to 1979, incorrectly attributed to increasing carbon dioxide levels, is combined with the steeper trend resulting from such adjustments, the result is held to indicate dangerous global warming.

Sea Level and Temperature

Some increase in temperature since the Little Ice Age (1280 to 1850AD) can be expected whether or not carbon dioxide concentration levels increased. Consequently an increase in sea levels is not surprising.

Sea surface temperatures are reported to have increased by about 0.4^0C in the past 50 years although past measurements are recognized as unreliable. A new system since 2004 appears to have overcome measurement difficulties. In fact measurements now indicate a slight fall in temperatures, as shown by the graph in CSIRO/BOM but ignored in the commentary.

Rainfall

The 1963 study[13] of Australian climate over 75 years compared with overseas concluded that "nowhere in the world is there such a huge area of pastoral land of such erratic rainfall" That study supports the questioning of the prediction that much of Australia will be drier in the future.

A good illustration is the record for the Murray-Darling Basin shown in Figure 5 which plots annual rainfall in the Basin over the period 1900 to 2008 and demonstrates that over the 108 years there is no significant trend, although there is great variability from year to year.

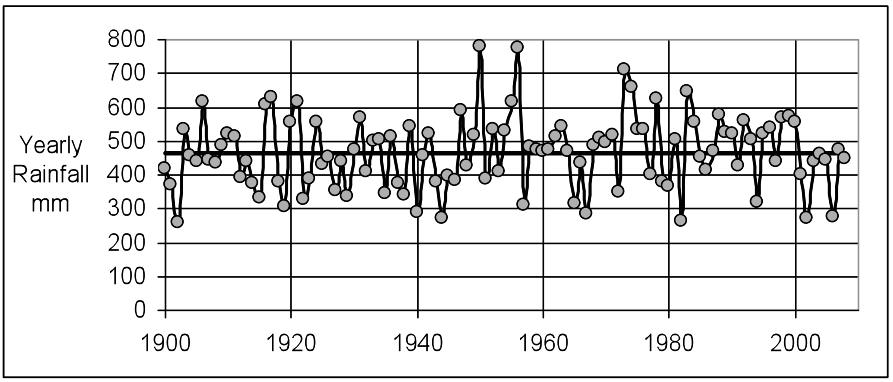

Figure 5. Yearly rainfall in the Murray-Darling Basin. Mean value of 465 mm (solid line). There is no significant trend in rainfall through this period but with large variability - standard deviation of 106 mm with rainfall extremes of a minimum 257 mm and a maximum of 777 mm. Source: Bureau of Meteorology.

In reality, there is no evidence that higher temperatures result in lower rainfall. There has actually been an increase in average Australian rainfall since 1970. Moreover, statistical analysis of regional rainfall trends claimed in CSIRO/BOM shows they are random patterns, not statistically significant trends.

CONCLUSION

CSIRO/BOM provides no evidence man-made carbon dioxide has in the past, or will in the future, cause dangerous global warming.

The selective presentation of data by CSIRO/BOM does not provide the basis for objective analysis which is required to support a Climate Policy costing the Australian community billions of dollars.

A well-founded scientific case has not been made for an Emissions Trading Scheme with great economic costs to agriculture and industry. Nor is there a case for a "national campaign to educate the community on climate change", if such a campaign reflected the standard of information in CSIRO/BOM. This is particularly so at a time when there are urgent and competing requirements for national resources.

REFERENCES

1. State of the Climate http://www.csiro.au/files/files/pvfo.pdf
2. Garnaut Review website http://www.garnautreview.org.au/domino/Web_Notes/Garnaut/garnautweb.html
3. Carter, Robert M. 2010 *Climate: The Counter Consensus*. Stacey International -A good summary in –Ocean Matters Chapter 4, page 102.
4. Lindzen, R. S. Climate Science in Denial Wall Street Journal April 22, 2010
5. MODTRANS University of Chicago on-line calculator. http://geoflop.uchicago.edu/forecast/docs/Projects/modtran.orig.html
6. McPhaden, M. J. and Zhang, D. 2002 Slowdown of the meridional overturning circulation in the upper Pacific Ocean, *Nature 415*(7), 603–608 (2002)

   Nicholls, N., and Collins, D., 2006. Observed climate change in Australia over the past century. *Energy & Environment*, Vol **17**, 1-12.

   Quirk, Tom 2009. The Australian Temperature Anomaly. 1910 – 2000. *Energy & Environment,* Vol. 20, 97-100, 2009
7. IPCC Climate Change Third Assessment Report : Working Group I: , Chapter 2 Observed Climate Change and Variability: 2.6.3 page 151
8. Quirk, Tom, 2010 Twentieth Century Sources of Methane in the Atmosphere", Quirk, *Energy & Environment* · Vol. 21, 251-266, (2010)
9. Quadrant on Line http://www.quadrant.org.au/blogs/doomed-planet/2010/05/csiro-abandons-science
10. Carbon Dioxide Information Analysis Center http://cdiac.ornl.gov/by_new/bysubjec.html#atmospheric
11. IPCC Climate Change Fourth Assessment Report: Working Group I: , Chapter 2 Changes in Atmospheric Constituents and in Radiative Forcing: 2.3.2 page 142
12. Torok, S.J. and Nicholls, N. A historical annual temperature dataset for Australia. *Aust. Met. Mag*. 45(1996) 251-260
13. Sir Samuel Wadham, R Kent Wilson and Joyce Wood 1963 *Land Utilization in Australia* Melbourne University Press

THE FAIR FARMING GROUP

New Information on Climate

Appendix II

IPCC Forecasts Reviewed

Forecasts of greenhouse gasses and temperature increases by the IPCC require review.

All of the scenarios modelled in IPCC projections to the year 2100 give temperature increases of 2^0C to 6^0C due to man-made global warming. Although the scenarios have no probability of occurrence attached to them, the higher estimates have been used by CSIRO and others as the "scientific" basis of their own public positions. This makes their positions and conclusions questionable.

A review of IPCC forecasts shows:

- **the IPCC projects** carbon dioxide concentrations up to 1100 ppm by 2100 which would require the burning of much greater tonnages of fossil fuels than are currently included in total known world reserves of oil, gas and coal (black and brown);

- **the higher estimates** of temperature increase by the IPCC and accepted by the CSIRO have been used to support their alarming forecasts of sea level rises. These have in turn caused some local authorities and Government agencies to curtail development of low-lying areas;

- **the IPCC projects** further major increases in methane concentrations. However it acknowledges elsewhere that the methane concentration trend is not understood. There has been little or no increase in actual methane concentrations in recent years, reflecting the much reduced leakage from natural gas pipelines;

- **the IPCC scenarios** have varying values for the proportion of carbon dioxide emissions remaining in the atmosphere. This extends to 75% of fossil fuel emissions but it is a most uncertain fraction and not well understood. For instance, in the 1940's less than 15% of estimated emissions remained in the atmosphere;

- **when the IPCC scenario projections** are corrected for the limitation of available[1] fossil fuels and revised methane forecasts, in all cases the projected temperature increase by 2100 falls to an estimated 2^0C or less. These changes were calculated using Modtran, an IPCC accepted modelling tool to give the radiative forcing changes in carbon dioxide. The result was combined with an estimate of the other feedback multipiers obtained from the total radiative forcing in each scenario compared to the carbon dioxide forcing alone;

- **moreover** only 1^0C increase of that 2^0C change can be directly attributed to carbon dioxide and this 1^0C contribution is recognised by the IPCC. The other 1^0C is due to disputed feedback processes that result in a net temperature increase. The uncertainty about these assumed feedback processes is clear evidence there is still no agreement on a fundamental element of climate science.

[1] Available refers to reserves of fossil fuels. It is important to appreciate the definitions of mineral reserves and resources. Reserves are generally taken to be those quantities that geological and engineering information indicates with reasonable certainty can be recovered in the future from known deposits under existing economic and operating conditions. Resources are much less certain and require exploration and proving to be taken as reserves.

THE USE OF DECADAL AVERAGES CONCEALS DETAILS OF TEMPERATURE INCREASES AND DECREASES

Global Temperature Anomalies calculated by The Hadley Centre and the Climate Research Unit (Hadley CRU)

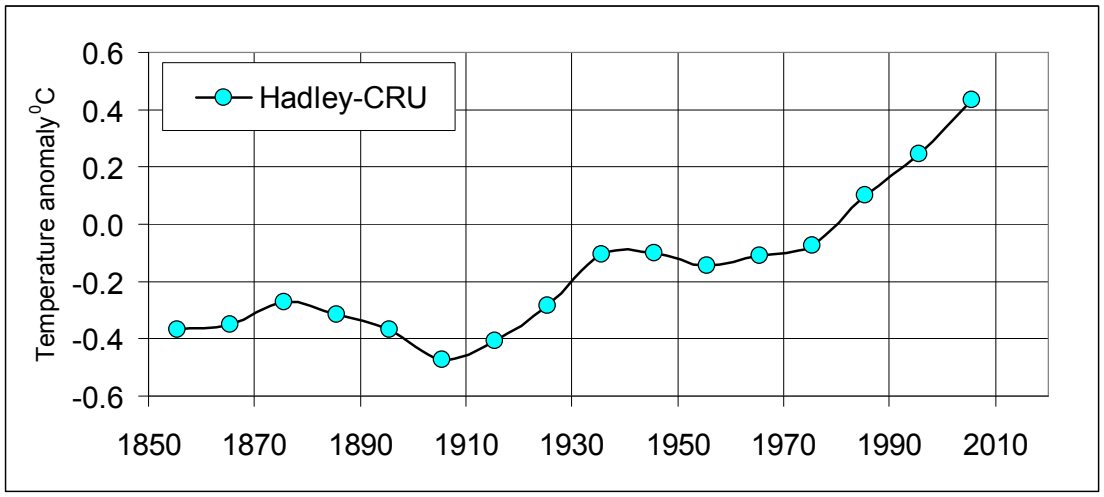

Figure 1: *Decadal global average temperature anomalies.*

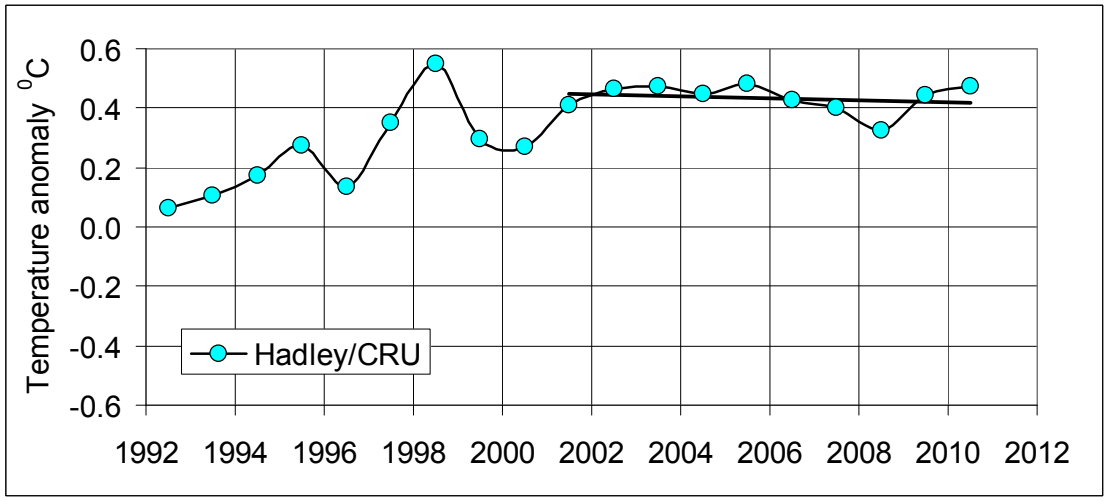

Figure 2: *Global annual temperature anomalies. The trend (solid line) from 2001 to 2010 is -0.003 +/- 0.005 ^{0}C per year.* ***There is no statistically significant temperature rise in the period 2001 to 2010.*** *This detail is obscured in Figure 1.*